A Creative Class Theory of City Sustainability Policies

Jeffrey M. Berry
Department of Political Science
Tufts University

Kent E. Portney
Bush School of Government and Public Service
Texas A&M University

Paper prepared for delivery at the annual conference of the American Political Science Association, Philadelphia, PA, September 1-4, 2016.
Corresponding author: jeffrey.berry@tufts.edu

Abstract

After decades of migration from central cities to suburbs, corporate America is reversing direction and returning in increasing numbers to downtown locations. There are surely many reasons that explain this trend but we begin by focusing on the workforce needs of firms in the modern economy. For those companies competing in knowledge-based industries, the young professionals they are trying to attract may have a strong preference for living in the city rather than in suburban or exurban locations. Part of the attraction to the city is surely related to an array of lifestyle choices, including a city's disposition toward the environment. Here we look at the intersection of politics, economics, and demographic change and explore three possible (and not mutually exclusive) explanations of sustainable cities. First, we test Richard Florida's creative class theory and ask if the size of the creative class is related to higher levels of prosperity in the city. Second, acknowledging the growing political liberalism of contemporary cities, we determine if sustainability policies similarly related to the size of the creative class, or are simply a function of aggregate political ideology. Third, we turn from issues of political ideology to mobilization by advocacy organizations, asking if interest group politics structures environmental policymaking. After looking at bivariate correlations and factor analysis, the paper concludes that the size of the creative class represents but one of a number of city traits that collectively seem to contribute to a context in which cities pursue sustainability as a matter of public policy. Cities that pursue sustainability policies have large creative class populations, are politically liberal, and have active local environmental groups involved in policymaking, and tend to be the cities that are experiencing the greatest economic growth. All of these characteristics go together. We refer to these results as "a creative class theory of city sustainability policies."

A Creative Class Theory of City Sustainability Policies

In the summer of 2015 General Electric, one of America's most prestigious and dynamic companies signaled that it was going to relocate its corporate headquarters away from its campus in suburban Connecticut. As anticipated, a bidding war among 40 locations erupted, each competitor offering GE tax breaks and other financial incentives. The company's eventual selection of Boston caught many off guard as instead of choosing a fabulous deal in a low tax state, it chose to move from one high tax state to another high tax state.[1] GE's move to a downtown location, Boston's Seaport district, instead of to a leafy Boston suburb where commuting is done by car, also seem to run against type. The dense warren of office buildings in the Seaport neighborhood, where traffic is a nightmare, condos and apartments are way beyond expensive, and parking is scarce, might not be everyone's definition of an ideal location for work. Most of the 800 workers who will be employed at the new headquarters will need to walk, bike, or rely on mass transit.

GE's decision does not represent a quirky choice or unique set of business priorities. Amazon is doubling down on Seattle, currently constructing a massive set of both high rises and low rises in downtown, with three large transparent spheres at the center which are clearly intended to replace the space needle as the city's iconic image (Wingfield, 2016). Recently, United/Continental Airlines, Kraft Heinz, Motorola, McDonald's, and Hillshire Brands all relocated from suburbs to Chicago (Schwartz, 2016). The *Wall Street Journal* concluded that the trend to downtown by large companies is "accelerating" (Weber, 2016). On the other end of the spectrum, startups are increasingly clustering in downtown areas. Research by Richard Florida (2016) shows that 54 percent of new venture capital is being invested in companies with urban zip codes. Figure 1, reproduced here from research by Florida and King (2016), provides a graphic depiction of the geographic distribution of new venture capital in the metropolitan Boston area. As they conclude, venture capital has become urban. The same shift in geographic location of capital characterizes other large metropolitan areas, including San Francisco and New York City.

These patterns represent some important dynamics in a changing urban America. Indeed, they tells us a lot about urban economies and offer clues as to what is most instrumental in achieving prosperous *and* sustainable cities. For GE the question of whether to move and where to move centered on recruitment of talent: for the evolving GE, a company that has moved away from manufacturing for what might be called the knowledge business, Boston fits its needs going forward. In the highly competitive fields GE has moved into—technology, software, and analytics—the highly skilled professionals it most urgently seeks to hire tend to be young, trained in engineering, computer science, and data analytics, and have choices as to where to live. Consider a new college graduate facing an employment choice between a company located in a family oriented, car dependent suburb in the middle of Connecticut, and a large, cosmopolitan, diverse city full of people of the same age, and filled with other companies that one can jump to for a higher rung on the career ladder. Many would find this decision to be an easy one.

Creative Class

Reflecting on GE's move, MIT professor Dennis Frenchman said that "GE is not buying a place or a location. GE is buying a culture that they want their employees to be a part of" (Prevost, 2016). But what is this culture? We argue here that the culture of the Seaport neighborhood, of the broader Boston-Cambridge business community, and of similar cities achieving rapid economic development, is the culture of the "creative class." This theory, developed by Richard Florida (2002; 2004; 2012) holds that the differential between high growth and low growth areas is directly tied to the proportion and centrality of people who work in creative occupations. In Florida's mind this cohort drives business forward in ways that distinguish these cities' economic performance from the rest of urban America.

We test this theory by measuring the relationship of the creative class to various dimensions of urban well-being. As such we extend our analysis to sustainability in cities—the goal of pursuing economic activity in ways that "meets the needs of the present without compromising the ability of future generation to meet their own needs" (WCED, 1987). Cities vary considerably in the degree to which they pursue sustainability and it may be that a population with a higher proportion of creative class residents pushes local government leaders toward an aggressive approach to environmental protection. Alternatively, though, cities full of entrepreneurs (who are the center of the creative class) may be more focused on economic development which, in turn, could diminish concern about environmental protection. Untangling economic growth, sustainability, and the impact of the creative class is complex and before we present our statistical findings, a fuller explanation of these ideas is warranted. We'll begin by clarifying the notion of the creative class, then turn to prevailing views on urban economic growth and, finally, provide a rationale for hypothesizing that the creative class is tied to a virtuous circle of economic growth, civic engagement, and urban sustainability.

CLASS MATTERS

Richard Florida is an imaginative thinker who views American life through the prism or social class. His work falls into a glorious tradition as class dynamics have long been a central focus of all the social sciences. Class analysis is also at the heart of popular thinking, especially by those who believe a small sector dominates the rest of the populace. From Karl Marx through Charles Beard through C. Wright Mills through Occupy Wall Street and Bernie Sanders, a widely held conception of class is that there is a tiny, interrelated set of elites who serve their own interests and accumulate a highly disproportionate share of the economic pie.

Florida is neither a Marxist nor a defender of the status quo. Unlike these other thinkers, his view of the elite is beneficent because he conceives of it as a rather broad sector, far too large to operate behind the scenes for its own selfish ends. There is no unanimity of views within this large creative class but there are commonalities and some widely shared values that influence the broader polity. What stands out in Florida's theory is that his elite is not defined by income but is demarcated by occupations—positions that allow for creativity on the job. This is the *sine qua none* of the creative class: "its members engage in work whose function is to 'create meaningful new forms" (Florida 2012, 38). Florida is explicit in identifying the occupations he has in mind. He lists two layers of elites. The first and more influential, is what he calls the super creative

core and it includes "scientists and engineers, university professors, poets and novelists, artists, entertainers, actors, designers, and architects, as well as the thought leadership of modern society: nonfiction writers, editors, cultural figures, think-tank researchers, analysts, and other opinion makers" (2012, 38). At a slightly less influential level just below are "creative professionals"—people who work in knowledge-intensive industries such as high tech, finance, law, health care professions, and business management (Florida 2012, 39). In broad terms the people in these two strata create, manage, and problem-solve.

The size of the creative class is imposing: by Florida's count the creative class constituted around 41 million workers in 2010 (2012, 45). This is a far cry from Mills' (1956) small, interlocking elite or the Koch Brothers secretive complex of nonprofit advocacy groups (Mayer 2016). A perverse virtue of Florida's broad concept of the elite is that it alleviates the need of social scientists to prove that power is being exerted behind the scenes (which, of course, they can never observe). But his generous conception of the elite carries with its own set of research challenges. For example, there are no surveys that measure the views of the creative class in comparison to those who fall outside its boundaries.

There is no shortage of criticism of Florida's theory. Edward Glaeser (2005) chides Florida for ignoring economists' long-term focus on creativity; economists have always viewed creativity as key to progress. Glaeser conducted a direct test of Florida's ideas against a more traditional view of human capital, a measurement of education levels. He disaggregates Florida's theory into separate components and runs a set of regressions with growth in population as the dependent variable. Glaser's results show that the percentage of adults in a city who hold a B.A. is a superior explanation of population growth than any of Florida's variables. There are, of course, different ways to make these comparisons and in the second edition of his book (2012), Florida fires back at Glaeser, drawing on recent studies by him and his colleagues that show the creative class theory outperforms human capital theory in explaining urban economic growth. Others have entered into this debate but a resolution remains elusive (Budd *et al.*, 2008; Hoyman and Faricy, 2008; Fairlie, 2012; Portney, 2013a; Rosdil, 2010; and Storper and Scott, 2009).

THE MODERN CITY

Glaeser is certainly right that neoclassical economics has long embraced the ways in which creativity, technological change, and population dynamics interact to promote higher rates of growth in some cities over others. The concentration of specific industries with their needs for particular labor pools is also nothing new. The Silicon Valley's abundance of high tech companies may seem unique but Pittsburgh's steel companies, Kansas City's livestock yards, and New York City's media empire, remind us that such industry concentrations have been fundamental to our economy across time.

Still, one wonders if there is something different about the modern American city that distinguishes it from earlier patterns of urban growth and prosperity? One fundamental difference may be the increasing ability to choose as to where to live. Michael Storper concludes that

> "A high elasticity of substitution, in turn, implies a substantial willingness to search, because the discovery of new goods and services is impossible without searching. And a

willingness to search generally requires long time horizons. The individuals who meet these criteria are young, educated, upwardly mobile, and still developing their tastes for a wide variety of goods. They look, in short, a lot like Florida's creative class" (2013, 70).

And what is it that people search for as they make their choices as to where to live? Building on the new neoclassical urban economics, Storper emphasizes that the principal priorities guiding such choices are "climate and 'quality of life'." Individuals and households "seek to maximize utility, and do so through mobility" (2013, 13). The relationship between the temperature in the winter and economic growth in American cities is reflected in the long-term population growth of the Sunbelt. Temperature continues today to be correlated with economic growth but at the same time, so too does educational achievement (Glaeser, 2011b). And truly cold winter cities like Boston, New York, Denver, and Minneapolis are thriving. So, too, are cities in somewhat more temperate northern climes such as Portland and Seattle.

But noting that cities in the north have educated workforces generating high rates of growth begs the question. Why do well educated people gravitate to Boston or Denver? Part of the answer may be lifestyle: the alternatives available in individual communities in terms of culture, diversity, and amenities. As Glaeser puts it, cities have become "urban theme parks," full of attractions and compelling neighborhoods. (2011a, 11). Cities are also dating markets and as marriage (and long-term partnering) takes place later in life, a concentration of potential mates available over a longer span of time might have grown in value. Diversity, which is increasing so rapidly across urban America, builds on itself as it enhances the appeal of cities to an ever growing segment of society. Suburbs may be decidedly less enticing to those who may be concerned that there won't be many like themselves there. Relatedly, many will see cities as more tolerant than surrounding areas and, further, some cities and some neighborhoods within cities will stand out on this criterion.

Sustainability

A long-held belief holds that economic development and active efforts by urban governments to promote environmental protection are fundamentally at odds. Mayors and city councilors surely feel that their overriding priority is to nurture economic growth and, as such, must work closely with their cities' business leaders (Stone, 1989). In the standard formulation cities are preoccupied with "attract, retain, and expand" efforts focused on large corporations. Local manufacturers might be particularly resistant toward policies aimed at reducing pollution emanating as a byproduct of their production processes. Business leaders are also seen as conservative, preferring market solutions and small government (except, of course, when it comes to economic development support). Most broadly, environmental protection has often been regarded as a direct threat to economic growth, a difficult tradeoff for cities to embrace.

For a variety of reasons this tradeoff has become an increasingly flawed description of urban America. The disappearing manufacturing base in cities is one cause of change in the political economy of cities. Also, some cities have been far-sighted enough to come to believe that the goals of economic development and environmental protection are not mutually exclusive. For example, light rail systems aimed at reducing traffic and making it easier to get into the city, not only help the environment but can benefit businesses in the areas served.

Indeed, business leaders are likely to welcome initiatives that make the city more attractive and livable. Various cities have gone as far as making sustainability a central economic development strategy. When steel plants and other manufacturing closed up shop in Chattanooga, city leaders subsequently moved aggressively on a number of fronts to pursue smart growth (Portney, 2013b). The city is doing well today.

Even if business leaders believe sustainability initiatives are good for their city because it increases its "livability," it does not necessarily follow that the city will become more prosperous. Commuters on the light rail need to have jobs to go to when they board the train. Addressing this question Portney (2013a) investigated the relationship between economic prosperity and sustainability. He utilized growth in per capita income in 55 large cities across America as his dependent variable, and an index of city sustainability programs and policies and the level of education in those same cities as his key independent variables. He concluded, "When cities elect to adopt more sustainability policies and programs, they experience greater income growth regardless of how well educated the population is" (2013a, 57).

DEMOGRAPHICS

Support for sustainability comes not only from city leadership but also, of course, from residents. Among the rank-and-file, why has support for environmentalism increased? A beginning point is to acknowledge that to some degree urbanites reflect trends evident in the larger American population. Over time the public's attitudes have turned toward postmaterialism, with greater concern for issues that involve the quality of life rather than bread and butter problems (Berry 1999). Many conservatives turned toward social issues while modern liberalism became more focused on environmentalism, consumer protection, and identity politics.

Even so, our argument here is that cities are not merely a cross-section of America but a distinctive slice with populations that don't match the profile of suburbs, small towns, and rural areas. Most distinctive is the diversity of cities. In Richard Florida's formulation, diversity in and of itself, is one of the economic engine of cities. Building on Jane Jacobs (1961, 1969), he posits that "cities are places where people from virtually any background are welcome to turn their energy and ideas into innovations and wealth" (Florida, 2005, 38). He places particular emphasis on immigration and the more tolerant attitude of cities (represented by his gay and bohemian indices in his formulas). The creative class in cities is nurtured by such diversity.

For many cities growing diversity has also meant larger concentrations of minorities who are poor and marginalized. This part of a city's population may regard material issues as far more urgent than environmental ones. Nevertheless, they may have an indirect but forceful impact on sustainability by who they choose to vote for as those who receive their votes will tend toward the liberal side of the political spectrum. Increasingly, the elected leaders of cities are people of color themselves.

The growing political liberalism of cities is reflected in the presidential vote. Although there is very little city-specific voting information available, in 1988 George H.W. Bush carried 57 of the nation's largest counties. In 2000 and 2004 George W. Bush carried only about a third

of the nation's biggest counties. In 2012 Barack Obama carried fully 86 of these counties (DeSilver, 2016). Liberals elected in cities must still accommodate different components of their coalitions, including business. Mayors, city councilors, and top administrators see economic development, enhancing environmental quality, and building amenities to make the city more livable, as all crucial markers of their success. Leaders are especially concerned with attracting young professionals who will generate growth through their creative class skills, either as entrepreneurs or as employees of firms that are important to the city's future. At the same time, private employers are especially drawn toward geographic areas whose populations have the skills and education they need to produce their goods and services.

DARK MATTER

Despite the continuing demographic trend of cities, there is no magical process that brings city leaders in line with public opinion. Public opinion is never any one thing and cities differ considerably in the processes they use to weave together policies out of the varied preferences of their citizens. Michael Storper concludes that the difference in growth rates of cities cannot be fully explained by usual (statistical) subjects. Rather, he notes, in good economic jargon "that local interaction structure is a source of difference; I will call this interaction structure the local context." A bit more colorfully he calls this local context "dark matter" (2013, 137).

Part of the dark matter of city politics is interest group advocacy. Rising postmaterialism was accompanied by a sharp increase in citizen group advocacy, including a surge in the numbers of environmental groups (Berry, 1999). At all levels of government new groups formed and many existing groups were able to expand. National organizations like the Sierra Club, the Audubon Society, and the National Wildlife Federation have huge budgets and memberships. But smaller city level and neighborhood level groups have proliferated as well. Advocacy organizations like the Louisville Climate Action Network, the San Francisco Bike Coalition, and the Save Our Springs Alliance of Austin, have become part of the fabric of the "interaction structure" for policymaking on environmental issues in their respective cities.

Although this surge in environmental advocacy groups can be found at the federal, state, regional, and local levels, city interest group politics is not simply a smaller version of what goes on at these larger venues. Rather, what is distinctive and striking about city politics is the low barrier to entry for advocacy groups. Groups consisting of only a handful of activists can get city councilors to return their phone calls and gain a meeting (Berry and Portney, 2014). In national politics in contrast, just getting an audience, much less real attention to your issue, is a challenge for many lobbies. In city politics advocacy groups with modest resources can gain access to the bargaining table. Government officials want all stakeholders to come into agreement if possible as even small advocacy groups can create very costly delays in development projects. Unlike national politics, where polarization has led to considerable gridlock, it may be that local government has a more results-oriented focus. Gaining approval for the next project, getting shovels into the ground, push local political leaders forward. Our previous analysis have made the case that the ways that local environmental groups interact with local policymakers plays a significant role in influence city sustainability policies and programs (Portney and Berry, 2014; 2016). But this analysis tells only part of the story, and begs the question whether there is something bigger and more comprehensive going on in cities that elect to pursue sustainability.

Hypotheses and Research Design

In local politics it may seem that everything is connected to everything. Nevertheless, we attempt here to unravel the many relationships, relying on a unique database bringing together surveys of city councilors, top administrators, and advocacy group leaders in 50 of America's 54 largest cities. Along with these surveys is another comprehensive database, this one on sustainability policies across these same 50 cities. Together, these fifty cities contain about 15% of the population of the U.S.

Before elaborating on our data and methodology, let us detail the hypotheses that grow out of our understanding of the research discussed above. Our first hypothesis builds on Florida's thesis about the creative class. Trying to draw out what separates highly successful cities from less successful ones is a small cottage industry in the social sciences. Florida, however, offers a unique perspective on the modern city as he argues that it is not just traditional forms of human capital -- education and skills of the population -- but a disposition toward tolerance that is critical to a city's prosperity. In this view, diversity is not merely tolerated but welcomed. Extrapolating from this link of the creative class to economic growth, *hypothesis H1 predicts that cities high along the creative class dimension will also experience greater economic growth.* But it also suggests another hypotheses, *H2, that cities with larger creative class populations will demonstrate a strong tendency toward promoting and pursuing sustainability policies.* In this logic, an orientation toward protecting and improving the biophysical environment, smart growth, and associated amenities is one of the qualities that are highly valued by the young professionals that cities want to attract. Sustainability is not merely a set of policies but belief in this orientation is a value that many hold dear.

Our second focus tries to determine if the level of commitment to sustainability policies and programs is simply a reflection of the degree of liberalism in cities. Some sustainability issues, such as global climate protection, sit on a fault line between liberals who want an expansive, active government, and conservatives who prefer a smaller government and market solutions to problems. Accounting for liberalism is more than a statistical control as it goes to the underlying logic of the creative class theory. What kind of cities are tolerant cities, likely to score high on Florida's scales of gay population concentration and bohemian life? It may seem obvious that these are progressive cities and thus, it may simply be ideology that structures both economic and environmental policies in cities. If the creative class theory is a valid explanation of city economic growth and levels of sustainability policies, then it would follow that any initial positive relationship with cities' liberalism score would be spurious. *We hypothesize in H3,* therefore, that *the rate of economic growth of cities is not related, ultimately, to political ideology.* Second, *H4* suggests that *sustainability efforts are not, ultimately, associated with the ideology of cities.*

Finally, we try to shed light on the dark matter of cities. Perhaps it is neither the population demographics of cities nor the political ideology of citizens and leaders but, instead, the degree of mobilization that makes the critical difference in policy outcomes. With all the conflicting political interests within any one city, it stands to reason that mobilization of those interests is significant. By examining who is included in policymaking we may gain some insight into who policymakers are trying to be responsive to and, conversely, which interests are

regarded as of secondary importance. The hypothesis that follows is *H5*, that *cities that incorporate environmental groups into policymaking will demonstrate a greater commitment to sustainability policies and programs.*

To test these propositions we rely on data across 50 of the 54 largest cities in America.[2] There is certainly a great deal of America not covered by a research focus on cities but the creative class theory is oriented around urban America (Florida, 2004). Moreover, party differences and polarization have stymied movement on sustainability, notably initiatives related to global climate change, at both the federal and state levels. Cities, to use the vernacular, are where the action is on sustainability. At the same time, we know that cities vary considerably in terms of commitment to environmental protection and the large N research design offers the promise of greater generalizability than a series of case studies or a more limited survey endeavor.

The dependent variable we are most interested here is a measure of how aggressively cities have pursued sustainability policies and programs. Analysis of sustainability policies and programs in the 50 cities utilizes a variable built around 38 separate specific policies and programs all related to sustainability. For each of the cities, information has been gathered on whether they have a program for such areas as industrial solid and hazardous waste recycling, brownfield redevelopment, car pool lanes, or eco-industrial projects. Does each city have tax incentives for environmentally friendly development, a citywide comprehensive plan, and a sustainability indicators program? For each program or policy a city operates, it scores a one; if there is no such program, the score is zero. The sum of these scores is the city's overall sustainability index. We recognize that the dichotomous nature of each program does not tell us how effective a particular program is, but what the scoring does tell us is something important about the level of effort by each city. Although using a common metric for many sustainability outcomes (i.e., lower exposure to toxics) might be preferable, these kinds of data are simply not available at level of individual cities.

The overall rankings of the 50 cities can be found at the Our Green Cities web site.[3] There are rankings by other scholars and institutions, notably SustainLane (Karlenzig, 2007) and Siemens (2011). External validation from these other studies, which use different methodologies, is high as the relative rankings of cities is fairly consistent. For example, for the 21 cities that are in the Siemens study and our own, the correlation is .772 (sig. = 0.000). It seems clear that both indices are tapping the same underlying dimension regarding city sustainability.

The surveys of city officials were conducted in 2009 and subjects were given the choice of responding by filling out a mail questionnaire or by accessing a dedicated URL to complete the instrument online. Although there were separate interview templates for city councilors, administrators, and advocates, many of the questions were identical or very similar across all three. In this paper, we rely on responses provided by city administrators. For the administrators' survey we targeted the heads of departments or agencies that have some relevance in the areas of either economic development or environmental affairs. As such those agencies with responsibility for public works, public utilities, parks and recreation, water and wastewater management, sustainability, economic development, and planning, among others, were included.

In all 848 administrators were contacted and of these 413 responded, a return rate of 48.7 percent. Of administrators, the average number of responses per city was 8.5.[4]

Two of the key variables we analyze here come from the survey of administrators. First, we asked each administrator to report to us their views on the political ideologies of the mayor, most city councilors, and most city administrators. We used these answers to create a composite measure of the average percent of administrators in each city reporting that their mayors, most city councilors, and most city administrators are "liberal." This represents out measure of the city's ideology. Second, we asked city administrators to report their experiences interacting with local environmental groups (among others). We included a question asking administrators to report how likely it is that local environmental groups would be included in policy deliberations concerning issues of the environment and local economic development. We use these answers to create a summary measure of the percent of administrators in each city who said that local environmental groups would "very likely" or "definitely" be included in policy deliberations.

Analysis here also relies on U.S. Census data measuring the percent of the adult population that has at least a high school education. As in many other studies, this is used as a measure local investment in human capital. Additionally, this analysis includes a variable measuring the percentage of the local city electorate that voted for the Democrat candidate for President in 1996, 2000, and 2004, derived from original state and county voting records.

Finally, the analysis relies on creative class indexes devised and computed by Richard Florida (2002; 2012). It includes indexes computed based on 2000 and 2010 U.S. Census sources. The index measures the relative size of the creative class, with higher values representing large number of people in this class. Initially we examine relationships with both the 2000 and 2010 indexes, which are highly correlated with each other. Subsequently we focus only on the 2010 index.

Disentangling the Relationships: Data Analysis and Results

The empirical challenge embedded is the discussion above is to examine which of a number of variables provide plausible explanations for local economic growth. Moreover, the broader challenge is to understand, even perhaps to disentangle, the interrelationships among a number of city policy, political, economic, and cultural characteristics. To demonstrate the challenge, we provide the bivariate correlations associated with each hypothesis. Table 1 shows these relationships as correlations between the index of city sustainability policies, city creative class index, change in per capita income from 1990 through 2010 as a measure of local economic growth, measures of city liberalism, the average percent vote for Democrats in presidential elections from 1996 through 2004, inclusion of local environmental groups in policymaking, and educational attainment, a measure of investment in human capital. With reference to the hypotheses, these correlations are instructive. H1 predicts that cities that have relatively large creative class populations will experience greater economic growth than those with relatively small creative class populations, and this is supported by the correlation of well over .500. H2 posits a strong relationship between the size of the creative class and the pursuit of sustainability policies and programs. This hypothesis is clearly borne out by the results, with correlations well over .500. H3 suggests that there should be a strong relationship between political ideology and

economic growth. Again, this expectation is borne out, although not as much with respect to voting for Democrats as with city administrators' reports of the proportion of city leaders are liberal. H3 predicts a strong relationship between political ideology and the pursuit of sustainability policies. Indeed, this is reflected in the correlation of .500. And H4 posits that inclusion of environmental groups in policymaking will be strongly associated with the pursuit of sustainability policies, and this is reflected in the correlation of .483. What the correlations demonstrate is that these variables are closely related to each other. With the exception of the education variable, the correlations are all quite high. This is particularly true of a cluster of correlations between the creative class index, change in per capita income, liberalism, and the sustainability policy index. These correlations suggest that these variables represent a group of intertwined city characteristics. It seems clear that cities whose economies have grown tend to be the same cities that have relatively large creative class populations, have politically liberal public officials, and have elected to be aggressive in pursuing sustainability policies and programs.

One way of trying to disentangle these relationships is to examine each of two variables as a dependent variables – the sustainability policy index and change in per capita income -- and apply a multivariate technique to document which independent variables seem to hold the most significant explanatory power controlling for others. The debate over the role of the creative class in economic growth, for example, leads to analysis where change in per capita income is the dependent variable, and the size of the creative class is pitted against a measure of investment in human capital, usually a measure of educational attainment. This type of effort seeks to determine which of the two independent variables might be said to offer the stronger multivariate coefficient controlling for the other. Despite a small number of studies to the contrary, the results of this kind of analysis do not resolve the debate mainly because both independent variables turn out to be strongly related to economic growth controlling for the other. Indeed, we have engaged in this kind of analysis to examine many specific issues, including the determinants of city sustainability policies and programs.

Consistent with the bivariate correlations in Table 1, we provide OLS regression results in Table 2. We know with a high degree of confidence (and we have reported elsewhere) that inclusion of local environmental advocacy groups in policymaking is a strong driver of city sustainability policies and programs even controlling for numerous other plausible determinants, such as the political ideology of city leaders and the socio-economic status of city residents. H4 is supported by the results in Table 2. We know that cities that aggressively pursue sustainability policies and programs are far more liberal, and more likely to vote for Democrats, than cities less aggressively pursuing sustainability. H3 is also supported by the results in Table 2. But political ideology is also related to local economic growth, as predicted in H2. However, when the Creative Class Index is introduced into the multivariate analysis, as proposed in H1, the strength of the relationships with all the other predictors weakens. This is also borne out in Table 2, where the Creative Class Index is by far the single strongest predictor.

We also know that there is a strong relationship between economic growth and the pursuit of sustainability even controlling for how liberal cities are. Above all else, we know that the single best predictor of how aggressively cities pursue sustainability is the size of the creative class, even controlling for how liberal the city is, or whether local environmental groups are

included in policymaking. Again in Table 2, the results show the importance of the size of the creative class, which remains statistically significant even when education and environmental group inclusion are controlled. But using these results to make inferences about which of several variables is the more important influence on city sustainability policies, or to shed light on possible causal connections is quite difficult, primarily because the data and results are somewhat ambiguous. In short, it seems difficult or even impossible to sort out the interrelations.

Here, however, we take a different tack. Primarily because of the apparent close relationships among the numerous variables, we simply wish to know what kind of underlying structures might be present. We wish to analyze whether these variables, taken together, represent of cluster of such closely related characteristics as to be empirically impossible to distinguish or to disentangle. To examine this, we apply principal component factor analysis. These results are presented in Table 3, and show that there is one very robust factor reflecting the close connections among all of the key variables except the measure of education. A second, much less robust, factor independently reflects the connection between education, Republican voting, and economic growth. The strength of factor 1 reinforces the conclusion that there is indeed a cluster of city characteristics that tend to be so closely related as to be almost indistinguishable. The bivariate correlations certainly gave a hint to this, but the factor analysis seems to confirm how closely connected this cluster of variables is.

Discussion and Conclusions

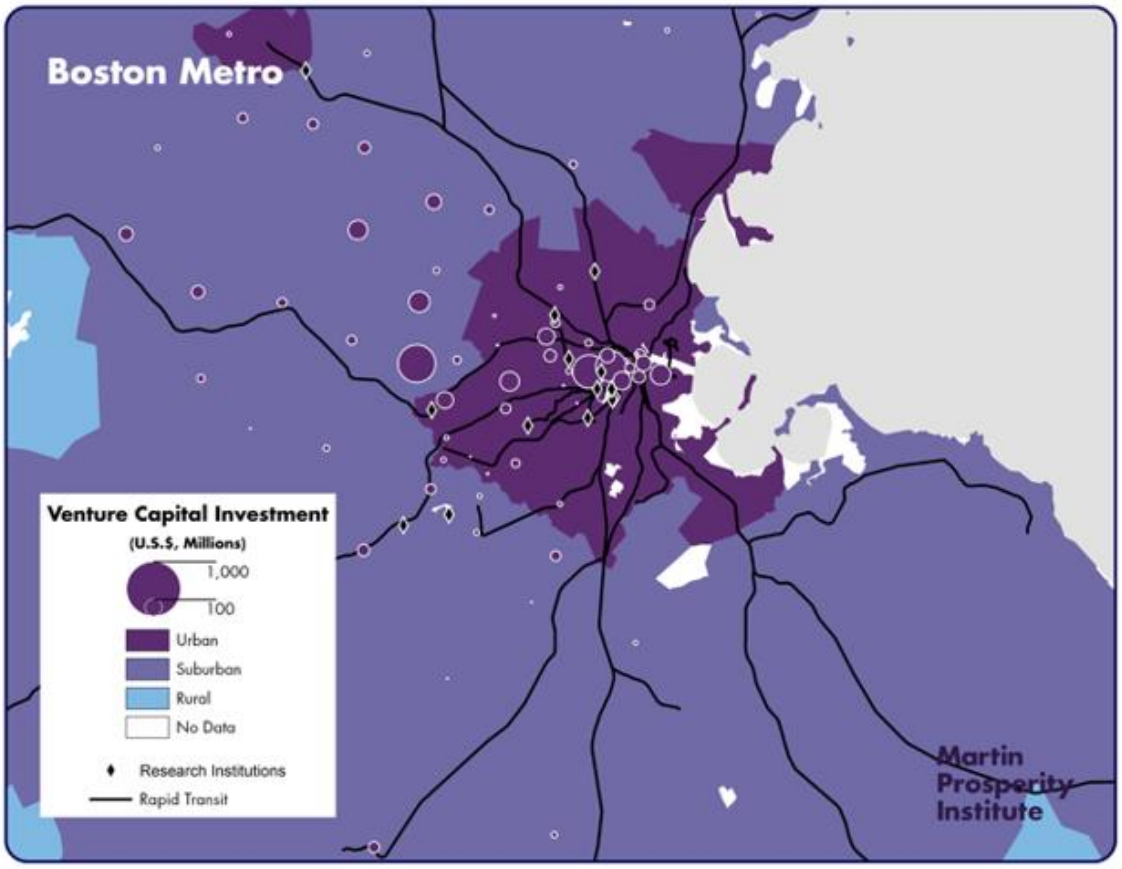
The character of large U.S. cities has changed markedly over the last 30 years. While cities were increasingly looking like economic and social wastelands, today they have become revitalized. With growing populations, vibrant centers of culture, and successful local economies, many cities stand in stark contrast to urban areas of the past. One of the key features of these cities is the pursuit of local sustainability policies and programs. Cities that are growing, both in terms of the size of the population and the health of the local economy, are very likely to seek to protect and improve their respective biophysical environments. Moreover, these cities are very likely to have relative large numbers of people who are, as Richard Florida calls it, members of the "creative class." The analysis here examines a complex of interrelated city characteristics to shed some light on what seems to drive some cities to be more aggressive in the pursuit of sustainability than others. Using the debate concerning the role of the creative class of cities in driving economic growth as a foundation, this paper derived the plausible idea that the creative class probably plays a substantial role in influencing cities to adopt and implement more aggressive public policies and programs in pursuit of sustainability. Empirically, there is little question that the size of the creative class is very strongly correlated with the pursuit of sustainability. But the strength of this correlation probably does not tell the complete story.

Closer analysis of the characteristics of 50 of the largest cities in the U.S. suggests that there is actually a cluster of very closely related factors that likely conspire in as yet undetermined ways to produce healthy and vibrant cities. Cities that pursue sustainability policies have large creative class populations, are politically liberal, and have active local environmental groups involved in policymaking, and tend to be the cities that are experiencing the greatest economic growth. All of these characteristics go together. Sorting out the relative influence of each characteristic in the hopes of discovering a single magic bullet that will

transform a city from one that is struggling to one that is thriving seems misguided, or at least extremely challenging theoretically and methodologically. While adherents of Richard Florida's prescriptions might wish that growing the size of the creative class represents such a magic bullet, the results here suggest that it probably isn't quite that simple. For city policymakers who seem to think they can jump-start their economic growth simply by creating cultural and "green" amenities to attract larger numbers of "creative class" people but without affecting the dominant city political ideology are probably misguided. We can say, however, with some confidence that having a relatively large creative class represents an important part of what likely drives cities to pursue sustainability through their policies and programs. If Matthew Kahn (2003: 72-74) is correct, that cities pursue sustainability policies and programs because their residents demand it, then it may well be that members of the creative class – with their skills, education, relatively high personal incomes, and values – are the ones demanding these policies. For this reason we refer to this idea as the "creative class theory of city sustainability policies."

There are many unanswered questions about this theory and the data that would be necessary to test it. First, the analysis of the relationship between the size of the creative class and the pursuit of sustainability policies is an aggregate relationship. Cities that have large creative class populations are also those that adopt and implement sustainability policies and programs. This certainly suggests that it is members of the creative class who are somehow responsible for these policies, perhaps by how they vote in local election, or perhaps by being engaged in local advocacy and nonprofit organizations. Whether it is the creative class that can be said to be responsible for such policies has not yet been established. Second, while this creative class theory points to the existence of a cluster of closely related variables, the data available to examine this cluster are simply not up to the task, particularly with respect to sorting out potential directions of causation. Third, most existing methods are not capable of sorting out the possible underlying relationships embedded in the theory, especially given the data shortcomings. Future research will need to address these, partly by generating more refined data, and partly by applying methods that are more appropriate to the task, such as structural equation modeling. Yet the analysis here provides plenty of prima facie evidence that there may well be a creative class foundation for the public policy pursuit of sustainability.

Figure 1: 2013 Venture Capital Investment in Metropolitan Boston-Cambridge, MA



Source: Richard Florida, "Startups and Venture Capital Are Going Urban," *Atlantic City Lab*, June 7, 2016, http://www.citylab.com/tech/2016/06/startups-and-venture-capital-are-going-urban/485978/.

Table 1: Correlations among Key Variables (n = 50 cities)

	Creative Class Index 2000	Creative Class Index 2010	Change in P/C Income 1990-2010	Sustainability Policy Index 2013
Change in P/C Income 1990-2010	.538**	.517**	------	.420**
Sustainability Policy Index 2013	.542**	.525**	.420**	------
Percent of Public Officials who are Liberal	.419**	.434**	.426**	.500**
Average Democrat Vote for President 1996-2004	.278*	.343*	.225	.295*
Inclusion of Environmental Groups in Policymaking	.364*	.313*	.546**	.483**
Percent at least High School Graduates	.140	.027	.422**	.132

*P < .05; ** P < .01

Table 2: OLS Regression Results with Sustainability Policy Index and Change in Per Capita Income as Dependent Variables (n = 50 cities)

	Sustainability Policy Index 2013			Change in Per Capita Income 1990-2010		
Independent Variables	β (S.E.)	Beta	Significance	β (S.E.)	Beta	Significance
Creative Class Index 2010	**14.36 (6.3)**	**.339**	**.027**	**10812.8 (3943.0)**	**.349**	**.009**
Percent of Public Officials who are Liberal	.040 (.033)	.218	.223	9.74 (21.2)	.072	.650
Average Percent Democrat Vote in Presidential Election 1996-2004	.014 (.066)	.034	.837	33.1 (42.4)	.113	.439
Inclusion of Environmental Groups in Policy Deliberations "Very Likely"	.075 (.044)	.262	.096	62.5 (27.7)	.299	.030
Percent with at Least High School Education	.054 (.096)	.081	.579	179.8 (55.5)	.372	.002
Change in Per Capita Income 1990-2010	.0000053 (.000)	-.039	.825	-----	-----	-----
Sustainability Policy Index 2013	-----	-----	-----	-22.2 (99.4)	-.030	.825
Constant	5.22 (9.33)	-----	.579	14567.9 (5608.9)	-----	.013
Adjusted R^2 (Significance)	.330 (.001)			.479 (.000)		

Table 3: Principal Component Factor Analysis of Key Variables

Variance Analysis

Component	Eigenvalue	% Variance
1	3.75	46.9
2	1.48	18.4
3	0.94	11.8

Component Matrix

Variable	Component 1	Component 2
Creative Class Index 2000	.811	.006
Creative Class Index 2010	.802	-.129
Sustainability Policy Index 2013	.742	.006
Change in Per Capita Income 1990-2010	.744	.389
Percent of Public Officials who are Liberal	.745	-.283
Average Democrat Vote for President 1996-2004	.552	-.637
Inclusion of Environmental Groups in Policymaking	.668	.290
Percent with at Least High School Education	.203	.859

Works Cited

Berry, Jeffrey M. 1999. *The New Liberalism*. Washington, DC: Brookings Institution Press.

Berry, Jeffrey M., and Kent E. Portney. 2014. "The Group Basis of City Politics." In Robert J. Pekkanen, Steven Rathgeb Smith, and Yutaka Tsujinaka, eds., *Nonprofits and Advocacy*. Baltimore: Johns Hopkins University Press.

Budd, William, Nicholas Lovrich, Jr., John C. Pierce, and Barbara Chamberlain. 2008. "Cultural Sources of Variations in US Urban Sustainability Attributes." *Cities* 25: 257-267.

Business Wire. 2016. "GE Commits $50m to Empower Boston's Students, Build Capabilities & Careers, and Improve Health," April 5. http://www.businesswire.com/news/home/20160404005951/en/GE-Commits-50M-Empower-Boston's-Students-Build . Last accessed July 14, 2016.

Chesto, Jon. 2016. "GE CEO Explains Why He's Moving Headquarters to Boston." *Boston Globe*, March 24. https://nonprofitquarterly.org/2016/07/14/pokemon-goto-opera-nonprofits-made-game/?utm_source=Daily+Newswire&utm_campaign=eadb0b4af7-Daily_Digest_23497_14_2016&utm_medium=email&utm_term=0_94063a1d17-eadb0b4af7-12320473. Last accessed July 14, 2016.

DeSilver, Drew. 2016. "The Growing Democratic Domination of Nation's Largest Cities." Pew Research Center, July 21. http://www.pewresearch.org/fact-tank/2016/07/21/the-growing-democratic-domination-of-nations-largest-counties/. Last accessed July 21, 2016.

Fairlie, Zach. 2012. "Economic Development Strategy: The Creative Capital Theory." http://business.uni.edu/economics/themes/fairlie.pdf. Last accessed July 14, 2016.

Fisher, Dana R., Lindsay K. Campbell, and Erika S. Svendsen. 2012. "The Organizational Structure of Urban Environmental Stewardship," *Environmental Politics* 12: 26-48.

Florida, Richard. 2002. *The Rise of the Creative Class*. New York: Basic Books.

Florida, Richard. 2004. *Cities and the Creative Class.* New York: Routledge.

Florida, Richard. 2012. *The Rise of the Creative Class Revisited*. New York: Basic Books.

Florida, Richard. 2016. "Startups and Venture Capital Are Going Urban." *Atlantic City Lab*, June 7. http://www.citylab.com/tech/2016/06/startups-and-venture-capital-are-going-urban/485978/. Last accessed August 5, 2016.

Florida, Richard and Karen M. King. 2016. *Venture Capital Goes Urban: Tracking Venture Capital Investment and Startup Activity across U.S. Zip Codes*. Toronto, ON: Martin Prosperity Institute, University of Toronto. http://martinprosperity.org/media/Startup-US-2016_Venture-Capital-Goes-Urban.pdf last accessed August 9, 2016.

Glaeser, Edward, 2005. Review of Richard Florida's *The Rise of the Creative Class*. http://scholar.harvard.edu/files/glaeser/files/book_review_of_richard_floridas_the_rise_of_the_creative_class.pdf. Last accessed July 13, 2016.

Glaeser, Edward. 2011a. *Triumph of the City*. New York: Penguin Press.

Glaeser, Edward. 2011b. "Human Capital Follows the Thermometer." *New York Times*, April 16. http://economix.blogs.nytimes.com/2011/04/19/human-capital-follows-the-thermometer/.

Hoyman, Michele, and Christopher Faricy. 2008. "It Takes a Village: A Test of the Creative Class, Social Capital, and Human Capital Theories." *Urban Affairs Review* 44 (3): 311-333.

Kahn, Matthew E. 2006. *Green Cities: Urban Growth and the Environment*. Washington, D.C.: Brookings Institution Press.

Karlenzig, Warren. 2007. *How Green is Your City? The SustainLane U.S. City Rankings*. New York: New Society Publishers.

Mayer, Jane. 2016. *Dark Money*. New York: Doubleday.

Mills, C. Wright. 1956. *The Power Elite*. New York: Oxford University Press.

Portney, Kent E. and Jeffrey M. Berry. 2016. "The Impact of Local Environmental Advocacy Groups on City Sustainability Policies and Programs," *Policy Studies Journal*, 44 (2), pp. 196-214.

Portney, Kent E. and Jeffrey M. Berry. 2014. "Civil Society and Sustainable Cities," in *Comparative Political Studies*, 47 (3), pp. 395-419.

Portney, Kent E. 2013a. "Local Sustainability Policies and Programs as Economic Development." *Cityscape*. 15 (1): 45-62.

Portney, Kent E. 2013b. *Taking Sustainable Cities Seriously*, 2nd ed. Cambridge, MA: MIT Press.

Prevost, Lisa. 2016. "For the Boston Seaport, GE Was Just a Start." *New York Times*, June 15. http://www.nytimes.com/2016/06/15/realestate/commercial/for-boston-seaport-ge-was-just-a-start.html. Last accessed July 14, 2016.

Rosdil, Donald. 2010. "Testing Cultural and Economic Explanations for Local Development Policies." *Journal of Urban Affairs*. 32 (1): 105-130.

Schwartz, Nelson D. 2016. "Why Corporate America Is Leaving the Suburbs for the City." *New York Times*, August 1. http://www.nytimes.com/2016/08/02/business/economy/why-corporate-america-is-leaving-the-suburbs-for-the-city.html. Last accessed August 5, 2016.

Siemens. 2011. *U.S. and Canada Green City Index: Assessing the Environmental Performance of 27 Major US and Canadian Cities*.

Stone, Clarence N. 2013. *Regime Politics.* Lawrence: University of Kansas Press.

Storper, Michael. 2013. *Keys to the City*. Princeton, NJ: Princeton University Press.

Storper, Michael, and Allen J. Scott. 2009. "Rethinking Human Capital, Creativity, and Urban Growth," *Journal of Economic Geography* . 9: 147-167.

Wingfield, Nick. 2016. "Forget Beanbag Chairs. Amazon Is Giving Its Workers Treehouses." http://www.nytimes.com/2016/07/11/technology/forget-beanbag-chairs-amazon-is-giving-its-workers-treehouses.html. July 11. Last accessed August 1, 2016.

Weber, Lauren. 2016. "GE Among Dozens of Corporate Giants Fleeing Suburbs for Urban Centers." *Wall Street Journal*. January 13. http://www.wsj.com/articles/ge-among-dozens-of-corporate-giants-fleeing-suburbs-for-urban-centers-1452733627. Last accessed August 1, 2016.

World Commission on Environment and Development. 1987. *Our Common Future.* *http://www.un-documents.net/our-common-future.pdf*

Endnotes

[1] GE did win some concessions from both the city ($25 million) and the state ($120 million) but these were certainly not sufficient in magnitude to be decisive in Boston's selection. GE also immediately pledged $50 million in direct gifts to the city (Chesto, 2016; Business Wire, 2016).

[2] The nation's four largest cities, New York, Los Angeles, Chicago, and Houston, were excluded because of the concern about the scale of these cities. For example, a study of just environmental steward groups in New York City identified nearly 2,800 groups (Fisher, Campbell, and Svendsen, 2012). Since we were trying to understand the activity of all types of interest groups in each of our cities, there wasn't a realistic approach for a survey sample that could work in cities of this size.

[3] http://ourgreencities.com/.

[4] This is the adjusted pool after subtracting questionnaires returned as "undeliverable" and where we could not find an appropriate replacement to mail to.