Green Dreams, Concrete Realities: Overcoming Climate Hurdles in American Middle Cities

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Abstract:

In this article, I assess the creation of climate policy in America's middle cities-the cities of between 50,000 and 1 million residents that are often left out of the environmental discourse but that are home to over 1/4 of the USA's citizens. This paper contributes to the literature by focusing on a category of city often considered "unimportant", but which houses a large section of the world's population and of its economic output. These cities also have certain advantages over large cities with regards to policy flexibility and innovation, as well as being home to some of its most economically and environmentally disadvantaged communities. Based on extensive fieldwork (ethnographic interviews and several types of participant observation) with activists, elected officials, and professional policymakers in 5 of those cities, as well as an original survey, I assess the degree to which three themes in the literature (institution building, capacity building, and coalition building) apply to these middle cities, as well as additional lessons not available from other case studies. This paper is part of a larger, ongoing research project studying middle cities in the U.S.A. and elsewhere and any and all feedback is welcome.

Introduction/Theory

Existing theory on climate action by cities reveals a paradox: giving us reason to both expect cities to take the lead on climate action and reason to expect they will not act. Among the reasons to expect cities to act on climate change are the competition among cities to cultivate a sustainable image in order to attract labor and capital that prioritizes sustainability (Koven and Lyons, 2010; Hughes, 2019), the innovation of cities in linked policy areas such as transportation (Marsden *et al.* 2011), the desire to capture the co-benefits that accompany action on climate change (Betsill 2001, Hughes 2019), and a growing body of survey research demonstrating public demand for action on climate change and literature demonstrating that local officials may be responsive. (Engel and Orbach, 2008; Schaffer *et al.* 2022). Among the reasons to not expect cities to act on climate are the long-realized tension between climate mitigation and other political priorities (Bukeley and Betsill, 2003; Hughes, 2019), and a broader body of conventional theory that predicts cities will prioritize growth and development over environmental protection (Peterson, 1981). This paradox can be resolved by a simple premise: that cities will take action on climate change only under specific circumstances. Among the factors that predict an increased likelihood of action on climate are the presence of active environmental groups (Zahran *et al.* 2008, Sharp, Daley, and Lynch, 2011, Hughes, 2019), wealth and education (Bayulgen, 2020). Among the factors that predict a decreased likelihood of action on climate are employment in carbon intensive industries (Zahran *et al.* 2008; Sharp, Daley, and Lynch, 2011), fiscal stress (Sharp, Daley, and Lynch, 2011), and based on survey research nonspecific to cities, demographics (Reed *et al.* 2019; Kacerski *et al.* 2019).

In understanding the factors that drive cities to pursue climate action (or not), it is useful to analyze cities through a framework where they compete in a national or even global marketplace to attract residents, investment, and resources. In this "Marketplace of cities", being a "sustainable city" has often been a competitive advantage (Florida, 2003, 2005), but it has increasingly become so with the rise of climate change (Hughes, 2019). Still, while the pool of green investment (public and private) and residents motivated by climate issues has grown dramatically in recent years, supply is still outstripped by potential demand, and the distribution of both labor of capital can become unequal.

In recent years, there has been significant work on overcoming barriers to climate action in cities, notably, but not limited to, Sarah Hughes' *Repowering Cities* (2019) and Oksan Bayulgen's *Localizing the energy transition* (2020). Each uses a set of case study cities to lay out common strategies that have been effective at advancing municipal climate mitigation.

Hughes (2019) focuses on a set of megacities that have been leaders in the municipal climate space: New York, Toronto, and Los Angeles. She lays out three strategies that are effective in advancing climate goals: building institutions, building capacity, and building coalitions. Building institutions can involve the creation of new city infrastructure dedicated to climate action as well as implementing climate goals across existing city departments. Hughes documents how institutions are crucial to ensure that,

once established, city climate policies are well implemented. Her second strategy is building capacity, or creating the knowledge needed to track the implementation of climate goals (and the tools to gather that knowledge). Her final strategy, building coalitions across government and the business and nonprofit sectors, is necessary for both passing strong policies and ensuring their implementation. As McKendry (2020) points out in their excellent review of Hughes, while these strategies do hold true across the case studies Hughes is concerned with, what those strategies look like in practice is highly case dependent.

Bayulgen (2020), examines the problem of municipal climate governance through the lens of a far different set of case studies than those in Hughes: a set of towns under 50,000 people in the state of Connecticut. In examining the factors that determine which towns are more proactive in pursuing climate action, Bayulgen's conclusions are strikingly similar to Hughes despite drawing on a dramatically different set of case studies. Similar to Hughes, Bayulgen emphasizes the importance of coalition building, finding that those towns that have both dedicated policy champions (in the sense of Kingdon, 1984, see also 2nd ed. 1995) to place climate on the agenda (in line with, *inter alia,* Betsill 2001; Dannevig *et al.* 2013; & Bukeley, 2013) and organized coalitions across interest groups, government, and business (the same trifecta highlighted by Hughes) are the most likely to adopt climate actions. Bayulgen also highlights the importance of institutional capacity, specifically in terms of specialized staff, in determining policy creation and implementation (again, in line with Hughes (2019)).

The ability of Hughes and Bayulgen to reach similar conclusions about what leads to the successful implementation of climate mitigation policies despite dramatically different case studies suggests the generalizability of those conclusions. Their research leaves a large gap, however, between the towns Bayulgen relies upon in her research (those with less than 50,000 people) and the large, international cities Hughes relies on in hers (the smallest of which, Toronto, has a population of 3 million). A survey of both the general urban literature and the climate specific literature finds a similar pattern. Much of the research on American urban politics and policy naturally gravitates toward larger cities-New York, San Francisco, and Los Angeles, in particular (inter alia, Henig, 2019; le Gales and Pierson, 2020; Mason *et. al.* 2020). This is also true of urban environmental politics (inter alia Cohen, 2021, Miller, 2020). On the other end, studies focus on small towns or rural areas left behind by the transition to fossil fuels (inter alia Bayulgen, 2020; Gazmararian and Milner, 2023; Gazmararian 2023). In this study, I have deliberately chosen to focus on the forgotten communities in the middle, what I choose to call "middle cities", in that they are caught in the middle between urban megacities and rural communities, and saddled with some of the benefits and challenges of both. In the following pages, I argue that these middle cities are distinct from both smaller and larger communities on a set of intersectional factors that make the implementation of climate policies uniquely difficult. It is worth examining, therefore, the degree to which findings from Hughes, Bayulgen, and the rest of the existing literature applies to the implementation of climate action in American middle cities, and the degree to which additions to the literature are necessary. Through a large scale, original ethnographic study, I aim to answer this question, adding a missing set of case studies to the literature on urban climate politics and highlighting the challenges and opportunities for sustainable transition in communities that house more than a quarter of the American population.

What Makes American Middle Cities Unique

In order to document the challenges to climate transition in American middle cities, it is important to first define what a "middle city" is. By my own definition, these are approximately communities with between 50,000 and a million residents. According to the 2020 Census Bureau estimates and my own calculations, there are over 630 such cities in the United States, with a collective population of approximately 95 million people-more than a quarter of the American population. In the United States, these cities are unique from their peer communities in several factors that make climate transition difficult: they are lower educated, lower resourced, and more post-industrial than their larger (and smaller) peers. It is these middle cities that I focus my fieldwork on, and while I believe that my lessons generalize beyond them, the fundamental economic reality of scale and globalization means that a city in my sample likely has more in common, environmental policywise, with a middle city in the United Kingdom than with New York or San Francisco. Finally, it is worth noting that city size has implications for policy diffusion: with policymakers in middle cities looking to similarly sized cities for inspiration, rather than much larger or smaller municipalities. This makes the lack of study of middle cities a challenge for policymakers for those cities, since they have a lack of compelling case studies to draw from.

How Do My Case Cities Compare to Other Cities?

I started my fieldwork in New Haven, Connecticut, a classic middle city that makes a strong case study for several reasons. First, there is a long history of New Haven as a case study for American urban politics, starting with the work of Robert Dahl on interest groups and continuing through the work of Douglas Rae on urbanism and its fall. Secondly, New Haven is actually surprisingly representative of American cities, with a population similar to the majority of cities in America (six figures), and also matches cities nationally well on a variety of other factors relevant for political economy, including poverty, unemployment, income, and racial makeup. Third, New Haven has a long history of prioritizing economic growth over environmental protection, as the birthplace of the interchangeable part, and a natural transportation hub for goods, energy, and waste. Finally, New Haven is highly vulnerable to climate change-more than many people appreciate. As a coastal city that is the third most active port in the northeast, that is also bound by two rivers, we are naturally vulnerable to sea level rise. From New Haven, I selected the four other middle cities in my sample based on "snowball sampling" recommendations from interviewees in New Haven, looking for a variety of cities that also were representative of American middle cities politically, economically, and demographically. Because some references in my paper would contain identifying information if I disclosed the identity of the communities in question, I have decided to anonymize the other four communities in my sample, in line with practices from (Bayulgen, 2020). The demographics of the 5 cities are compared to the demographics of all middle cities and the United States as a whole below, with all estimates taken from 2020 ACS data:

Case Cities vs Middle Cities and the United States

	Case Cities	Middle Cities	US Average
Per Capita Income	$30,162	$32,117	$35,062
White % of the population	38.0%	67.5%	64.1%
Unemployment Rate	7.8%	6.1%	5.4%
2020 Democratic vote for President	76.87%	63.6%	51.3%

The studies in my case selection were poorer, more Democratic, and had a higher unemployment rate and percentage of nonwhite residents than either middle cities or the national average. It is because of those discrepancies that I supplement my data with a nationally representative sample of residents of middle cities. However, I believe that my data is biased in a way that strengthens my conclusions, rather than weakens, them, since the differences between my cities and other middle cities (greater economic depression, larger percentage of nonwhite residents) are all (with the exception of being more Democratic) associated with a lower probability of successfully adapting climate policies. My case studies, in short, represent the types of middle cities that will be the most difficult to transition to a greener economy, and yet those that are the most important to transition, given their disproportionate burden of environmental racism and post industrial decline.

Research Methods

This paper draws upon four primary sources of data: semi-structured interviews, participant observation, in-person observation of the built environment, and a large-N nationally representative survey. I conducted 19 semi-structured interviews of activists, both professional and volunteer, and policymakers, both elected and professional across my 5 case cities. Those interviews ranged from a half hour to over two hours in length, and were conducted in person, over zoom, and over the phone according to the participant's wishes. I also conducted extensive participant observation, by observing two years of environmental planning meetings in my target cities. I was able to observe two years worth of meetings because meetings were held online and recorded in 2021 and 2022 due to the COVID-19 pandemic, and recordings are published online. While some might question the efficacy of "observing" meetings asynchronously, I argue that the zoom format of recordings, which allow for high quality observation of

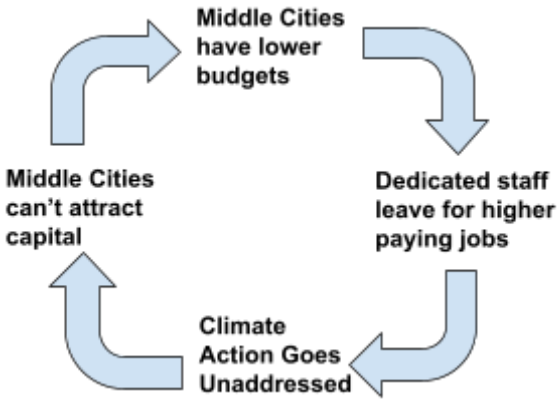
attendees and clear audio, is equivalent to if I had remotely participated in the meetings in real time. Secondly, observing asynchronously avoided any positionality that occurred when I came to meetings live and announced my presence as a researcher, thus, data from recorded meetings may in some ways be of *higher* quality than those from live meetings. In a similar vein, listening to recordings allowed me to slow down or repeat the recording as necessary, ensuring that during chaotic periods where multiple people were talking or when people talked quickly I was able to thoroughly note what they were saying. What struck me throughout the conversations is how informative urban geography is to environmental policy. By urban geography, I mean the physical landscape of the city, both in natural terms (bodies of water, forests, etc) and man-made terms (what buildings have been constructed over the years and for what use?). To this end, I conducted four days of "physical observations" in my participant cities. During these field observations, I walked around, and paid as much attention to detail as possible. Whenever I came across an interesting detail (from a floodwall to an abandoned coal plant), I would make a note and make it a subject of future research. I believe that doing non-participant, non-interview observation of my interview locations gave me a huge leg up on my project, both in the additional insights it yielded and that it helped me better understand the locations and landscapes my participants were interacting in on a daily basis. Finally, I conducted a large (N=960) nationally representative survey of citizens from across all middle cities in the U.S using Lucid Theorem, in order to test how well my conclusions generalized from my case studies and to draw broader conclusions. Participant observation, interviews, and the survey were all pre registered on OSF and approved by the Yale University IRB, funding for the survey came from the Yale Center for the Study of American Politics, at which I am an affiliate.

Findings

My findings proceed as follows. First, I analyze the extent to which strategies from the existing literature, specifically institution building, capacity building, and coalition building, apply to the implementation of climate action in my target cities. I then analyze an additional critical factor to climate progress in middle cities (and elsewhere) that is undercovered in the current literature: the physical legacy of industrialization. I close with a discussion of how these lessons may generalize to case studies outside of the middle cities and outside of the United States.

Institution and Capacity Building

I find that both institution building and capacity building are major challenges, constrained by high staff turnover rooted in municipal budget constraints and the participation of middle cities in an urban government labor market where larger and better resourced cities have a comparative advantage. In the competitive marketplace of cities, this leads to a negative policy feedback loop, where middle cities are outbid for both green capital and green labor by larger, better resourced cities and smaller communities with a lower cost of living and better amenities.



It will come as no surprise that money is a major constraint in policymaking in middle cities-their limited budgetary resources was one reason I chose to focus on them in the first place. This differential is true in both absolute and relative terms. Consider the difference between the city budgets of New York City and New Haven, Connecticut (one of the middle cities in my sample). New York's budget ($101 billion in 2021) dwarfs that of New Haven ($550 million in 2021) in absolute terms, but does so even after adjusting for the vast differences in population between the two cities-New York spent approximately $11,000 per capita in 2021, while New Haven spent $4,200-less than half as much. Even after adjusting

for differences in the cost of providing services in each city (which is offset at least in part by New York benefiting from the discounts that accompany economies of scale), New Haven's state capacity is simply lower than New York's, a fact that holds true across the city's in my sample. I entered my fieldwork expecting money to be a major if not THE major constraint on city capacity, and I was not disappointed. When the city is allocating a limited pool of money between competing priorities, many of which (such as education and crime) have more pressing time horizons than environmental issues, environmental policy is often a natural loser.[12] What was surprising in speaking with policymakers both elected and appointed was the ways in which budgets can be a constraint beyond merely pure numeric terms-namely, the restrictions on how cities can spend funds. To return to the previous example: more than half of New Haven's annual budget comes from state and federal funding, which is often severely restricted in how it can be spent.[3] Unlike New York and San Francisco, which are flush with the property tax revenue that comes with an urban metropolis, New Haven and the other cities in my sample lack a natural replacement source of revenue, and are therefore severely constrained by budget rules set in Hartford and Washington rather than city hall.[4] An example of state restraint at work is an energy efficiency grant program which, at the time of authorship, was limited to weatherization of buildings with 5 or more families, despite the majority of families in the city in question living in a building with fewer than 5 families.[5] Another example is the federal grant program for electric school buses, which only covers bus fleets that are 1. Over a certain age and 2. Owned by the city directly and not by private contractors.[6]

This is not to say that state and federal funding is a complete obstacle to environmental issues: many of the most successful programs I examined were funded with outside money, which can serve to enlarge the pie and also offer policymakers an excuse-free manner to spend money on environmental issues (if a grant is restricted to recycling programs, for example, you can't reasonably be pressured to spend it on policing or road repair).[7] However, much of this outside funding is by application only-the EPA alone awards more than $4 billion in grants annually. The problem with grants is that they have a high startup cost: onerous processes and technical requirements mean that the most effective grant applicants employ either outside consultants or full time staff to apply for funding.[8] Yet, many cities were reluctant to supply the "seed funding" needed to apply for such programs, for fear of not getting it paid back. It is worth noting that, of the cities in my sample that had invested in full time grant writing staff, not one expressed regret at doing so, indicating that such investments can be a fiscal multiplier widening environmental impact down the line. The same point goes for grant programs run by the city for nonprofits and individuals: given the inequality in the distribution of resources and environmental impact, it is vital for cities to monitor their own grant programs, and make sure they are going to neighborhoods/nonprofits/groups according to need, not just grant writing ability.[9]

While it is a potential solution to a budgetary barrier, grant funding is not a panacea. As mentioned above, the grant writing process is highly onerous and highly technical, consuming resources that instead could have been better spent on actual policy implementation.[10] Additionally, so called "soft grants", or competitive grants that are up every year, add an additional challenge to long term projects because there is uncertainty of funding in future years, making it difficult to implement the type of multiyear projects that are highly common in climate adaptation in particular. [11]Just like staffing, budgetary constraints pose a challenge to all steps of the policymaking process, but I found them to be particularly influential at the policy choice and policy implementation stages, with policy startup and maintenance cost being dominant factors in which policies were selected by elected officials and how

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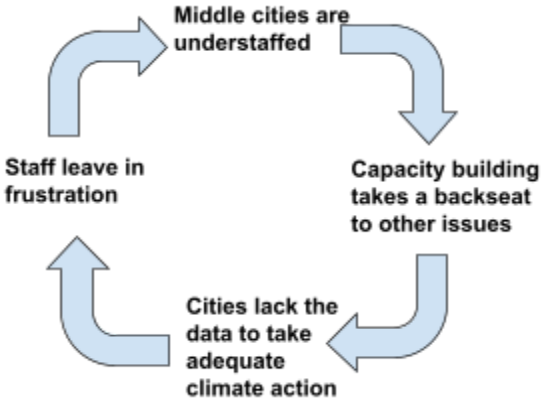
[1] Interview 4
[2] Interview 7
[3] Interview 4
[4] Interview 19
[5] Field notes, March 2023 meeting
[6] Field notes, June 2022 meeting
[7] Field Notes-March 2023 meeting
[8] Ibid
[9] Interview 9
[10] Interview 15
[11] Interview 16

well policies were implemented in future years. One potential solution which I did not have the opportunity to explore deeply with my case studies but which may make a fruitful area of future research is priority based budgeting, which adds climate to the list of core criteria in budget calculations. I recognize that budgetary constraints on state capacity are hardly a surprising finding, but I emphasize their importance here for two reasons, first, the unique budgetary challenges of the middle cities caused by their declining tax bases, and second, the degree to which budgetary shortfalls are used as an excuse to shield other causes of state inaction.

Capacity building is governed by a similar negative feedback loop: in under-resourced departments, building the type of forward-facing datasets that Hughes describes as critical to accurate climate implementation takes a backseat to more pressing issues, leading to a lack of progress on climate issues, which leads to staff departing for other positions out of frustration, which leads to understaffing.



In addition to budgetary and capacity constraints, understaffing in cities is driven by several other factors revealed through my fieldwork. This is rooted in the reality that many of the professional staff that urban climate policy relies on are highly technical, low paying positions such as urban planners or public health officials, requiring a graduate degree and/or professional certification.[12] Additionally, some of these jobs, for example in the health department, can require tasks that are physically unpleasant.[13] The five cities in my study were all battling an aging workforce and constantly looking to fill empty positions in departments such as city planning and engineering, and were constantly losing employees to higher paying jobs at other (normally larger) municipalities and in the private sector. Understaffing also matters for the accumulation of institutional knowledge, as every city has a unique geography and neighborhood breakdown that affects how climate impacts the city, subtleties that take a long time to learn, impact policy effectiveness, and do not easily generalize between municipalities. There is a reason that the two individuals in one target city who were consistently praised for their effectiveness and knowledge had worked for the same government for over 5 years and over 10 years, respectively.[14] Constant turnover prevents that institutional knowledge from accumulating and hinders all stages of the policy process. It is also worth noting that frequent turnover can result in changes in priorities which makes implementation of long term solutions difficult.[15] For example, one city planning director in a city in my sample spent months developing a long term coastal protection plan with volunteers, only to have that plan abandoned when a new director took over.[16] It is important to note that staffing challenges affect all stages of the policymaking process, not just policy implementation, where professional staff dominate. Staffing challenges societal demands, because most societal demands around environmental issues, from a clogged drain to idling cars, go straight to city staff rather than to elected lawmakers.[17] Not having enough staff to effectively mitigate those complaints will not only exacerbate environmental issues over time (in discussing environmental issues, it was remarkable how often a major challenge was rooted in a

[12] Field Notes, March 2022 meeting
[13] Field notes, March 2022 meeting
[14] Interview 5
[15] Interview 16
[16] Field Notes, March 2022 meeting
[17] Field Notes, June 2022 meeting

minor, unaddressed complaint), it may also disenchant citizens from participating in the process further, in line with a long literature on the link between official/citizen interactions and public trust in institutions (for a review, see Blind, 2007).

Staffing can affect political interactions and policy choice since both elected and appointed officeholders rely on professional staff both to moderate political interactions and guide policy choices. An example of a political interaction dependent on staffing are public hearings, which by statute must follow a very specific structure and focus on specific topics.[18] Activists I spoke to repeatedly described the variety in quality and cohesion that public meetings can have, with a poorly run public meeting posing an obstacle to the population having their concerns heard and, in turn, having their preferred policies put into practice. Policy choice is guided by professional staff because elected officeholders have to, by nature, focus on a number of different priorities, and sometimes lack the policy knowledge to make informed decisions on technical environmental issues by themselves. Compounding this is the fact that many elected and appointed officials in middle cities are either volunteer or part time-in one city in my sample, city council members make just $2,000 a year, deepening their reliance on professional staff.[19] This can lead to staff being deluged with requests for advice and research, which in turn can delay and clog up the policy pipeline. One city's general counsel's office overwhelmed with requests for advisory opinions is a perfect example of this. This is also not unique to the city level, interviewees repeatedly cited staffing shortages at the state department of environmental protection as an obstacle to their own policy because city authorities lean on the state for policy advice, in one's word "There is nobody around there to answer the phones, much less give us advice".[20]

Of all the stages of the policy process, the impact of staffing shortages on policy implementation is likely the most obvious. When there is a shortage of staff to implement priorities, cities go through policy triage, and often it is the policies with the greatest maintenance costs that get cut first (Ding and Van de Kamp, 2023). A perfect example of a policy with high maintenance cost is any policy which requires regular, in-person inspections: it was no coincidence that many of the activists I spoke to complained about city under-enforcement in policy areas such as gas leaks and improper waste disposal.[21] These timeline changes can be dramatic-one pollution control individual I spoke to reported that source inspections that used to be performed every year were now being performed every 5.[22] By requiring in person visits, enforcement seems to naturally require more manpower than incentivization, indicating that shifting from stick to carrot policies may be one way to stretch staffing resources further. [23]

Staffing can also be a measurement of a city's priorities, and affect which of those priorities win out when they come into conflict. As part of my pre-fieldwork research, I went through the organizational charts of the cities in question and added up the number of paid staff focused full time on economic development to those focused on climate. The economic development staff outnumbered the climate staff 18 to 1. It is important to recognize that, at every stage of the policy process, staffing shortages and staffing differentials favor the status quo. Unlike other barriers on this list, no city in my sample had yet created a viable strategy for combating staffing shortages, although policymakers brought up simply increasing salaries and building dedicated workforce development pipelines as two solutions.[24] Another theme worth emphasizing is that, whenever staff I spoke with faced a number of competing priorities, it was often the climate priorities which got cut first. The only viable solution to this attention fragmentation seems to be dedicated climate staff: with climate being such an all-encompassing issue, only professional staff who work on it full time seem adequately prepared to combat it.[25] I base this finding on both the experiences of individual policymakers I interviewed and also on differentiation on dedicated climate/sustainability staffing across case studies: several cities in my city had dedicated staff, several did not, and one had gone back and forth between having dedicated staff and not over the course of about a decade.

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[18] Interview 9.

[19] Interview 4

[20] Field Notes, January 2023 meeting

[21] Field notes, January 2022 meeting

[22] Not citing this interview directly for risk of revealing the individual in question

[23] Field notes, March 2022 meeting

[24] Interview 13

[25] Interview 4

Through my fieldwork, I evaluated several potential strategies for breaking these negative feedback loops. The most effective of these was the infusion of outside public capital from the federal government, as it offers an opportunity to break the feedback loop and set up the dedicated climate staff needed to adequately address climate challenges. If part of that climate staff is dedicated to data collection and grant writing, it also offers an opportunity to break the negative feedback loop around capacity building. One tempting, but less effective method that was employed in several of my case studies was the outsourcing of governance to nonprofit entities. Specifically, two nonprofit executives interviewed independently described a “pullback” effect that occurred in their cities when they expanded programming, with any extensions of nonprofit spending or programming being used as an excuse for the municipality in question to pullback their own spending or avoid new programming-thereby canceling out the contribution of that new spending to the city’s climate goals.

Coalition Building

Coalition building is crucial to achieving climate action across my case studies. One lesson from (Hughes, 2019; Bayulgen, 2020) that persisted in my case studies was the need to build coalitions across nonprofits, governments, and the private sector. Two additional lessons from my fieldwork speak to coalitions that can be effective across environments: the need to build coalitions across racial and age groups, and, in cities where the lack of affordable housing and environmental issues chronically affect the same populations, the effectiveness of alliances between housing and climate advocates. Several of the cities in my sample are highly racially segregated, and their reliance on district-based elections means that representatives hail from highly distinct and homogenous communities.[26] Building a majoritarian coalition for climate action makes a multiracial coalition not just a nicety but a necessity.[27] Similarly, several interview participants mentioned the natural and effective alliances between advocates for affordable housing and advocates for climate action, given that constructing new housing stock can easily serve the twin goals of housing quality and emissions reduction.[28][29] Finally, my survey evidence shows the vital need to build coalitions across age groups. In my survey, Respondents were asked two sets of questions, first, how important a series of priorities were on a likert scale (1=not at all important, 100=very important), and 2nd, how much in additional property taxes per year they were willing to pay for the implementation of a series of common city environmental proposals. Given the lack of pre registration of hypotheses, I intend this section as an exploratory analysis. I find that, broadly speaking, voters balance the benefits of city climate action (improved air quality, heat resistance, and flood resistance) about equally with the costs of climate action (electric bills, tax increases, jobs and economic growth). To estimate which socioeconomic factors predict an individual’s willingness to pay for state climate policy, I regressed willingness to pay for each policy in question against a set of standard form demographic and political variables using OLS linear regression with robust standard errors. Across all five policies, age is strongly and negatively associated ($P<0.01$) with willingness to pay for both city climate mitigation and adaptation policies, with older residents more reluctant to spend money on either-in line with my theory of political change, where residents engage with issues depending on their own cost and benefits from those issues. Since older residents are, by their nature, less likely to bear the burden of climate change, they are more reluctant to pay for either climate adaptation or mitigation. In every case, income is positively associated with willingness to pay for climate mitigation, with three of those (Energy Efficiency, Vehicle Electrification, and Flood Protection) being significant to ($p<.05$) or lower. Two factors that were largely not significantly associated with a willingness to pay are political party and education, two factors that have been historically strongly associated with beliefs about climate change. One possible explanation is that local climate issues are viewed through a less partisan lens than national ones. Overall, this gives a strong indication that, when building coalitions for climate mitigation policies, activists and policymakers should pay particular attention to outreach to lower income and older residents, as they may be more inherently skeptical of climate spending than the population as a whole and, in the case of older voters, hold greater political power (Ellickson, 2022).

Overcoming the Physical Legacy of Industrialization

[26] Interview 7
[27] Interview 13
[28] Interview 15
[29] Interview 18

Previous literature documents the degree to which a city's reliance on manufacturing predicts its action (or lack thereof) on climate (Zahran *et al.* 2008; Sharp, Daley, and Lynch, 2011; Hughes, 2019). What became clear through my fieldwork is the degree to which the *legacy* of manufacturing hinders climate action, even in cities where manufacturing is no longer a major part of the economy. Every city in my sample, like nearly every middle city in America, is dealing with the legacies of the 20th century in one way or another. What became clear through my fieldwork is the degree to which 20th century neglect poses a threat to 21st century progress on climate change. The cleanup of decaying industrial facilities–the most salient legacy of the 20th century–mar the skylines of many middle cities, threatening land and water quality and taking up policy capacity that would be better spent on speeding the green transition.[30] In one city in my sample, the decommissioning and cleanup of a single coal plant had involved at least a half dozen government agencies and had been going on for over a decade with no end in sight. Aging housing stock, both public and private, also poses an underappreciated challenge to electrification and energy efficiency programs, as baseline environmental problems such as mold, asbestos, and rot must be addressed before any new upgrades can be performed.[31] The maintenance backlog at many urban housing facilities was repeatedly cited as an obstacle to decarbonizing housing.[32] The core point is this: middle cities were the host to some of the most vibrant industrialization in America, the physical legacy of that industrialization and the urban decay that came afterwards is still very much present in the city's physical landscape, and cities must address those legacies before they will be able to make forward progress on decarbonization.

Lessons for Middle Cities in America and Elsewhere

One lesson from my fieldwork with clear implications for policy diffusion is that policymakers in American middle cities look to other similarly sized cities, in the United States and elsewhere, for policy inspiration, rather than to larger cities such as those featured in (Hughes, 2019).[33] To the extent that lessons from my fieldwork generalize (given the extent to which lessons are determined by the context in which they occur), I believe that my findings will be of more relevant to policymakers in mid-sized, post-industrial cities in other countries than to larger cities in the United States. To that end, I summarize the lessons that I believe best generalize to other middle cities here:

1. **Institution and capacity building can be constrained by negative feedback loops rooted in middle cities being outcompeted by larger cities (with better budgets) and smaller cities (with lower costs).**
2. **Breaking these negative feedback loops may require properly spent infusions of outside public or private capital, merely retreating and hoping that nonprofits will fill the resulting governance gap is rarely a solution.**
3. **Coalitions that build across nonprofit, business, and government are highly effective in implementing climate action, as are coalitions that build across racial and age divides and unite climate and housing advocates.**
4. **The physical legacies of industrialization and neglect must be addressed before either climate mitigation or adaptation goals may be realized.**

Conclusion

The literature on urban climate action identifies three strategies for overcoming barriers: institution building, capacity building, and coalition building. Above, I demonstrate through the first study focused exclusively on "middle cities" that all three of these strategies are vital for overcoming climate barriers in this understudied but vital set of case studies. Specifically, I find that infusions of outside public capital are effective in breaking the negative feedback loops that limit institution and capacity building in middle cities, and that coalitions across age groups and across issues are particularly effective at overcoming opposition. I also find that the physical legacy of industrialization is a persistent and underappreciated barrier. My findings add additional strength and nuance to the existing literature, confirming existing findings while extending them to a new context that stretches across borders.

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[30] Field Notes, January 2023
[31] Interview 18
[32] Interview 15
[33] Field Notes, March 2023

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