

The motivations behind municipal climate planning: An empirical assessment of how local objectives shape the production of a public good

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Abstract

Cities engage in greenhouse gas mitigation efforts as a result of some combination of a desire to contribute to the public good by minimizing climate change, achieve local co-benefits, and respond to the preferences and pressures of influential political actors. The relative importance of each type of motivation is hypothesized to impact the composition and comprehensiveness of subsequent climate initiatives. In some cities, initiatives appear to be *ad hoc* collections of tangentially related actions whereas, in others, they are the result of a strategic planning process. This paper uses survey-based data collected from U.S. cities that are explicitly involved in climate protection efforts and empirically examines two related questions: (1) Why do cities pursue climate protection? and (2) How do these considerations shape subsequent climate planning? When controlling for other relevant characteristics, a strong public goods motivation is shown to be associated with a more comprehensive climate planning process.

Introduction

Voluntary local climate protection has been viewed as a paradox of collective action. Since Mancur Olson's seminal work, the idea that, in the absence of coercion, independent entities will regularly fail to take actions that generate public benefits has retained a theoretically dominant position in studies of public policy and public choice (Olson 1965). Although Ostrom (1990) famously identified conditions which facilitate the voluntary emergence of socially

beneficial behaviors – i.e. limited numbers of actors with repeated interactions and high levels of trust – they do not readily characterize the problem of global climate change. Greenhouse gas (GHG) emissions disperse globally. Thus, regardless of their location or leadership, abatement efforts yield non-excludable global benefits in the form of climate change mitigation. From the perspective offered by the theory of collective action, climate protection can only be obtained through national or international policy which compels sub-national entities to comply with mitigation requirements. Along these lines, local governments are not expected to take initiative on climate protection, much less become some of its leaders. Yet, in considerable numbers, they have.

In attempt to explain this phenomenon, researchers have pointed to the locally accruing “co-benefits” of climate protection – such as cost savings, improved local air quality, and decreased congestion – and have suggested that, perhaps local climate involvement is not a collective action paradox but is instead at least partially driven by the possibility of local gains. More specifically, Kousky and Schneider (2003) hypothesize four possible explanations for why free-riding has not prevented cities’ involvement in climate protection: First, municipalities may be altruistic and reduce GHG emissions to contribute to the public good even if it is not “economically rational.” Second, mitigation activities may not be perceived to entail additional costs. Third, they may lead to economic or tangible benefits that can be captured by the local community. And fourth, they may result in political gains for local leaders. Although their study of 23 cities points to economic benefits as the single most important explanation for climate action, the relative importance of these motivations varies by location. Moreover, their relative importance likely influences the nature and comprehensiveness of the climate actions

implemented. In some cities, climate initiatives are *ad hoc* collections of tangentially related actions whereas, in others, they are the result of a strategic and comprehensive planning process.

This study examines local motivations in a more rigorous manner than has been done in the past. It collects original data from climate-committed cities and empirically addresses two related questions: What motivated these cities to pursue climate protection? and How do those motivations shape the climate initiatives developed? This paper tests the hypothesis that, even when controlling for relevant city characteristics like local government capacity and demographics, a strong public goods motivation will lead to more comprehensive climate planning.

Framing local climate protection

A clear understanding of local climate protection and the activities that comprise it is needed prior to launching into an examination of its motivations. This in turn requires a discussion of issue framing. The way an issue is framed, or most commonly characterized, guides the prevailing perception about whether it actually is a problem, what should be done to address it, and who has the responsibility for taking action (Rabe 2004; Rochefort and Cobb 1993). Because it involves a global public good, climate change is traditionally framed as a national or international issue requiring large-scale centralized responses (Brunner 1991). However, and at least partially because of stagnation with the traditional approach, the framing of climate change has shifted such that subnational governments are increasingly viewed as important climate actors. An emerging three-fold frame is increasingly being used to characterize the relationship between cities and climate change. In it cities are seen as significant contributors to the problem of climate change, they are expected to be among its primary

victims, and – because of their authority over many urban land use, transport, and energy decisions – they are considered strategically positioned to bring about reductions in GHG emissions (Bai 2007; Bulkeley and Betsill 2003; Kates and Wilbanks 2003; Krause 2011b; World Bank 2010). Under this frame, the cause, consequences, and the power to do something about both are placed squarely at the feet of local governments.

Wildavsky (1979) observed an important psychological link between policy problems and solutions, noting that “a problem is only a problem if something can be done about it” (p.42). Lindseth (2004) further notes that public action is contingent upon the political discourse presenting a problem in a manner that makes it solvable. These observations are applicable to climate reframing and the downward shift in related policy. Although few would suggest that climate change can be “solved” by local action alone, proponents assert that municipal efforts can meaningfully contribute to overall mitigation. Proponents further suggest that climate protection initiatives also help mitigate other local challenges – which are almost inherently more “solvable” than climate change – making relevant action “win-win” (World Bank 2010; ICLEI 2009).

The presence of multiple motivations for pursuing GHG-relevant action can make it difficult to determine whether particular local actions constitute climate protection, *per se*. Along these lines, Aall *et al* (2007) discuss two understandings of local climate protection: explicit and implicit. Explicit climate protection is specifically aimed at reducing greenhouse gas emissions whereas its implicit form has a broader scope and encompasses actions with related but distinct objectives, such as those included in energy, land use, and transport planning. The explicit-implicit distinction can also simply be described as the differences between actions taken *to* reduce climate change versus those taken *that* reduce it. Intent is the fundamental

difference. Whereas actions explicitly taken to reduce GHG emissions clearly constitute climate protection, the proper categorization of implicit actions, which have a side-effect of reducing emissions, is less obvious. When intent is removed from the equation, it can be difficult to establish what “counts” as local climate protection. For example, consider a city government which has no stated climate protection agenda, but which purchases hybrid vehicles for its fleet. This act will reduce net emissions, but should it be considered part of a local climate protection effort? Moreover, should all other actions that lack a climate label but reduce GHG emissions be treated similarly? The answers to these questions are important for studies trying to measure local climate protection.

The existing literature moves between the implicit and explicit understandings of climate protection according to the nature of the question being asked. In his work characterizing the internal dynamics that lead to the emergence of state-level climate policy in the U.S., Rabe (2004) describes the different ways that states label climate-relevant policies to match the prevailing political sentiment. Regardless of their labeling, he treats all of the GHG-reducing policies reviewed as fundamentally climate policies. A series of papers by Krause (2011), which examine the factors that influence the local implementation of a large number of GHG-reducing actions, likewise do not require the term “climate protection” to be invoked for inclusion. A number of other papers focus on cities’ stated commitment to climate protection (Zahran et al 2008) or on the planning activities being undertaken by climate-committed cities (Aall et al 2007; Sharp et al 2011; Wheeler 2008).

This paper examines how cities’ motivations to engage in climate protection influence the comprehensiveness of their related planning efforts. It therefore uses the explicit understanding of climate protection and all cities in the subsequent analysis are “climate committed”.

However, within the subset of climate committed cities, there is variation in the relative importance placed on achieving emission reductions versus other co-benefits such that each city may either: (a) engage in policy reframing where already existing activities are presented as part of a new climate initiative; (b) structure climate protection initiatives in order to maximize desired co-benefits; or (c) use co-benefits to help legitimize the development of a comprehensive climate protection regime. Although both climate protection and co-benefits are recognized in all three characterizations, the first two prioritize co-benefits and enable their pursuit to shape climate protection efforts. Climate protection is a secondary rationale for taking particular actions. The third characterization suggests that the objective of GHG reduction determines relevant actions, and co-benefits are treated as advantageous side-effects.

Climate initiatives vary by city and range from *ad hoc* collections of related actions to the implementation of strategic and comprehensive plans. It is unclear whether, or the degree to which, holding climate protection as a primary versus secondary motivation affects this structure. Existing views on this issue are largely anecdotal or are based on conjecture and are often contradictory. On the one hand, a co-benefits emphasis can tie climate protection to the goals of a variety of existing city departments, enabling policy integration and permanence. On the other hand, a co-benefits focus does not prioritize climate change and may relegate it to a place of secondary importance behind other interests and priorities (Bulkeley and Betsill 2003; Lindseth 2004). Skeptics of the “co-benefits first” strategy suggest that without being treated as an overarching objective, the amount of emissions reductions that local climate protection initiatives can achieve is minimal (Lindseth 2004). This paper hypothesizes that motivations matter and that, when controlling for relevant external factors, they impact the composition and

comprehensiveness of the subsequent climate initiatives. Specifically, a strong public goods motivation is expected to lead to more comprehensive climate planning.

Sample and Data

Although cities can engage in actions *that* reduce greenhouse gas emissions without ever referencing climate protection as an objective, this study focuses on those that have explicitly adopted it as a goal. Specifically, it considers the 425 cities in the United States with populations over 50,000 that have indicated involvement in climate protection either through their signing of the U.S. Conference of Mayors Climate Protection Agreement, their participation in ICLEI – Cities for Sustainability, and/or their acknowledgment of climate protection efforts in response to a previous survey.¹

Data about local climate planning actions and motivations was collected in September and October, 2011. A survey was sent to the individual in each city responsible for climate, sustainability, or environmental initiatives, as identified through a web-based search and/or phone calls to city hall. The questionnaire was initially administered via the internet with hard copies mailed to non-respondents. Usable surveys were returned from 255 cities in 42 states, equating to a response rate of 60 percent. Table 1 shows that the responding cities mirror the larger sample on several important measures – none of the differences are statistically significant at $\alpha = .1$ – thus the possibility of self-selection induced bias in the later analysis is small. Of the responding cities, 10 stated that, despite their nominal membership in a climate protection organization, they were never involved in *any* climate protection or GHG reduction efforts

¹ In April and May, 2010 a Municipal Climate Protection survey was sent to all 665 cities in the U.S. with populations over 50,000. 329 cities responded. Of the responding cities, 258 indicated an explicit involvement in climate protection. Approximately 40 of these cities are not members of either ICLEI or the MCPA, but all 258 were sent the current survey.

(emphasis included in survey question). The subsequent empirical analysis is conducted on the remaining 245 cities.

Table 1: Characteristics of Responding and Non-Responding Cities

	Full Sample (n=425)	Responding Cities (n=255)	Non-responding Cities (n=170)
Population	202,508	213,853	185,590
Median HH income	54,225	54,673	53,558
Educational attainment (pct with BA)	31.35	32.02	30.37
Pct voting Democrat in 2008 presidential election ¹¹	58.94	58.84	59.10

Cities' Motivations to Pursue Climate Protection

The question of why local governments choose to pursue climate protection has been addressed previously in the literature, primarily through the use of publically available city-level data and regression analysis to determine which characteristics lead to a higher likelihood of climate protection commitment (Krause 2011a; Sharp et al 2011; Zahran et al 2008).

Alternatively, several studies have qualitatively examined the motivations of a small number of climate-committed cities. While better able to examine the dynamic underlying adoption decisions, their findings are not generalizable (Betsill 2001; Bulkeley and Betsill 2003; Granberg and Elander 2007). This paper takes a third approach and, via survey data, examines the specific considerations that motivated a large number of cities to engage in climate protection.

The questionnaire administered to local government officials as part of this research asks two related questions about the rationale behind their city's original decision to engage in climate protection. The first provides a list of eleven potential considerations (see Table 2, column 1) and asks respondents to characterize each as either extremely, somewhat, or not important factors in this decision. All of the considerations listed, with the exception of assisting in the

global effort to minimize climate change, either yield, or could be perceived as yielding, some form of locally accruing co-benefits, whether tangible, economic, or political in nature. A follow-up question asks respondents to identify the single most important factor behind the decision to pursue climate protection. Table 2 shows the relative frequency with which each motivation was identified by the 245 responding cities.

Table 2: The Relative Importance of Select Motivations in Cities’ Decisions to Pursue Climate Protection

Motivation	Percent of cities that identified each as:			
	Single most important	Extremely important	Somewhat important	Not important
Achieving energy and cost savings for the city government	31.3	85.2	14.4	0.4
The preferences and priorities of particular city official(s)	19.7	43.0	45.0	12.0
State government requirements or legislation	14.2	24.7	26.3	49.0
Assisting in the global effort to minimize world-wide climate change	9.9	29.4	54.1	16.5
Developing a reputation as a “green city” to attract economic investment	8.2	53.3	39.3	7.4
Interest group or citizen demands	7.3	28.0	52.7	19.3
Improving local air quality	3.9	38.3	46.3	15.4
Increasing ability to attract grants and external funding	1.7	47.3	44.0	8.7
The influence of neighboring or “peer” cities	1.3	9.1	52.7	38.2
Reducing local traffic congestion	.09	22.7	52.5	24.8
Reducing community’s risk of weather-related disasters (flooding, drought, storms, etc.)	0	22.0	46.3	31.8
Other	1.7	n/a	n/a	n/a

The responses shown above appear to support the general idea that, for a majority of cities, climate protection is its-self the co-benefit rather than the primary objective of activities that fall under the “local climate protection” umbrella. Indeed, by a large margin, city governments point to the desire to reduce energy related expenses as their primary motivation to engage in climate-related initiatives. A full 85 percent of responding cities describe it as an

“extremely important” consideration and nearly a third identify it as their single most important motivation. Accommodating the preferences and priorities of local government officials is the second most common reason that cities cite for engaging in this issue. There are a variety of reasons that an official might place climate protection near the top of his or her personal agenda. However, regardless of individual motivations, the fact that 43 percent of cities described their decisions to engage as being extremely influenced by local officials adds support to the observed importance of policy and political entrepreneurs in subnational climate policy (Krause forthcoming; Rabe 2004; 2007; Selin and VanDeever 2007).

Adherence to regulations or legislation passed by the state government emerges as the third “single most important” consideration motivating local climate action. However, cities located in the state of California are driving this result and cause it to overstate the importance that state-level legislation has on local decisions for the nation as a whole. Sixty-three or approximately 25 percent of the cities in the sample are from California. Of those, 27, or 43 percent, point to state legislation as the single most important driver of their climate protection activities. Only 6 cities outside of California describe state legislation as providing their most important consideration. Indeed, as can be seen from the breakdown in the last column of Table 1, 49 percent of cities say state-level policy was unimportant to their decision. This suggests that while state climate policy can influence local objectives, municipal actions need to be directly targeted. Many states outside of California have adopted some climate policy, such as that associated with regional initiatives, but their influence fails to trickle down to local actions. A few additional considerations in Table 1 have their overall importance misrepresented by the “single most important” measure. For example, although no cities identify ameliorating risk from weather-related disasters as their most important reason for getting involved in climate

change mitigation, 22 percent of them none-the-less describe it as an “extremely important” motivation.

In a noteworthy finding, only 10 percent of cities say that assisting in climate protection is the primary reason that they engage in climate protection efforts. Indeed, 70 percent describe it as only a somewhat or not important consideration. Assisting in the reduction of global climate change appears, at best, to be a secondary motivation for many cities. This supports some previous observations made in the literature (Bulkeley and Betsill 2003) and suggests that the often used frame which presents local climate initiatives as a paradox of collective action may misrepresent the actual dynamic. In most cases, local climate protection appears not to violate the theory of collective action after all, but instead falls in line with rational choice.

Factor Analysis

To further assess the factors that influence local governments’ engagement in climate protection initiatives, a factor analysis is applied to the eleven motivation variables. Factor analysis examines the inter-relationships between the observed variables and identifies the linear combinations that contain the most information. It assesses whether their common features can be expressed by a smaller number of underlying variables and therefore whether the original variables can be reduced into a smaller number of meaningfully related groups (Stewart 1981). Factor analysis is employed here to transform the eleven motivation variables into orthogonal factors by assigning factor loadings, which are the correlation coefficients between each variable and factor.² Factor loadings above .6 are considered high, and represent the main considerations within a decision (Hair et al 1998). Typically, factors with eigenvalues larger than one are

² The motivation variables in the factor analysis are coded such that 0 indicates that a variable was not important to the city’s decision to engage in climate protection, 1 indicates that it was somewhat important, and 2 indicates that it was very important.

retained, as suggested by the Kaiser criterion. The retained factors are then subject to intuitive or theoretical interpretation.

Table 3: Factor Loadings for the Considerations Behind Local Governments’ Decisions to Engage in Climate Protection

	Factor 1: Complimentary goals	Factor 2: Financial concerns	Factor 3: Climate concerns	Factor 4: Political influence
Minimize world-wide climate change	0.030	-0.095	0.766	0.324
Reduce community’s risk of weather-related disasters	0.151	0.098	0.827	-0.027
Energy and cost savings for the city government	-0.091	0.763	0.265	-0.091
Ability to attract grants and external funding	0.208	0.793	-0.222	-0.006
Reputation as a “green city” to attract economic investment	0.101	0.653	0.080	0.439
Interest group or citizen demands	-0.036	0.014	0.289	0.582
Preferences and priorities of city official(s)	-0.53	0.060	0.112	0.817
The influence of neighboring or “peer” cities	0.373	-0.040	-0.021	0.605
State government requirements or legislation	0.701	-0.234	-0.324	-0.046
Improving local air quality	0.701	0.234	0.324	0.103
Reducing local traffic congestion	0.777	0.196	0.221	0.019

Four main factors appear to underlie the eleven motivation variables (See Table 3). The four retained factors each account for between 15.4 and 17.7 percent of the observed variance, resulting in a cumulative 65.1 percent of total variance explained. The dominating factor loadings, which are used to determine variables’ placement within factors, are shown in bold. The interpretation of factors is a necessarily subjective exercise; however, the variables load in an apparently meaningful manner. The first factor consists of variables that are related to the achievement of complimentary local goals, namely, adhering to state legislation, improving air quality and decreasing traffic congestion. The second factor includes variables related to economic and cost considerations: achieving energy and cost savings, improving access to

external funding, and increasing the city’s green reputation and related investment opportunities. The two variables representing direct concern about climate change are dominant in the third factor. The fourth factor contains variables associated with political influence, namely the influence of peer cities, public pressure, and the priorities of particular local officials. These factors loosely match the reasons hypothesized by Kousky and Schneider’s (2003) for why free-riding has not prevented cities from engaging in climate protection.

The creation of a simple index illustrates the relative importance of the four factors in cities’ climate considerations. Cities described each motivation variable as extremely, somewhat or not important and these responses were assigned a value of two, one, and zero, respectively. The coded variables comprising each factor were added together and divided by the maximum possible score for that factor. The resulting number is a standardized measure of the average importance of the overall factor and is listed in the fourth column of Table 4. Factor 2, financial considerations, emerges as the most important consideration that cities cite for becoming involved in climate protection initiatives. The other three factors – achieving complementary goals, climate concerns, and political influence – show levels of importance that hover closely around .50. While still influential, they are secondary considerations for most cities.

Table 4: Relative Importance of Factors to Cities’ Climate Decisions

	Cumulative average	Maximum potential	Std. Factor importance
Factor 1: Complimentary goals	2.97	6	.494
Factor 2: Financial concerns	4.70	6	.783
Factor 3: Climate concerns	2.04	4	.509
Factor 4: Political influence	3.12	6	.519

The impact of motivation on climate action

The type, quality and comprehensiveness of initiatives vary among cities that have made explicit climate commitments. A small but growing number of studies have tried to explain this variation by empirically examining the factors that influence cities' implementation of specific GHG mitigation measures. Feiock and Bae (2011) consider factors leading to the development of local GHG inventories. Sharp et al (2011) examine the drivers and barriers to the implementation of ICLEI milestones³ and Krause (forthcoming) constructs an index of greenhouse gas reducing actions and assesses the factors that influence cities to implement a greater number of the identified activities. These studies test several models of local decision making, which variously include independent variables representing interest group influence, the structure of political institutions, governmental capacity, and physical vulnerability.

This analysis utilizes a base model similar to those developed in previous papers, but includes an additional set of key independent variables; namely, the motivations that cities described as “extremely important” to their original decisions to pursue climate protection. It is hypothesized that, when controlling for all of the policy supply and demand factors typically contained in models of local decision making, the underlying objective(s) for climate action – whether they be monetary savings, compliance with state legislation, contributing to global GHG mitigation, etc. – will remain influential. Moreover, it is expected that the nature of dominant motivations will shape climate planning in systematic and predictable manner.

Table 5 contains a description of the control variables included in this model. Like many previous studies, a series of local demographic statistics are included to act as proxies for interest group activity and/or civic pressure. Here, the variables income, education, political leaning, and

³ ICLEI milestones are: (1) Complete a GHG emissions inventory; (2) Adopt a GHG reduction target; (3) Develop a climate action plan to reach that target; (4) Implement the plan; and (5) Monitor results (ICLEI 2009).

manufacturing fill this role. Cities' population size and general revenue funds indicate the overall level of resources available to the local government. Although political institutions are often considered mediating variables best captured by interaction terms (Clingermyer and Feiock 2001), recent studies have observed that government form has a direct effect on the implementation of climate-relevant activities (Feiock et al 2010). A dichotomous variable indicating whether cities have a mayor-council or alternative form of government is thus used to control for the influence of local political institutions. Finally, cities' location near a coast serves as a control for the impact of perceived vulnerability to weather-related risks.

Table 5: Control Variables – Description and Source

Income	Median household income between 2006-2008 in \$1000s. <i>Source:</i> U.S. Census Bureau 2000, SF-3.
Education	Percent of population over the age of 25 with a BA or higher. <i>Source:</i> U.S. Census Bureau, American Community Survey (ACS) 2006-2008
Political Leaning	Percent of county votes supporting the Democratic candidate in the 2008 presidential election. <i>Source:</i> CQ Voting and Elections Collection
Manufacturing	Percent of city's jobs located in the manufacturing sector of the economy. <i>Source:</i> County and City Data Book 2007
Population	Logged population of each city in 2005. <i>Source:</i> County and City Data Book: 2007
General Revenue	Per capita general revenue for each city in 2001-2002 in \$100s. <i>Source:</i> County and City Data Book 2007, Department of Housing and Urban Development
Form of city government	Dichotomous variable indicating if a city has a mayor-council form of government(1) or a different form(0). <i>Source:</i> ICMA Municipal Year Book 2000
Coastal Community	A dichotomous variable indicating whether a municipality is located in a coastal county. <i>Source:</i> National Oceanic and Atmospheric Administration (NOAA)

The objective of this analysis is to determine how the specific considerations that motivated cities to engage in climate protection influence the comprehensiveness of their subsequent climate initiatives. Thus, in addition to the previously described control variables, the results of the eleven motivation questions asked in the survey are included as the primary

variables of interest. Each motivation is represented by a dichotomous variable indicating whether a city described it as an “extremely important” consideration in its decision to pursue climate protection.

The dependent variable in this model measures the comprehensiveness of cities’ climate initiatives by examining the processes used to develop and maintain them. Namely, it is an ordinal variable indicating how many of the following eight activities have been completed by the city government:

- An inventory of greenhouse gas emissions from city government operations;
- A Climate Action Plan for reducing emissions from city government operations;
- An inventory of community-wide greenhouse gas emissions;
- A Climate Action Plan for reducing community-wide emissions;
- The formal adoption of local climate action plan(s) as part of city policy;
- The assignment of responsibility to manage city climate protection activities to a specific individual or group of individuals;
- The designation of money in the city budget to fund climate protection activities; and
- Formal engagement with the public or other community stakeholders to develop climate strategies and/or priorities.

The more of these planning and administrative activities that cities have taken, the more comprehensive their climate initiatives are thought to be. As can be seen in the list above, some of the relevant actions specifically target emissions coming from city government operations and others refer to actions targeting community-wide emissions. Previous studies indicate that distinct factors drive community and government-focused initiatives (Feiock et al 2010). Two additional dependent variables are therefore constructed using the subset of the above actions that focus specifically on city government or community climate planning. The new dependent variables contain the component actions of GHG inventory construction, and the development

and adoption of a climate action plan for city government operations or the community, respectively.

The choice of statistical model is based on the ordinal nature of the dependent variables, which indicate the implementation of increasing numbers of climate planning activities. Table 6 presents the results from ordinal logit regressions. However, because the coefficients from ordinal regressions are not directly interpretable, they are discussed in the text in terms of their associated odds ratios. An odds ratio is interpreted as the change in the odds of experiencing a higher versus lower outcome given a unit increase in an independent variable, holding all other variables constant (Long and Freese 2006).

Table 6 shows the results of six logit regressions associated with three related dependent variables, which indicate the extent of climate planning undertaken by local government. The first model corresponding to each dependent variable is comprised of cities' demographic, economic, and geographic characteristics. These act as control variables in the second set of models, which include an additional series of independent variables that indicate whether the considerations played an "extremely important" role in the decision to engage in climate protection. The addition of motivation variables improves the statistical significance and fit of models across all dependent variables.⁴

Several of the external control variables are statistically significant. Their observed effects are relatively consistent across all six models and reflect the findings of previous studies. Specifically, all else equal, cities with higher average household incomes are likely to have taken fewer climate planning actions. Whereas, those with higher education rates, greater political

⁴ The relative goodness of fit for the model specifications is determined by comparing McKelvey and Zavoina's R^2 , which is considered as most closely approximating the R^2 calculated in linear regressions (Long and Freese 2006). For the comprehensive planning dependent variable, the McKelvey and Zavoina R^2 increases from .345 to .392 with the addition of the motivation variables. For the city and community focused dependent variables, it increases from .236 to .270 and .261 to .299, respectively.

Table 6: Results of Ordinal Logit Regressions Indicating how External Factors and Internal Motivations Influence Local Climate Planning

	Comprehensive planning (0-8)		Climate planning for gov'n't operations (0-3)		Community operations climate planning (0-3)	
<i>External Factors</i>						
Income	-0.024*** (.009)	-0.013 (.010)	-0.016* (.009)	-0.010 (.029)	-0.013 (.009)	-0.006 (.010)
Education	0.042*** (.011)	0.030** (.012)	0.033*** (.011)	0.029** (.013)	0.033*** (.012)	0.022* (.013)
Democrat	0.031** (.012)	0.024* (.012)	0.026** (.012)	0.024* (.012)	0.023* (.013)	0.021 (.013)
Industry	-0.035 (.023)	-0.038 (.023)	0.003 (.024)	0.005 (.025)	-0.025 (.026)	-0.021 (.027)
Population	0.001** (.000)	0.001 (.000)	0.001* (.000)	0.000 (.000)	0.001** (.000)	0.001 (.001)
General Revenue	0.156*** (.040)	0.150*** (.040)	0.119*** (.041)	0.114*** (.041)	0.097** (.040)	0.091** (.041)
Gov Type	-0.491* (.284)	-0.420 (.299)	-0.424 (.289)	-0.201 (.310)	-0.384 (.299)	-0.263 (.318)
Coastal	0.064 (.302)	-0.230 (.319)	-0.024 (.303)	-0.273 (.325)	0.203 (.308)	-0.146 (.335)
<i>Stated Motivations</i>						
Climate protection	--	1.000*** (.320)	--	0.729** (.340)	--	0.866** (.342)
Risk reduction	--	-0.030 (.365)	--	-0.262 (.351)	--	0.169 (.353)
Cost savings	--	-0.380 (.365)	--	-0.123 (.385)	--	-0.702* (.391)
Increase funding	--	-0.054 (.264)	--	-0.298 (.276)	--	0.083 (.289)
Green reputation	--	-0.001 (.283)	--	0.034 (.298)	--	-0.168 (.314)
Public pressure	--	0.196 (.281)	--	-0.150 (.296)	--	0.202 (.309)
Official pressure	--	0.968*** (.271)	--	0.666** (.284)	--	0.568** (.290)
Peer pressure	--	-0.205 (.434)	--	-0.263 (.433)	--	-0.102 (.450)
State pressure	--	0.111 (.312)	--	0.427 (.328)	--	0.210 (.338)
Improve air quality	--	0.465 (.299)	--	0.646** (.308)	--	0.385 (.319)
Reduce congestion	--	-0.059 (.335)	--	-0.311 (.357)	--	0.024 (.357)
	n = 245 LR χ^2 =71.51 Prob χ^2 =.00	n = 245 LR χ^2 =110.07 Prob χ^2 =.00	n = 245 LR χ^2 =42.07 Prob χ^2 =.00	n = 245 LR χ^2 =65.31 Prob χ^2 =.00	n = 245 LR χ^2 = 42.09 Prob χ^2 = .00	n = 245 LR χ^2 =64.21 Prob χ^2 =.00
Ordinal Logit * $p < .10$, ** $p < 0.05$, *** $p < 0.01$						

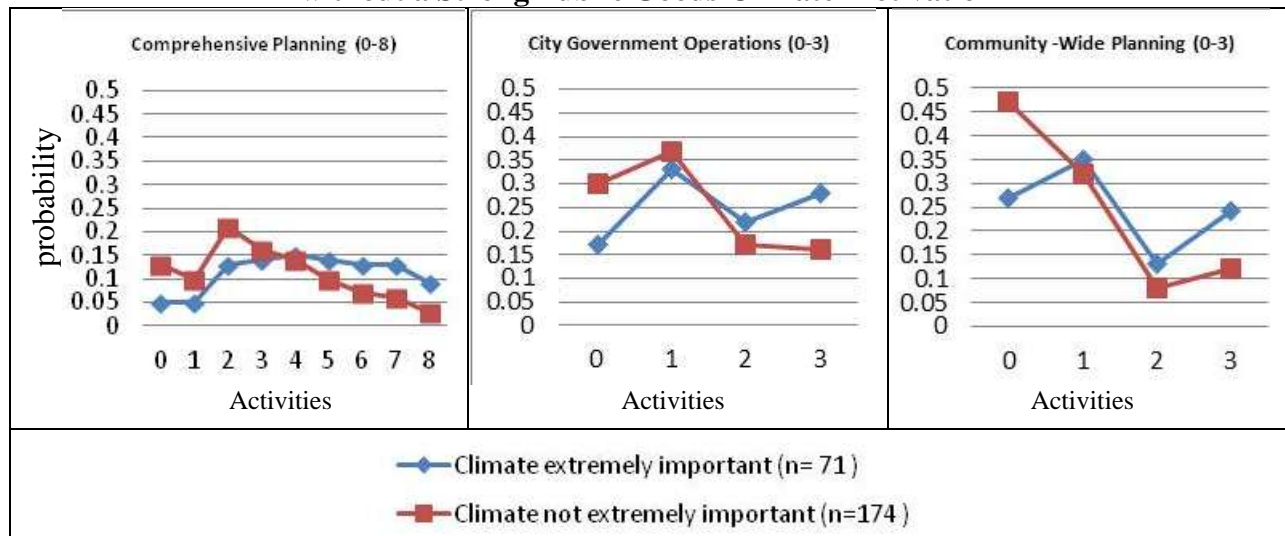
support for Democrats, larger populations, and higher levels of per capita general revenue have a greater likelihood of increased climate planning.

Although most of the variables representing cities' specific motivations for engaging in climate change have an insignificant impact on the number of planning actions implemented, there are a few notable exceptions. A primary objective of this paper is to assess whether local initiatives that are spurred primarily by a desire to contribute to the public good are substantively different from those motivated by the attainment of co-benefits. Of the 250 cities in the sample, 71 describe assisting in the world-wide effort to mitigate climate change as "extremely important" to their decision to engage in a local climate protection initiative. Holding all other variables constant, cities which make this claim have an odds of having more climate planning activities in place that is 2.72 times greater than those which do not. Stated differently, the odds that climate-motivated cities have more planning activities in place are 172 percent larger than cities without this motivation. Figure 1 allows another way to view the impact of climate motivation. Graphs corresponding to each dependent variable plot the predicted probability that climate motivated and non-motivated cities will have undertaken the number of planning actions specified, holding all other independent variables at their means. Cities that claim assisting in the effort to mitigate climate change as an extremely important motivation are consistently more likely to take a greater number of actions. With regard to the comprehensive planning variable, non-climate motivated cities have a higher probability of having completed less than three actions, all cities are equally likely to have completed four actions, and those with climate motivations are more likely to have completed five or more. For city-government and community-wide planning actions, the switch in probability occurs at approximately 1.5 and .9

actions, respectively, suggesting that climate motivations exert a larger impact on decisions to engage in community-focused climate planning.

The preferences and priorities of local government officials is a second consideration that shows a strong and consistent influence on the extent of local climate planning. Looking at the comprehensive dependent variable and holding all other variables constant, the odds of having additional climate planning in place increases by a factor of 2.63, or are 163 percent greater, in cities where local officials played an important role in initiating climate involvement, compared to those in which local officials did not play a motivating role.

Figure 1: Predicted Probability of Climate Planning Activities taken by Cities with and without a Strong Public Goods Climate Motivation



Feiock et al (2010) found that different drivers influence city government and community-focused climate activities, thus separating them into two dependent variables may allow us to see specific effects that are diluted when combined together. The fourth and sixth columns in Table 6 reveal some differences with regard to the role played by the stated motivations on these dependent variables. Namely, when improving local air quality is described as an extremely important part of the reason for introducing climate protection

initiatives, the odds of having more planning measures in place that target city government operations increase by 90 percent. However, it has an insignificant effect on community actions. On the other hand, the motivation to achieve cost and energy savings decreases the odds of community planning actions by approximately 50 percent, but has no significant impact on local government operations.

Discussion

This study examines cities that have claimed an explicit commitment to climate protection. It considers, among these already committed cities, whether the rationale behind their decision affects the comprehensiveness of the relevant planning actions taken. Asked more specifically, once cities have decided to get involved in climate protection, does it make any practical difference whether they were motivated by altruism or the pursuit of local co-benefits? The results of this study suggest that the answer is yes. Local governments which show a public goods motivation by stating that contributing to the global effort to mitigate climate change is an extremely important part of the reason that they launched a climate protection initiative are consistently and significantly more likely to have taken additional climate planning steps. Surprisingly, only a relatively small portion of cities, approximately 28 percent, cite reducing climate change as important to their decision to engage in climate protection. A much larger portion identify financial reasons, with a full 85 percent describing energy and cost savings to the local government as an “extremely important” motivation.

Although locally accruing co-benefits, such as cost savings, make participation in climate initiatives attractive for cities, they show potentially detrimental effects on the comprehensiveness of subsequent planning activities. Specifically, the findings from this paper indicate that, all else equal, an emphasis is on cost savings reduces the likelihood that cities

undertake community-focused emissions reduction efforts. This makes sense because, unlike with efforts that focus on government operations, those that target the community as a whole are unlikely to yield cost savings for the city government. However, because the vast majority of urban emissions come from residential or commercial activities, a focus on this co-benefit may act as a barrier to the most significant emissions reductions. The relatively small proportion of emissions coming from city government operations also has implications for the finding about local air quality. Cities which state that the desire to improve air quality was a major factor in their decision to adopt climate protection initiatives are significantly more likely to have engaged in additional planning activities focused on reducing emissions from city government operations. However, because of the small proportion of total urban emissions released by city governments, only minimal direct impact can be made on either objective by an exclusive focus on its own operations. Still, the high degree of control over internal operations and the ability to lead by example help to increase the attractiveness of self-focused policies.

Finally, cities in which local government officials played a large role in the decision to adopt climate protection goals have undertaken more climate planning activities than otherwise similar cities that adopted climate goals in the absence of a strong push from any local official. There are multiple reasons why a city official might choose to prioritize climate protection, including personal political gain, altruism or local co-benefits. Although this data does not allow us to identify or assess the motivations internal to policy entrepreneurs, it does speak to the practical positive impact that they can have on local climate action – both in terms of goal adoption and subsequent policy implementation.

Conclusion

Previous quantitative studies assessing the factors that drive or hinder local governments' adoption and implementation of climate protection initiatives focus on the influence of city and/or city government characteristics. These variables have been used to test the relative influence that various theories of political decision-making have on this issue. This analysis controls for these external factors in order to focus attention directly on motivations, i.e. the specific considerations within each city that led them to adopt an explicit climate protection objective. The stated motivations of cities are interesting in and of themselves, with financial considerations and cost savings dominating the rationale. The desire to help mitigate world-wide climate change appears a secondary consideration for most cities, suggesting that voluntary local climate action may not be a "paradox of collective action" but rather a rational choice made in the pursuit of co-benefits. The results of this analysis further suggest that the motivations leading to climate adoption have practical impact on the implementation of actions that follow, with a strong public goods motivation and political support from local officials increasing comprehensiveness in the overall climate planning effort.

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