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Fight or Flight: Mobility, Political Behavior, and Nativism in the United States

A Dissertation presented

by

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Abstract of the Dissertation

**Fight or Flight:
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In recent decades, communities across the United States have seen increases in hostility toward immigrants. Prevailing theories in political science hold that responses to immigration are, in part, a function of local area demographics. However, assessments of these theories suffer from the critique that local area demographics and immigration preferences may be endogenous due to residential self-selection. Recent efforts sidestep this problem by using clever modeling strategies or experiments. Rather than viewing self-selection as a nuisance, however, this article develops and tests a theory that treats migration and political behavior as strategies residents invoke in the presence of local immigration. In observational and experimental studies, residents who live in communities experiencing rapid changes in immigrant composition are more likely to participate and express anti-immigration attitudes and less likely to desire exit as the number of immigrants in surrounding communities increases. The macro-level implications of the theory are explored using agent-based modeling.

Dedication Page

To my mother, Sonia, and my grandparents, Reinaldo and Amada, for valuing my education and always pushing me to improve. Without them, I would not be who I am today.

Frontispiece

“The foreigner residing among you must be treated as your native-born. Love them as yourself, for you were [once] foreigners.” - Leviticus 19:34

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1 Chapter 1

1.1 Introduction

America is on track to becoming a plurality nation where no single group constitutes a majority of the country's population. The Census Bureau estimates that by 2050, non-Hispanic whites will no longer be the majority group in the United States. Much of this rapid growth in the non-white population can be attributed to recent increases in immigration. Prior to 1970, only about three percent of the population was foreign born. By 2010, that number had quadrupled, with immigrants reaching 14 percent of the population. This rapid growth in the immigrant population has had a dramatic impact on the political and residential landscape of the United States.

Despite its reputation as a country of immigrants, America remains deeply divided on the issue of immigration, especially illegal immigration. In rapidly diversifying communities, many native-born residents have responded to growing numbers of immigrants in their local communities with hostility. Hopkins (2010) and Newman (2013) find that local changes in immigrant composition are responsible for reduced support for immigration and increased support for anti-immigration ordinances and policies, particularly when change is a salient feature of the environment. Implementing an experimental design, Enos (2014) reports an increase in anti-immigration attitudes among commuters randomly exposed to Spanish-speaking confederates during their daily train commute.

In political science, these local responses to immigration have been explained using theories which stress the importance of place in shaping responses to out-groups. These contextual theories hold that proximity to out-group members can influence out-group attitudes among majority group members. While contextual theories vary in their predictions about the nature of these responses to out-groups (i.e. whether proximity to out-group

members produces more positive or negative intergroup attitudes and behaviors in the end), both assume a direct relationship that leads from local area demographics to out-group attitudes and behaviors. Despite their utility in explaining spatial variation in these outcomes, the main challenge confronting the literature has been to demonstrate that such a path exists in the first place, since out-group attitudes and behaviors have also been shown to impact local area demographics through the process of residential self-selection. This concern has found some support in the sociological literature on white flight, mobility, and segregation.

In sociology, a growing body of work has found that immigrant populations have not only shaped the political landscape of the United States, but also mobility patterns among native-born residents. Frey (1995) studies net outflows across the United States and shows that immigrant-heavy states have higher mobility rates than those with smaller immigrant populations. Frey (1995) interprets this as showing that native-born residents are leaving popular immigration destinations such as California for more homogeneous, Anglo areas like Colorado. In support of this notion, albeit at a more local level, Crowder, Hall, and Tolnay (2011) track respondents over time using a panel design and find that native-born residents are moving out of neighborhoods undergoing changes in immigrant composition. Hall and Crowder (2013) report that previous residents of ethnically diversifying neighborhoods are actively selecting into neighborhoods with larger relative native-born populations. Taken together, these results suggest that similar to urban areas in the post-war era, immigrant-heavy areas are experiencing high rates of “flight”. However, as sociologists have noted, this kind of “flight” is not restricted to whites, but native-born residents in general (Crowder, Hall, and Tolnay, 2011).

To separate local area demographics from the mobility decisions that ultimately determine them, scholars in political science have relied upon a number of theoretical arguments, modeling strategies, and experiments. Most commonly, scholars have used existing contextual theories to articulate the relationship between contextual characteristics and

intergroup attitudes and behaviors. Then, they have assessed whether this relationship holds in the expected direction (i.e. positive or negative), all while assuming that the relationship runs in one direction (i.e. from context to attitudes and behavior). Since most of these data have involved contextual characteristics that are not randomly assigned, a common critique of the literature has been that the relationship between context, attitudes and behavior is unidentified due to the possibility of residential self-selection.

Recent work has attempted to mitigate this concern through the use of experiments. For instance, Enos (2014) eliminates (or drastically reduces) the possibility of self-selection bias by randomly assigning a contextual characteristic (i.e. the presence of Spanish-speakers) to different rail stations in the Boston metropolitan area and measuring the effect of that treatment on restrictionist immigration attitudes. Despite the utility of this kind of approach in directly confronting the problem of self-selection, it effectively treats self-selection as something to be explained away, so that scholars can reliably estimate contextual effects. Rather than viewing self-selection as a nuisance, however, I develop a theory that treats *both* mobility and political behavior (e.g. local political involvement and petition signatures) as strategies native-born residents invoke in the presence of local immigration.

This theory provides us with a way of understanding the circumstances under which local changes in demographics produce mobility or local political action. In communities undergoing rapid changes in immigrant composition, scholars are reporting increases in both hostility and flight. Thus far, the assumption has been that these outcomes are independent. The theory I propose, *Fight or Flight* theory, holds that in the presence of rapid rates of local immigration, the decision to express dissatisfaction with the political system or migrate will be shaped by the mobility options available to residents. Specifically, in the presence of local immigration, the theory holds that native-born residents will be more likely to move when mobility options are available. When they are unavailable, however, native-born residents will be more likely to use the power of politics to stem the tide of local immigration. Due to the inherent difficulties involved in testing such a dynamic theory,

I rely upon a number of approaches in my dissertation and find supportive evidence across different data sources and methodologies. In the next section, I provide a brief overview of the theory, which I fully describe in the next chapter. Then, I provide a summary of the rest of the dissertation, describing each chapter in turn.

1.2 Overview of the Theory

The enormous growth in immigrant populations in recent decades has driven scholars to examine the impact of immigration on attitudes and behaviors among the public. This most recent wave of immigration has prompted scholars to reapply existing theoretical frameworks and develop new theories to explain how Americans respond to immigrants. The prism through which responses to immigration has been viewed has been strongly affected by existing paradigms in political science, as more economically-oriented researchers have predicted opposition on the basis of labor market competition induced by influxes of immigrants whereas social and political psychologists have emphasized the importance of prejudice and symbolic politics. In their expansive review of the immigration and public opinion literature, Hainmueller and Hopkins (2014) distinguish between “political economy” and “socio-psychological” theories of immigration preferences. The “political economy” approach starts with models of immigration’s impact on the economy and deduces specific predictions about labor market competition and preferences for immigration under those conditions. As the authors note, this approach is “theoretically parsimonious” and often yields “clear and testable empirical implications”. In contrast, the “socio-psychological” theories are much more heterogeneous and posit that responses to immigration are driven by “group-related attitudes” and symbols. While these theories tend to be less parsimonious, Hainmueller and Hopkins (2014) find in their review that

they explain a greater deal of variance in immigration attitudes than those that rely upon political economic theories of labor market competition.

While the debate over the origins of anti-immigration sentiment and immigration preferences has certainly dominated the literature, scholars have also examined how local encounters with immigrants are translated into political attitudes and beliefs. Scholars have found that native-born residents are responding to growing numbers of immigrants in their local communities by migrating out of diversifying communities and supporting anti-immigration policies at the local, state, and national level. If these responses were independent, there would be no need to develop a theory that encompasses both outcomes, since their independence would imply that one theory per outcome is sufficient to explain each respective phenomenon. In essence, this is how research on the topic of immigration has progressed in sociology and political science. In light of rapidly increasing native out-mobility rates in diversifying communities, sociologists have focused on explaining why flight is occurring, drawing upon existing theories of white flight and residential self-selection (Frey, 1995; Crowder, Hall, and Tolnay, 2011; Hall and Crowder, 2013). In political science, growing levels of anti-immigration sentiment in these kinds of communities have prompted scholars to reapply contextual theories once used to explain black-white relations.

Although the applicability of these black-white contextual theories to the issue of immigration has been questioned and scholars have advanced other theories as potential substitutes Hopkins (2010), none of the existing work in political science has considered the implications of mobility on political attitudes and behavior. Instead, mobility has been ignored as an outcome and causal factor, presumably because residential self-selection challenges the notion that contextual effects are causal in nature. In addition to concerns about causal identification, contextual theories treat an individual's context as fixed and immutable. A focus on mobility would complicate matters, as it would suggest that residents have a choice in determining which contexts are ultimately influential. From the per-

spective of preserving theoretical parsimony, considering the role of mobility in the realm of context opens a can of worms that scholars have thus far avoided.

One of the main arguments in this dissertation is that impact of contextual characteristics on attitudes and behavior is amplified by the extent to which respondents see their local environment as the only viable residential option. Competition over material resources in the local environment might very well impact how people perceive other groups. However, if that local environment can be replaced by moving to an area where competition is lower (i.e. where there are more economic or political opportunities), then the power of place can be diminished. Let us suppose that citizens are not actually economically threatened by out-groups, but are instead worried about assimilation and the preservation of their culture. Through mobility, citizens can avoid many of the cultural or symbolic triggers by selecting into a more homogeneous community. Thus, mobility not only has implications on causal identification, but also on the magnitude of contextual effects. A lack of mobility options can exacerbate the concerns driven by local area demographics by reminding residents that their community is the “only game in town”.

In the same way that residents have control over where they live, local residents also have the ability to shape their local environments by engaging in politics. Much of the sociological literature on residential segregation and mobility has treated mobility as the only means through which residents can escape demographic changes and enact their preferences for homogeneity (Massey, 1995). Thus, the role of local politics in reducing the impetus for flight has been largely ignored. Local politics is the key term here, as Massey (1995) focus on the *national politics* surrounding segregation and flight. Specifically, the authors describe how the Federal Housing Administration’s red-lining policies encouraged disinvestment in African American communities. However, beyond policies that directly affect diversifying communities, local policies that serve as strong signals of intolerance toward incoming groups should prevent neighborhoods from tipping or, at the very least, delay the process by slowing down the rate of local immigration and reassuring native-born

residents that neighborhood demographics are under their control. This process ought to reduce the extent to which we observe flight, even after holding local area demographics constant. The ability to engage in local politics should also entice native-born residents to remain in their communities by fostering relationships between other native-born residents who might also be worried by demographic change. In sum, the political science literature has the potential to contribute to the sociological literature on flight by describing social and institutional factors that keep neighborhoods from changing too rapidly.

Beyond the benefits derived from unifying theories in political science and sociology, the assumption that mobility and political action are independent responses to immigration is tenuous for a number of reasons. First, a commitment to mobility inherently makes it difficult to deal with local area demographics through the use of politics. Moving out of a community reduces the time one can spend in that community and increases the effort involved in participation. Moreover, it makes little sense to become involved in local politics when that community is no longer one's own. Second, engaging in local politics can improve neighborhood satisfaction (Taylor, 1996) and thus, decrease the probability of moving in the first place (McHugh, Gober, and Reid, 1990). Third, existing empirical research shows that mobility and local political action are interrelated, especially in the realm of neighborhood problem solving. Orbell and Uno (1972) find that in most neighborhoods, desires for mobility and political action are inversely related, such that higher levels of "exit-proneness" are associated with lower levels of "voice-proneness" and vice versa. Fourth, existing theories link mobility and political action as strategies individuals invoke in order to deal with declines in groups or organizations (Hirschman, 1970). When dealing with local demographic changes due to immigration, these two strategies can serve the goal of reducing diversity in the environment. According to the theory I propose, the "flight" strategy involves swapping out the diversity in one's community for homogeneity in another community whereas the "fight" strategy involves driving diversity out of the community through the use of politics. The latter is consistent with Green, Strolovitch,

and Wong’s “Defended Neighborhoods” perspective which views extreme acts of violence toward newcomers as “an exclusionary impulse on the part of whites defending what they perceive to be their territory”.

If mobility and political action are not independent, how might we model their relationship? When considering this question, the direction of the relationship is important as it can lead to different predictions. One might argue that increases in local immigration leads to increases in mobility *and* political action among native-born residents. However, as outlined above, there are theoretical and empirical reasons to question this hypothesis. At a very basic level, mobility and political action appear to compete as strategies and the empirical evidence indicates that the relationship often runs in the opposite direction. If we accept the conclusions of prior work, a negative relationship between mobility and political action seems plausible and also fits with existing theoretical frameworks that help connect these two outcomes, not as independent responses to demographic change, but as “strategies” native residents invoke to manage changes in local community demographics. Since this kind of framework has not yet been applied to the topic of immigration attitudes and behavior, there is no direct evidence that mobility and political action are inversely related as strategies for dealing with local immigration. However, this project is the first to do so and as the following chapters will demonstrate, this directional hypothesis (i.e. that mobility and political behavior are negatively related as strategies for dealing with local immigration) finds the most support in the data.

In his path-breaking piece *Exit, Voice, and Loyalty*, economist Albert O. Hirschman argues that when groups or organizations decline in quality, individuals either exit (i.e. leave the organization) or voice (i.e. express dissatisfaction) as a means of improving their personal situation. According to Hirschman, the decision to exit rather than voice depends on the relative costs and benefits of the former over the latter option, and vice versa. Thus, in theory, when the likelihood of exit increases, voice should decrease and when the likelihood of voice increases, exit should decrease. In describing the relationship between mo-

bility and political action as it relates to organizational change, Hirschman (1970)'s *Exit, Voice, and Loyalty* stands out as an especially useful theory that explains when individuals will engage in either strategy. After all, it holds that there is a duality between exit and voice, views both responses as being inversely related, and has been successfully applied to a variety of questions in political science (Clark, Golder, and Golder, 2013; Reuveny, 2007; Sharp, 1984; Orbell and Uno, 1972). Although Hirschman mainly uses his theory within a market context – positing that “declines in quality” drive “consumers” to consider the decision between exit and voice as it relates to a particular organization – he and others apply the theory to areas such as politics and find that it explains a broad range of political phenomena.

In this dissertation, I expand the theory to explain how native-born residents confront demographic changes driven by local immigration. Using the political science literature as a guide, I assume that demographic changes driven by immigration evoke hostility among native-born residents and that this hostility feeds into “fight or flight” responses. I argue that the decision to “flee” or “fight” depends on objective features of citizens’ local environments, namely whether mobility is an available option. Put another way, I argue that local growth in the immigrant population drives native-born residents to consider mobility and political action as potential strategies for dealing with demographic change, and that the use of one strategy over another is contingent on the mobility options that are available. When mobility options are scarce, I argue that we ought to expect more political expression with respect to immigration whereas when they are more numerous, mobility ought to be more likely. Since *Exit, Voice, and Loyalty* does not provide us with much guidance in modeling the process of mobility, I draw upon features of the Schelling (1971) segregation model to derive a more complete framework of mobility and political action. I rely on features of the Schelling (1971) model due to its focus on preferences for similar neighbors in guiding the mobility decision; a mechanism that appears to hold in the particular case of local responses to immigration.

An important feature of the Schelling (1971) segregation model is that individuals examine the qualities of surrounding neighborhoods when deciding whether to move out of their current neighborhood. When surrounding neighborhoods are more homogeneous and there are strong preferences for living in a homogeneous neighborhood, the probability of moving in the Schelling (1971) segregation model increases. When surrounding neighborhoods are not an improvement over one's current environment, the probability of mobility decreases. Though the model is relatively simple, it has been applied to the phenomenon of white flight in sociology and has found general support in the literature as a potential explanation of mobility decisions and residential segregation (Clark, 1991). The relative simplicity of this model also makes it easier to integrate with the Hirschman (1970) model.

If we were simply relying on the Schelling model as an explanation of responses to local immigration, mobility would be the end of the story. However, when paired with the “Exit, Voice, and Loyalty” framework, political responses are also a potential means of enacting preferences for similar neighbors. When mobility options are not available, the probability of mobility should go down but political action should *go up* if people are indeed upset by demographic change. After all, if Hirschman is correct, the lack of “flight” options ought to motivate local residents to improve their situation from within the community as opposed to seeking refuge in another one. This is the major prediction that I seek to test in my dissertation; a prediction that is not especially easy to test but that I subject to tests using a variety of tools and data sources. The next section provides a summary of such tests.

1.3 Overview of Results

I assess the theory of *Fight or Flight* by using a variety of data sources and methodologies. First, I examine whether citizens who actually reside in the residential configurations

described above respond in the way predicted by the theory. I use the 2000 Social Capital Community Benchmark study to evaluate my main hypotheses and find that native-born residents in places undergoing rapid changes in immigrant populations who are *also* surrounded by large immigrant populations are more likely to engage in local politics and less likely to exit than comparable individuals who live in more exit-friendly environments. To overcome the problem of unobserved confounding in observational data, whereby the effects we observe might be driven by omitted variables, I design an experiment which mimics the processes observed in the observational data but provides us with leverage in answering the question of whether surrounding environments truly exert the effects predicted by the theory. In this experiment, respondents are asked to enter their ZIP codes and based on that ZIP code, the names of surrounding cities are either paired with images of immigrants in the treatment condition or images of the dominant culture in the control condition. I find that respondents who reside in changing environments are less likely to desire mobility and more likely to engage in local politics when surrounding areas are perceived to hold more immigrants. Even though both of these findings are important in providing support for the theory, the predictions are essentially based on a partial equilibrium involving the behavior of native-born residents. To study how immigrant decisions might be affected by native-born residents' behavior and vice versa, I construct an agent-based model that allows native-born residents to interact with immigrants and produces predictions of where we ought to see the highest level of anti-immigrant opposition. I pair these predictions with actual outcomes and evaluate the importance of different parameters in driving the results. This allows me to assess the theory in a more dynamic fashion and explore what the future might look like, given starting conditions that are provided by real world data.

The implications of my theory are difficult to derive and thus, I use simulations to obtain predictions of what the interactions between mobility and political behavior might mean for everyday politics. The reason I cannot easily generate theoretical implications is

due to the dynamic relationship between native and immigrant behavior. Decisions made by native-born residents can have effects on immigrant decisions and vice versa, since the migration behavior of one group can drastically impact the migration behavior of another group by changing the ultimate composition of a particular community. Moreover, as I argue, native-born residents might engage in local politics to deal with local immigration and policies directed toward immigrants could impact whether future immigrants continue migrating into the community and whether current immigrants stay in that community. If both native-born residents and immigrants made decisions in isolation (i.e. their behavior was completely independent), the task of deriving implications from the theory would be simple. One would simply extrapolate from one's analyses to the rest of the country and call it a day. However, the dynamics between natives and immigrants make this exceptionally difficult. In the final empirical section of the dissertation, I explore the implications of my theory by using an agent-based simulation model which allows me to explicitly model the relationship between native and immigrant mobility and native political behavior. An intriguing result emerges from these simulations.

For each simulation, I use demographic data from the 2000 Census to initiate where immigrants and native-born residents are located in the United States, along with ethnic and economic attributes for each community. Then, I run thousands of simulations where I vary the importance placed on different mobility factors. This produces a large number of hypothetical worlds with different spatial distributions of native-born residents and immigrants and local anti-immigration political action. I compare each "world" to the real world and assess the importance of individual model parameters – such as the extent to which immigrants prefer locations with other immigrants – in predicting the outcome. I find that one of the most important factors in increasing the realism of the model (i.e. the fit of the model to the empirical data) is the degree to which immigrants select destinations based on levels of anti-immigration political action.

When immigrants in the model avoid places with high levels of voice, the fit between

the model and the real world dramatically increases. The political science literature has largely ignored the relationship between local politics and immigrant mobility and thus, this finding provides evidence of reciprocal causality between immigrant mobility and local political action. In the realm of American politics, this suggests that policies such as Arizona's SB1070 or Alabama's HB56, which enable police officers to question the citizenship status of Arizona and Alabama residents during routine traffic stops, can drive immigrants out and this, in turn, can evoke political responses in new receiving areas. By ignoring how political factors shape local immigration destinations, we potentially miss out on important relationships and overestimate the strength of the relationship between local area demographics and political responses.

In the next section, I provide a summary of each chapter. In each of these chapters, the theory, data, and methods are described in greater detail than what is presented here. The dissertation begins with a theoretical section that summarizes the existing literature and situates the theory within existing scholarship. Then, I describe and show empirical tests of the theory and sketch out the implications of those tests. In the conclusion, I provide a more lengthy discussion about what growing numbers of immigrants mean for rapidly changing communities and the nation as a whole. My hope is that by the end of the dissertation, the reader at least considers what mobility might mean for our understanding of place and politics.

1.4 Overview of the Dissertation

1.4.1 Chapter 2

In Chapter 2, I expand upon the basic argument outlined in this chapter. First, I provide an abbreviated history of immigration in the United States, carefully walking through the

different waves of immigration and how this most recent wave differs from previous waves. Although my theory could be applied to previous immigration waves, data on those waves are scarce and thus, I focus on the most recent wave of immigration as a test case. Second, I show how hostility toward immigrants has ebbed and flowed over time as a function of immigration patterns, elite positioning, and the characteristics of the most numerous immigrant groups at the time. Then, I will describe the “new politics” of immigration. In the presence of federal inaction on the issue, local communities and even ordinary citizens have taken immigration enforcement into their own hands by supporting anti-immigration politicians and policies, proposing and passing anti-immigration ordinances, and even explicitly targeting undocumented immigrants for the purpose of harming or deporting them.

Part of the reason why this dissertation is concerned with contextual theories is due to the highly localized nature of immigration politics in the United States. High levels of gridlock especially in recent years have prevented various attempts at comprehensive immigration reform. I outline the nature of these recent actions and their expected effects on immigrant populations, both documented and undocumented, across the United States. After describing these reactions to immigration, I review theories that political scientists have used to explain these local reactions and chart the evolution of the contextual literature up until present day. I discuss some of the major debates in the literature and situate my theory within those existing debates. Then, I discuss the problem of self-selection – which plagues much of this work – and relevant research in sociology which finds that self-selection is occurring in response to these growing immigrant populations. Then, I review the literature on mobility, neighborhood selection, and segregation and highlight its failure to incorporate the role of politics as a factor that determines mobility. This is where I introduce my theory which unites work in both sociology and political science in order to explain when residents will choose “fight” over “flight”.

1.4.2 Chapter 3

In Chapter 3, I test my theory of *Fight or Flight* with survey data involving tens of thousands of Americans to assess whether individuals behave in line with the theory in their “natural habitats”. I use the 2000 Social Capital Community Benchmark Study (SCCBS), a large clustered sample of 41 communities and national sample of the United States, in order to evaluate the theory. I find that individuals who reside in environments experiencing rapid growth in immigrant populations who also have large immigrant groups in surrounding communities are less likely to express a desire to exit, more likely to express negative immigration attitudes, and more likely to engage in local politics than those who reside in more exit-friendly areas. For those who reside in more exit-friendly areas, the opposite is observed. It is important to note that these findings hold even after accounting for other potential contextual and individual-level confounds. Although the 2000 SCCBS data are useful in providing observational evidence for the theory and addressing concerns about external validity, the findings are largely model dependent and the problem of unobserved confounding makes it difficult to draw strong conclusions about estimated parameters. Still, this study allays concerns about the external validity of the theory, such as whether citizens who reside in these kinds of communities *actually* exist and behave in line with the theory.

1.4.3 Chapter 4

I address the omitted variable bias concern in Chapter 4, where I design an online survey experiment using PHP/MySQL and the online survey platform Qualtrics. In this experiment, I attempt to manipulate the perceived number of immigrants in surrounding neighborhoods by associating surrounding areas with symbols of immigration. By exploiting the power of randomization, the experiment allows me to get a better handle on causality and whether surrounding immigration truly shapes native-born residents’ decision calculus of whether to move or engage in local politics when facing growing immigrant populations.

In the experiment, participants are taken to a survey welcome page with the names of surrounding areas. The treatment involves displaying the names of surrounding areas with symbols of immigration while the control displays symbols associated with the majority group. I find that the treatment actually succeeds in changing respondents' perceptions of the proportion of immigrants who live in their community relative to surrounding communities. Using this design, I show that participants who live in high immigrant growth areas and who are also exposed to the treatment are less likely to desire mobility and more likely to report prospective participation in local politics. This provides additional support for the theory and helps allay concerns that the findings in the 2000 SCCBS are simply spurious due to unobserved variables affecting both the treatment and response. Still, this study along with the 2000 SCCBS only focuses on responses among natives and thus omits an especially important player in the game: the immigrant.

1.4.4 Chapter 5

In Chapter 5, I program an agent-based model that explicitly models the relationship between native-born residents and immigrants and produces predictions about where we ought to see the highest levels of anti-immigration voice. This model relaxes an assumption present in Chapter 3 and Chapter 4, which is that natives and immigrants make decisions in isolation. In this chapter, I define agent-based modeling, walk through the logic of an agent-based model, describe the model, implement it, and evaluate the results. I use a novel empirical-based approach to agent-based modeling that relies on Census data to inform starting values for immigrants and natives. For each simulation, I vary the importance placed on different mobility parameters (e.g. such as whether immigrants favor places with other immigrants more than places with low levels of anti-immigrant sentiment) and generate a hypothetical world with different residential configurations and spatial distributions of local anti-immigrant sentiment. I find that mobility factors are incredibly important in increasing the correspondence between the model and the real

world. In particular, I find that the most realistic models are those where immigrants avoid places with high levels of voice. As mentioned earlier, these findings have implications on American politics, as local communities and states across the United States have proposed and/or enacted policies targeting immigrant groups and some have suffered the consequences of such policies.

1.4.5 Chapters 6

In Chapter 6, I describe limitations and future directions. Unfortunately, the data prohibit me from making strong claims about actual, as opposed to self-reported or prospective, mobility and political activity. I outline a future project that extends the current project in this way. In this potential project, I apply the theory to immigration politics in the United Kingdom. Compared to the United States, the UK has actually experienced more extreme rates of immigration and political parties have taken up the issue of immigration as a key part of their platform. There exists a panel study in Britain that tracks respondents over time and measures their support for different political parties. By utilizing these data, the behavioral implications of the theory can be assessed and the theory can be applied to another national and electoral context. I also address another limitation – which is a reliance on models. I describe experiments that tackle the question of what mediates the relationship between my treatment and outcome. I also sketch out potential designs that utilize natural experiments in order to identify effects that may be difficult to identify using observational data.

1.4.6 Chapter 7

In Chapter 7, I summarize and conclude the dissertation. I also describe the implications of my theory on existing contextual research and public policy. The results of my dissertation imply that research on context should not simply focus on citizens' local environments but also take into account the broader milieu citizens are situated in. My disser-

tation also suggests that self-selection need not be treated as a nuisance, or something to be explained away, but should be confronted directly as an important outcome in its own right. The public policy implications of this model are not especially optimistic. If mobility and political behavior are inversely related, then providing native-born residents with mobility opportunities should decrease local political action but this should also increase the probability of flight. For minority groups, the consequences of flight have been found to be severe, affecting local housing prices, unemployment, and crime rates (Harris 1999; Kain 1968; Sampson and Morenoff 1997). Conversely, providing native-born residents with more opportunities to engage in local politics can reduce mobility. However, increasing these opportunities should do little to improve relations between groups, as many of these responses to immigration have resulted in fewer opportunities for immigrants. They have also served as signals to immigrants that they are not welcome in the community. The prevalence of ordinances that accomplish symbolic goals, such as making English the official language of a municipality, and economic goals, such as prohibiting government contractors from hiring undocumented immigrants, indicate that this kind of local political action is not meant to foster cooperation between native-born residents and immigrants but instead promotes exclusion and hostility. Political action need not be negative. After all, cities such as San Francisco have openly welcomed immigration and striven to keep residents from being deported. However, these kinds of policies tend to be enacted in areas where immigrant populations are already large to begin with, not those that are just now experiencing large influxes of immigrants. For the latter, receptivity to immigrants is rare and the literature finds that negativity is the most common reaction among residents.

Keeping this in mind, what should we do if our goal is to reduce animosity between groups? To answer this question, we might consider why native-born residents are choosing between both options in the first place. According to Hirschman, Schelling, and the theory of “Fight or Flight”, native-born residents invoke the strategies of mobility and political behavior as a means of satisfying their needs for similar neighbors or a more homo-

geneous neighborhood in the face of demographic change. Thus, anything that reduces this desire ought to decrease the usefulness of either strategy. If this is the case, then policies aimed at improving relationships between native-born residents and immigrants will likely be fruitful if cooperation between groups is the ultimate goal. According to the “Fight or Flight” theory, the extent to which native-born residents move or rely on politics depends on whether they view local immigration as a threat to the community. If immigration is not viewed as a threat, the desire for either strategy should decrease since there should be less of a need to manipulate the diversity in one’s environment. At the end of the dissertation, I explore what these policies might look like in the United States and how the demographic changes that are playing out across the country might alter the ultimate political landscape, as immigrants are incorporated into certain communities and discouraged from residing in others. This hints at a potential reconfiguration of the United States’ geopolitical landscape, which should have serious implications on electoral politics.

1.4.7 In Conclusion

In this dissertation, I unite research across disciplines to create a model that explains when native-born residents will rely on “fight” versus “flight” as a response to growing immigrant populations. Specifically, I argue that the availability of mobility options determines whether residents engage in local politics or move into new neighborhoods, such that less options translate into more political engagement and more options translate into mobility. I assess this theory using observational, experimental, and simulation-based data and find converging evidence despite different sample characteristics and assumptions underlying my models. Then, I sketch out how future research might address some of the pitfalls of each of my studies and conclude with a discussion of the implications of my theory on political science, sociology, and American politics as a whole.

2 Chapter 2

2.1 Introduction

America has a long and storied history with immigration that begins with its founding. Aside from the original Americans who were brutally slaughtered and forced into reservations by European settlers, the individuals who would eventually found the United States were either immigrants themselves or direct descendants of immigrants. Prior to its founding, the vast majority of migrants came from Western Europe, specifically Britain, while others were forcibly taken to the United States from Africa for the purpose of slavery (Fogleman, 1998).

One of the most notable migrations prior to the founding of the United States, which is often taught in American history classes, is the migration of the pilgrims; 102 pilgrims who fled religious persecution in Britain by boarding the *Mayflower*, a large Danish shipping vessel, and founding Plymouth Colony in 1620. Shortly after arriving to the colony, the pilgrims would establish one of the first written constitutions in the world, the Plymouth Compact, which would have a profound effect on the drafting of the United States constitution more than a hundred years later.

Immigration would continue to have an impact on the country during its transition from a loose collection of states to a modern nation state. Shortly after its founding, an economic boom in the West would attract early immigrants from the British Isles united by a philosophy of Manifest Destiny and a desire to take advantage of the economic opportunities associated with the West (Pratt, 1927). During this time, few restrictions would be placed on those who desired to enter the county. Immigration was seen as essential for economic growth and symbolized the country's potential as it grew into a political and economic powerhouse.

The salience of immigration in American politics as well as other areas of American life would increase dramatically during the 20th century. In his examination of ethnicity and immigration in the United States, Massey (1995) divides immigration trends in the 20th century into three eras. In the late 1800s, a period Massey (1995) labels the “classic era” of immigration, industrialization swept across the country much like it had in Europe, attracting immigrants from Southern and Eastern Europe to large industrial manufacturing centers such as New York City and Chicago. This wave of immigration mainly brought in Catholic immigrants from nations such as Ireland, Germany, and Italy. It was during this period that France provided the United States with the Statue of Liberty, a statue located on the Hudson River, which would eventually become a symbol of the United States’ posture toward immigrants and immigration in general.

From the late 1800s to early 1900s, approximately 20 million European immigrants landed on American shores. As these immigrants entered one of the major entry points to the United States, Ellis Island, they were greeted by the Statue of Liberty and upon arriving, were quickly thrown into American society and encouraged to assimilate. Many of these immigrant groups quickly assimilated due to local “Americanization” programs which emphasized adopting English as their main language and eschewing the language and norms of their culture. The main benefit of a single language was to integrate immigrants into society and facilitate industrial production by having a common form of communication. In fact, many of these “Americanization” programs were sponsored by companies who profited from a homogeneous workforce with a unified language, as it was seen as essential for higher levels of productivity.

Between 1920 and 1960, there was a steep decline in immigration rates or, as Massey (1995) describes, a long hiatus, with approximately 300,000 immigrants entering the United States per year. This stood in sharp contrast to peak migration rates during the second wave, where approximately 1 million immigrants arrived in a single year. One of the major reasons for the steep decline in immigration was the Immigration Act of 1924. This act

created a quota system that restricted the percentage of immigrant groups admitted every year to two percent of each nationality as of the 1890 Census. Due to the paltry number of immigrants from non-European countries present in United States during the 1890s, this policy served to restrict immigration from Asia and other continents and effectively guaranteed a majority Anglo immigrant population well into the mid-20th century.

In 1965, the passage of the Immigration and Nationality Act replaced the existing quota system with a far less restrictive quota based on hemispheres, rather than countries of origin. This encouraged immigration from non-European countries, though its effects on total migration rates were small. In 1978, the hemisphere-based quota was replaced with a general worldwide quota of 290,000 immigrants per year. This easing of immigration restrictions encouraged an influx of immigrants from non-European countries of origin. As a response to the loosening of restrictions on non-European migrants, the most recent wave – the fourth wave – has been marked by immigration from Asian and Latin American countries. This era is referred to as the “new regime” by Massey (1995). Whereas previous waves were defined by immigrants sharing either a language or culture with the dominant society, this most recent wave has brought in immigrants who share neither; a recent development that has had a profound impact on how Americans view the issue of immigration.

Immigrants from Mexico constitute the largest group of immigrants in this most recent wave. The 1986 Immigration Reform and Control Act provided a path to citizenship for nearly three million immigrants and the North American Free Trade Agreement (NAFTA) greatly contributed the number of immigrants crossing the US-Mexico border. Both policies are both credited with increasing the number of Mexican immigrants in America. The Department of Homeland Security estimates that 59 percent of Mexican immigrants are undocumented. NAFTA is credited with being one of the main reasons for recent growth in the undocumented population. As a policy, NAFTA increased subsidies to American farmers while also undermining profits for Mexican farmers who were reliant on exports

to the United States, thus forcing them off their land and encouraging them to migrate to the United States for work. In more recent years, immigration from Mexico has tapered off as the number of immigrants from Central American countries such as Honduras, El Salvador, and Guatemala has surged.

Though Asian immigrants now constitute the largest group of “recent arrivals”, the population is still relatively small compared to immigrants from Latin America. According to the 2010 Census, about 13 percent of the American population is foreign-born and 29 percent of the foreign-born population is Asian in origin. Thus, the population of Asian immigrants has not yet reached proportions similar to those of Hispanic immigrants. As of 2010, the most populous countries of origin for Asian immigrants were China, India, Korea, the Philippines, and Vietnam. In contrast to recent immigrants from Latin America, greater proportions of Asian immigrants have a college degree or higher which makes them higher skilled, on average, than Latin American immigrants. Though the percentage of Asian immigrants comprising the total population still remains relatively small, there has been substantial growth in Asian immigration. In 1970, the number of Asian immigrants was centered around 500,000. By 2010, this number had increased to 11.3 million. As (Hainmueller and Hopkins, 2014) notes, most of the recent literature on immigration has focused on the impact of Hispanic immigration due to its prevalence. However, the growing numbers of immigrants from Asia will likely have an impact on theoretical development in the literature, due to key distinctions between Asian and Hispanic immigrant populations.

2.2 Historical Reactions to Immigration

Although the characteristics of immigrant groups have varied over time, immigrant groups during all major waves have faced at least some form of discrimination or hostility

by native-born populations. In John Higham's *Strangers in the Land*, Higham documents the development of nativism in the United States during earlier waves of immigration, namely the third wave, and traces its origins to three common motifs in anti-immigrant thought. According to Higham, prior to the third wave, immigration was viewed positively. Due to rapid economic growth and the gradual expansion of the frontier, immigrants were in high demand and perceived to be a valuable commodity. Nativism, at this time, was not fully developed as its underlying components were still nascent.

In *Strangers in the Land*, Higham argues that nativism in the United States can be separated into three underlying components: anti-Catholicism, anti-radicalism, and Anglo-Saxon pride. Due to America's Protestant origins, anti-Catholicism has been used to justify discrimination and hostility toward immigrants. This is due to the perception that Catholics cannot fully assimilate into an individualistic American culture because of their supposed allegiance to the Pope and priests. Ironically, in a country that finds its origins in a revolution, anti-radicalism has also led to increases in nativism over the course of American history due to fears that immigrants will change existing institutions and replace them with their own. Higham argues that a third component, Anglo-Saxon pride, has been a major determinant of nativism as it has served the purpose of defining the boundaries of citizenship as being based on both biology and culture.

In the 1870s and 1880s, even though the underlying components of nativism were present, nativism never became explicitly hostile. This was due to the fact that the country was rapidly expanding and immigrants were seen as vital for economic growth. In fact, states, especially those in the South, would often court immigrants in order to help their growing economies meet demand for labor. During this period, anti-Catholic sentiment rose when Catholics clamored for their own school system. The existing Protestant majority refused to fund them, as it favored a homogeneous public education. However, the environment was relatively calm with the exception of fighting over schools. Claims that immigrants were radicals did not resonate at this time due to the notion that America's status

as a “melting pot” would eventually assimilate immigrants. Mixing of different peoples was argued to create a “new man”. This “new man” was arguably still Anglo Saxon, as immigrants were viewed positively for reintroducing Anglo-Saxon blood into the population. During this time, it was believed that the purity and power of Anglo-Saxon blood prevented it from being diluted by defects in other races or peoples.

After this relatively short period of calm in nativist sentiment, Higham argues that worries over immigration began to worsen as the economic situation deteriorated, westward expansions was no longer sustainable, and riots shook the social fabric of the nation. The frontier was reaching its limits, and this was leading to an increase in concerns over the scarcity of resources. However, as Higham notes, nativism would become most powerful when the economy experienced a steep drop in production during the Depression of 1882-1885.

During these difficult times, capitalists continued to accumulate profits while the situation among the poor worsened. Rather than directing their anger toward capitalists, workingmen in places like Pennsylvania brutally attacked Slavic and Italian immigrants, seeing them as “captive” agents of the corporations. Business leaders remained positive on the immigration front until protests and strikes allegedly incited by immigrant workers drove them to reconsider their laissez-faire attitude. Nativist sentiment during this time did not reach its peak until the Haymarket Riots in Chicago, where immigrant protesters fought off police officers and detonated bombs in the town square. This re-activated the anti-radical strain of nativism in the United States and encouraged opposition to immigration by activating the belief that immigrants were subverting existing institutions.

During this time, Anti-Catholic sentiment was directed toward the schools again as Catholic missionaries set up schools in Native American territories. At the time, Protestants were pushing for secular public schools with a uniform curriculum and saw the Catholic schools as a threat. The loss of political power in New York to Catholic leaders also cultivated anti-Catholic sentiment, driven by fears that Catholics would be beholden to the

demands of priests and the Pope as opposed to honoring the needs of the public. Anglo-Saxon nativism had not yet become a major source of nativism. However, certain immigrant groups, namely Italians and Jews, were discriminated against due to stereotypes that implied a lack of loyalty and “fitting in” with respect to the dominant culture.

During these turbulent times, nationalism was sought out by “the middle” of the country, not militant laborers or capitalists. A strong view of the nation was viewed as the antidote to societal change. Secret societies were springing up across the United States with membership restrictions based on national origin. These groups would become a major force in American politics, pushing for restrictionist policies such as a literacy test that would prohibit immigrants from arriving in the United States without a proper grasp of the English language.

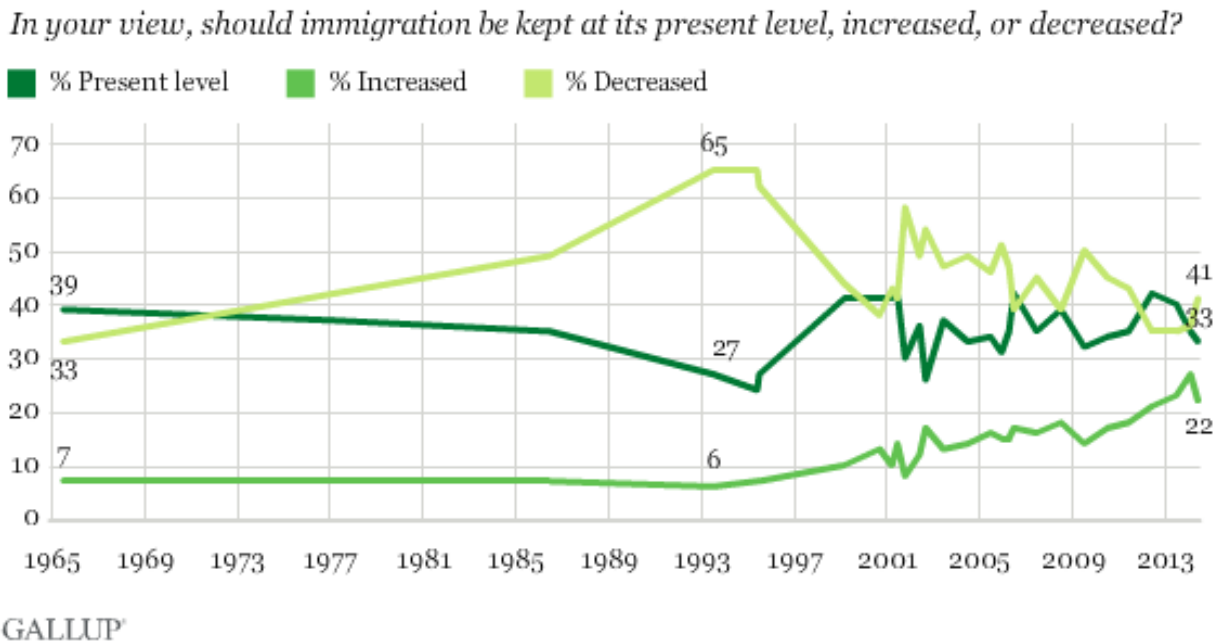
In the 1890s, during the next depression, the capitalists had almost entirely turned on immigrants due to their participation in strikes. While they were once favorable toward immigrants, unions also began to convince their members of the danger of immigration. In response to agrarian protest movements, farmers across the country also started to support restrictionist policies. In 1894 and 1895, New York and Pennsylvania excluded immigrants from public works projects and Idaho prohibited corporations from hiring immigrants who had not yet stated their desire to become citizens. Much of the reaction to immigrants was parochial and fluctuated depending on the local economic situation.

According to Higham, the power of nativism was not fully unleashed until Anglo-Saxon pride became a justifying ideology for restrictionism. At the turn of the 20th century, public intellectuals began arguing that the superiority of the Anglo-Saxon race lied in the race’s biology and physiology. Thus, it was no longer possible to mold immigrants into prototypical Americans by having them adopt the dominant culture, inferiority was biologically determined and thus, immigrants were to be excluded on the basis of biology. This led to a coalition between native-born workingmen and highly educated intellectuals, driving anti-immigration policies to receive majority support in Congress. Despite push back

from businesses and immigrant groups, this more complete form of nativism culminated in the Immigration Act of 1924, which severely restricted immigration from all nations, especially non-European ones.

For the next several decades, nativism would lose its power as a major political force due to the steep decline in immigration rates. Although World War II would reignite feelings of distrust for outsiders, especially those arriving from countries who were part of the Axis powers such as Japan, broad-brushed opposition to immigration would not be revived until after the large migrations of Mexican immigrants crossing the Mexican border into the United States during the 1980s and 1990s. The impact of this migration on public sentiment toward immigration is most apparent in survey data. Gallup surveys conducted from 1965 to present day show that while opposition to immigration steeply declined during the more quiet years of immigration between 1965 and 1980, it quickly rose again in response to rapidly growing Mexican populations.

Figure 1: Immigration Opinion from 1965-2014



2.3 Contemporary Opposition to Immigration

In the past couple of decades, research on public opinion toward immigration has been dominated by studies examining the impact of Mexican, and more broadly Hispanic, immigration on support for restrictionist policies, due to the large number of Hispanic immigrants in the most recent wave. Research in the area has focused on disentangling both cultural and economic considerations in driving immigration opposition (Hainmueller and Hopkins, 2014). Early work on this subject focused on conflict over bilingual education programs and the “official English” movement (Huddy and Sears, 1995; Citrin et al., 1990). These studies found that both objective and subjective threats, along with ordinary prejudice, had an impact on support for policies concerning the English language vis-a-vis Spanish. Other work focused on specific policies such as Proposition 187, a ballot initiative that prohibited illegal immigrants from using social services in the state of the California. (Alvarez and Butterfield, 2000) found that personal and sociotropic economic factors were especially important in predicting support for the policy. The scope of much of this work was in understanding support for restrictionist policies in areas such as California and Texas, which were experiencing rapid growth in immigrant populations. However, at the turn of the century, this focus gravitated toward understanding opposition to immigration in communities across the United States as immigrant populations expanded into new areas (Frey, 2006).

As immigrant populations in the United States have grown and expanded into areas with little to no prior experience with local immigration (Frey, 2006), there have been corresponding spikes in anti-immigration sentiment, the proposal of local anti-immigration ordinances, and hate crimes (Hopkins, 2010; Newman, 2013; Stacey, Carbone-López, and Rosenfeld, 2011). Hopkins finds that when immigration is nationally salient, residents of communities undergoing rapid changes in immigrant composition are more likely to sup-

port restrictions on immigration than those in more stable communities. Furthermore, Hopkins finds that these areas are more likely to propose restrictive anti-immigration ordinances, even after controlling for political, economic, and social covariates. Newman finds that when immigration is locally salient, as when immigrant populations are small prior to an influx, these same responses manifest themselves due to the symbolic threats these groups present to the native-born population. Stacey finds that hate crimes directed toward ethnic groups have increased in places where ethnic groups have grown in number.

Communities have dealt with the issue of immigration by proposing and passing anti-immigration ordinances. These ordinances have varied in levels of severity and success. Some have accomplished symbolic goals such as making English the official language of a municipality while others have been more draconian, restricting illegal immigrants' access to social services (Steil and Ridgley, 2012). In the past decade, Ramakrishnan and Gulasekaram (2012) report that 72 communities proposed restrictive anti-immigration ordinances, 12 of which passed. In the same period, states have also proposed and enacted restrictive anti-immigration laws. A notable example is Arizona's *SB1070* which received considerable media attention in 2010. This was due to a controversial provision which allowed police officers to question Arizona residents' legal status during routine traffic stops if officers had *reasonable suspicion* to believe that the resident was an undocumented immigrant. While many of these policies have not been enacted, their use from a signaling perspective is obvious. These policies serve to remind immigrant groups that their status in the community is not secure and could change with the stroke of a pen.

On the issue of immigration, the current political environment can be described as highly localized. No two communities respond to growing immigrant populations in the same way, and a lack of guidance at the federal level provides communities with some level of autonomy in dealing with the issue¹. At the individual level, local area demographics have a powerful impact on attitudes toward immigrants. Voters with the same political

¹Though, courts have invalidated some of these ordinances on preemption grounds (Parlow, 2007).

predispositions can have radically different responses to immigration depending on where they live. Naturally, scholars have attempted to account for this local heterogeneity by developing contextual theories that stress the importance of *place* in shaping political attitudes and behavior. As such, these theories view local area demographics as exogenous and causally prior to racial and ethnic attitudes.

3 Contextual Theories in Political Science

Scholars have drawn upon two major approaches in the racial context literature to explain local reactions to immigration. The most widely cited approach, the “power threat or “realistic conflict hypothesis, holds that dominant groups become increasingly hostile toward subordinate groups as these groups increase in size, due to the threat that subordinate groups pose to the dominant group’s status and privilege (Blalock, 1967; Bobo, 1999; Key, 1949). The seminal piece in this tradition is V. O. Key’s *Southern Politics* which argues that the presence of discriminatory institutions in the Jim Crow-era South can be explained by the threats Blacks posed to local White economic and political supremacy in areas with larger Black populations. Key’s crucial test of his “power threat” theory came from an analysis of voting behavior in Southern counties. Key found that White political participation was highest in so-called *Black Belt* counties, or counties where Blacks were more than 45 percent of the population. Underlying Key’s theory was the notion that conflict between groups was brought on by scarcity of economic and political resources, a notion that was further articulated by realistic group conflict scholars. The power threat hypothesis has found support in the context of Black-White relations. Numerous studies have uncovered a strong relationship between the size of local Black populations and anti-Black sentiment among Whites (Giles et al., 1977; Glaser, 1994; Quillian, 1996; Taylor, 1998).

In contrast to the power threat approach, the contact hypothesis views intergroup in-

teractions in a more sanguine light. First popularized by Allport (1979), this approach holds that under conditions of equal status, shared goals, intergroup cooperation, and institutional support, interactions between groups could produce more positive attitudes toward outgroup members. Although some have questioned the validity of this approach due to several theoretical and methodological limitations (Pettigrew, 1998), a number of studies have found a positive relationship between racial composition and racial attitudes (Ellison and Powers, 1994; Stein, Post, and Rinden, 2000; Welch and Sigelman, 2000; Yancey, 1999). Originally, this literature viewed contact as dyadic interactions between group members. However, recent research has expanded the definition to include knowing an in-group member who knows an out-group member, observing an out-group member in the media, observing an in-group member interact with an out-group member, and imagining oneself interacting with an out-group member. Scholars have found that these experiences with out-group members, while indirect, can promote positive attitudes toward out-group members (Schiappa, Gregg, and Hewes, 2005).

4 Contextual Theories of Immigration Opposition

The application of these theories to immigration attitudes has yielded inconsistent results. Some of the literature has found a negative relationship between immigrant composition and anti-immigration attitudes and voting behavior (Dancygier, 2007; Dustmann and Preston, 2001; Stein, Post, and Rinden, 2000; Tolbert and Hero, 1996, 2001; Tolbert and Grummel, 2003). Others have found a positive relationship between immigrant composition and anti-immigration attitudes and behavior (Fox and Rivera-Salgado, 2004; Hood and Morris, 1997; Hood III and Morris, 1998). Still, other work has found no direct relationship between both factors, or at best, conditional effects that are contingent on the presence of other contextual factors (Cain, Citrin, and Wong, 2000; Citrin et al., 1997, 1990; Dixon and Rosenbaum, 2004; Fennelly and Federico, 2008; Frensdreis and Tatalovich,

1997; Taylor, 1998).

Due to these empirical inconsistencies and the empirical mismatch between these theories and the unique qualities of immigrant populations, Hopkins (2010) recommends focusing on *changes* in immigrant populations as opposed to *levels* when studying the impact of local immigration. In support of this argument, recent studies show that native-born residents and sub-national governments respond more to changes in immigrant composition than levels (Alexseev, 2006; Newman and Johnson, 2012; Newman et al., 2012; Newman, 2013), especially when immigration is a nationally salient issue (Hopkins 2010) and growth has occurred in an environment where the immigrant population was largely absent (Alexseev, 2006; Enos, 2014; Newman, 2013). According to Alexseev, changes in immigrant populations invoke a security dilemma that drives residents in receiving countries to worry about the power of their state to fend off foreign attacks. Newman argues that changes in immigrant composition drive local residents to experience “acculturative stress” or culture shock, as local institutions come to resemble the characteristics of incoming populations. In addition, changes in immigrant populations rather than levels are a stronger predictor of perceptions of local immigration, presumably because changes are more salient (Newman and Velez, 2014). Taken together, recent studies indicate that residents are attuned to changes in their communities and respond accordingly by using the power of politics. However, engaging in politics is not the only way residents can respond to local immigration; residents can also “vote with their feet”.

5 Residential Self-Selection

White flight, or White migration out of diverse neighborhoods, has been implicated as a major contributor to the re-segregation of integrated communities and persistence of a fragmented yet prismatic metropolis (?). Though Whites are usually not bothered by the presence of a few Black neighbors (Clark, 1991), there are tipping points at which local

diversity is no longer tolerated and White flight ensues. These tipping points have been examined extensively in sociology and economics, with studies finding different thresholds depending on the socioeconomic and demographic characteristics of the neighborhood and its residents (Keating, 2010; Schuman and Bobo, 1988; Taub, Taylor, and Dunham, 1984).

When deciding whether to stay or leave, Whites appear to take the previous, present, and future racial composition of the neighborhood into account (Lee, Oropesa, and Kanan, 1994). Changes in local demographics inform expectations of future neighborhood composition (Boehm and Ihlanfeldt, 1991; Taub, Taylor, and Dunham, 1984) and these expectations shape mobility decisions and intentions (Mayer, 1960; Rapkin and Grigsby, 1960; Taub, Taylor, and Dunham, 1984; Wolf, 1963; Wurdock, 1981). In addition, studies show that perceptions of decline mediate the relationship between demographic change and neighborhood turnover (Anderson, 2000; Feijten and van Ham, 2009). Thus, mobility decisions appear to be strongly influenced by changes in the local environment.

Studies have shown that native-born residents are fleeing neighborhoods experiencing changes in immigrant composition at a higher rate than more static neighborhoods (Crowder, Hall, and Tolnay, 2011; Frey, 1995; Frey and Liaw, 1998; Saiz and Wachter, 2011). In the late 1980s and early 1990s, California and other immigrant-heavy states saw substantial out-migration rates among native-born residents as foreign-born populations grew in size, prompting worries about regional balkanization on the basis of immigrant status (Frey, 1995). Recent panel data suggest that native-born residents are migrating out of communities with growing foreign-born populations and selecting into more homogeneous areas (Crowder, Hall, and Tolnay, 2011; Saiz and Wachter, 2011). In addition, residential segregation levels for immigrant groups remain high, despite increases in geographic dispersion across the United States (Hall, 2013; Lichter et al., 2010). Hall and Crowder (2013) finds that native-born residents are actively selecting out of diversifying communities and into more homogeneous ones. Therefore, it appears that growing immigrant groups are not only having an impact on the political environment, they are also chang-

ing the nation’s residential landscape.

In the immigration politics literature, scholars assume that contexts are exogenous and causally prior to attitudes and behavior. However, research on flight suggests that the possibility of self-selection bias is too real to ignore. As Hopkins notes, “when observing a correlation between someones local environment and his or her individual attitudes, it is often impossible to know whether that correlation was induced by the local context or associated with factors that led him or her to live in that context. The vast majority of work on context either ignores self-selection, assembles a justification for why it should not be an issue, or addresses it using ad hoc models that regress contextual choice or neighborhood preferences on indicators of prejudice and other relevant variables assumed to influence the self-selection decision (Oliver and Mendelberg 2000; Hopkins 2010; Newman 2013; Oliver and Wong 2003; Branton and Jones 2005). None of these approaches are satisfactory from a theoretical or methodological vantage point.

Given what we know about White flight, ignoring self-selection bias is not a viable strategy. Current empirical approaches to addressing the self-selection problem, however, are limited. Branton and Jones (2005) attempt to account for self-selection by reversing the regression equation and modeling contextual choice as a function of individual-level covariates. This approach does not solve the problem of self-selection, however. If attitudes and context are truly endogenous, regression models using both factors are unidentified and parameter estimates are unstable.

Oliver and Wong (2003) take a different tack and assess whether attitudes toward out-groups can be predicted using self-reported preferences for same-race neighbors. The authors find that preferences for same-race neighbors are strongly associated with attitudes toward Blacks, Hispanics, and Asians but only among Whites. For other minority groups, however, the tendency to prefer same-race neighbors does not appear to predict out-group attitudes. The authors assert that while self-selection might be a concern for their analyses using the White sub-sample, self-selection does not appear to explain their broad pattern

of contextual results since at least for minority groups neighborhood preferences are orthogonal to out-group attitudes.

This approach is also problematic. First, it assumes that the entire process of self-selection can be adequately captured using an item that measures preferences for same-race neighbors. These self-reported preferences, however, are subject to serious biases. Individuals routinely report preferring diverse areas to homogeneous ones, while reality suggests otherwise (Bobo et al. 2002). Moreover, self-selection need not be racial to bias estimates of contextual effects. People can self-select into environments that reflect their economic, social, and political preferences. If these preferences for different communities correlate with out-group attitudes, then neighborhood self-selection still poses a threat to inferences.

Another approach involves exploiting exogenous shocks such as the migration of Hurricane Katrina survivors into Texan communities (Hopkins 2012), the September 11th attacks (Hopkins 2010), or experimentally manipulated contact (Enos 2014). However, this approach amounts to treating self-selection as a nuisance, rather than something that should be modeled. From a theoretical vantage point, this makes sense. Parsimonious theories are generally preferred over unnecessarily complex ones and modeling requires us to treat as given characteristics of the world that might otherwise be relevant to a given process. However, since neighborhood self-selection is such a major concern among contextual scholars, it might be fruitful to model the process rather than leaving it out of the equation. By building a better model, we might be able to synthesize work across disciplines while also obtaining estimates that are less sensitive to self-selection concerns.

5.1 Fight or Flight Theory

In his path-breaking treatise *Exit, Voice, and Loyalty*, Hirschman (1970) argues that when organizations decline in quality, group members can use two strategies – exit and voice – to improve their personal situation. Whereas exit involves withdrawing from the group entirely, voice involves expressing grievances or suggesting a new course of action to other group members. According to Hirschman, the decision to choose exit over voice depends on the costs and benefits of exit relative to voice and vice versa, and loyalty to the group plays an important role in “activating voice” and leaving “exit at bay”. In political science, the Exit, Voice, and Loyalty model has been applied to the study of topics such as democratic transitions, local politics, and reactions to climate change (Clark, Golder, and Golder, 2013; Reuveny, 2007; Sharp, 1984; Orbell and Uno, 1972).

The duality between exit and voice in the *Exit, Voice, and Loyalty* model conforms to what we observe in the real world. Native-born residents appear to use *both* mobility and local political action to manage local influxes of immigrants. The model also produces predictions about when mobility and political action are relevant options and when individuals will choose mobility over political action and vice versa. According to the model, *both* mobility and political action should be relevant options in the presence of organizational decline and political action should be more desirable when it is *more* advantageous and *less* costly than mobility and vice versa.

The decision to choose the former over the latter and vice versa depends on the costs and benefits of each choice, along with ones loyalty to the group in question. According to Hirschman, when the costs associated with voice (exit) are high and its benefits are low, exit (voice) will be preferred over voice (exit). Loyalty moderates this relationship. The EVL model holds that with increased loyalty, exit loses its appeal, as motivations to improve the group from within dominate. Since its publication, scholars have applied the

EVL model to various questions in economics, political science, psychology, and sociology, which is a true testament to its fecundity and theoretical breadth.

Despite this, the model has not seen much light in the realm of immigration politics. Though various frameworks have been proposed, none of them have grappled with the interdependencies between context, attitudes, and behavior. Rather than treating either factor as exogenous, the EVL model endogenizes them and allows us to explain how preferences for immigration influence the selection of context (i.e. exit) and how context influences preferences for immigration (i.e. voice). Moreover, it subsumes models in the literature that treat demographic change as the catalyst for political action and flight. I describe the basic model and its components below.

Despite its usefulness in endogenizing mobility and political action, the *Exit, Voice, and Loyalty* model does not include an explicit treatment of space. Although the model specifies *when* people will exit, it does not predict individuals' ultimate exit destinations or the process of mobility in general. The Schelling (1971) segregation model is more lucid in this respect. In the Schelling model, two kinds of agents (e.g. red and green) are arrayed on a grid resembling a neighborhood. Each agent has a preference for a similar neighbor and this preference informs whether they will move out of their current space and into another one in the following time period. The model is executed using a simulation where all agents simultaneously make decisions about where to live and, depending on their preferences for similar neighbors, different aggregate neighborhood patterns such as segregation can result.

While the Schelling model is useful in understanding mobility patterns and neighborhood composition, it does not allow residents to express their preferences for similar neighbors through any medium other than mobility. However, residents need not move to a homogeneous neighborhood to enact their preferences for similar neighbors. They can also achieve this through the use of politics. As the literature in political science has demonstrated, residents can express their preferences for lower levels of local and national immi-

gration through a variety of political means. Uniting the Hirschman and Schelling models produces a theory of *Fight or Flight*, which respects the duality between exit and voice while also incorporating the importance of mobility.

Residents use both exit and voice strategies as responses to local immigration. If both strategies are inversely related as described in *Exit, Voice, and Loyalty*, the use of one strategy should correspond with decreases in the use of the other strategy. As specified by *Exit, Voice, and Loyalty*, when exit is more costly or less beneficial as a strategy, we should observe more voice. Therefore, constraints on exit ought to produce decreases in voice as it limits the effectiveness of exit. A major constraint on exit is the availability of mobility options. This is a departure from the Hirschman framework which views loyalty as a tie that binds individuals to groups. However, the relatively high mobility rate in the United States (30%) indicates that if loyalty is a determinant of mobility, it is not an incredibly powerful one.

If local immigration is truly the harbinger of exit in diversifying communities, the prevalence of immigrants in surrounding neighborhoods ought to be an especially powerful predictor of exit. After all, why would an individual move out of a community in response to local increases in immigration and move into a community where immigrants are equally (or even more) prevalent? Since a majority of Americans move within the same county (61%, according to the 2010 Current Population Survey) and median moving distances are under 20 miles (Realtors, 2013), the choice set for most Americans is likely a handful of neighboring communities. In fact, Crowder, Hall, and Tolnay (2011) find that while changes in immigrant composition produce increases in flight, flight *decreases* when immigrants are prevalent in surrounding areas.

From this, we obtain two hypotheses about the impact of surrounding immigrant composition on the decision to exit or voice:

H1: Exit and Surrounding Composition

In the presence of local immigration, residents surrounded by large immigrant popula-

tions in adjacent areas will be less likely to exit than those who are surrounded by smaller immigrant populations.

H2: Voice and Surrounding Composition

In the presence of local immigration, residents surrounded by large immigrant populations in adjacent areas will be more likely to voice than those who are surrounded by smaller immigrant populations.

The following two chapters evaluate these hypotheses using observational and experimental data. First, I employ the 2000 Social Capital Community Benchmark Study (SCCBS) to assess the theory using actual residential location data. Then, to assuage concerns about bias due to unobserved confounding, the second section constructs an experiment that manipulates levels of immigrant composition in surrounding communities. This experiment replicates the findings of the 2000 SCCBS. Chapter 5 explores the aggregate implications of this process on local political behavior across the continental United States.

5.2 Definitions

Before launching into theoretical tests, it is appropriate to define relevant concepts. Since I am applying old frameworks to a new problem, conceptual definitions inevitably become slippery. In *Exit, Voice, and Loyalty*, Hirschman describes how exit and voice might operate, but as he progresses through the book, his definition of exit, for instance, is expanded to include situations where group members are still physically present in the group but opt out of participating. Thus, despite its utility in separating exit and voice as options, there is a lack of conceptual clarity throughout the book. Much of this is due to Hirschman's exploratory approach to theorizing. Rather than strictly defining a theory and its concepts, Hirschman pushes each concept to its limit to examine just how far his

theory can go in explaining a diverse array of outcomes. In this dissertation, the theory of “Fight or Flight” defines exit and voice in a way that might worry the casual reader of Hirschman. However, mapping existing frameworks to new problems is easier when concepts are clearly defined and although we may lose some conceptual flexibility, strictly adhering to conceptual definitions facilitates the generation of hypotheses and hypothesis tests.

5.2.1 Exit

In this dissertation, exit is defined as residential mobility. That is, leaving one’s own community at a given point in time for another one at a later point in time. This departs from Hirschman’s expansive treatment of exit which can even encompass psychologically withdrawing from the group while physically or nominally remaining a member of the group. While there might be a sense among residents that they can no longer fight influxes of immigrants and must accept local changes, this does not appear to be consistent with the stricter treatment of the Hirschman model. Since Hirschman views exit and voice as responses to declines in the quality of one’s own group or institution, withdrawing from the community and accepting demographic changes implies that one will tolerate these declines and thus, will not use exit or voice. In some ways, this reflects a kind of apathetic tolerance that keeps exit and voice from being considered as potential strategies. While this form of exit might be more interesting to model in other contexts, it is not a part of the theory of *Fight or Flight*. Since influxes of immigrants have been found to provoke native-born out-mobility (Crowder, Hall, and Tolnay, 2011), a focus on exit defined in terms of mobility makes the concept less slippery and allows me to generate concrete testable implications.

5.2.2 Voice

Although in the Hirschman model, voice is defined as directly expressing grievances to the group or institution in decline, I take a more expansive view of voice, which is influenced by the existing research on immigration in political science. In a community, there are few opportunities for individuals to directly communicate their frustrations with community leaders and thus, voice is likely diffracted into several forms of expression that vary in their costs and effectiveness. In this dissertation, I define voice as a purposeful expression of dissatisfaction that, in theory, serves to alert others about one's personal situation. In this dissertation, I consider three forms of voice: survey response, participation in local politics, and online petition signatures. By no means is this exhaustive, as there are many other forms of political participation, namely voting, that might serve the same purpose as these outcomes. However, with the data that are available, these outcomes serve as useful proxies for the concept of voice. (Massey, 1995).

5.2.3 Survey Response

The least costly form of voice is a survey response. As a means of expressing frustrations with immigration, surveys serve this goal. To be sure, survey responses do not involve traveling to a public space to protest or contributing to candidates that support anti-immigration measures but they still do allow for a means of expression, albeit at a lower cost. Survey responses are useful measures of voice due to data availability and the fact that as a signal of sentiment toward immigration, clearer signals are difficult to find. However, one main problem with survey response is that these responses are not often communicated to local policy makers. If the goal of the survey response is to bring about change, it fails in this respect. Still, although survey responses may not be useful in managing local demographics, we ought to expect certain kinds of survey responses to be centered in places with high levels of voice, since survey responses can serve a similar psychological purpose to other types of voice. That is, in the same way that a protest might relay the

anger and anxiety that citizens feel toward a given issue or group, a survey response can be a cathartic release for respondents who feel threatened by local demographic change.

5.2.4 Online Petition Signatures

In addition to survey responses, voice can be instantiated through petitions, protests, and voting. Similar to a survey response, petitions, especially online petitions, are not incredibly time consuming but effective in providing a means to express one's thoughts and join a collective group of people who oppose or propose a new policy. With the advent of the internet, individuals no longer have to venture out into public areas to be solicited for petition signatures or physically belong to organizations that use petitions. Instead, people can sign petitions from the comfort of their own homes all while retaining the purpose of the petition, which is to inform individuals about the level of support a given policy obtains. These petition signatures are often accompanied with names and locations for the petition signers. This provides scholars with information that can be used to link petition signers to their respective communities. As a form of voice, the online petition signature might be comparable to the survey response in terms of cost, but has the added benefit of informing those who receive the petition about where the supporters of the petition are coming from; something that is crucially important in the realm of neighborhood affairs and politics.

5.2.5 Local Political Participation

Still, even more important as an instance of voice is direct political participation in local politics. As the literature in political science has found, this kind of participation has been decreasing in recent years as a result of declining levels of social capital (Putnam, 1995). Thus, if we see any kind of local political participation, it ought to capture our attention. While survey responses and online petition signatures might be useful signals representing hostility toward immigration, there is no better way of handling a local issue than engag-

ing in local politics and speaking directly with policy makers and local leaders. This form of voice gets us closer to the ideal definition of voice.

5.2.6 Loyalty

Within the context of residential mobility, loyalty likely takes the form of neighborhood attachment. The more an individual views their neighborhood as integral to their identity, the less likely exit will be an option. (Lee, Oropesa, and Kanan, 1994) find that subjective feelings of attachment to the neighborhood (i.e. "how much would you miss your neighborhood if you were to move?") strongly predict mobility considerations and lead to reductions in the probability of expressing a desire to move. The researchers also find that perceptions of neighborhood change and turnover increase the probability of desiring mobility, and the relative magnitude of this combined effect surpasses that of neighborhood attachment. In the model I sketch, loyalty is simply one factor among many driving the decision of whether to move. It is not given the precedence that Hirschman gives it in *Exit, Voice, and Loyalty* because in the case of residential mobility, loyalty should not be as strong of a determinant of behavior as in the case of a standard group attachment. In the United States, mobility is a relatively common phenomenon and research on flight shows that citizens are often quick to embrace a new neighborhood if their current neighborhood is undergoing demographic change

5.2.7 From Definitions to Measures

In the following chapters, these definitions will provide structure for the specific operationalizations of each concept. Although the actual measures may depart in small ways from the definitions described above, the outcome variables examined in this dissertation are generally in keeping with the different notions of exit and voice. One might contend that these definitions may not directly align with the definitions used in *Exit, Voice, and Loyalty*. However, it is important to note once again that although the theory of *Fight or*

Flight is strongly influenced by Hirschman’s theory, it is not a mere replica of it. When taking a framework like Hirschman’s out into the world of immigration, a lack of overlap between the concepts as they are detailed in the book and the way they are measured in the real world is expected.

5.2.8 A Note about the term Nativism

There is some debate as to what nativism truly means. Some scholars view nativism as a means of securing or maintaining some sense of privilege (i.e. economic, political, or cultural) against encroachment from foreigners. In this dissertation, I apply the definition developed in Higham (1897) where nativism is described as “an inflamed and nationalistic type of ethnocentrism” and as “intense opposition to an internal minority on the ground of its foreign (i.e. un-American) connections. I adopt this definition of nativism because the reactions described here are extreme and likely arise from strong negative attitudes about foreigners. Both mobility and political action are costly behaviors and the impetus driving both behaviors should be driven by intense negative affect toward immigrants. Whether these feelings emerge due to economic, political, or cultural concerns is an open question that is not covered in this dissertation. Rather, instead of focusing on the origins of anti-immigration sentiment, this dissertation focuses on the attitudinal and behavioral implications of immigration in citizens’ environments. That is, when exposed to immigrants, how do native-born residents channel their anti-immigrant sentiment? Does it manifest itself as flight or fight, and is this contingent on mobility? The following chapters answer this question using observational, experimental, and simulation data.

6 Study 1: The 2000 SCCBS

The theory of *Fight or Flight* holds that mobility options condition the decision to either “fight” or flee in the presence of local immigration. When mobility options are available, the average behavior among those who reside in changing environments will be to escape the environment, rather than fight those changes by engaging in local politics. When mobility is constrained through a lack of options, the theory predicts that residents should, on average, engage in local politics to manage the changes in their environment. These expectations are derived from a theory influenced by both Hirschman’s *Exit, Voice, and Loyalty* framework and Schelling’s segregation model called *Fight or Flight* theory. Like *Exit, Voice, and Loyalty*, this theory takes the duality between exit and voice seriously, while also respecting the importance of residential mobility as an outcome of interest. To assess the theory, I first examine whether individuals in the United States actually behave in ways that are consistent with the theory.

If the theory accurately predicts mobility and political behavior as responses to local immigration, we ought to expect that residents in areas undergoing rapid changes in demographics should be more likely to exit (voice) when surrounding areas are less diverse (more diverse). I evaluate these hypotheses by examining a large observational data set of American citizens. The benefit of this data set is that I can examine whether people who reside in theoretically-relevant communities behave in line with the expectations of the theory. Although a well-designed experiment might capture crucial parameters of interest relating to the theory, using more representative observational data provides some insight into how people behave in their natural environments. While observational data do not allow us to effectively identify causal effects as well as experimental data, they provide some leverage in terms of generalizability.

In this chapter, I assess the theory of *Fight or Flight* using observational data and report the results from this study. I find results consistent with the theory such that re-

spondents in places with high levels of local immigration are more likely to express anti-immigration sentiment, more likely participate locally, and less likely to express that they will be moving in the near future when they are surrounded by large immigrant populations than when they are surrounded by large native-born populations. The opposite is true when surrounding areas include more native-born residents. After estimating models and discussing the results, I introduce Study 2 which experimentally manipulates the key parameter of interest (surrounding immigration) and assesses its effects on behavior.

6.1 Description

Conducted by telephone between the months of July and November 2000, the 2000 Social Capital Community Benchmark Study (2000 SCCBS) is a cross-section of 29,233 Americans. It included both a nationally representative sample of 3,003 respondents and clustered samples of 41 geographic communities throughout the continental United States. The community samples were drawn from every region in the United States and includes both rural and metropolitan environments. The 2000 SCCBS includes geographic identifiers for each respondent which can be linked to Census data. In addition, it includes measures of key outcomes such as political participation, mobility, and immigration opinion.

6.2 Measures

Δ *Immigrant*. Changes in immigrant composition are measured using the change in the proportion of foreign-born residents within a ZIP code from 1990 to 2000 ($min = -.26$;

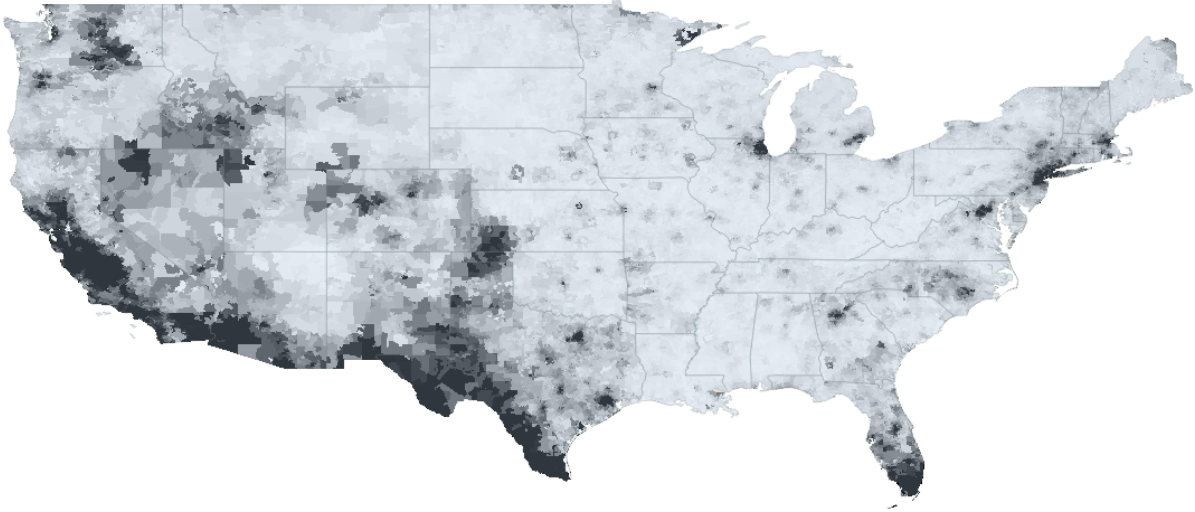
$max = .85; \bar{x} = .03; s = .04$)². The choice of an appropriate contextual unit is an issue every contextual scholar must confront in his or her research. ZIP codes are chosen as the primary contextual unit because they more closely approximate the concept of a community than larger units such as counties and districts while being more stable than smaller geographies like tracts.

Surrounding Composition. Surrounding composition is measured as the average level of immigrant composition in surrounding ZIP codes ($min = 0; max = .69; \bar{x} = .06; s = .09$). Using the spatial analysis program *GeoDa*, a spatial lag of order one of immigrant composition is taken. Queen contiguity weights are used to define neighbor membership (Darmofal, 2006). Queen contiguity weights define neighbors as those that share any kind of border or edge with ZIP code i . In contrast, rook contiguity weights define neighbors as only those that share a border with ZIP code i . The less restrictive Queen weights are used since it is unlikely that residents will only consider neighbors that share a border, but not an edge, with their community. The correlation between surrounding composition and Δ Immigrant in 2000 SCCBS sample is moderate ($r = .503$) but not large enough to raise concerns about whether both measures are measures of the same construct. Figure 2 displays the spatial distribution of surrounding immigrant composition across the United States. Not surprisingly, places with large immigrant populations in surrounding areas happen to be in states with large immigrant populations. Figure 3 displays a scatter plot of surrounding immigrant composition and local immigration. This plot shows that the moderate correlation between surrounding immigrant composition and Δ Immigrant is deceptive, as the relationship is not strongly linear.

Mobility Considerations. The desire to move is measured using the only dichotomous item in the data set that taps into mobility considerations. This item asks "Do you expect to be living in your community within five years?" (1 = No). A quarter of the sample answered no to this question ($\bar{p} = .23$).

²Using ten year changes in composition are common in the literature (Hopkins, 2010; Alexseev, 2006; Newman, 2013).

Figure 2: Spatial Lag Distribution across the United States (2000)

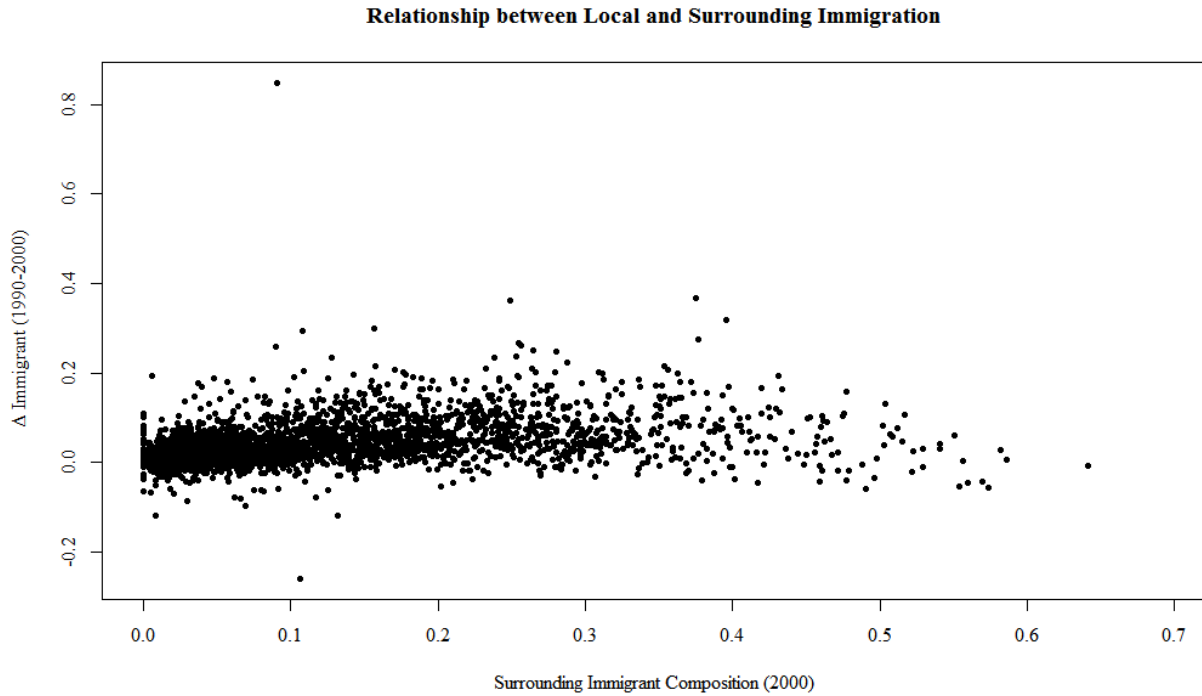


Local Political Action. Political action is measured using an item asking respondents about the number of times they had participated in a meeting discussing school or town affairs in the past year. This measure captures a resident’s level of *investment* in local politics in terms of time. The measure ranges from 0 to 60 ($\bar{x} = 2.66$; $s = 6.91$).

Immigration Opinion. Ideally, the 2000 SCCBS would have an item measuring preferences for immigration restrictions. However, immigration opinion is measured using the only item in the data set that taps into the issue of immigration. The item is a five-point Likert scale that asks respondents whether they agree with the following statement: “Immigrants are getting too demanding in their push for equal rights”. It ranges from Strongly Disagree to Strongly Agree ($\tilde{x} = 2$; $\bar{x} = 2.58$; $s = 1.47$).

Controls. Since local area demographics are determined by a variety of individual-level and contextual factors and these factors are also correlated with mobility considerations and political action, it is important to account for potential confounds. At the individual

Figure 3: Relationship between Local Immigration and Surrounding Immigrant Composition



level, I control for age (coded in years), home ownership (dichotomous; 1 = own), tenure in the community (coded in years), gender (dichotomous; 1 = female), ideology (seven-point scale; 7 = very conservative), education (seven categories), income (eight categories), religious attendance (five-point scale, 5 = every week), and racial and ethnic identification (black, Hispanic, and Asian indicator variables). The 2000 SCCBS did not include an item measuring partisanship; however, given the high correlation between ideology and partisanship, ideology should capture a great deal of the variance in the dependent variable that is also accounted for by partisanship. At the contextual level, I control for Hispanic composition, Asian composition, local unemployment, median household income, median house value, and median gross rent. In order to avoid post-treatment bias, these variables are measured using 1990 Census data. Key variables are recoded to range from 0 to 1 to facilitate the interpretation of interaction coefficients.

6.3 Analytical Strategy

The key hypotheses of the *Fight or Flight* theory are that in the presence of local immigration, exit (voice) will become more (less) likely as the immigrant composition in surrounding areas increases. To test these hypotheses, I model reactions to immigration as a joint function of Δ immigrant and surrounding composition. I regress mobility considerations, political action, and anti-immigration sentiment on Δ immigrant, surrounding composition, their interaction, and controls.

The general form of the deterministic component of all three models is the following:

$$\alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{1i} X_{2i} + \sum_{k=4}^{n+3} \beta_k X_{ki} \quad (1)$$

where X_1 is surrounding composition, X_2 is Δ immigrant, and n is the total number of controls.

If the data are consistent with H1, we should expect β_3 to be positive and significant, since this suggests that political action is *greater* among residents who reside in places that are *jointly* experiencing changes in immigrant composition and surrounded by large immigrant communities. If the data are consistent with H2, β_3 should be negative and significant, since this suggests that the desire to exit is *less likely* among residents who live in areas with those same characteristics.

Logit, negative binomial, and ordered logit models are used to estimate the mobility considerations, political action, and anti-immigration sentiment models, respectively³. These models are estimated to account for the unique nature of each dependent variable. The logit model is estimated since the dependent variable is dichotomous, the negative binomial model is estimated because the count data are overdispersed, and the ordered

³Since the SCCBS was conducted using several communities across the United States and some communities had different sampling methods, multi-level models were also estimated to account for unobserved heterogeneity between communities. Key results are unaffected.

logit model is estimated due to the ordinal nature of the immigration opinion model. In order to make the empirical models more consistent with the theory, the models are subset such that only citizens are included in the analysis⁴. Although native-born status would be preferable to citizens since foreign-born residents can become naturalized, the 2000 SCCBS lacked an item measuring place of birth and thus, the effective sample involves United States citizens. Since the theory generates directional hypotheses, one-tailed significance tests with α set to the .05 level are used.

6.4 Results

Key results are shown in Table 1. Consistent with expectations, the interaction between surrounding composition and Δ immigrant is significant and signed in the right direction. In the mobility considerations model, β_3 , which captures the interaction between surrounding composition and Δ immigrant, is negative and significant⁵. In the local political action and immigration opinion models, β_3 is positive and significant. However, since the results presented in Table 1 are not directly interpretable and involve conditional effects, Figures 1, 2, and 3 plot the effects of surrounding immigrant composition across values of Δ immigrant for mobility considerations, local political action, and immigration opinion, respectively. Proper quantities of interest are plotted to facilitate the interpretation of results.

H1 finds support in the mobility considerations model. In the mobility considerations model (Figure 1), going from the minimum to maximum level of immigrant composition in surrounding areas produces about a 50 percent increase in the probability of considering mobility when Δ immigrant is at its minimum. When Δ immigrant is at its maximum, the

⁴Key model results are unaffected even if the data are not subset based on citizenship.

⁵Consistent with (Hirschman, 1970), tenure and home-ownership – two indicators of loyalty – are negatively associated with mobility considerations and positively associated with both indicators of voice

Table 1: Fight, Flight, and Surrounding Composition

	<i>Dependent variable:</i>		
	Mobility Considerations (Moving = 1) <i>logit</i> (1)	Local Political Action <i>negative binomial</i> (2)	Immigration Opinion (Negative) <i>ordered logit</i> (3)
β_1 Surrounding Composition	2.90** (0.98)	-1.06 (0.76)	-1.68* (0.72)
β_2 Δ Immigrant	2.06* (0.92)	-1.90** (0.70)	-0.12 (0.65)
β_3 Surrounding Composition x Δ Immigrant	-6.91* (3.32)	4.62* (2.60)	6.46* (2.43)
Observations	18,343	19,150	18,285

Key results only. Full models can be found in Supplemental Appendix. Entries are unstandardized coefficient estimates with standard errors in parentheses. Models were estimated in the *R* programming language. The *glm*, *glm.nb*, and *clm* functions in the *base*, *MASS*, and *ordinal* libraries were used to estimate the logit, negative binomial, and ordered logit models, respectively. Controls include age, home-ownership, tenure, gender, ideology, education, income, religious attendance, racial and ethnic identification at the individual level and Hispanic composition, Asian composition, local unemployment, median household income, median home value, and median gross rent at the contextual level. Contextual controls are measured using 1990 Census data as opposed to 2000 data to avoid post-treatment bias. * $p < .05$; ** $p < .01$ (one-tailed)

probability of stating that one might leave one's community decreases by about 43 percent. The marginal effect of surrounding immigrant composition on mobility is negative and significant once Δ immigrant crosses the 99th percentile value.

H2 finds support in the local political action and immigration opinion models. In the local political action model (Figure 2), going from the minimum to maximum level of surrounding immigrant composition decreases the frequency of local political action by 2.5 instances of participation when Δ immigrant is at its minimum. At the maximum level of Δ immigrant, moving from the minimum to maximum level of surrounding immigrant composition increases the frequency of local political action by about 3 instances of participation. This is a substantive effect, as the mean level of local political action in the sample is 2.66 instances of participation. This relationship is significant across a larger set of Δ immigrant values. The marginal effect of surrounding immigrant composition on local political action becomes significant at about the 95th percentile of Δ immigrant.

In the immigration opinion model (Figure 3), going from the minimum to maximum level of surrounding immigrant composition produces about a 16 percent decrease in negative immigration opinions when Δ immigrant is at its minimum. When Δ immigrant is at its maximum, this relationship reverses such that going from the minimum to maximum level of surrounding immigrant composition produces about a 55 percent increase in reporting the most extreme anti-immigration preferences on the scale. The marginal effect of surrounding immigrant composition becomes significant above the 99th percentile of Δ immigrant. H2 finds additional support in the data, but the range of Δ immigrant over which the expected relationship is significant is smaller than in the local political action model.

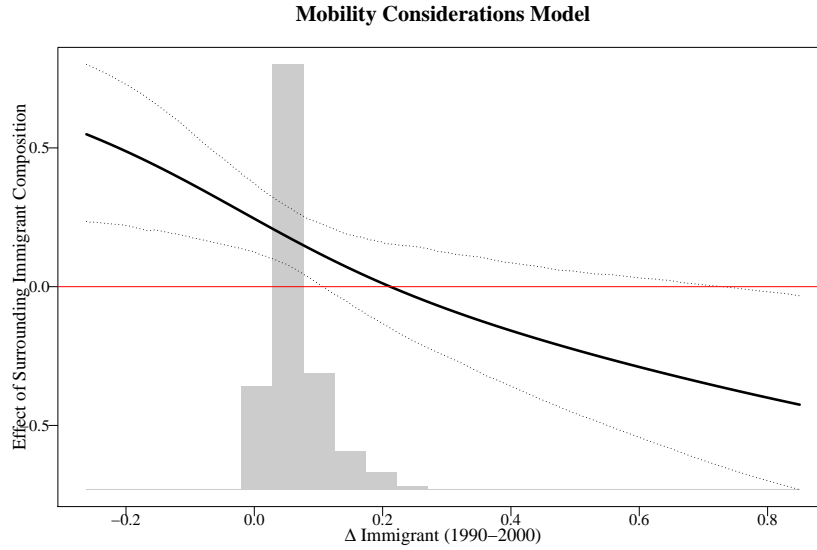


Figure 4: Change in $\Pr(\text{Mobility})$ as surrounding immigrant composition goes from minimum to maximum across the entire range of Δ immigrant. Histogram depicts distribution of Δ immigrant. Outer bands depict 90 percent confidence intervals.

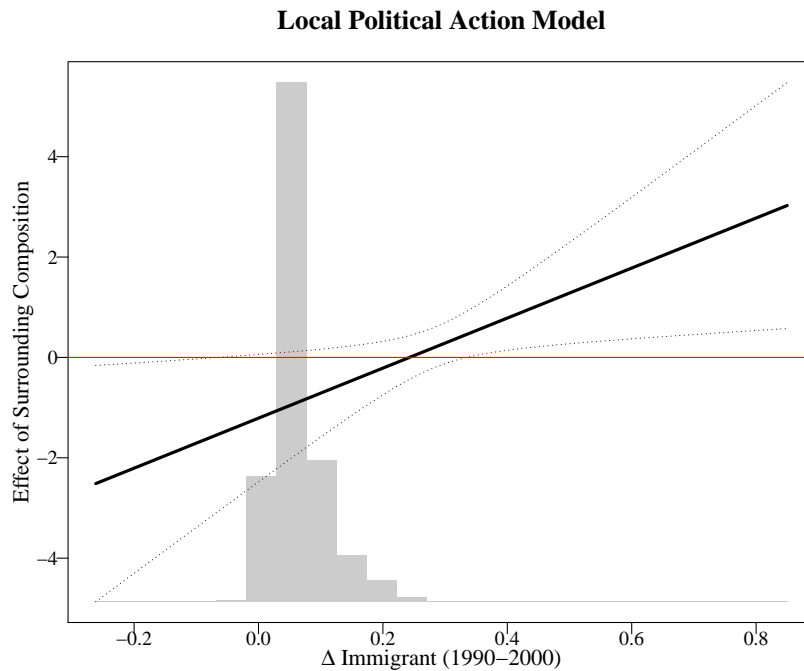


Figure 5: Marginal Effects of surrounding immigrant composition on local political action across the entire range of Δ immigrant. Histogram depicts distribution of Δ immigrant. Outer bands depict 90 percent confidence intervals.

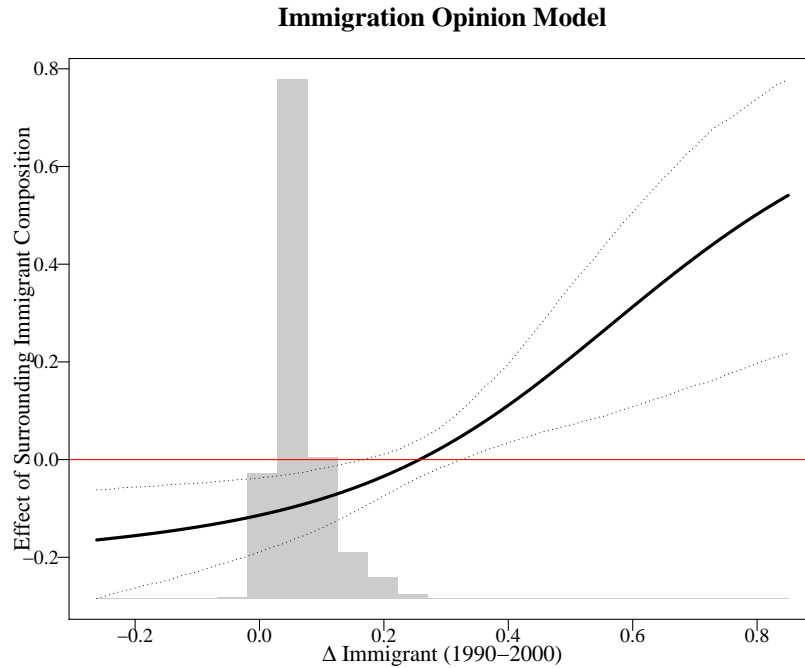


Figure 6: Change in $\Pr(\text{Selecting "Immigrants Getting Too Demanding"})$ as surrounding immigrant composition goes from minimum to maximum across the entire range of Δ immigrant. Histogram depicts distribution of Δ immigrant. Outer bands depict 90 percent confidence intervals.

6.5 Discussion

Taken together, the results provide support for the *Fight or Flight* theory. H1 finds support in the mobility considerations model and H2 finds support across two models of “fight”. In places experiencing local immigration that are also surrounded by large immigrant populations, residents are *more likely* to participate and express negative anti-immigration preferences and *less likely* to desire exit than those who reside in more exit-friendly environments. Although the effects are mostly significant in areas undergoing extreme changes in local immigrant composition, it is worth remembering that some of

these outcomes are extreme in their own respect. For instance, moving is a costly and time-consuming process and it likely requires a very large influx of immigrants for residents to consider exit as an option. Still, the results are consistent with the hypotheses and lend support to the notion that mobility options shape the decision to choose “fight” over flight.

One unexpected finding was that as surrounding immigration increased, residents in low change environments were *more* likely to say that they would not be staying in their current environment. After subsetting the data based on different levels of local immigration and surrounding immigrant composition, it was revealed that the contexts with low local immigration but high surrounding immigrant composition were disproportionately located in the Los Angeles metropolitan area. Since the comparison group for these respondents on the low end of local immigration is defined by low surrounding immigrant composition, the higher predicted mobility rates for respondents are likely the result of the unique characteristics of the Los Angeles metropolitan area, an area that experienced not only rapid immigration but also rapid increases in rents. From 1980 to 2000, median rents in the Los Angeles MSA increased from 588 dollars a month to 704 dollars (2000 dollars). Excluding these cases did not have a discernible effect on the results. In addition, key results were preserved even after the removal of influential observations.

In addition to this discrepant finding, low change contexts with high surrounding immigration are also associated with reduced political participation. This might be due to the fact that since ZIP codes are encompassed by larger units such as metropolitan areas and counties, residents in these contexts might feel like they cannot achieve some of the same political goals as those who reside in both locally and distally homogeneous areas. The comparison being made here is between individuals who reside in a pocket of ethnic diversification but are either surrounded by immigrants or native-born citizens. For the latter, political participation should be viewed as more efficacious at different levels of politics. As Putnam (1995) argues, ethnic diversity can inhibit social capital and reduced homo-

geneity in the broader environment ought to be associated with decreases in participation.

The results presented in Study 1 are suggestive. However, with any kind of observational data, the problem of unobserved confounding poses a threat to inferences. Even after controlling for a large number of individual-level and contextual covariates, there may be unobserved factors that influence mobility and political action and are also correlated with surrounding immigrant composition, thus causing us to overestimate its effects on each outcome. Thankfully, experiments allow us to solve the problem of unobserved confounding since random assignment breaks the dependence between confounds and our variables of interest. Therefore, to further corroborate the observational results, an experiment is developed that manipulates the prevalence of immigrants in surrounding environments. The experiment is deployed on the online labor market *Mechanical Turk*⁶.

⁶Berinsky, Huber, and Lenz (2012) find that although the Mechanical Turk subject pool differs from a nationally representative sample in important ways, effect sizes obtained using Mechanical Turk samples are comparable to those obtained using national samples. A major benefit of Mechanical Turk is that samples tend to be geographically diverse which is crucial for the testing of the theory.

7 Study 2: Our Local Communities Experiment

Study 1 tested the main claim of this dissertation which is that the decision to engage in politics or move in the presence of demographic change is contingent on the availability of mobility options. My theory holds that in the presence of local immigration, native-born residents will be more likely to move when surrounding areas have lower concentrations of immigrants. However, when greater numbers of immigrants are in surrounding areas, residents in rapidly changing environments will be more likely to engage in local politics, as the relative cost of moving increases and the benefits of engaging in politics decrease.

Using observational data from the 2000 SCCBS, I found that citizens who reside in communities with growing immigrant populations who are also surrounded by immigrants are more likely to express anti-immigration sentiment, more likely to participate locally in politics, and less likely to move. The opposite is true when they are surrounded by large native-born populations. While Study 1 provided some support for the theory, a major concern is that the parameters of interest may not be identified. Experiments are helpful in this regard, since randomization produces the same distribution of observed and unobserved confounders in both treatment and control groups in expectation.

In Study 2, I construct an experiment where I manipulate citizens' perceptions of surrounding areas. I ask respondents to enter their ZIP codes and then present them with one of two cover pages. In one cover page, symbols of immigration are paired with the names of surrounding areas. In the other cover page, symbols associated with the mainstream culture are used instead. Using this design, I find that native-born residents in communities undergoing rapid changes in local immigrant populations are less likely to exit and more likely to voice when exposed to the cover page that pairs surrounding areas with immigration. This provides us with causal leverage in understanding the effects of surrounding immigration on behaviors among native-born residents and provides the theory with additional support that is more causally credible.

7.1 Experimental Design

300 participants were invited to participate in a survey of their local community using the online labor pool Mechanical Turk. On the Mechanical Turk site, the study was listed with the title “Our Communities” and the description “This is a quick survey about your local area!”. The following keywords were used so that participants could find the study: neighborhood, community, survey, demographics, life experiences, easy, quick, fast, social, economic. Once participants clicked on the study title, they were given further information about the study. This page invited them to participate in a “quick survey” about “their local area” and asked them to click on an external link which took them to a welcome page where they were asked to enter their ZIP code. On the next page, there was a brief description of the study along with four images representing local and surrounding communities. The image representing their local community involved an elderly woman playing with dogs, and the city or town name associated with their ZIP code was displayed below the image⁷. This image was held constant across both conditions. The other three images involved a sign, a store front, and a teacher teaching school children the alphabet using an instructional poster. For respondents from the same ZIP code, these images would change, but the names of surrounding cities would stay constant.

Under these three images were the names of the three nearest ZIP codes within a 50 mile radius. The main differences between the treatment and control were that in the treatment condition, the signs were displayed in *both* Spanish and English as opposed to solely in English, the storefront was a tacqueria as opposed to a pizza shop, and the teacher was shown teaching the Spanish alphabet instead of the English alphabet⁸. The images were carefully selected so that they would be plausible depictions of locations across

⁷This was taken from melissadata.com which hosts a database that relates ZIP codes to city names

⁸Features associated with Hispanic immigration were selected because in the United States, the correlation between immigrant composition and Hispanic composition across different geographic scales is high ($R \approx .7$).

the United States. Figures 7 and 8 display the control and treatment stimuli for a hypothetical respondent with ZIP code = 33014.

After visiting the ZIP code entry and welcome page, participants were taken to the questionnaire. Participants were asked a battery of questions including demographics, perceptual items measuring the racial and ethnic composition of local and surrounding areas, and preferences for political action and mobility. Participants were debriefed, thanked for their participation in the study, and paid 50 cents upon completion. In total, 234 participants completed the survey⁹.

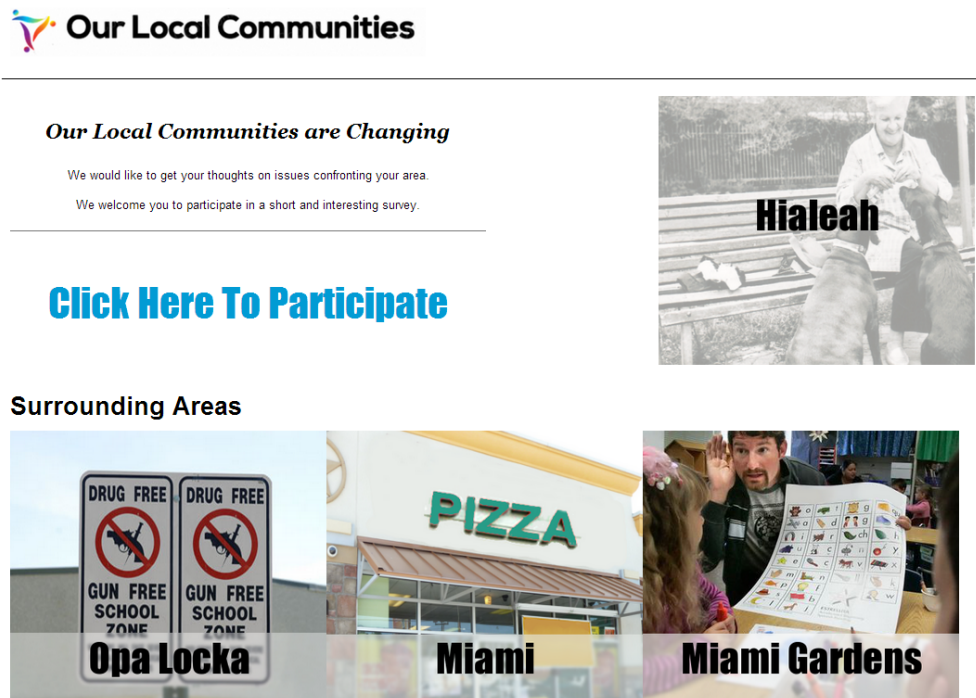


Figure 7: Control Condition for Respondent with ZIP code = 33014

⁹Some respondents were unable to participate because they did not enter in a correct ZIP code or lived in a ZIP code that was not available in the ZIP code database used to match city names to ZIP codes.

Our Local Communities are Changing

We would like to get your thoughts on issues confronting your area.
We welcome you to participate in a short and interesting survey.

[Click Here To Participate](#)



Surrounding Areas



Figure 8: Treatment Condition for Respondent with ZIP code = 33014

7.2 Outcomes

Local Political Action. Preferences for local political action were measured using a six item summative scale which tapped into preferences for community involvement and perceptions of local political efficacy (see the Supplemental Appendix for a list of scale items). For instance, the scale included items which asked “if given the opportunity, would you participate in a local protest?” and “how interested would you be in joining a community group devoted to local issues” ($\alpha = .68$; $\bar{x} = 1.95$; $s = .51$).

Mobility Considerations. Mobility considerations were measured using a dichotomous item which asked “If given the opportunity to move, would you take it?” ($\hat{p} = .68$)

7.3 Moderator

Δ *Immigrant*. Changes in immigrant composition are measured using the change in the proportion of foreign-born residents within a ZIP code from 2000 to 2011 ($min = -.13$; $max = .14$; $\bar{x} = .02$; $s = .04$)¹⁰. Although the range is narrower, the \bar{x} and s estimates of Δ immigrant in the experimental sample are close to those in the 2000 SCCBS ($\bar{x} = .03$; $s = .04$). Thus, the distribution of Δ immigrant in the experiment does not appear to deviate significantly from its distribution in the observational data. This variable is recoded to range from 0 to 1 in the models to facilitate the interpretation of the interaction coefficient.

7.4 Analytical Strategy

Much like in the 2000 SCCBS, manipulated surrounding immigrant composition¹¹ should interact with Δ immigrant to produce lower (higher) levels of exit (voice). To assess this, I estimate two moderated regressions, one for each outcome, with the following form¹²:

$$Y_i = \alpha + \beta_1 T_i + \beta_2 X_i + \beta_3 T_i X_i + \epsilon$$

where T is a treatment indicator and X represents Δ immigrant.

This model allows us to capture conditional average treatment effects (CATEs). CATEs rather than average treatment effects (ATEs) are estimated because the theory involves

¹⁰The 2010 Census dropped questions regarding nativity status. Thus, the ACS 2007-2011, which provides comprehensive estimates of the foreign-born population across those years, is used in its place.

¹¹As a manipulation check, perceptions of local and surrounding areas were measured. The treatment increased perceptions of immigrant composition in surrounding areas *relative* to composition in one's local area by 1.99 percent. However, this difference was only marginally significant ($p = .09$, one-tailed). One might wonder whether the treatment significantly altered participants' perceptions of local composition. However, differences between treatment and control groups in terms of perceived local composition were not significant ($p = .35$, one-tailed).

¹²A multi-level model is not appropriate here since the average number of units per ZIP code ≈ 1 .

conditional hypotheses. The effects of surrounding immigrant composition should *only* be observed among residents who live in areas experiencing local immigration. If H1 is supported by the data, β_3 should be negative and significant in the mobility considerations model, such that the probability of mobility is decreased among those in the treatment condition who reside in places with high local immigration. If H2 is supported by the data, β_3 should be positive and significant in the local political action model, reflecting an increase in local political action among those in the treatment condition who also reside in places with high local immigration. Table 3 displays the results from both models.

Table 2: Fight, Flight, and Manipulated Surrounding Composition

	<i>Dependent variable:</i>	
	Mobility Considerations (Moving = 1) (1)	Local Political Action (2)
β_1 Treatment	.60 (0.29)	-0.14 (0.10)
β_2 Δ Immigrant	.78* (.36)	-.35** (.12)
β_3 Treatment x Δ Immigrant	-1.00* (.50)	.29* (.17)
Intercept	0.23 (0.21)	.79** (0.07)
Observations	173	234

Entries are unstandardized coefficient estimates with standard errors in parentheses. Models were estimated in the *R* programming language. The *lm* function in the *base* library was used to estimate a linear regression model. * $p < .05$; ** $p < .01$ (one-tailed)

7.5 Results

The results in Table 3 mirror those in the 2000 SCCBS. β_3 is significant and in the expected direction for both outcomes. β_3 is negative in the mobility considerations model and positive in the local political action model. Figures 9 and 10 display the treatment effect estimates across values of Δ immigrant.

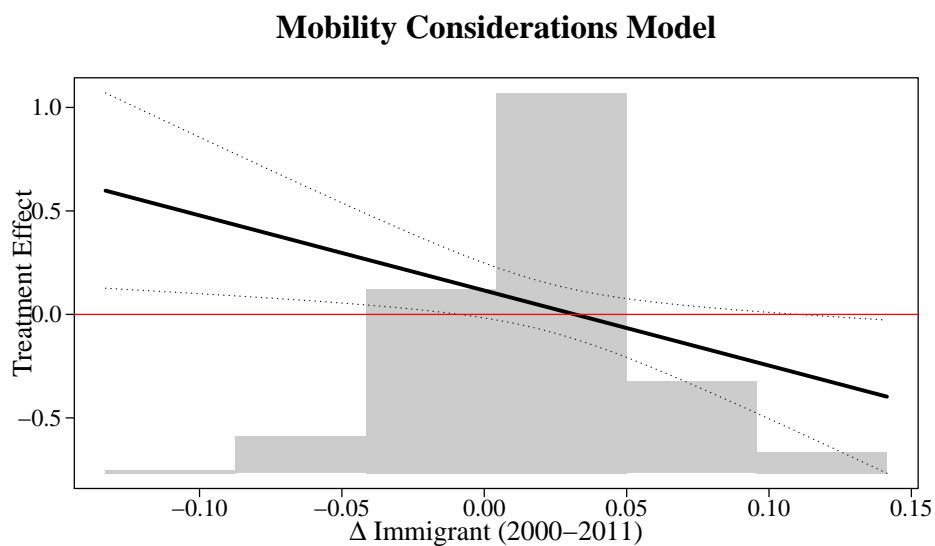


Figure 9: Conditional average treatment effects across levels of Δ immigrant. Histogram depicts distribution of Δ Immigrant. Outer bands depict 90 percent confidence intervals.

Local Political Action Model

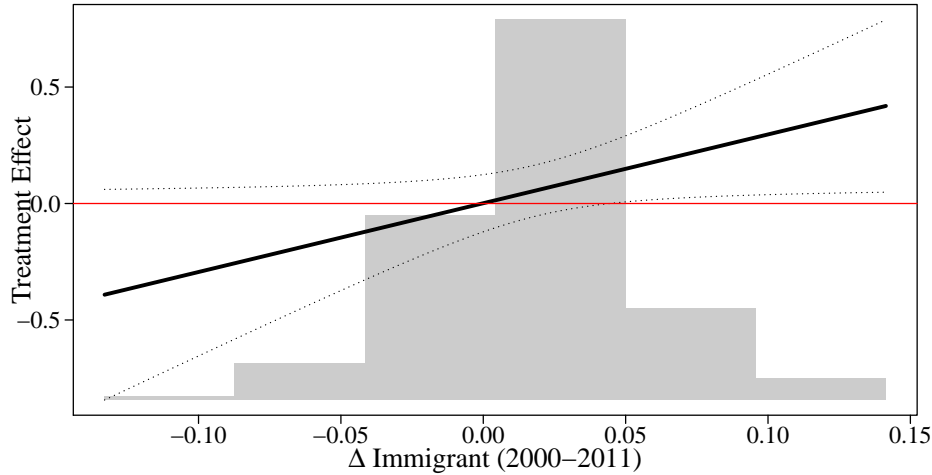


Figure 10: Conditional average treatment effects across levels of Δ immigrant. Histogram depicts distribution of Δ Immigrant. Outer bands depict 90 percent confidence intervals.

H1 finds support in the mobility considerations model. In the mobility considerations model (Figure 9), the surrounding immigrants treatment increases mobility considerations by about 60 percent when Δ immigrant is at its minimum. However, when Δ immigrant is at its maximum, the treatment effect reverses in sign and produces about a 40 percent decrease in mobility considerations. The treatment is positive and significant below the 50th percentile and negative and significant above the 99th percentile of Δ immigrant.

H2 finds support in the political action model. In the local political action model (Figure 10), the surrounding immigrants treatment decreases prospective local political action by about 15 percentage points when Δ immigrant is at its minimum. However, when Δ immigrant is at its maximum, the treatment effect produces about a 16 percentage point increase in local political action. The treatment is positive and significant above the 70th percentile of Δ immigrant, which is larger than the region of significance for the mobility considerations model.

To avoid parametric assumptions, one might use one of the newer statistical tools to detect heterogeneous treatment effects. Although the construction of the model above is

theoretically informed, an overreliance on theory might drive one to be overly optimistic about the empirical results. I explore heterogeneous treatment effects using the LASSO based method described in (Imai, Ratkovic et al., 2013). According to simulation studies, this method is preferable to other approaches including the BART method described in Green and Kern (2012). To estimate treatment effect heterogeneity, Imai, Ratkovic et al. (2013) essentially implement a procedure that “searches” for covariates with the strongest moderating effects. Candidates for heterogeneous treatment effects include age, income, Δ Immigrant, ideology, gender, and home-ownership. The results are shown in Figures 11 and 12.

In the local political action model, Δ Immigrant, an age x gender interaction, ideology, and an age x owner interaction are associated with positive treatment effects whereas ideology x gender, home-ownership, and being female are associated with a negative treatment effect. As far as the theory is concerned, a positive effect for Δ Immigrant is consistent with expectations. The interpretation of the other findings is more complex. The results show that older women, conservatives, and older homeowners are more likely to participate when exposed to surrounding immigrants whereas female conservatives, homeowners, and women are less likely to participate in light of the treatment. These findings are roughly consistent with the theory of *Fight or Flight* as the mobilizing effect of surrounding immigration is concentrated around groups for which mobility costs or neighborhood attachment might be greater.

As for the mobility considerations model, the results are not consistent with the theory. In fact, respondents in rapidly changing environments and high income individuals who live in those contexts are more likely to desire exit when exposed to surrounding immigration. These groups, specifically, should be less likely to desire mobility if the theory is correct. Therefore, although the non-parametric results corroborate the results for the linear model in the political action model, the non-parametric mobility considerations model yields results that are inconsistent with the linear model findings. Due to the small num-

ber of respondents answering the mobility considerations model ($N = 174$), a possibility is that the Imai, Ratkovic et al. (2013) results should be taken with a grain of salt. A larger sample might help in this respect as there should be more variation on pretreatment modifying variables.

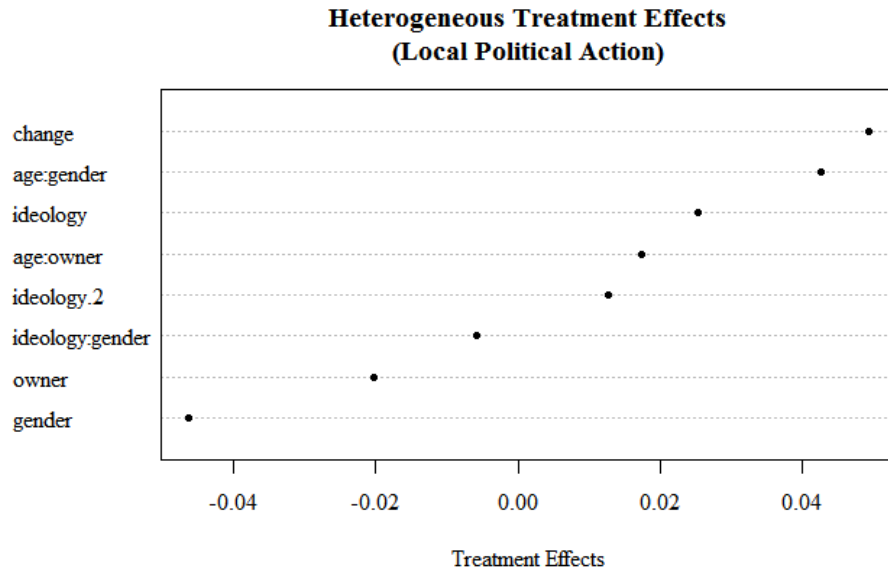


Figure 11: Heterogeneous treatment effects for Local Political Action.

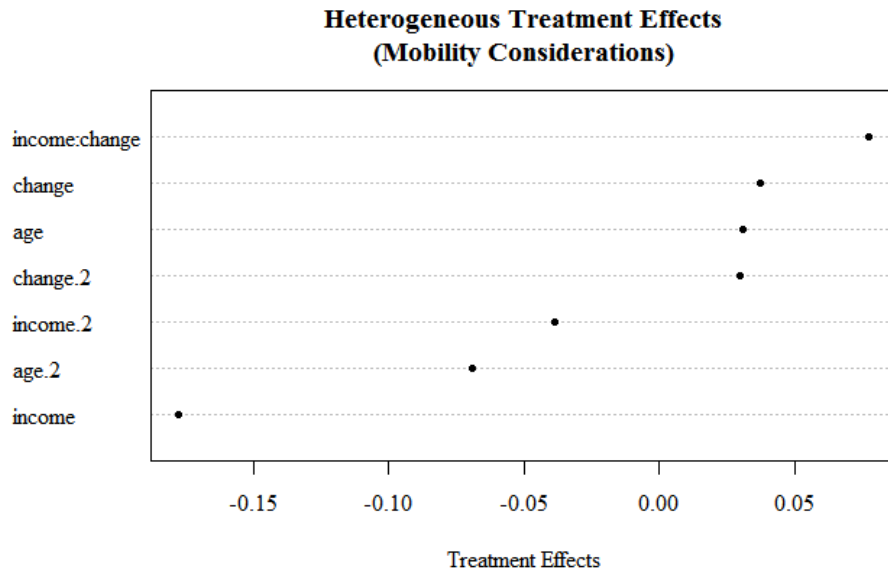


Figure 12: Heterogeneous treatment effects for Mobility Considerations.

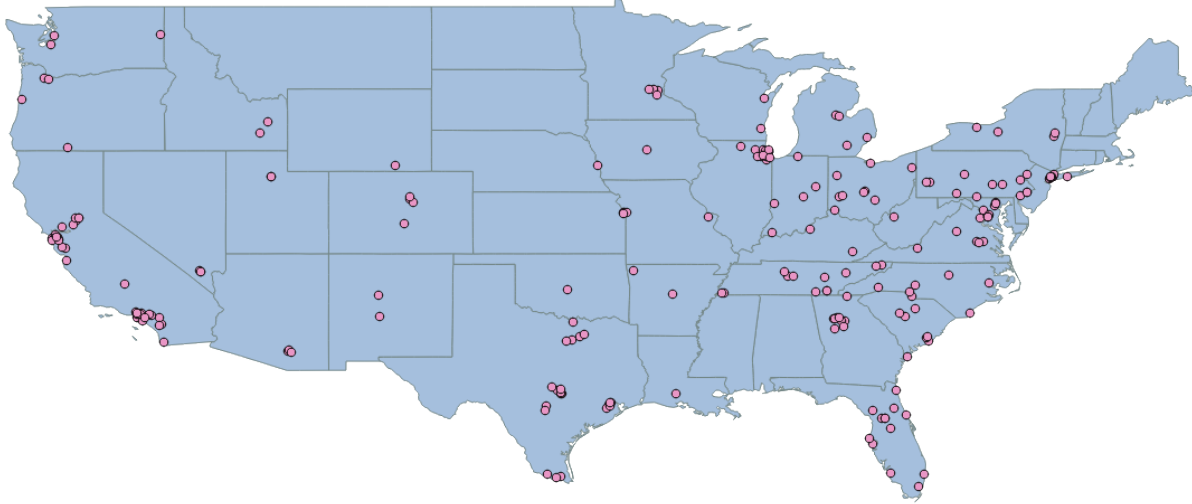
7.6 Where do these people come from?

A major benefit of Mechanical Turk over a convenience sample based on students or members of the community, for example, is that the sample is not restricted to a given geography. Figure 13 displays locations for each Mechanical Turk respondent, mapped to the nearest ZIP code. Respondents are not concentrated in particular regions of the country. Although most of the respondents live near metropolitan areas, there is also a great deal of variation at the state level. Although the summary statistics for Δ Immigrant in the experimental sample were comparable to those in the 2000 SCCBS, the spatial distribution of respondents displayed in Figure 13 is reassuring as it shows that respondents are dispersed across the United States and not concentrated in high immigration areas. This might be due to the fact that the survey invited people to participate in a survey about their local community and made no explicit reference to immigration in the invitation.

7.7 Discussion

Under conditions of rapid local immigration, the treatment – which manipulates the prevalence of immigrants in surrounding areas – increases prospective participation and mobility considerations relative to the control. Thus, H1 and H2 both find support in the data. These findings replicate the 2000 SCCBS results in two ways. First, the general pattern of effects observed in the experiment conform to the effects observed in the observational data. A greater number of immigrants in surrounding areas (real or perceived) decreases exit and increases voice, but only among those who live in areas also experiencing rapid local immigration. Second, the range of values over which the treatment exerts a sig-

Figure 13: Mechanical Turk Respondent Locations (Nearest ZIP Code)



nificant effect on mobility and political action is similar to the region of significance for those same outcomes in the observational data. Again, we find that the treatment affects mobility considerations and local political behavior, but only in the presence of rapid local immigration.

Again, we find that the effects of surrounding immigrant composition are associated with higher levels of mobility in places that are losing immigrant populations and lower levels of mobility in places that are gaining immigrant populations. Inspection of these cases reveals that these respondents reside in metropolitan areas, and 40% of the cases in the 10th percentile of immigrant growth reside in Los Angeles. For reasons specified in Chapter 3, mobility might be more likely among respondents from Los Angeles and thus, the higher estimates of mobility might be an artifact of the specific qualities of LA residents. Omitting these cases on the low end of the local immigration does not affect the sign of the effect, but does affect the statistical significance ($p = .12$).

Given that these effects replicate across two studies, one possibility is that the processes outlined are contingent on whether one lives in an urban or non-urban environment. The prevalence of immigrants in surrounding areas might be perceived differently by individuals living in urban and non-urban environments. Since there are more mobility options in urban environments, immigrants in surrounding areas might not deter residents in urban areas from seeking out places to move since more options are available, whereas for residents in non-urban areas the prevalence of immigrants in surrounding areas might be perceived to be more constraining. Unfortunately, the data do not allow me to assess this hypothesis due to sample size limitations. However, a larger study with a better sampling of urban and non-urban contexts would allow me to assess whether mobility is perceived differently by residents in different areas.

Despite their strengths in allowing scholars to identify causal effects, experiments are limited in their ability to model dynamic relationships between actors. In the real world, native-born residents do not make decisions in isolation and both outcomes (i.e. flight and political action) can have ramifications on immigrant mobility. Agent-based modeling is a methodology that allows one to model these kinds of interactions between agents. Moreover, it provides a means by which the aggregate implications of individual-level theories can be explored. Thus far, the theory has been explored at the individual level. However, with interacting agents, the conclusions that we draw might deviate greatly from conclusions based on individual level data. This is especially true in the case of mobility where the decisions that individuals make can impact the decisions of others. In the following section, an agent-based model based on the theory is constructed which incorporates both native and immigrant mobility factors and produces predictions of where we ought to observe local political action in response to growing immigrant populations. This approach allows us to better understand what happens when we take our individual-level models and “aggregate” up.

8 Study 3: The Fight or Flight Agent-Based Model

The past two studies have explored the theory of *Fight or Flight*. The theory holds that in the presence of local changes in immigrant populations, residents will be more likely to engage in local politics if mobility options are limited and more likely to move if mobility options are available. Using observational data, I found that respondents living in areas with growing immigrant populations were more likely to participate in local politics, more likely to express anti-immigration attitudes, and less likely to move when surrounded by large immigrant populations, and vice versa when they were surrounded by large native-born populations. To address concerns about unobserved confounding or omitted variable bias, I designed an experiment that manipulated participants' perceptions of surrounding areas. In this study, I found that participants who were exposed to a condition that linked surrounding areas with immigrant populations were more likely to express a desire to participate in local politics and less likely to express a desire to move than participants who were exposed to a condition that associated surrounding areas with native-born populations. Taken together, these studies provided convergent evidence that mobility options moderate residents' reactions to demographic changes in their environments.

While these studies are useful in assessing the key predictions of the theory at the individual level, in the real world, behaviors like mobility and political action can have repercussions that go beyond a simple response to a survey. As work on tipping points demonstrates (Goering, 1978), the mobility behaviors of individuals can have implications on the ultimate demographic composition of an environment, as a few majority group members exiting an environment can eventually lead to an exodus. Moreover, support for anti-immigration policies can serve as a signal to immigrant populations that they are not welcome in a given community, which can eventually affect the rate at which these communities experience changes in immigrant composition. To develop a more comprehensive model of how these behaviors interact and aggregate, I develop an agent-based model and

evaluate how well the model predicts real world behavior in the United States.

The goal of this study is to explore what the implications of the individual-level model are as we look at individual communities. Thus, it may seem to depart from the prior chapters which focused solely on individuals. However, this study uses the models described in Chapter 3 and 4 and essentially creates a world where native-born residents who react to immigrants in the manner described by the theory actually come into contact with those immigrants. The feedback loop between native-born behavior and immigrant behavior and how it relates to real world outcomes is what is examined here.

8.1 Modeling Strategy

Agent-based modeling is an analytical, simulation-based tool that allows researchers to model relationships between agents and their environments. Agent-based models (ABMs) involve multiple agents interacting with each other on a space, using limited local information to make decisions. Their behavior is heterogeneous, such that agents follow different behavioral scripts when responding to the environment and other agents. ABMs are equivalent to formal analytical models in that they are built on formal descriptions of agents, environments, and how they interact. Their main point of divergence is in the calculation of solutions. Rather than being solved analytically, ABMs are solved through simulation.

For non-practitioners, agent-based modeling may seem foreign. Quantitative political science usually proceeds by identifying a unit of analysis, collecting data, and estimating a model that predicts the unit-level behavior. A key assumption underlying these models is the independence of observations. Independence assumptions simplify estimation; however, they also prohibit us from exploring how units interact. Imagine a model that finds that vote choice is strongly predicted by partisanship. While this model might be informative in telling us what the average voter might look like, it tells us nothing about how the

partisanship of one voter might influence the partisanship of another. However, voting is a collective behavior and thus, to fully understand the process, an analyst might improve upon existing models by also incorporating relational information about voters. One would think that this would be sufficient to allow us to make inferences about aggregate-level outcomes. But, work in the area of agent-based modeling finds that individual-level data, no matter how faithfully modeled, can produce patterns in the aggregate that deviate from expectations (Epstein, 2006).

In the Schelling model, for instance, segregation is observed even in the absence of individuals with strong preferences for similar neighbors. Although a long line of research had argued that overt prejudice strongly determined segregation patterns, Schelling demonstrated that overt prejudice was not sufficient to generate segregation. Minor preferences for similar neighbors (i.e. in the range of 10-15%) can produce segregated neighborhoods. The behavior of one agent can have cascading effects on other agents and this can shape outcomes at the aggregate level. The purpose of agent-based modeling is to create individual level models of behaviors that explicitly incorporate interactions between individuals. By incorporating these interactions, we can simulate aggregate quantities of interest that better reflect the data generating process than a simple extrapolation from individual-level results to aggregate-level expectations.

In this chapter, I describe an agent-based model that takes the individual-level model of native-born residents' behaviors described by the theory of *Fight or Flight* and simulates interactions between native-born residents and immigrant newcomers. As a reminder, the theory holds that in the presence of demographic changes brought about by immigration, native-born residents will be more likely to move if exit options are available and less likely to participate in politics, whereas the opposite will be observed if exit options are unavailable. In the model, native-born residents behave in accordance with the theory and respond to the characteristics of their local environments. Immigrants' mobility probabilities are influenced by these behaviors which then have effects on the behaviors of native-

born agents. This process iterates until the simulation converges on an equilibrium.

Since a key component of my model is mobility, agent-based modeling allows me to simulate this process over time for multiple agents. Data availability concerns prevent me from assessing this process using cross-section and panel studies, which do not tend to include mobility histories and suffer from problems of endogeneity. Endogeneity is not a concern with agent-based modeling, since the order and relationships between variables are modeled formally, the behaviors that emerge within the model are a direct function of the specified parameters. In addition, agent-modeling allows me to model interactions between native-born residents and immigrants across space, which would be difficult using traditional methods due to the dynamics between agents. Also, agent-based modeling allows me to assess how immigrants might respond to native-born residents' behaviors. Since data on the latter are easier to obtain than the former, I can use predictions of the latter to produce expectations of how immigrants might respond to fight or flight behaviors.

It is worth noting that, apart from standard econometric models, ABMs are one of the primary tools sociologists and economists use to model neighborhood change. The main benefit of agent-based modeling, especially in the study of mobility, is that it allows scholars to model spatial interactions between agents (i.e. people or groups of people) over time. ABMs can be tied to empirical data so the importance of different parameters in predicting real world outcomes can be assessed, much like in standard econometric models. Although agent-based modeling has existed for decades as a methodology for solving dynamic formal models, political scientists have recently started building empirically verifiable ABMs thanks, in part, to increases in computing power (Janssen and Ostrom, 2006). For instance, Bhavnani et al. (2014) construct an empirically-informed ABM that models segregation and conflict in West Jerusalem and find that it outperforms standard econometric models. The model presented here takes a similar approach.

Before estimating an agent-based model, however, individual-level models must be constructed by creating formal behavioral models for each agent. In the following section, I

attempt to formalize many of the assumptions described in Chapter 2. While these formal models might depart slightly from the modeling decisions made in previous chapters, the individual-level models are largely in the spirit of the theory. The key behaviors of the *Fight or Flight theory* – mobility and voice – are modeled as a function of local and surrounding characteristics and only become activated in the presence of rapid local immigration. The expression of these behaviors by native-born agents in turn influences the mobility decisions of immigrants. The individual-level mobility models for immigrants include preferences for other immigrants and places with low levels of voice. The latter factor is included to explore how voice might impact mobility decisions among immigrant agents. Before delving into the specifics of each model, I will describe the two agent groups and their behaviors.

8.2 Description

There are two types of agents: natives and immigrants. Natives can either move or voice whereas immigrants can only move. Agents inherit the characteristics of their neighborhood, such that the immigrant composition and housing prices in their neighborhood can be used as information to make decisions.

For agents $i \dots n$ in time period t , the probability of moving is determined by the following equation¹³:

$$M_{it} = \frac{\exp(U_{at})}{\exp(U_{at}) + \exp(U_{it} + C)} \quad (2)$$

where C is a cost associated with moving and U_{it} is a deterministic function of inputs

¹³A logistic functional form is used since migration is a dichotomous choice. This specification choice has the largest impact on agents with extremely low and high probabilities of migration or action. For most agents, the decision between a logistic, probit, linear or other functional form has very little impact on the behavior of the model.

X and corresponding β weights. The C parameter captures moving costs that are unmodeled and thus, reflects the extent to which people move without knowing why they move. The U_{it} inputs are modeled costs and benefits of moving using observed variables:

$$U_{it} = \alpha + \sum_{k=1}^n \beta_k X_{itk} \quad (3)$$

for $k = 1 \dots n$ inputs and a fixed β_k throughout each simulation.

U_a is the average utility in adjacent neighborhoods:

$$U_{at} = \frac{1}{n} \sum_{j=1}^n U_{jt} \quad (4)$$

where n is the total number of surrounding neighborhoods. Surrounding neighborhoods share a border with neighborhood i ¹⁴. U_a allows us to capture the average utility associated with surrounding areas, which then allows agents to move based on the utility they would gain by moving to a surrounding area.

The probability of voice for natives is defined as the inverse probability of mobility¹⁵:

$$V_{it} = 1 - M_{it} \quad (5)$$

Natives voice or move if and only if their tolerance threshold is surpassed. This aspect of the model is similar to the “neighborhood preference” parameter in the Schelling model. That is,

$$M_{it} + V_{it} > 0 \iff \tau_{it} \leq \Delta_{it} \quad (6)$$

¹⁴Neighbors are defined using a Queen contiguity rule. Location j is a neighbor of i if it shares a border or edge with i .

¹⁵Although immigrants have the ability to voice as evidenced by the 2006 Immigration protests, this is primarily a model of local reactions among native-born residents. The 2006 Immigration protests were mainly focused on national policy, rather than local policies, and thus, the locally-focused voice described in this dissertation seems more applicable to natives. Future models could explore how immigrant voice and native voice interact, however.

where Δ_{it} represents the positive change in immigrant proportion from $t - 1$ to t ¹⁶ and tolerance is defined as:

$$\tau_{it} = \frac{1}{1 + \exp^{-(\alpha_1 + \gamma_1 I_{it-1} + \gamma_2 E_{it})}} \quad (7)$$

where I_{it-1} represents the immigrant proportion in the prior simulation step and E_{it} represents neighborhood-level education levels. These two factors are included in the tolerance equation due to their importance in the literature as determinants of positive immigration attitudes (Hainmueller and Hopkins, 2014). A logistic functional form is used to bound τ_{it} between zero and one, since proportions cannot be greater than one and tolerance in the model is viewed as a dichotomous choice.

Now, we turn to the specific utility functions for natives and immigrants. For natives,

$$U_{it} = \beta_1(1 - I_{it}) + \beta_2 H_{it} + \beta_3 L_{it} \quad (8)$$

where $(1 - I_{it})$ is the proportion of natives, H_{it} denotes home prices, and L_{it} denotes loyalty. Since loyalty cannot be a characteristic of surrounding neighborhoods, L_{it} solely belongs to U_{it} , the local environment, and not U_{at} , the surrounding environment. This effectively means that natives prefer locations with other natives and high median home values, and prefer to stay in locations if they are loyal to the area. These factors are included as predictors in the native-born model because of their importance in the immigration and mobility literature (Hopkins, 2010; Crowder, Hall, and Tolnay, 2011).

For immigrants,

$$U_{it} = \beta_1 I_{it} + \beta_2(1 - V_{it}) \quad (9)$$

where I_{it} is the proportion of immigrants and $(1 - V_{it})$ is the proportion of natives **not**

¹⁶ $\Delta_{it} > 0$ because the literature finds that *increases* in immigrant composition produce negative attitudes and policies directed toward immigrant groups.

voicing in the current time period. This effectively means that immigrants prefer locations with more immigrants and less voice. This latter parameter has never been examined as a predictor of mobility among immigrants. Local voice is to be distinguished from local tolerance, since according to the model, local intolerance can manifest itself as either mobility or voice. In the former case, this intolerance remains unobserved and thus does not factor into immigrant mobility decisions.

8.3 Implementation

The model is implemented in Python 2.7 using *NumPy*, *SciPy*, and *PySal* libraries. First, the contextual variables are loaded into *ArcGIS* and converted from vector data (i.e. point, line, and polygon data) to raster data (i.e. matrices with cells representing local values of variables). This procedure allows the spatial data to be manipulated in Python. Once the data have been rasterized, *NumPy*, *PySal* and *SciPy* are used to calculate local proportions of exit and voice for natives, and exit for immigrants. *PySal* is used to calculate spatial lags for each cell¹⁷, while *NumPy* and *SciPy* are used to implement the agent actions. The cells are updated all at once using the rules described by the model. The program terminates at the point of convergence and the average level of voice for each neighborhood is taken for the entire simulation¹⁸. Figure 14 displays an example of model predictions at the point of convergence. I run 1,000 simulations with varying parameter values, compute the fit between model predictions and outcomes, and estimate the importance of each parameter in producing observed levels of voice.

¹⁷Again, this is the average value in adjacent tracts that share a border or edge with the individual.

¹⁸Convergence is defined as the point at which mean percentage of immigrants moving is .01%. Since native behavior is tied to immigrant mobility, all behavior practically stops at this point



Figure 14: Example of raster predictions at the end of a simulation. Darker shades of gray indicate a higher prevalence of voice.

8.4 Agent-Based Model Estimation Details

To capture the importance of different model parameters, I vary parameter values across 1,000 simulations. Table 3 lists the parameters along with their respective range. For each parameter, values are taken from uniform distributions with support $[a, b]$.

Table 3: Model Overview

Parameter (Variable)	Details	Values
Immigrants		
C : mobility costs	Non-Empirical, Exogenous	$-6 \leq \alpha \leq 6$
β_1 : immigration proportion (time t)	Empirical, Endogenous	$-6 \leq \beta_1 \leq 6$
β_2 : local voice	Non-Empirical, Endogenous	$-6 \leq \beta_2 \leq 6$
Natives		
C : mobility costs	Non-Empirical, Exogenous	$-6 \leq \alpha \leq 6$
β_1 : native proportion (time t)	Empirical, Endogenous	$-6 \leq \beta_1 \leq 6$
β_2 : median home price	Empirical, Exogenous	$-6 \leq \beta_2 \leq 6$
β_3 : loyalty	Empirical, Exogenous	$-6 \leq \beta_3 \leq 6$
α_1 : intercept	Non-Empirical, Exogenous	$-6 \leq \alpha_1 \leq -4$
γ_1 : prior immigrant proportion (time $t-1$)	Empirical, Endogenous	$-6 \leq \gamma_1 \leq 6$
γ_2 : education	Empirical, Exogenous	$-6 \leq \gamma_2 \leq 6$

Exogenous variables are fixed at the beginning of the simulation whereas endogenous

variables vary throughout the simulation as a result of agent behavior. All of the empirical parameters are based on ZIP code tabulation area (ZCTA) variables measured during the 2000 American Decennial Census¹⁹. Immigrant proportion is measured using the proportion of residents who are foreign born, median home price is measured as the median home price in 1999 dollars, loyalty is measured as the proportion of residents who have lived in the same residence for at least five years, and education is measured as the proportion of residents with at least a Bachelor’s degree. These variables are converted into raster format before running the simulation. In the simulation, each variable is recoded to range from zero to one. When computing effect estimates, this gives us the maximal effect of a particular variable. The boundaries for each variable’s prior distribution reflect realistic parameter values. At the end of the entire simulation, a 10 x 1000 matrix is produced, where each row represents a simulation run and each column represents a parameter. Model predictions are extracted for each simulation by taking the average level of voice in each raster for the entire simulation. Then, fit between each simulation’s predictions and the outcome (i.e. petition signatures) is computed²⁰.

Model Fitting

For simulations $i \dots n$, the familiar coefficient of determination R^2 is used to measure the correspondence between model predictions \hat{y} and y . Since y is a count variable, the log of y is taken.

$$R_i^2 = 1 - \frac{\sum_{j=1}^n (y_j - \hat{y}_j)^2}{\sum_{j=1}^n (y_j - \bar{y})^2} \quad (10)$$

where j denotes ZIP code j in n ZIP codes.

This produces a vector of length 1000 with R^2 values for each simulation. This matrix

¹⁹ZCTAs and ZIP codes are designed to be comparable. In this study, all data are at the ZCTA level. However, the term “ZIP code” is used to refer to ZCTAs.

²⁰Since the model’s predictions are in raster format and the outcome variables are in vector format, model predictions are converted into vector format using *ArcGIS*’ zonal statistics tool.

is joined with the 10 x 1000 matrix of parameter values and I plot the prevalence of particular parameter values in the best-fitting models using a bean plot (Kampstra 2014). This is similar to the procedure implemented in Bhavnani et al. (2014). Figure 15 displays the fitting procedure. The raster predictions (top) are converted into vector data (center), and the R^2 between these data and outcomes (bottom) is computed. In this particular simulation (displayed in Figure 15), immigrant mobility (C_I) is relatively cost-less, native mobility is costly (C_N), and local voice ($\beta_2 1 - V_{it}$) strongly determines immigrant mobility decisions. The R^2 is .096. If simulations where immigrant mobility costs are low (i.e. low values of C_I), for instance, consistently produce higher R^2 then we can say that low mobility costs for immigrants are important in generating observed voice.

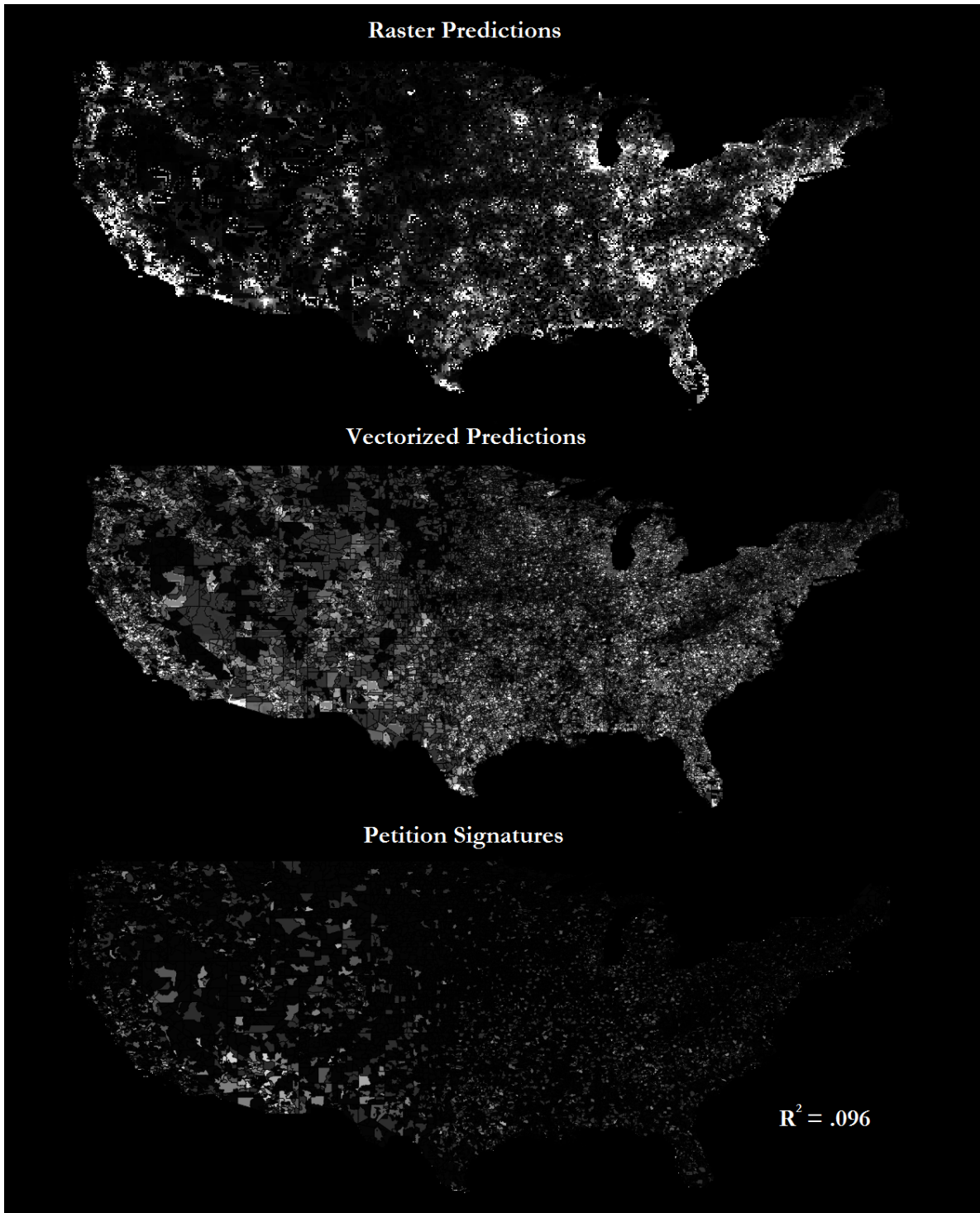


Figure 15: Estimation Procedure. First, raster predictions are converted into vector data. Then, these vector data are merged with the outcome data which are also in vector format. The fit between model predictions and petition signatures is measured using R^2 .

8.5 Outcomes

A large data set of anti-immigration petition signatures is used to assess voice²¹. I gather online anti-immigration petition signatures from an online petition site GoPetition. The site hosted a popular petition that allowed people to voice their support for Arizona's *SB1070*, a controversial law that allowed police officers to ask state residents about their citizenship status during routine traffic stops. This data set includes a large number of respondents throughout the country ($N = 173,385$)²² expressing support for *SB1070* and over half of all of the signatures include city and state names for most respondents²³. Figure 16 displays a map of the petition signatures. Despite the fact that the petition refers to Arizona's *SB1070*, the geographic distribution of petition signatures is not heavily concentrated in Arizona but instead shows a great deal of coverage across the continental United States. These signatures are aggregated at the ZIP code level.

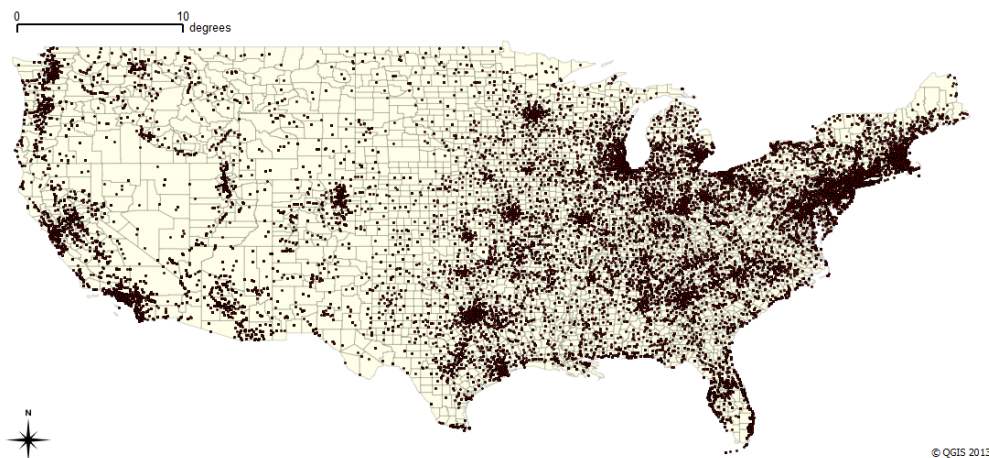


Figure 16: Online Anti-Immigration Petition Signatures

²¹Additional analyses examining petitions as an outcome are available from the author. The results are almost identical to those observed for the petition data

²²This was at the time of data collection (April 17, 2013).

²³These data were gathered by creating a web scraping procedure in R that scraped the petition data from the petition site. Google Refine, a data cleaning utility created by Google, was used to clean the data. OpenMaps API was used to convert city and state names into geographic coordinates. After generating the coordinates for each respondent, QGIS, a spatial analysis program, computed the petition counts by summing up the number of points within a given ZIP code using the zonal statistics tool.

8.6 Results

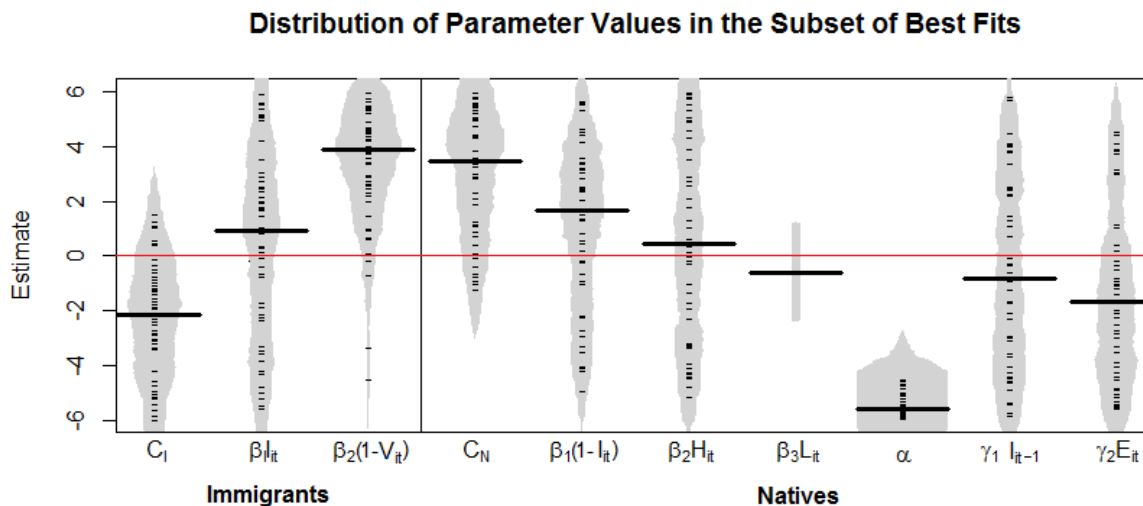


Figure 17: Distribution of Parameter Values in Subset of Best Fits. The black line represents the median value of the parameter, the dots represent each individual parameter value, and the gray band represents the parameter’s distribution.

Figure 17 shows the distribution of parameter values in the best-fitting models along with their medians²⁴. If a parameter is irrelevant in predicting the outcome, the median should be centered around zero. If, however, a certain parameter value is consistent with the data and increases the correspondence between the model and the data, the median and overall distribution should deviate from the zero point. Since the choice models are logistic, the specific estimates are not directly interpretable but larger magnitudes symbolize greater importance in generating the observed data.

In line with the empirical literature on mobility differences between native-born and foreign-born Americans (Perry et al., 2003), higher mobility costs among natives (C_N) and lower mobility costs among immigrants (C_I) increase the likelihood of observing voice. In the immigrant mobility model, strong preferences for places with lower levels of voice

²⁴Best fitting models are defined as those in the 95th percentile of R^2

$(\beta_2 1 - V_{it})$ increase the likelihood of observing voice whereas in the native mobility model, slight preferences for places with smaller foreign-born composition $(\beta_1 1 - I_{it})$ trend in the same direction, though the effects are smaller. Home prices $(\beta_2 H_{it})$ and loyalty $(\beta_3 L_{it})$ do not appear to influence voice²⁵. In the immigrant tolerance model, low baseline levels of tolerance (α) are most consistent with the data. Simulations where prior levels of the immigrant population $(\gamma_1 I_{it-1})$ and low education levels $(\gamma_2 E_{it})$ decrease tolerance levels are most consistent with the data. However, their cumulative impact on observing voice is small.

While more interpretable parameter estimates would be ideal, the parameters themselves govern behavior at different units of analyses (i.e. at the individual level and simulation level) and are not directly interpretable other than in terms of how much variance in an outcome variable is explained by a given parameter. Thus, while it would be nice to tie the parameter estimates to a concrete interpretation in terms of predicted probabilities or continuous values, the fact that different parameters correspond to different units makes this difficult. The best we can do is say that certain parameters explain a greater proportion of the variance in the outcome than other variables. Although this may be unsatisfying for scholars who would prefer a neat function relating outcomes to predictors, the main strength of agent-based modeling is in modeling entire systems, rather than estimating an individual function.

8.7 Discussion

The results provide support for the theory of *Fight or Flight*. Most of the mobility model parameters are important in generating the observed data, and preferences for lo-

²⁵This may be due to the fact that home prices exhibit auto-correlation and thus, the difference between local home prices and surrounding home prices might not deviate significantly.

cations with lower levels of local voice (which links immigrant mobility to native behavior) strongly predict the likelihood of observing *actual* voice. This finding is novel, since much of the contextual literature has focused on explaining away residential selection for natives but has not specified how immigrants might select into different areas. In the aftermath of Arizona's *SB1070*, Murphy (2012) writes that many immigrants fled Arizona out of fear of being deported or discriminated against. The ABM takes these dynamics seriously and produces better predictions than existing models which do not incorporate these links between native and immigrant behavior²⁶.

The suggestion that immigrants might select into or out of areas based on whether the local political situation is receptive or hostile is not surprising. However, a long line of research on the topic of context has not thought about the issue of selection on the part of minority residents. Instead, scholars have controlled for factors that predict majority group selection processes without accounting for minority group mobility and stasis. These findings suggest that the contextual literature should further develop its models of mobility among minority group members and consider the relationship between local policies and the eventual demographic composition of different areas. More work should consider the feedback between politics and mobility, as these processes are likely intimately related. Although contextual scholars would prefer for this not to be the case as this makes it more difficult to identify a causal effect for context, viewing mobility and politics as inseparable may be more consistent with how these processes are realized in the world.

The goal of this chapter was to explore how the micro-level implications of the theory aggregate within a dynamic environment. As such, the agent-based model does not nec-

²⁶The R^2 of the best-fitting ABM is 30% higher than the R^2 of a canonical model in the literature. The best-fitting ABM produces an R^2 of .16 whereas a fully-specified model in the literature produces an R^2 of .112. This model includes the following predictors: total population, population density, percent Male, percent foreign born, percent Black, percent White, percent Asian, percent Hispanic, unemployment rate, median income, Δ Immigrant (2000-2010), and the interaction between Δ Immigrant and prior levels of foreign-born composition. All of the variables are measured at the ZIP code level using 2010-2011 Census and ACS data. It is important to note that the ABM only estimates 10 parameters, whereas the OLS model estimates 13. Thus, not only does the model generate better predictions, it also utilizes a smaller number of parameters.

essarily augment our understanding of the individual-level processes that undergird the theory, but instead aids in our understanding of the interaction between the relevant actors described throughout the dissertation. In Chapters 3 and 4, the predicted behaviors of native-born residents were found to be consistent with theory. However, none of the results spoke to how those behaviors might impact immigrant mobility. The agent-based model presented here was an attempt at doing so and provided some preliminary answers concerning the role of local voice in shaping immigrant mobility decisions. In the following chapter, I will discuss extensions of this model and the theory more generally. I will also describe the limitations of the studies described in Chapters 3, 4, and 5 and how future research designs might improve upon them.

9 Chapter 6

10 Limitations and Future Directions

Although the results provide some evidence for the theory of *Fight or Flight*, there are several limitations that can be improved upon or resolved in future research. When conducting a study, although one might address most limitations that come to mind, often these limitations are not made salient until the study has been conducted and one has worked through the data and presented the results to colleagues. This chapter can be considered a joint venture between me and some of the great scholars I have had the pleasure of presenting my work to. Although the evidence presented here is suggestive of the theory, it is certainly not dispositive. The theory is inherently difficult to test, especially if assumptions are not given, since assessing the assumptions of the theory requires granular data that do not currently exist at the moment. As researchers begin to incorporate more fine-grained measures of context (Moore and Reeves, 2014) into analyses and data on residential mobility become more plentiful, some of these assumptions might be validated at a later time. In addition, creative approaches to identifying crucial parameters in the model through natural experiments or field experiments should be welcomed as an additional means of evaluating the validity of the theory. In the following sections, I will describe limitations and potential solutions. The recommendations are a start and help clarify some of the “missing links” that have not been validated in this dissertation and should strengthen the credibility of the findings if evidence supporting the theory is observed.

10.0.1 Study 1: The 2000 SCCBS

The opt-in design of the 2000 SCCBS poses some inferential problems, especially in assessing what is ultimately a theory of context, since the communities present in the sample

are not a random sample of communities across the United States but a self-selected group of communities who wished to participate in this large-scale study. Although the samples within these communities are effectively simple random samples, the fact that communities were able to opt into the 2000 SCCBS limits the greater amount of variation at the contextual level that would have been obtained via other sampling methods such as a cluster sampling design. Since many of the communities in the sample did not experience rapid changes in immigrant populations, however, this lack of variation should make it more difficult to find significant effects and thus, should work against the theory. That being said, more spatial variation at the level of communities would be useful in increasing the generalizability of the results. After all, it is better to make predictions about in-sample observations than those that are clearly out-of-sample, as such predictions will be less model dependent (King and Zheng 2006).

Another limitation is that while the questions in the 2000 SCCBS are useful proxies for theoretical concepts, the items are only rough approximations of the outcomes of interest. Although the local political action item taps into political participation in the manner predicted by the theory, it does not specifically capture local political action as it relates to demographic change, and immigrant change in particular. Also, the mobility outcome does not measure preferences for mobility but instead asks respondents about whether they see themselves living in the same community in the future. This item makes it difficult to distinguish movers who are moving as a matter of choice, and those who are forced to move because of factors such as affordability. The theory predicts that people are actively selecting the exit option over voice as a response to local immigration, not being forced to select it due to economic pressures, for instance. The immigration item in the 2000 SCCBS helps corroborate the idea that attitudes about immigration are driving these responses. However, a more direct item would ask participants about their reactions to *local* immigration. Leaving all of this aside, however, the biggest flaw in the design of Study 1 is the inability to draw strong conclusions about causal inference. It is unclear whether observed effects

are due to unobserved variables driving selection into communities with certain local and surrounding immigration characteristics.

A possible explanation for the results goes as follows: politically involved and less mobile individuals who are also anti-immigration are more likely to reside in communities with rapidly changing immigrant populations that are also surrounded by large immigrant populations than those who are less politically involved, more mobile and less anti-immigrant. Although the models control for factors that predict political involvement, mobility, and predispositions toward immigration, the outcome measures themselves may still have left over variance that predicts selection into the rapid local change/high surrounding immigration conditions. It is unclear why citizens with the characteristics described above would select into these kinds of configurations. Why would those who are anti-immigration deliberately select into environments where local and surrounding communities are both saturated with immigrants? Similarly, why would politically activate and less mobile individuals be more likely to live in these kinds of environments than those who are less politically active and more mobile? Even though these alternative explanations can be called into question from a theoretical or even practical perspective, data are required to rule out these concerns and these data are not available. Study 2 allays some of these issues thanks to the mechanism of random assignment.

10.0.2 Study 2: Our Local Communities Experiment

Although Study 2 helps address some of the critiques of Study 1, external validity is an obvious concern. In an attempt to maximize the external validity of the experiment, participants are exposed to the most numerous immigrant group in the United States (Hispanics), images are chosen that would be plausible in most communities in the United States, and perceptions of *surrounding* rather than *local* communities are manipulated. The last point is important, since contextual scholars would likely dismiss a study that attempted to manipulate perceptions of a respondent's local context, due to the fact that it

would be difficult to shift respondent's perceptions of their own local contexts through a simple experimental treatment. For a design to successfully overcome this potential critique, participants would have to be relatively unaware of the out-group composition of their area while also trusting in the treatment. Since the manipulation of surrounding communities does not involve participants' actual communities, the ability to manipulate their perceptions is simplified and thus, the treatment overcomes what might be a valid critique of studies that attempt to manipulate perceptions of *local* contexts.

Though Study 2 helps address the problem of unobserved confounding as it relates to surrounding composition, it does not establish the independence of immigrant change and potential outcomes. The language in the dissertation somewhat avoids this question by arguing that local immigrant composition “modifies” or “conditions” the effects of surrounding immigrant composition. That is, it does not attribute causal properties to the modifying variable (Green and Kern 2011). This view of effect modification is common in the medical sciences, where drug treatments are found to be conditioned on demographics such as gender and age, for instance. Some of these variables cannot be manipulated and the truth is that the treatment effect *does* differ based on different values of the modifying variable. Still, given the possibility of implementing a 2x2 design, it is worth establishing the causal effect of both local and surrounding immigrant composition if possible. Another issue with Study 2 is that the symbols of immigration in surrounding communities are primarily associated with Hispanic immigration. This is meant to maximize external validity, since Hispanics are the most numerous immigrant group in the United States and the treatment might not be as believable if other immigrant groups were used. However, the failure to examine other immigrant groups prohibits us from verifying one of the most important components of the theory, which is that a dislike for immigrants in general is driving the exit and voice decision.

Another issue with Study 2 is that it relies on an opt-in sample. Mechanical Turkers are unique in their social and demographic characteristics and might deviate in significant

ways from the average native-born citizen (Berinsky, Huber, and Lenz, 2012). Although prior research has shown that treatment effects for Mechanical Turk respondents do not substantively deviate from those using student or national samples, greater demographic and political variation would be helpful in order to assess heterogeneous treatment effects. In addition, a more representative sample would allow for more generalizable effects that speak to my population of interest, native-born citizens.

10.0.3 Study 3: The Fight or Flight ABM

Study 3 improves upon Study 1 and 2 by modeling the potential relationship between native-born residents and immigrants. One major issue with Study 3 is that the only predicted model outcome is voice. However, the model also generates predictions of exit, since it is an endogenous factor driving the decision to voice. Another limitation of Study 3 involves the fact that economic variables predicting mobility are static throughout the simulation. A more realistic model would update the economic values depending on the demographic characteristics of the neighborhood, since presumably more native-born residents moving in or moving out should have implications on the housing prices of a given neighborhood. This was not implemented in the current model because the goal was to minimize sources of variation within the model while maximizing variation due to sample data. With dynamic models, and agent-based models in particular, if the model were to make economic variables endogenous, this would require a greater number of simulations in order to fully characterize the data generating process since simulations with the same starting values could have diverging results.

10.1 Potential Solutions to Limitations

The following sections describe potential antidotes to the issues outlined above as well as expansions of the theory and measures used in the dissertation. These suggestions are by no means definitive and future researchers might arrive at better designs or methods by which we can address the limitations described above. Nonetheless, it is important to sketch out what might be done in the future as a starting point. In this section, potential solutions to the limitations above are described.

10.1.1 Study 1: 2000 SCCBS

A major issue of the 2000 SCCBS is that it relies on an opt-in sample of communities across the United States and while individuals are randomly sampled within those communities, communities in the sample are not guaranteed to be representative of those in the United States as a whole. Future work could improve upon the current design by implementing a cluster sampling design, which would help allay concerns about sample selection bias at the contextual level. Another issue with the 2000 SCCBS is that the items measured in the study are imperfect proxies for theoretical outcomes of interest. Future research could improve upon these items by including items that more clearly tap into mobility and political action as envisioned by the theory. These items would ideally ask participants about their desires to move due to demographic change and participate in local politics as a means of reducing local immigration. An even stronger approach would capture actual behaviors, rather than self-reported behaviors. To accomplish this, one could potentially administer a treatment that manipulates perceptions of surrounding immigration and measure outcomes such as mobility and political action after the fact. Mobility might be gleaned by using the USPS change-of-address database. This database would allow me to assess actual mobility, as logically one would not request a change-of-

address unless they moved. Political action could be measured using voter turnout data. Though, the number of communities examined might be limited by the extent to which voter turnout data is available in a given state. This aspect would not address the opt-in critique spelled out above, but would help allay concerns that the items measured in the 2000 SCCBS are not valid proxies for theoretical outcomes of interest. Still, the biggest critique of the 2000 SCCBS is that estimates are unidentified due to the fact that the residential configurations measured in the observational study are not randomly assigned. Study 2 allays this concern but raises concerns of its own.

10.1.2 Study 2: Our Local Communities Experiment

As discussed in the limitations section, the main limitations of Study 2 are the external validity of the treatment, non-random assignment of immigrant change, and concerns about generalizability. To improve the external validity of the treatment, instead of using the same images in the cover page, images could potentially be selected using Google Images or some other data base of internet images. One issue with this approach would be that of heterogeneous treatment effects, since the characteristics of these images would likely be unbalanced across different study areas. Another approach might use actual information about surrounding immigrant composition as a means of manipulating perceptions; however, this approach would also be subject to the critique of heterogeneous treatment effects since these numbers, as measured by the Census, would differ across contexts.

In Study 2, the causal status of local immigration is treated as a given. This is due to the large number of observational and experimental studies that have found a relationship between immigrant growth and immigration attitudes. However, one might object that these studies do not conclusively demonstrate this relationship and argue that while omitted variable bias is less of a concern for assessing the effects of surrounding immigration, it still plagues the effect estimates of local immigration. Since the two main hypotheses in the dissertation involve the extent to which the effects of surrounding immigration are *con-*

ditioned by local immigration, one might avoid this critique by arguing that the claim is one of effect modification, not of causation. Still, to those who do not believe in the causal status of local immigration, only an experiment might be sufficient to rule out other potential explanations for why the effect of surrounding immigration is moderated by local immigration. To address this concern, one might design an experiment where the rate of change in one’s local community is manipulated on the experimental cover page along with the qualities of surrounding communities. Such a design would more clearly identify the joint causal effect of local and surrounding immigration on mobility and political action.

As for the generalizability of results, it is certainly the case that Mechanical Turk respondents differ from native-born citizens in important ways (Berinsky, Huber, and Lenz, 2012). For one, all Mechanical Turk respondents have access to the internet, which according to the International Telecommunications Union is still out of reach for approximately 20 percent of the United States. In addition, Mechanical Turk respondents tend to be better educated, more liberal, and more likely to identify as Democrats when compared to more generalizable samples (Berinsky, Huber, and Lenz, 2012). Although the generalizability of results is only a concern if there is substantial treatment effect heterogeneity (Druckman and Kam, 2009), a more representative sample will almost always be superior to a less representative one if generalizability is the goal. Future research should assess the theory across different modes and samples to ensure that the results extend beyond Mechanical Turk respondents.

10.1.3 Study 3: The Fight or Flight Agent-Based Model

Beyond making the ABM more realistic by adding additional parameters to the individual-level decision models, the estimation of the ABM could greatly improve by incorporating additional outcomes that are predicted by the model but not factored into the fitting procedure. Currently, the parameters that are considered “best” are those that produce outcomes most consistent with the petition signature data. However, since a key model out-

come is also flight, ideally, the optimal model would be one that predicts both fight and flight with a high degree of precision. To improve upon the current fitting procedure, one might use the generalized method of moments to estimate the model parameters. Specially, the method of simulated moments might be used to obtain both coefficient estimates and standard errors. The benefits of this approach are that (1) the likelihood function does not need to be specified, which is helpful in the realm of agent-based modeling, where such a function would be difficult to produce due to model complexity and (2) relevant moments associated with outcomes such as exit, voice, and other model predictions can be incorporated into the fitting procedure, thus expanding the set of outcomes that the model can predict. Future research should expand the current model by making the decision rules for native-born residents and immigrants more realistic and implement more sophisticated estimators as both of these factors will likely contribute to a more predictive model of fight and flight.

10.2 Expansions of the Theory

In the previous section, I described potential solutions to some of the major limitations of the three studies in this dissertation. In this section, I describe potential expansions of the theory and tests of some of the theoretical assumptions that lie in the background of this dissertation and might be assessed through additional analyses. First, I will describe future studies that help assess the validity of theoretical assumptions. Then, I discuss whether my theory applies to contexts and/or outcomes outside the realm of immigration. I conclude by describing a potential natural experiment that speaks directly to the theory.

10.2.1 What is the Mechanism?

A future project might examine the mechanism linking surrounding communities to exit and voice by manipulating both perceptions of surrounding areas and theoretically plausible mediators such as perceptions of economic security and cultural threat. The theory described here views the effects of surrounding contexts as being due to the perceived lack of mobility options – a notion that is tied to the assumption that people consider adjacent communities before moving out of their own community. However, another view of these findings is that places with large foreign-born populations in surrounding areas might stimulate perceptions that the United States is becoming overrun with immigrants. These kinds of perceptions might actually contribute to increases in cultural threat as the sheer number of immigrants might lead some to worry about the dilution of their community and their culture. To assess this, one can implement a parallel encouragement design as described in Imai, Keele, Tingley, and Yamamoto where both the treatment and mediator are manipulated. This study could be conducted by replicating the same treatment as the one in Study 2, while introducing an additional treatment in the second part of the experiment where prices of surrounding homes are manipulated and another one where cultural symbols associated with immigration are made more prevalent. After being exposed to the treatment and mediator, outcome variables could be measured.

Such a design might tell us whether the processes described by the theory are in fact occurring, or whether something else is at work. This would not invalidate the hypotheses *per se* but would call into question the validity of the assumptions that enter into constructing the model. For prominent social scientists such as Friedman (1953), the most important determinant of whether a model is valid is its predictive validity. However, process validity is also important, as it helps us identify which assumptions are more realistic and thus, might help us construct better models. The notion that cultural threats underlie most of the concern over immigration is incredibly important in the literature and omitting its potential impact on mobility decisions would be unwise. Therefore, to better cor-

roborate the mechanism that has been described thus far (i.e. that mobility options determine the decision of whether to fight or flee), the use of the design described above should help make it clearer that respondents actually react in the way that they do because of theoretically relevant reasons. Failing to find evidence of this mechanism would indicate that other theoretical frameworks should be used to better capture the phenomenon of interest.

10.2.2 Emotional Factors in the Fight or Flight calculation

The decision to exit or voice has been considered, in some ways, to be a conscious strategic decision on the part of native-born residents. However, the political science literature on the role of emotions suggests that even when people are making seemingly rational decisions, emotions play an important role in providing an impetus for the behavior itself. In political science, the emotions of enthusiasm and anxiety have been implicated as major determinants of vote choice, political participation, and receptivity to immigration (Marcus, Neuman, and MacKuen, 2000; Brader, Valentino, and Suhay, 2008). This research has been based on the dominant paradigm in the emotions literature, which is affective intelligence theory. Affective intelligence argues that two behavioral systems – the behavioral inhibition system and behavioral activation system – influence information seeking behavior and this, in turn, shapes how people make political decisions and judgments.

Despite a considerable amount of evidence supporting the AI model, some scholars have challenged the simplicity of the model, in that it treats negative emotions such as anger and anxiety in the same fashion (Huddy, Feldman, and Cassese, 2007). In fact, researchers have found that whereas anxiety might motivate information search, anger leads to more biased information processing and retrieval. In addition, these scholars have argued that anxiety leads to a withdrawal from the political system whereas anger produces more engagement. The most common way scholars have examined the effects of these emotions is by using cross-sectional designs. However, with the advent of experiments in

political science, a growing number of scholars have utilized experiments in order to obtain the causal effect of these different emotions.

One such experiment is the Brader, Valentino, and Suhay (2008) experiment which presents respondents with a news story involving either Hispanic or European immigrants and examines how this news story influences immigration attitudes through the mechanism of anxiety. While this experiment is novel, the main claim that the authors make about identifying anxiety as a mechanism driving the relationship between immigration cues and attitudes has been challenged. Imai et al. (2011) argue that since the authors do not manipulate the mediator in the study, they are unable to obtain the causal effect of the mediator. Methodologists studying the problem of mediation have recommended designs that manipulate the treatment and mediator in a step-wise fashion. In Renshon, Lee, and Tingley (2014), the authors pair a news story about immigration with a sequence from the movie *Cliffhanger* which is meant to arouse anxiety and measure the mediator through the use of galvanic skin response measurements. Luckily, the theoretical framework described here allows for a seemingly incidental manipulation of the mediator that should not modify the effect of the treatment on the outcome.

According to appraisal theories of emotions, individuals first appraise the situation and that appraisal shapes whether individuals experience a given emotion Scherer, Schorr, and Johnstone (2001). When faced with local immigration, appraising whether one has an exit strategy or not might influence the expression of anger or anxiety. If there is an exit strategy, local immigration might be met with anxiety and facilitate flight whereas if individuals feel locked in, the frustration associated with not being able to exit should manifest itself as anger. This design ought to serve two main goals. It ought to provide additional evidence in support of the theory by allowing one to test whether local immigration paired with the availability or unavailability of mobility options is translated into fight or flight. In addition, it ought to produce evidence that can speak to the notion of whether anger and anxiety ought to be treated as distinct negative emotions, due to the unique

implications they have on behavior. Future research should examine how emotions factor into the decision to fight or flight and how this relates to the strategic decision-making process that is implicit in the theory.

10.2.3 Heterogeneous Treatment Effects

Fight or Flight theory is a theory of how native-born residents, in general, respond to immigrant groups in their own communities. When constructing a theory, simplification is necessary, since theories can quickly become intractable at high levels of specificity. Even though on average we observe respondents behaving in the manner predicted by the theory, there are likely subsets of that population that react more strongly to influxes of immigrants or treat the exit and voice dichotomy more seriously than others. In this section, I will thoroughly describe potential moderators of the relationship that could be examined in future research.

Partisanship is one of the most important determinants of political behavior in the United States and abroad (Campbell et al., 1966). Rhetoric and position-taking on the topic of immigration has become highly polarized with Republicans generally taking more of an anti-immigration posture and Democrats taking more of a pro-immigration posture as Hajnal and Rivera (2014) note. We should expect that the subset most bothered by immigration and thus, most likely to exit *and* voice should be Republicans. These kinds of effects should also be observed for Conservatives and Authoritarians, identities that are often associated with an intolerance of difference and diversity and a desire to maintain the status quo (Johnston, Newman, and Velez).

Race is crucially important when thinking about mobility. As an area of interest, sociologists have detailed how communities change as a result of incoming minorities and out-migrating Whites (see Crowder 2000 for a review). As discussed in one of the previous sections, the notion of mobility may not be as fluid for blacks as it is for whites. Blacks have suffered centuries of systemic inequities and severe discrimination in housing

(Yinger, 1995). Despite laws that say otherwise, African Americans and Whites are still – to this day – not on equal footing when it comes to housing. For many Blacks, mobility is less a choice reflecting personal tastes than a necessity brought on by other factors. In fact, when examining the role of immigrant change on Black out-migration rates, Crowder, Hall, and Tolnay find that housing prices are the main determinant, which suggests that Blacks are not willingly moving out of these neighborhoods because they fear immigrants but simply because they cannot afford them. Part of this is due to the notion that immigrants have helped gentrify historically black neighborhoods by acting as diversity “buffers” (Hwang and Sampson, 2014). Thus, the predictions generated by the theory for non-Hispanic blacks are uncertain. If there are any neighborhoods where we might observe the fight and flight dynamic among Blacks, they should be those that are adjacent to other minority-majority neighborhoods and those where African Americans have opportunities to voice their dissatisfaction.

Teasing out the moderating effects of other demographics is difficult. While age should be seen as a major inhibitor of exit and findings would be consistent with the notion that higher levels of voice are observed among older people, it is difficult to separate the exit-inhibiting portion of age from generational effects. Teasing out the unique effects of income and education is not any easier. While we ought to expect that income and education both enhance the ability to move, even in the absence of promising mobility destinations, both factors as they are typically operationalized might capture effects that are not immediately relevant to the theory. Education, for instance, has been used in the immigration literature as a proxy for high skill while others have contested this definition, arguing that its effects are likely derived from higher levels of tolerance (Hainmueller and Hiscox, 2010). If we observe a heterogeneous treatment effect for education, it is unclear whether this is due to having more exit options, or other factors such as tolerance.

While this is by no means a comprehensive list of moderators, these are moderators that the political science literature would expect to drive the fight-flight decision. Other

moderators such as those at the contextual level might also contribute to the decision by shaping the attractiveness of surrounding areas. As it is currently modeled, surrounding areas are either attractive or unattractive according to their ethnic composition. However, in the future, clustering techniques might be useful in providing a typology of surrounding communities in terms of ethnic and economic characteristics. Such a typology would be useful in understanding when the fight-flight dynamic is most extreme, and when it is less relevant as citizens scan their surrounding environment.

10.2.4 The Malleability of Ethnicity

A hidden assumption in the theory and other theories in the literature is that there are clear distinctions between in-groups and out-groups. These distinctions are crucial in driving responses toward out-groups since without these distinctions, the line dividing in-group and out-group members becomes blurred and group-centric behavior is not as relevant.

The clear dividing line between groups in my model is citizenship. Although prior scholars have used Hispanic composition as a proxy for immigrant composition (Newman and Johnson, 2012), my theory is generally about immigrants, not Hispanics in particular, and thus, I use citizenship status as the relevant line of demarcation. Still, notions of citizenship in the United States are wrapped up in ethnicity and ethnic markers such as English language usage and thus, nativism in the United States need not be driven exclusively by a fear of immigrants *per se* but a fear of a certain kind of immigrant.

In fact, studies have shown that while Whites tend to hold more negative stereotypes and negative sentiment toward Hispanics than other groups, Asians are stereotyped in a positive light and engender more positive sentiments (Bobo and Zubrinsky, 1996). When living in areas inhabited by Hispanics, white respondents tend to oppose immigration whereas areas heavily populated by Asians tend to produce more immigration support (Ha, 2010). Thus, not all immigrants are created equal. This is also bolstered by the fact that Hispanics are the most prevalent immigrant group in the United States and tend to activate

fears among native-born residents that American culture is under threat (Newman and Johnson, 2012). Possibly due to their higher rates of first generation assimilation, Asians are not viewed as such a threat. Though, recent findings suggest that among high-skilled native-born residents, high-skilled Asian immigrants are beginning to stoke fears about economic competition at least among those who are most vulnerable to that competition (Malhotra, Margolit, and Mo 2013).

Cultural threat perceptions are prepotent predictors of anti-immigration sentiment. In *Who Counts as an American*, Elizabeth Theiss-Morse finds that English language usage is one of the most important indicators of citizenship. High rates of Spanish usage among first generation Hispanic immigrants have been proposed as a potential explanation for why native-born whites feel culturally threatened by Hispanic immigrants (Newman 2012). If we use history as our guide, other immigrant groups have been treated as distinct from the rest of the country due to similar arguments. In fact, concerns about assimilation and a lack of “fitting in” were popular among those who opposed German immigration in the late 19th and early 20th century. In German communities across the United States, German and English were both taught in school and students in Indianapolis even sang a German version of the “Star Spangled Banner”. In light of World War I, Germans were forced to quickly assimilate and speaking German in public was no longer socially acceptable. Though this division is not as prevalent in contemporary times, religion was another dimension on which immigrants were compared to native-born Americans. Due to the prevalence of Protestantism in the United States, Catholic immigrants were routinely discriminated against and kept from attaining political power.

The expectation is that with assimilation on the part of immigrants or cultural accommodation on the part of native-born residents, native-born residents will feel more at ease with immigrant populations. If this is the case, then the predictions of the theory should not be as strong because the theory is predicated on a concern over immigrants that is translated into behavior. The consideration of different markers that have been used his-

torically, as well as today, in distinguishing Americans from non-Americans shows that the distinctions between in-groups and out-groups that might exist today may no longer be relevant as the culture adapts to immigrant groups and immigrants adapt to the dominant culture.

As America grows more diverse, these cultural dividing lines should become less hard-and-fast. Though, the importance of language might increase as an indicator of citizenship as other indicators such as race and skin tone grow less important. Historically speaking, the notion of being “White” has changed tremendously, as ethnic groups such as the Irish and the Jewish people were once considered non-white. There is no telling whether Hispanics will eventually come to be known as “White” in the traditional sense, or whether the distinction between “White” and non-White people will no longer be meaningful. Nonetheless, this distinction is currently important and should be taken seriously as a determinant of citizenship since many people consider being American and being “White” synonymous. If markers like skin tone are no longer relevant, perhaps being “White” will be defined using more symbolic characteristics such as speaking English or the distinction will be dropped entirely. All of this goes to support the notion that the distinctions between immigrants and non-immigrants are malleable. When applying the theory of *Fight or Flight*, it is important not to restrict oneself to examining a particular indicator of citizenship or ethnicity since these factors can undergo tremendous changes in short periods of time. Otherwise, the theory will become irrelevant almost as quickly as it is employed.

10.2.5 Is the theory transportable to other nations?

One of the major limitations of the current dissertation is that it evaluates the theory within a single country and a single electoral system. However, there is nothing intrinsic to the theory that prohibits it from being tested in other countries with vastly different electoral systems. Though, it might be important to note here that the interplay between exit and voice might be contingent on living in a state where local political action is actu-

ally efficacious, since voice should be seen by residents as a possible option.

Another limitation is that most of the behaviors predicted by the theory are not directly measured, but are implied by self-reported items. Though the expectation is that these self-reported items will strongly correlate with actual behavior, we know that, at least in the context of voting behavior, people often over-report the extent to which they will vote or have voted in the past due to the issue of social desirability. Since behaviors like voting are viewed in a positive light and sometimes even proscribed as good “civic” behavior, the estimates of local political action derived in this dissertation, for instance, might not actually capture whether citizens participate in local politics and might reflect this bias. An obvious solution to the bias induced by self-reported data is to rely on measures of actual behavior. Since local political behavior and mobility are our outcomes of interest, the ideal situation would involve manipulating peoples’ perceptions of their surroundings and examining the impact of that manipulation on whether they *actually* move or express dissatisfaction with immigration.

Unfortunately, in the United States, data sets that include both mobility and political behavior do not exist. Though the United States Panel Study of Income Dynamics allows researchers to chart the mobility behavior of respondents over time, items asking about political behavior are sparse. The only item that comes close to asking about political behavior asks respondents whether they participated in a “social change organization”. Unfortunately, this item leaves the definition of a “social change organization” open and does not allow us to gauge which kinds of organizations residents are participating in. While names could be used to match participants to their voting records and voting for the Republican Party can be used as a proxy for the kind of behavior we are interested in, the PSID has strict confidentiality rules that make it difficult to merge the mobility data with voting data.

In contrast, the British Household Panel Study accomplishes many of the same goals as the PSID but allows for a better measure of participation. The British Household Panel

Study is a panel of roughly 5,000 households and 10,000 individuals which began in 1991 and is still being conducted. The utility of this data set is that it accounts for whether participants have moved throughout the study, thus providing one with the opportunity to measure mobility. In addition, the data are fine-grained enough with respect to neighborhood data that political behavior can be imputed for each respondent. In addition, the British Panel Study allows the theory to be tested in a new context. More than the United States, the United Kingdom has experienced a rapid influx of immigrants due to EU expansion and immigration from the Middle East. In the past decade, the foreign-born population in the United Kingdom has increased by fifty percent, growing from 8 percent of the population in 2001 to 12 percent of the population in 2011. Similar to the United States, this rapid growth has also been met with opposition. In response to these growing numbers of immigrants, political parties in the United Kingdom have polarized on the topic of immigration. One of the major parties opposing immigration, the UK independence party, has advocated for stopping the flow of immigration by having the UK leave the EU and prohibiting immigrants from accessing the National Health Service.

To examine the theory of fight or flight in the United Kingdom, one could take advantage of the British Household Panel Study to obtain measures of mobility over time and use the fine-grained contextual units that can be accessed through the data set to impute political support for UKIP. Though the UK relies on a party list system, the electoral institutions in the United Kingdom are very similar to those of the United States and give citizens opportunities to voice concerns about immigration. Using these data, we should find similar patterns to what we observe in the United States, namely that in the presence of diverse surroundings, UK residents in diversifying communities will be more likely to vote for UKIP whereas in the absence of diverse surroundings, they will be more likely to move. Finding supportive evidence in the British context should further bolster the theory and if not, should provide an opportunity for theoretical elaboration and expansion.

10.2.6 Desegregation and Fight or Flight

Beyond examining the utility of the theory in a different national context, the theory should also apply to other conditions of demographic change. After all, the theory does not specify that demographic changes *must* be driven by immigrants. Instead, the main reason why immigrants are selected as the group of interest is because most of the demographic change in the United States and elsewhere has been driven by immigrants as a result of globalization and other international forces. This does not preclude domestic migrants from initiating some of the same processes outlined in the theory. In order to examine the utility of this framework in a different sub-national context, a future research project will examine the fight or flight dynamic as it relates to how White residents responded to growing numbers of African Americans arriving in their communities in the postwar era. In response to local black populations, many communities responded with violence or strict policies governing whether Whites and Blacks could inhabit the same environments while others responded with flight, as documented in Denton and Massey (1993).

A future project will assess whether the dynamics of flight and fight are relevant within the context of reactions to black in-migrations. Prior research has studied how influxes of racial out-groups can drive native residents to react by fleeing or fighting via hate crimes (Green, Strolovitch, and Wong, 1998). This model would help bring these two sociological and political traditions together, much like it does in the case of immigration in the United States. Beyond proving useful for understanding an important historical case, expanding the theory from a simple examination of how native-born residents respond to immigrants would truly push the scope of the theory to out-group members in general. After all, upon further inspection, the fight or flight model does not specify that immigrants must be the instigators of change in their respective neighborhoods. Any respective newcomers can and should be viewed in this light if the theory is valid.

10.2.7 Gentrification and Fight/Flight

To truly push the theory to its limit, one could use this framework to examine the effects of gentrification on political participation and mobility. Although racial and ethnic minorities arguably have less opportunities for mobility than majority group members, a similar dynamic might be present among minority group members who are currently confronting demographic changes in their communities. According to the theory, when mobility is difficult, political action should be most likely. However, in the case of gentrification, residents often do not freely choose exit as an option, but are instead forced to move due to factors such as rising rents and property taxes. This alters the conception of mobility as viewed through the lens of the theory. Examining the case of gentrification helps us understand the extent to which the theory predicts how groups respond to newcomers in general. A possibility is that this is not a theory of how communities deal with influxes of newcomers, but instead a theory of how majority group members deal with influxes of minorities. A failure to find the same dynamic among minority groups would suggest that a hidden assumption in this theory is that the group deciding whether to move must be powerful enough to enact the option.

10.2.8 Expanding the Meaning of Voice

Though the study of hate crimes has been a major area of interest for sociologists, political scientists studying intergroup relations have paid little attention to extra-institutional means of intimidating out-groups and re-establishing power in the community (Though, see Green, Strolovitch, and Wong 1998 for an exceptional study by political scientists on this topic). In this dissertation, local political action has been seen as a major mechanism for accomplishing these goals and in keeping with this tradition, more serious outcomes like beatings and killings of out-group members have been omitted, but it is worth discussing how an expansion of voice into the domain of hate crimes might be fruitful for future research. As this dissertation has shown, the desire to manage the demographics of

one's community through the use of politics tends to increase when exit options are limited. Given that the same impulse likely governs the desire to commit hate crimes, one might expect that under these same conditions, there should be an increase in hate crimes. Green et al.'s defended neighborhoods hypothesis holds that the incidence of hate crimes toward blacks increases as a joint function of low prior levels of blacks and rapid changes in black populations. A key moderator in this relationship might be whether exit options exist. After all, to take such extreme measures against a single group requires a level of desperation and hostility that might only emerge when residents believe this is their final stand against diversity. When deciding whether to defend their neighborhoods through such extreme measures, residents might first examine whether their neighborhood is worth defending in the first place or if other options exist.

10.2.9 Expanding the Meaning of Exit

The definition of mobility as being migration from one neighborhood to another is limited. After all, some people might not need to move to escape diversity in their environments. They may simply avoid public places where minorities are present while still residing in the same community. This more expansive definition of exit can only really be examined using more modern tools of measuring context. These tools are becoming more accessible thanks to technologies such as Google Maps which allow respondents to create their own maps and OpenPaths which actively measure the locations that participants inhabit. In expanding the definition of exit, the expectation is that people will be more likely to seek out areas within their contexts where immigrants are not present when immigrant groups are expanding into their area. To the extent that they can do this, we should observe less of a desire to actually exit into a new neighborhood. However, once this is not possible, actual exit might be considered and the expectations of the theory may kick in.

10.2.10 The Search for a Natural Experiment

Exit options are operationalized as the prevalence of immigrants in surrounding areas. However, one might argue that this contextual feature is not randomly assigned and thus, endogeneity is a major concern. While my experiment aids in addressing this issue, a skeptic might still worry about the experiment's ecological validity. To address this, a future project might leverage seemingly exogenous determinants of exit that could be used to assess the theory.

The model predicts that voice should be highest when there is a desire to act and the relative benefits of voice outweigh those associated with exiting. The benefits of exit should decline as the diversity in surrounding neighborhoods increases. Other objective features of the environment might restrict mobility and thus, render exit less useful. Thanks to the advent of modern transportation, physical features that once inhibited mobility like the local terrain no longer factor into migration decisions. However, even with modern transportation, there are certain characteristics of the geographic environment that inevitably hamper the decision to exit. One of those characteristics is living near a coast or a national border. It is a fact of geography that those who live in communities on the exterior of a country have fewer mobility options than those who live further inland.

Assuming that individuals mostly prefer to move short distances as opposed to long distances, those who live inland can migrate in any direction whereas those who live in exterior communities are restricted in this regard. Thus, holding economic, social, and political factors constant, we ought to expect greater voice in exterior communities than interior communities, due to the geographic impediments to exit observed in exterior communities. To gauge the causal effect of an impediment to exit, one can match upon relevant covariates and estimate the difference in voice between interior and exterior neighborhoods. If it is the case that making exit more costly increases the likelihood of voice, we ought to expect stronger expressions of voice in exterior communities.

Another option is to take advantage of housing policies that have had a "lock-in" effect

on homeownership. California’s Proposition 13 was passed in 1978 and rewarded homeowners for staying in the same house by fixing property taxes to assessed values at the time of purchase. Thus, this policy ensured that an owner of a home in 1988 would pay more in property taxes than that same owner had he bought the same property in 1978, assuming the assessed value was lower in 1978. In 1988, California enacted additional propositions in the late 1980s – Proposition 60 in 1986 and Proposition 90 in 1988 – which allowed homeowners beyond the age of 55 to transfer their tax base to a new home. Ferreira (2010) employs a regression discontinuity approach and finds that Proposition 13 created a “lock-in” approach. By comparing those who are just above and just below the eligibility threshold who are presumably comparable on covariates, Ferreira finds that those who could benefit from Propositions 60 and 90 and take their tax base with them are 25 percent more likely to move than those who are ineligible. One might use a similar design to explore the effects of exit on political behavior. Using public opinion data in California, one could examine whether those who just fail to qualify for the Proposition 60/90 benefits are more likely to engage in local politics than those who just barely qualify for those benefits. Such an approach might allow for more credible causal identification.

10.3 Conclusion

In this chapter, I have outlined several limitations of each of the studies in the dissertation and described potential solutions. In addition, I have discussed future research projects that might aid in validating theoretical assumptions and pushing the boundary conditions of the theory by examining it in different temporal and spatial contexts. As a theory that is inherently difficult to test, many of these studies should be fruitful in further delineating the process described in the dissertation. Leaving aside the goal of testing the theory, these studies should improve our understanding of how mobility and politics

relate, two factors that have long been kept separate in both political science and sociology but whose interconnections are ripe for examination. In the next chapter, I summarize the dissertation and end with some closing thoughts on how immigration politics might change in the future if the predictions of *Fight or Flight* are valid. I also discuss the power of mobility as a tool of power for the majority group, and its relationship to minority group disempowerment.

11 Chapter 7

11.1 Conclusion

As immigrant populations have grown and expanded into areas with little to no prior experience with immigrants, there have been corresponding increases in hostility toward immigrants and mobility out of these diversifying communities by native-born residents. The political science literature has stressed the importance of contextual forces in driving responses to out-group members. This literature has drawn upon decades of research examining how whites respond to blacks in their environment while also extending it by developing new theories that address the peculiarities of immigration. Despite significant theoretical advances, a major problem plaguing the literature has been the problem of self-selection, or the idea that attitudes and behaviors shape local contexts.

In sociology, this concern has found empirical support as sociologists have found that native-born residents are moving out of communities undergoing rapid changes in immigrant populations. Existing work has found that both local and state out-migration rates among native-born residents are driven by local immigration. In these communities, native-born residents have been moving out of diversifying communities and into homogeneous white communities. To explain these changes, the existing literature has relied on theories once used to understand white flight within the context of the post-war era, and there have been striking similarities between both processes.

11.2 Summary of the Theory

Despite having similar substantive foci, both the political science and sociology literature have developed independently with little to no overlap. In this dissertation, I described a framework that unites work across disciplines and explains when we ought to expect political action or mobility in response to growing immigrant populations. This framework is influenced by Hirschman's *Exit, Voice, and Loyalty* model and Schelling's segregation model. As such, the theory of *Fight or Flight* takes the duality between exit and voice seriously and respects the notion of space that is so important to the Schelling model. The main goal of this dissertation is to test the key implications of the theory, which are that (1) native-born residents living in areas undergoing rapid ethnic change will use exit and voice as strategies and (2) the extent to which the former will be utilized over the latter depends on the mobility options available to residents. The specific predictions are that when mobility options are available, native-born residents will utilize mobility as a strategy whereas when they are unavailable, native-born residents will utilize voice.

11.3 Summary of Data and Methods

Using a variety of data sources and methods, I found general support for the theory. Using the 2000 SCCBS, an observational data set, I found that respondents living in changing environments who were also surrounded by large immigrant populations were more likely to voice and less likely to exit, as expected by the theory. I also found that citizens in these kinds of environments are significantly more likely to express anti-immigration attitudes than citizens in more homogeneous local and distal environments.

To overcome the problem of self-selection bias, I conducted an experiment which manipulated respondents' perceptions of surrounding areas. Participants in the treatment group were taken to a cover page for the study where the presence or absence of immigrants was emphasized. The main results of this study were that among those who resided in communities undergoing rapid changes in local immigrant populations, the treatment increased the desire to voice and decreased the desire to exit as expected by the theory.

To address the concern that the theory does not consider the role of immigrant behavior in driving native-born responses, I conducted an agent-based simulation which formally coded the assumptions of the model into a program. I ran thousands of simulations which varied parameters that controlled mobility factors and assessed how well each simulation corresponded to real world outcomes. I used actual empirical data to seed the model, specifically, where the agents would be located on a map of the United States. I found that models where immigrants were mindful of the level of anti-immigration voice in the local environment were the most realistic (or predictive of real world outcomes).

This is an important finding in a literature that has been dominated by the assumption that contexts invariably affect attitudes and behavior. This finding indicates that sometimes policies and out-right hostility toward immigrants can impact where immigrants eventually migrate. Thus far, we have had to rely on anecdotal stories of how policies like Arizona's SB1070 have impacted mobility patterns among immigrants, but these findings provide some evidence for this notion.

11.4 Summary of Limitations

The limitations of the different studies in this dissertation are defined by the methods used in each particular study. In the first study, there are a couple of issues that limit the generalizability of the findings, the match between theory and operationalization, and the

credibility of a causal interpretation. Mainly, the study is based on an opt-in community-level sample where the contextual variable of interest (i.e. local immigration) is not randomly sampled from a population, but instead reflects the particular nature of the communities that opted in to the study. The data involved also rely on verbal self-reports, which could deviate from the true outcomes of interest – mobility and political action. In addition, since Study 1 relies on observational data, a concern is that the findings presented here are sensitive to unobserved confounding.

Study 2 addresses this limitation by experimentally manipulating the key treatment variable, surrounding levels of immigration, and examining its effects on similar outcomes to those presented in Study 1. The main issues with Study 2 are ecological validity and generalizability. Study 2 attempts to manipulate perceptions of an environmental feature, and while there is suggestive evidence that the treatment worked as intended, one might still argue that the manipulation does not correspond to the processes that determine how people think about surrounding communities. As for generalizability, treatment effects are estimated using a sample of Mechanical Turk users. As prior research has shown, Mechanical Turkers deviate from the population in important ways.

The third and final study uses an agent-based model to explore the aggregate-level implications of the individual-level theory sketched out in the dissertation. Although a fairly complex agent-based model is estimated, the two main limitations of the study are that only one outcome variable is used to fit the model and a more complicated model could be constructed.

11.5 Summary of Future Projects

Future research projects are described that might address some of these limitations and point to promising expansions of the theory. First, a study that utilized cluster sampling

might provide for a greater degree of contextual variation than the opt-in 2000 SCCBS. Second, the project examines self-reported desires for mobility and political action without measuring actual behavior. This makes it difficult to definitively say that mobility and political behavior are *in fact* operating in the manner expected by the theory. Instead, all we can say is that the forces outlined by the theory produce increases in reported mobility and political action. Luckily, in the United Kingdom, there exists a long-term panel study of British respondents which also includes measures of support for different political parties. This is important since Britain has experienced more rapid rates of immigration than the United States and has political parties that have staked out extreme positions on the topic of immigration. The British Panel Study provides us with the opportunity to not only test the behavioral implications of the theory but also take the theory outside of the context of the United States to another electoral system and culture. Third, the limitations of observational data could best be addressed by an experiment.

While Study 2 addresses this last concern, it has its own set of limitations that could be improved upon in future research. Potential solutions to the ecological validity problem would involve making respondents aware of the demographics in surrounding contexts. This could take the form of a treatment where respondents are presented with the average immigrant composition in surrounding communities as found in the Census. The second study could also be improved by employing a more diverse sample. Initiatives such as TESS would be helpful in this regard by allowing us to estimate effects are more representative of native-born residents as a whole, rather than Mechanical Turk respondents.

The third study could be improved by using new estimation techniques and incorporating additional information. I sketch out how the method of simulated moments might provide a possible means for parameter estimation with multiple outcome variables that might yield better predictions than the current estimation strategy. Moving toward this kind of estimation strategy, however, raises computational issues of its own. In addition, the model could potentially be tweaked in the future, by making immigrant mobility mod-

els and native-born decision models more complex. This, of course, will depend on the computational resources available to the researcher, as agent-based models are computationally demanding and difficult to estimate.

Throughout the dissertation, the notion that residents choose between two options – fight or flight – is crucial. To date, the emotional determinants of mobility and political behavior have not been explored. To better understand the micro-level mechanisms that underlie the decision to fight or flee, I also sketched out a potential design where I could examine how manipulating the emotions of fear and anger might contribute to the different responses predicted by the theory. As the literature in political science has found, anger is a strong predictor of political participation as it is based in an action orientation. This is in comparison to anxiety, which is often described as an orientation away from a threatening stimulus. In the context of responses to local immigration, the flight response might be grounded in anxiety as a means of escaping. Thinking about space makes the simple emotions story interesting as it introduces an objective feature of the environment that influences whether anxiety or fear results as a function of objective immigration levels, rather than perceived levels of immigration. The current dissertation suggests that when there are constraints on mobility, political action is the result. This hints at the possibility that when options are available, local immigration produces anxiety and moving to a surrounding community quickly suppresses that anxiety whereas when options are unavailable, this negative affective response becomes anger.

This supposition is tested using a novel experiment that better accounts for the mediational relationship between context, emotions, and behavioral responses. In this design, participants are presented with a stimulus referencing rapidly growing immigrant populations then they are randomly assigned to either a treatment or control condition where anxiety or anger is manipulated and relevant behavioral outcomes are measured. This is consistent with recent work on the topic of mediation which suggests that to actually uncover mediational processes, both treatment and mediating variables need to be manipu-

lated.

The previous chapter closes with a couple of natural experiments that might aid in the identification of the treatment effect. A natural experiment involving geography-induced immobility, for instance, was proposed. This design involves comparing residents of communities on coasts or national borders to those who live further inland. Since borders and costs inherently reduce mobility options, if potential confounds are accurately accounted for, we should be able to estimate the effects of mobility options on mobility and political behavior among those who reside in ethnically diversifying communities. A second experiment using an eligibility threshold in California based on age that determined whether respondents could take their property tax rates with them when they moved was also discussed. This design would involve a regression discontinuity, which provides a better identification strategy since it does allow for identification in the presence of unobserved confounding.

11.6 Implications

The implications of the theory on real world political behavior can be broken into two segments: an individual level segment and aggregate level segment. At the individual-level, the mechanisms described by the theory suggest that public policy efforts should not be overly focused on either exit or voice. After all, making exit more difficult should, according to the theory, increase the likelihood of anti-immigration voice and doing the same for voice should increase exit. As we know from research on residential mobility and white flight, increased exit is not necessarily a good thing as it can increase crime, decrease the quality of schools, and reduce home prices for current residents. Instead, public policy should attempt to promote tolerance of out-groups so that the influx of immigrants is not viewed in such negative terms.

According to Fight or Flight theory, the decision to exit or voice is not unconditional with respect to local immigration. It is only in communities undergoing rapid changes in immigrant composition that residents will feel threatened enough to engage in either strategy. The key word is “threat”, and any efforts to reduce the perception of threat among native-born residents should facilitate cooperation between both groups. Thus, public policies that bring different groups together whether through education or local community events ought to be fruitful.

In terms of the national-level implications of the theory, the results from the agent-based model suggest that as anti-immigration policies continue springing up throughout the United States, we should see corresponding increases in mobility among immigrants out of these communities and into areas with none of these policies. If these communities are not favorable toward immigrants, we might see the same dynamic develop. However, if they are receptive with respect to immigration and the policies in those specific communities are effective in driving immigrants out, we might observe what the demographer William Frey describes as regional balkanization. In Frey (1995), he argues that America may become a nation divided on the basis of citizenship. Assuming that the parties do not radically shift in terms of their platforms and ideological placement, we ought to expect even more geographic polarization than we already observe.

The implications of the theory on existing scholarship is three fold. In the contextual literature, scholars have often assumed that contexts are fixed, exogenous determinants of attitudes and behavior. The theory outlined here suggests that there is a considerable amount of flexibility in how contexts are chosen and recognizing the inherent endogeneity between context and preferences allows us to incorporate important factors such as mobility characteristics that we might otherwise omit from our models. The notion that place is not simply a determinant of attitudes and behavior, but something that is shaped by these factors undoubtedly introduces more complexity into existing models. But, this complexity buys us a more comprehensive understanding of our phenomenon of interest: how majority

group members respond to out-group members in their vicinity.

The second major implication of the theory on existing scholarship is that responses to out-group members need not be determined by symbolic factors such as cultural threats. If the findings here are generalizable and robust, they indicate that an important component driving opposition to immigration is the objective availability of mobility options. This leads to a messier conception of responses to immigration, as the literature has largely divided itself into the symbolic, cultural threat and objective, economic competition camps but perhaps, this dissertation shows that unraveling this simple dichotomy and replacing it with a more nuanced understanding of immigration opinion and politics is long overdue. Although cultural threats are diametrically opposed to worries over material resources as argued by realistic group conflict scholars and political economists, the translation of these cultural threats into actual behaviors might depend on objective features of the environment.

The third major implication is that the notion of context used in the literature is limited. Typically, scholars treat individuals' contexts as containers (Wong, 2007). That is, the only relevant contexts are those that an individual resides in or identifies with. However, this dissertation shows that expanding the study of context from simply examining local contexts to also incorporating distal contexts tells us that the effects that we observe for local contexts are strongly moderated by the qualities of surrounding contexts. By including distal contexts, we not only loosen the assumption of contexts-as-containers, we also allow for the estimation of how these distal contexts might impact behavior. If mobility is a strong determinant of at least some kinds of behavior, these adjacent contexts ought to be included in future models.

11.7 Conclusion

As America continues growing more diverse and native-born residents across the United States respond to growing foreign-born populations, a more comprehensive view of the process is required. After all, immigrants are not only changing the political landscape of the country, they are also reconfiguring its demographic composition and especially the composition of our neighborhoods. This focus on politics has served the literature well in identifying the determinants of anti-immigration attitudes and support for anti-immigration policies among native-born residents. However, much of the variation in these outcomes can be explained by context and this requires a more nuanced understanding of how these contexts are created in the first place.

This leads us to sociological theories and work that elucidate the process of mobility, specifically in the context of diversifying communities. The interests of these scholars have revolved around understanding how and why majority group members move out of communities that are gaining more minority group members. As the country has seen large influxes of immigrants, a question that has developed in this literature is whether native-born residents have been similarly moving out ethnically diversifying neighborhoods and the answer has been a resounding "yes". Incorporating the effects of mobility is thus crucially important to understanding the role of context and consequently, understanding immigration opinion and politics.

In this dissertation, I attempted to unite disparate strands of research on the topic of immigration in the United States to construct a more elaborate theory of how majority group members respond to influxes of out-group members. To accomplish this goal, I drew upon existing frameworks in political science, economics, and sociology, namely the theory of *Exit, Voice, and Loyalty* and Schelling's model of segregation, to build a more general model of responses to immigration. Exit, Voice, and Loyalty provided me with most of the

structure of the model due to its focus on exit and voice, while the Schelling segregation model helped me extend the model of exit.

The main hypothesis drawn from this theory was that in the presence of demographic change, residents would be more likely select exit when given ample exit options that are homogeneous and more likely to select voice when exit options were limited. Using data from the 2000 Social Capital Community Benchmark study, I found these effects in the real world. To address the concern that my estimates were driven by omitted variables, I designed and implemented an experiment that manipulated residents' perceptions of surrounding areas via the use of a survey landing page that associated surrounding areas with either higher levels or lower levels of immigration. Using these data, I corroborated the effects observed in the 2000 SCCBS.

Since my theory introduces the role of mobility into political action as it relates to immigration, I extrapolated my findings from the individual level to the aggregate level using agent-based modeling. Agent-based modeling gave me the opportunity to model relationships between immigrants and natives and test my theory "in silico". Using a novel empirical-based agent-based model, I found that mobility factors were incredibly important in maximizing the fit between the simulation outcomes and real world online anti-immigration petitions. In addition, I found that the most important predictor of fit was the preference among immigrants to select into communities with lower levels of voice among native-born residents. These findings indicate that future research should attempt to explain mobility patterns among immigrants, rather than just focusing on native-born behavior.

As America continues growing more diverse, there are two general possibilities as it relates the political landscape. We may see increases in tolerance, which would eventually render the predictions of the model moot since the model is predicated on the assumption that native-born residents are bothered by influxes of immigrants. However, today's foreign-born population may be tomorrow's native-born population and as long as there

are immigrants in the world, we might expect at least some kind of nativism and xenophobia to emerge. Still, growing levels of tolerance across the board in the United States lead to the hopeful conclusion that segregation and flight might one day stall as people become accustomed to diverse communities.

The other major possibility is in line with the predictions of the demographer William Frey. According to Frey, immigration in the United States might lead to a certain kind of regional balkanization defined by citizenship. Using early data in the 1990s, Frey found that states with large immigrant populations were seeing higher levels of exit among native residents than other states. Frey's worry was that these patterns would continue, thus separating the country into states with large concentrations of foreign-born residents and those with large concentrations of native-born residents. Though the unprecedented growth of Sun Belt states has attracted immigrants and stalled this process, there still is a threat of two Americas.

Despite the fact that it *seems* like America is growing accustomed to the idea of more diversity, the proliferation of anti-immigration bills during the last decade suggests otherwise. In contrast to recent decades, these policies have served to marginalize immigrants of different generations as well as American-born co-ethnics worry about racial profiling on the basis of ethnic characteristics. Though crucial components of these laws such as Arizona's SB1070 have been struck down by the Supreme Court, these policies have effectively signaled to immigrant groups that they are not welcome. As a result, anecdotal reports indicate that immigrant laborers were difficult to find in the aftermath of this policy (Gonzalez 2010).

The fact that the American public is growing more tolerant and the prevalence of these laws at the state level seem to contradict one another. However, once one takes into account the fact that while younger, more tolerant generations are now being represented in public opinion surveys, they are not necessarily more likely to participate or lobby for pro-immigrant causes, the apparent paradox makes more sense. In fact, the demographer

William Frey argues that the fault lines of American politics in the future will mainly be between older Americans who would rather prioritize social security and personal benefits over education and younger Americans who would benefit from a better education system. The fact that the Baby Boomers constitute such a large voting body suggests that immigration politics in the United States will trend in an anti-immigration direction for quite some time.

Since the Baby Boomers who will soon (and have already begun to) retire depend on taxes from working-age individuals, the funding of education and skill improvement is vital. However, threats of cuts to Medicare and Social Security will cause trade-offs to be made and this generation will likely focus on preserving these benefits rather than investing in future education, especially if it centers on improving the economic prospects of immigrants and their children. According to the theory, this gridlock might be broken by fostering greater levels of tolerance among these groups. Community events that bring native-born and foreign-born residents together and dispel notions of immigrants as “The Other” might be fruitful. In addition, communities might sponsor programs that help immigrants not only assimilate to the country but also to the specific communities that they inhabit. These kinds of programs might also help inhibit the perception that immigrants do not “fit in” and might prevent the negative consequences of intolerance described in this dissertation.

Going back to its founding as a nation, America has taken on the mantle of being a place for immigrants and a well of opportunity for those who come from economically dysfunctional or politically repressive regimes. Nonetheless, the American public has been ambivalent about immigration throughout its history. Nativism in the United States has ebbed and flowed and while immigrants have been viewed positively during eras of economic and cultural prosperity, nativism has reared its ugly head during times of economic crisis. Since the pace of immigration growth does not appear to be slowing down, one wonders whether America will once again become a country consumed by nativism as the pro-

liferation of anti-immigration policies at the state level suggest, or if for the first time in centuries, Americans might welcome the “tired, poor, and huddled masses” who have contributed to its success as a nation in the first place.

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12 Appendix

	<i>Dependent variable:</i>		
	Mobility Considerations	Local Political Action	Immigration Opinion
Surrounding Composition	2.90*** (0.98)	-1.06 (0.76)	-1.68** (0.72)
Δ Immigrant	2.06** (0.92)	-1.90*** (0.70)	-0.12 (0.65)
Surrounding Composition x Δ Immigrant	-6.91** (3.32)	4.62* (2.57)	6.46*** (2.43)
Age (Years)	-0.04*** (0.002)	-0.01*** (0.001)	0.01*** (0.001)
Home Ownership	-0.91*** (0.05)	0.28*** (0.04)	0.02 (0.04)
Tenure	-0.23*** (0.01)	0.08*** (0.01)	0.04*** (0.01)
Church Attendance	-0.07 (0.09)	0.06 (0.07)	-0.13* (0.07)
Female	-0.24 (0.15)	-0.61*** (0.13)	0.26** (0.11)
Ideology	0.07*** (0.01)	-0.12*** (0.01)	0.07*** (0.01)
Education	-0.05 (0.04)	0.05* (0.03)	-0.14*** (0.03)
Income	-0.04 (0.07)	-0.34*** (0.06)	1.21*** (0.05)
Black Identification	0.60*** (0.06)	0.30*** (0.05)	-0.21*** (0.04)
Hispanic Identification	0.04*** (0.01)	0.16*** (0.01)	-0.25*** (0.01)
Asian Identification	-0.003 (0.01)	0.08*** (0.01)	-0.06*** (0.01)
Local Pct. Hispanic	-0.003 (0.003)	-0.002 (0.002)	0.01*** (0.002)
Local Pct. Asian	-0.005 (0.005)	-0.002 (0.004)	-0.01* (0.004)
Local Pct. Unemployed	0.01* (0.01)	0.03*** (0.01)	0.001 (0.01)
Local Median Income (1,000s)	-0.005 (0.004)	-0.006** (0.003)	0.009*** (0.002)

Local Median Gross Rent (1,000s)	0.993*** (0.307)	-0.058 (0.227)	-0.697*** (0.211)
Local Median Property Values (1,000s)	-0.0001***	0.0004***	-0.0003***
Constant	0.46 (0.29)	0.84*** (0.22)	

12.1 Local Political Action Scale Items

1. How interested would you be in joining a community group devoted to local issues?
Yes/No
2. Would you participate in a rally to keep your local area from changing?
Yes/No
3. Would you sign a petition to keep the neighborhood composition as it is or to improve it?
Yes/No
4. Would you sign a petition to keep the school quality as it is or to improve it?
Yes/No
5. Would you sign a petition to keep your local economy as it is or to improve it?
Yes/No
6. Local community leaders don't care about me.
Strongly Agree/Agree/Neither Agree nor Disagree/Disagree/Strongly Disagree
7. Participating in local politics by voting or being a part of a homeowners' association is waste of time.
Strongly Agree/Agree/Neither Agree nor Disagree/Disagree/Strongly Disagree

12.2 Agent-Based Model Code

```

from __future__ import division
import numpy as np; import numpy.ma as ma
from itertools import starmap, product
import pysal as pys
import warnings

```

```

import matplotlib.pyplot as plt
from pylab import figure
import os

# load maps
population = ma.masked_outside(np.load('totalpop.npy'),0,114124)
native = ma.masked_outside(np.load('nativepop.npy'), 0, 81362)
tolerance = ma.masked_outside(np.load('collesepct.npy'), 0, 100)
loyalty = ma.masked_outside(np.load('samehouse.npy'), 0, 100)
unemployment = np.load('unempr')
housing = ma.masked_outside(np.load('houseprice.npy'), 0, 1000000)
housing = (housing - housing.min())/
(housing.max() - housing.min() * 1.0)
rent = ma.masked_outside(np.load('rent.npy'), 0, 1000000)
rent = (rent - rent.min())/(rent.max() - rent.min() * 1.0)

warnings.simplefilter("ignore", UserWarning)
warnings.simplefilter("ignore", RuntimeWarning)

xmax = population.shape[0]; ymax = population.shape[1]
grid = ma.zeros((12,xmax,ymax))

grid[0] = population
grid[1] = native
grid[2] = tolerance/100
grid[3] = loyalty/100
grid[4] = unemployment/100
grid[5] = housing
grid[6] = rent
grid[7] = grid[7].mask[np.where(grid[0].mask)] = True
grid[7] = grid[7] - 1

w = pys.lat2W(rook=False, nrows=xmax, ncols=ymax)

# create neighbors list with number of neighbors for each cell
def neighbors(x,y):
    if x > 0 and y > 0 and y < 583 and x < 250:
        n_list = list(starmap(lambda a,b: (x+a, y+b),\
            product((0,-1,+1), (0,-1,+1))))
        return n_list
    elif x == 0 and y == 0:
        n_list = list(starmap(lambda a,b: (x+a, y+b),\
            product((0,+1), (0,+1))))
        return n_list
    elif x == 0 and y >= 582:

```



```

        n_list = list(starmap(lambda a,b: (x+a, y+b),\
product((0,+1), (0,-1))))
        return n_list
    elif x >= 250 and y >= 582:
        n_list = list(starmap(lambda a,b: (x+a, y+b),\
product((0,-1), (0,-1))))
        return n_list
    else:
        n_list = list(starmap(lambda a,b: (x+a, y+b),\
product((0,-1), (0,+1))))
        return n_list

neighbors = w.neighbors.copy()
masked_elements = population.flatten().mask

# only consider valid neighbors (no water/no empty cells)
for k in range(0,8):
    for neighbor in neighbors:
        for item in neighbors[neighbor]:
            if masked_elements[item]:
                neighbors[neighbor].remove(item)

w_lag = pys.W(neighbors); w_lag.transform = 'r'
valid = np.where(masked_elements == False)
w_move = pys.W(neighbors)

for k in valid[0]:
    for i in range(0,len(w_move.weights[k])):
        if len(neighbors[k]) > 0:
            w_move.weights[k][i] = (1/len(neighbors[neighbors[k][i]]))

simulations = 1000
results = np.zeros((simulations, 11))

import os, numpy as np
import osgeo.gdal as osgdal
import gdal, osr
from math import exp

# this function converts the numeric array into a raster
def array2raster(newRasterfn, rasterOrigin, pixelWidth, pixelHeight, array):

    cols = array.shape[1]
    rows = array.shape[0]

```

```

originX = rasterOrigin [0]
originY = rasterOrigin [1]
driver = osgdal.GetDriverByName( 'GTiff' )
outRaster = driver.Create(newRasterfn , cols ,
rows , 1, osgdal.GDT_Float64)
outRaster.SetGeoTransform((originX , pixelWidth ,
0, originY , 0, pixelHeight))
outband = outRaster.GetRasterBand(1)
outband.WriteArray(array)
outRasterSRS = osr.SpatialReference()
outRasterSRS.ImportFromEPSG(4326)
outRaster.SetProjection(outRasterSRS.ExportToWkt())
outband.FlushCache()

# for each simulation k in simulations ,

for k in xrange(0, simulations):

    # this stores values for each variable

    grid = ma.zeros((11,xmax,ymax))

    grid[0] = population
    grid[1] = native
    grid[2] = tolerance/100
    grid[3] = loyalty/100
    grid[4] = unemployment/100
    grid[5] = housing
    grid[6] = rent

    # stores voice , filled in later
    grid[7] = grid[7].mask[np.where(grid[0].mask)] = True
    grid[7] = grid[7]-1
    grid[8] = grid[8].mask[np.where(grid[0].mask)] = True
    grid[8] = grid[8]-1

    # set number of simulation steps
    steps = 10000

    # draw parameter values from a uniform distribution
    par = np.random.uniform(-6, 6, 11)
    par[7] = np.random.uniform(-6, -4, 1)

    # results stores parameter values for each simulation
    results[k] = par

```

```

# assign those values to each parameter
a_i = par[0]
b1_i = par[1]
b2_i = par[2]

a_n = par[3]
b1_n = par[4]
b2_n = par[5]
b4_n = par[6]

a_t = par[7]
b1_t = par[8]
b2_t = par[9]

# for each step t in steps,
for t in np.arange(steps):

    # immigrant composition (time t)
    t1 = 1-grid[1]/grid[0]

    # immigrant utility (own area)
    u_i = b1_i*t1 + \
          b2_i*(1-grid[7])

    # immigrant utility (surrounding areas)
    u_j = np.reshape((w_lag.sparse*u_i.flatten()), (251,584))

    # this unmask the array
    u_j = u_j + grid[8]

    # pr(exit) for immigrants
    pr_e = np.exp(u_j)/(np.exp(u_j)+np.exp(a_i+u_i))

    # number of immigrant movers per cell
    i_m = pr_e*(grid[0]-grid[1])

    # update population counts for immigrants
    i_n = np.reshape((w_move.sparse*i_m.flatten()), (251,584))
    grid[0] -= i_m; grid[0] += i_n

    # immigrant composition (time t+1)
    t2 = 1-grid[1]/grid[0]

    # immigrant change

```

```

d = t2 - t1

# if avg. mobility among immigrants <= .01% of population
if d.mean() <= .001:
    break

# utility for native-born residents (own area)
n_i = b1_n*(1-t2) + b2_n*(1-grid[5])

# utility for native-born residents (surrounding)
n_j = np.reshape((w_lag.sparse*n_i.flatten()), (251,584))
n_j = n_j + grid[8]

# pr(exit) for native-born residents
pr_e = np.exp(n_j)/(np.exp(n_j)+np.exp(a_n+n_i+b4_n*grid[3]))

# number of native-born movers per cell
n_m = pr_e*grid[1]

# update population counts
n_n = np.reshape((w_move.sparse*n_m.flatten()), (251,584))

# conditional: places where change is greater than threshold
c = ma.where(d >= 1/(1+np.exp(-(a_t+b1_t*t1+b2_t*grid[2]))))

# number of voicers (1-pr(exit) for natives)
n_v = (1-pr_e)*grid[1]

grid[7][c] = (n_v/grid[0])[c]
grid[0][c] -= n_m[c]; grid[0][c] += n_n[c]
grid[1][c] -= n_m[c]; grid[1][c] += n_n[c]

# number of voicers (total population)
grid[9] += (grid[7]*grid[0])
# number of voicers (proportion)
grid[10] += grid[7]

# save how many steps until convergence
results[k][10] = t

# save array of predictions and convert this into raster
array = (grid[9]/t).filled(0)
title = 'predictions/totals_v3/%s.tif' % str(k).zfill(4)
array2raster(newRasterfn = title,
rasterOrigin = (-124.733,49.3717),

```

```
pixelWidth = .09894366438,  
pixelHeight = -.0989629482,  
array = array)
```

```
np.savetxt('parameters.csv', results, delimiter = ',')
```