

Redefining and Reframing Sustainable Cities?: An Empirical Analysis of Green Economy Efforts Across Large Metropolitan Areas

Abstract:

The emergence of the idea of “the green economy” or the “green jobs movement,” both as an environmental and economic development aim, has received growing attention in recent years. Nevertheless, there has been little scholarship seeking to understand how this concept has been integrated within the practice of environmental governance, and how this concept intersects with other locally driven approaches and policy frames around local, pro-environmental governance. This paper begins to understand the differing realization and integration of the green economy as a municipal framework for environmental preservation through an analysis of the municipal websites of the 49 most populous metropolitan areas in the United States. Drawing on the growing body of empirical research related to sustainable cities, this paper addresses a gap in the literature around local environmental governance through an empirical examination of the integration of green economy references and policies within the context of municipal action.

Biography:

Laurie Nijaki is a postdoctoral research fellow at the Erb Institute for Global Sustainable Enterprise at the University of Michigan. Her research interests lie at the intersection of environmental policy and economic development in the context of cities.

Action around environmental preservation, and in particular around sustainability and climate change, has become increasingly local in recent years (Jepson, 2004; Saha and Paterson, 2008; Mazmanian and Nijaki, 2012). Such locally driven efforts are evidenced by the rise of concerted approaches towards environmental preservation such as the US Council of Mayors' Climate Change Climate Action Pledge, and the emergence of locally based sustainability efforts and networks of implementing practitioners such as the Urban Sustainability Directors Network. Municipalities are increasingly called upon to integrate sustainability and climate action plans in efforts to mediate the gap between economic and environmental aims (Zeemering, 2009). Scholars increasingly focus on such an emergence of issues through a growing literature around sustainable cities and communities.

Perhaps building on the locally focused approach towards environmental governance, climate change and sustainability planning alone have not entirely encompassed the debate and interest around environmental preservation. The notion of the "green economy" or "green jobs" has entered the discourse around environmental values and the local pursuit of environmental preservation. The emergence of the idea of "the green economy" or the "green jobs movement," both as an environmental and economic development aim, has received growing political attention in recent years. Google trends, as a rudimentary manner to pick up trends in key terms across search data, clearly illuminates an increasing public interest around the green economy as one approach towards environmental preservation. The term "green jobs" was increasingly utilized since the end of 2007, with a significant peak in 2009. The results are similarly corroborated through Proquest searches of the term "green jobs." From 2000 to 2005, the term was referenced 26 times. From 2000 to 2010, the term appeared with a frequency of 1074 references. A search in the date range of 2008 to 2010 yields 1066 references.ⁱ Although mired with criticism and largely leading to mixed results thus far in practice, the concept has emerged as a new way to talk about the dichotomy around environmental preservation and economic growth.

Despite this emergent interest in the green economy and the array of general criticism around the concept of "green jobs", there has been little scholarship seeking to rigorously understand how this concept (and potential package of strategies) has been integrated within the practice of environmental

governance, and how this concept intersects with other locally driven approaches and policy frames around local, pro-environmental governance. Specifically, given the local dynamics around sustainability and climate change action, how is the emergent interest in the green economy being operationalized or realized? How can the green economy as a component of local environmental governance, or the integration of environmental values into municipal practices and policies, be understood? The following paper aims to build analytical rigor around the burgeoning discussion, as reflected in the content analysis that follows, related to green jobs at the sub-national level.

In particular, much of the debate and criticism among practitioners and scholars is focused on the conceptual and practical issues around defining the green economy, or defining green jobs. What counts as a green job? What constitutes a green firm? Such definitional questions have been roundly translated into seemingly daunting measurement questions in terms of identifying potential opportunities and impacts. Thus, local government officials are more frequently called upon to address the question of defining green employment, and tracking opportunities through employment numbers. Particularly stemming from practitioner efforts spanning from the Bureau of Labor Statistics to community colleges district estimates, considerable resources have been put towards this end. No standardized definition of green employment exists, and potential economic opportunities span industry and occupational categories in a manner incongruent with available data sources. A lack of such definition and the resulting difficulty in measuring impacts has impeded “green economy” efforts.

Research around green economy methodologies, in terms of quantifying economic impacts, is important and needed. However, at the same time, what may be more critical, particularly in terms of a contribution to theory, is an understanding of the integration of the green economy as a new framing and/or messaging mechanism within the context of the broader municipal framework around environmental preservation. Given the persistent measurement issues, how can the green economy, as a potentially politically palatable approach towards sustainability at the local level, be integrated into municipal efforts at the nexus of environmental preservation and economic development? How is the green economy being operationalized at the municipal level? And, more specifically, how has the green

economy been introduced as a new institutional framing for local environmental action? Rather than focusing on counting green jobs through measures of aggregate green employment, this paper seeks to focus on how this concept is framed and adapted within the context of municipal government action. Through this focus, this paper seeks to provide an initial exploratory effort around the green economy movement in cities by offering the first significant effort to engage with these questions.

An analysis of the green economy can be rooted in both the literature around sustainable cities, as well as the institutional literature around environmental framing. Drawing on the growing body of empirical research related to sustainable cities, this paper addresses a gap in the literature around local environmental governance through an empirical examination of the integration of green economy references and policies within the context of municipal action. First, this paper begins to understand the differing realization and integration of the green economy as a municipal framework for environmental preservation. Not all metropolitan areas are engaging equally in the green economy, and such a differentiation can be reflected empirically through a content analysis of municipal websites. Through an analysis of municipal websites of the 49 most populous metropolitan areas, I provide a quantification of green jobs references as a proxy for the relative level of interest at the local scale. Second, towards that end, I then conduct a content analysis of municipal websites to identify the nature of these identified green jobs references. Such relative levels of interest in the green economy are broadly connected with, or indicated by, significant baseline and institutional characteristics that characterize differences between locales. Moving beyond descriptive analysis alone, I seek to understand green economy references in the context of such institutional differences. Methodologically, I develop an urban typology that draws on significant factors that are correlated with the number of green jobs references and that are rooted in the sustainable cities literature. Through this approach, I aim to further understand how institutional and baseline characteristics may help to illuminate patterns of differences in terms of the aggregate level of interest and particular versions of the green economy as a municipal focus. Bolstering the literature around the dynamics and dimensions of the sustainable city, this ultimately provides a descriptive analysis and begins to assess institutionally-driven hypotheses around the institutional dimensions of the

green economy. And, it also begins to address the hypothesis that the institutional context of municipalities may account for some of the differences in the quantity and type of approach.

I. Literature Review: Framing Locally Driven Environmental Action

How can an understanding of the emergent green jobs movement in the context of other locally based environmental movements be theoretically rooted in the institutional perspective? There is growing scholarship around institutional framing as it relates to environmental issues. Such scholarship seeks to understand how environmental issues emerge within the context of institutions and organizations. Individual and organizational perspectives are dictated by institutional constraints. Thus, the institutional context shapes the policy debate from defining the problem to identifying and implementing the solution (Hoffman and Ventresca, 1985). Understanding the framing of environmental issues is critical. As an important part of an institutional understanding of this process, policy framing provides a critical first step towards understanding the institutional context around the emergence of policy issues. Through framing, social movement actors are able to negotiate and create meaning around contested concepts. And, through this process, collective action frames seek to mobilize supporters (Benford and Snow, 2000).

Given varying institutional contexts, how have environmental and economic development goals been integrated into the context of local environmental governance in recent years? Specifically, scholars have noted the institutional and organizational dimensions of the relationship between the environment and economics. Solutions to environmental problems may engender from the cultural dimensions of institutions (Hoffman and Ventresca, 1985). Towards that end, sustainability is increasingly aiming to draw together this link in novel manners. The Brundtland report provided the first comprehensive definition of sustainable development as development that does not harm future generations (Langhelle, 1999). More recently, sustainability has been described by Reinhardt (2000), as a strategy or development path leading to no net decrease in total assets. Sustainability is specifically hinged on integrating economic and environmental goals in development decisions (Higgins, 1996; Reinhardt, 2000). Towards that end, scholars have increasingly sighted sustainability as a “new environmental epoch” (Mazmanian

and Kraft, 2010) that seeks to revise the nexus between the environment, economic development, and equity driven values. And, such an approach is largely linked to governing capacity at the local scope and scale. This new merging of such values can be understood in the context of the emergence of a new institutional frame around local environmental action *through* sustainability as a call to action for local stakeholders.

Sustainability is increasingly studied as an institutional frame around local, “pro-environmental” government action. Scholarship has focused on how cities define and frame sustainability; and, in particular, studies have increasingly sought to understand how local officials conceptualize sustainability. Several recent studies demonstrate the methodological and theoretical approach. First, Saha and Paterson (2008) surveyed one administrative official within each of the 216 cities boasting populations over 75,000 people. Constituting a more detailed assessment of sustainability values by going beyond factual questions, a variety of attitudinal questions were also assessed through the survey. In particular, environmental considerations were important. 66.5% of surveyed officials reported that a “healthy environment” was extremely important. Equity considerations were indicated as less central. Only 30.6% of survey respondents reported that “social equity” was extremely important. Second, Zeemering (2009) conducted in-person interviews of 28 San Francisco area city officials. Within the broad framework of sustainability, participants were asked to identify what factors related to sustainability were important to them. Three dominant framings around sustainability emerged from the study: “aspiring views” representative of a forward-thinking pursuit of expanded quality of life; “traditional development views” closely linking economic development to sustainability values; and “participatory views” focusing on public participation. Third, Portney and Berry (2010) surveyed local elected and administrative officials in over 50 domestic municipalities who worked for relevant departments. Overall, officials reported a commitment to sustainability, surprisingly even over a commitment to environmental values alone. Thus, sustainability is increasingly providing an institutional framework enriching the pursuit of environmental preservation within the local context.

Linked to the discussion around sustainability and locally driven pro-environmental behavior, how have scholars and practitioners introduced and considered the green economy as a new institutional framing for local environmental action? Some scholars assert that the purported “new green economy” or a new “environmental epoch” (Mazmanian and Kraft, 2010) may provide a novel nexus between environmental preservation and economic development through the creation of a new paradigm of sustainable economic growth (Roberts, 2004). Drawing on notions of sustainability, the green economy requires a focus on achieving environmental benefits through economic development or economic growth. Green jobs, as the outcome of this movement, are arguably a critical vehicle of achieving sustainability ideals by providing the employment opportunities indicative of a sustainable economic development strategy at the local scale.

Towards that end, a green economy includes economic opportunities touching a wide spectrum of products that do not adversely impact the environment (OCED, 1999). Not all economic opportunities will be environmentally preservative. However, considerable efforts around job creation should focus around opportunities in less-polluting enterprises. In particular, green economic activity can be thought of as occurring in two areas. First, new categories of goods and services related to environmental protection are emerging and creating opportunities for jobs and economic development in communities. Perhaps offering the starkest example, environmental regulations are creating business opportunities in a subset of innovation-driven green industries. Second, new classes of “environmentally friendly” businesses are now considering sustainability in their corporate choices through greener practices and wider corporate sustainability efforts. Overall, corporate social responsibility has been defined by academics in a myriad of ways (Reinhart, 2003; Young and Tilley, 2006) and can be widely seen as described by Marrewijk (2003) as “a company’s activities-voluntary by definition-demonstrating the inclusion of social and environmental concerns in business operation and interaction with stakeholders” (pg. 1). Such approaches are spurred both by opportunities to achieve pollution controls at lower costs, as well as consumer demand for sustainable products. (Wasik 1995; Hardjona and Klein, 2004; Massanet-Llodra, 2006; Montiel, 2008) Taken together, a variety of opportunities may exist around linking environmental

preservation to economic development through the framing of the green economy. And, towards that end, the “green economy” is arguably an important paradigm shift that may engender public policy consequences for development decisions and for the ways in which natural resources are framed and managed in a complex manner within the context of environmental and economic goals.

II. Methodology: Defining a Green Economy Institutional Typology

Drawing on institutional theory and the broader scholarship around sustainable cities, how can the green economy movement be examined as a component of locally-driven, pro-environmental activity? Are all cities equally engaging in the green economy as a new institutional frame around environmental preservation? And, if differences persist, how can patterns in such differences be understood? Thus, how can differences in the institutional framing around the green economy be studied and understood? Empirical analysis of sustainable cities can be thought of as broadly occurring in two stages. The first generation of analysis of sustainable cities focused on identifying efforts through a descriptive analysis documenting related policies and programs (Jepson, 2004; Saha and Paterson, 2008). The avenue of analysis sought to understand, within the broad framing of sustainable cities and communities, what policies and planning mechanisms were emerging in order to achieve sustainability’s trilogy of goals. The second generation of scholarship has increasingly sought to reach beyond the descriptive to an understanding of the context within which sustainability is implemented. Not all cities are equally integrating sustainability as a framework, or the particular goals set out above, in equal measure. In the words of Portney (2013), some cities are invariably taking sustainability more seriously than others; and, the role of scholarship is to develop conceptual insights into why some cities are engaging in sustainability in a more rigorous manner. Scholars have examined the relationship between stakeholders and the incidence of sustainability policies and programs (Conroy and Berke, 2004; Portney, 2005; Portney and Berry, 2010; Sharpe, Daley and Lynch, 2010). Empirical studies have examined the link between local governance and the incidence of sustainability programs (Betsill and Bulkeley, 2006; Feiock and Bae, 2011; Feiock, Travares, and Lubell, 2008; Lubell, Feiock and Ramirez de la Cruz, 2009).

Scholars have also examined the relationship to resources (Kahn, 2006; Lubell, Feiock and Handy, 2009), and have focused on the link to fiscal conditions (Wang et.al., 2013). Socioeconomic factors were examined by Saha (2009); significant factors included unemployment rate, poverty and a perspective employment in manufacturing.

Methodologically drawing on the empirical analysis of sustainable cities, this paper aims to understand the way in which the green economy is implemented within the local context. How are these cities employing green jobs-related policies? What is the breath of ways in which the green economy is being envisioned, discussed, or bolstered through policies and programs within cities? Such questions are touched on, but not fully answered, within the context of this paper. Empirical analysis of sustainable communities has sought to broadly identify programs and policies representative of sustainability values. Rather than focusing on environmental outcomes, such efforts are focused around environmental governance and the adoption of policies and planning mechanisms at the municipal scale. Portney's methodology (2013), for example, uses such an approach. He notes that, "instead of trying to objectively measure how sustainable cities are, and instead of mixing policy measures with outcomes, this analysis seeks to measure how serious governments seem to be in attempting to become more sustainable" (pg. 52). Thus, Portney's book (2013) revolves around an understanding of how sustainability is emerging as an operationalized component of environmental governance at a local scale.

Drawing on this approach, how has the concept of the green economy emerged as a component of the public policy and urban planning agenda at the municipal scale? This paper draws on both descriptive analysis, as well as analysis seeking to understand differences in places. Specifically, it aims to examine whether or not local context matters, in terms of understanding differences in the discussion within municipalities, and potentially the subsequent action around the green economy. The local institutional context within the examined metropolitan statistical areas may, in fact, point to such differences in relative interest reflected by the proliferation of this discussion, and action in the green economy as a component of local environmental governance. This analysis is couched in the tradition of the analysis of sustainability programs and efforts. The content analysis that follows builds on the methodology of early

studies of sustainability policies conducted by Berke and Conroy (2000), where they utilized content analysis of comprehensive planning documents to understand the range and degree of usage of the terminology and concept of sustainability within the city government context. However, given the novelty of the green economy as a framework around municipal action, this analysis utilizes references rather than developed green economy programs. Such programs are far too limited and nascent to provide a comprehensive look at the emergence of this concept in terms of the institutional context. Therefore, in order to gather and analyze information on this front, I examined a sample of the most populous domestic cities at the municipal level and gathered information relating to municipal policies, programs, and plans relative to the green economy. A simplistic content analysis methodology was utilized in order to gather information on the breadth of green jobs related programs, and additionally to further understand the degree and nature of the integration of green economy aims into the institutional rhetoric within cities. In order to gather information, I searched the websites of the 55 most populous municipalities for the terms “green jobs.” The search term was imputed in each city’s municipal website. The number of references was totaled for each city and listed by city name in parentheses in the left-hand column in the included table below. This provides an initial estimation of the relative level of interest in the green economy as a mechanism to frame environmental approaches.

Providing only an initial look at the emergence of the green economy as a component of local environmental governance, a multitude of limitations stem from this approach. This methodology is limited, similarly to the study conducted by Berke and Conroy (2000), in that it does not account for the differential between stated goals and implemented results. Likewise, it also provides only a uni-dimensional measure of such references; such an approach does not account for differences between a simple mention of green jobs and a comprehensive program devoted to bolstering green employment within the city. As noted by Berke and Conroy (2000), explicitly including the concept in the context of plans does not accurately reflect the actual achievement of sustainability outcomes. Moreover, as efforts in this regard mature, future research should look towards an analysis that focuses on more developed and targeted green economic approaches as a part of municipal policy and planning efforts. Despite the

limitations, however, it does provide some indication of the level at which the concept of green jobs is being integrated at the city scope when comparing cities with substantially different aggregate references.

Information by municipality was then interpreted and arranged based upon the development of an urban typology as a mechanism through which to understand trends within the relatively amorphous discussion of green jobs at the local scale. What patterns emerge in terms of the manner through which the green economy is translated into local, municipal action? Although failing to prove any hypothesis given the limitations provided above, the construction of a typology is nevertheless useful for grouping like cases of cities in order to further understand the variation in institutional factors that may account for the variation in the interest in the green economy within metropolitan areas. As noted by Bailey (1975), “Cluster analysis seeks to divide a set of objects into a small number of relatively homogeneous groups on the basis of their similarity over N variables. Conversely variables can be grouped according to their similarity across all objects. Cluster analysis can be viewed either as a means of summarizing a data set or as a means of constructing a typology” (pg. 50). Similarly, as noted by Bruce and Witt (1971), “For many years researchers have worked to develop typological procedures that would enable them to classify cities in ways conducive to the analysis of both environmental structures and the interaction of the city as an environment with the patterned activity of intra-city behavioral variables” (pg. 128).

Critical factors, or green economy indicators, were identified based upon a literature review of the sustainable cities literature. In particular, this approach draws on the capacity-building approach and understanding of sustainability (Wang et. al, 2012). The approach aimed to incorporate key background and institutional factors including population, wealth, and sustainability programs, as summarized by independent variables below. Although not conclusively indicating a link, each of these factors are statistically significantly correlated with the density of green jobs references in the 45 cities that could be included in the sample.ⁱⁱ Descriptive statistics for included variables are listed in the table below:

-Population: Population was measured at the metropolitan statistical area level, with data gathered from the National Center for Charitable Statistics (NCCS). Populations range from a minimum of 298,806 to a maximum of 9,519,338, with an average population of 2,409,438. Within the sample of

relatively large metropolitan areas, included metropolitan statistical areas are so different that comparing like cases requires consideration of population differences. Drawing on the literature connecting sustainability with local capability outlined by Wang et. al. (2012), larger urban locales may have the resources necessary to develop programs around the green economy. Demonstrating the relationship between population and references of the term “green jobs,” the correlation coefficient was .349, and was statistically significant at the .05 level ($p=.019$).

-Economic Wealth: Economic wealth was measuredⁱⁱⁱ by median income calculated at the metropolitan statistical area level, with data gathered from the National Center for Charitable Statistics (NCCS). Median incomes range from \$31, 051 to \$74,335, with a median income of \$46,544. Reflecting the sustainability literature, I expect that higher levels of wealth would lead to a higher investment in green jobs as a framing around local environmental governance. Spearman correlation between the number of “green jobs” references, and the median income was .645 ($p=.000$). Cities and metropolitan areas with greater wealth arguably have greater access to resources, including the resources to engage in a range of environmental policies that may readily lead into green economy policy efforts. Moreover, environmental goods and services are often thought to be luxury goods. With wealthier locales boasting such consumers, relatively wealthier areas may offer more abundant economic opportunities in green jobs.

-Sustainability Policies: The strength of sustainability programs was measured by the number of sustainability programs identified by Kent Portney’s “taking sustainable cities seriously” index^{iv}, measured at the metropolitan level. The range of sustainability programs spans from a minimum of 7 to a maximum of 35, with a mean of 25.33. Although engendering limitations, this provides a mechanism to measure commitment to sustainability at the local scale. Given the empirical evidence linking cultural and attitudinal elements of sustainability, a similar link may potentially be constructed between places likely to pursue sustainability, and those locales likely to engage with the green economy. Demonstrating the link through the statistically significant correlation coefficient, the spearman correlation between the sustainability program index, and references of green jobs within cities was .580 ($p=.000$).

Utilizing the indicators above, an urban typology was developed to examine differences in the interest in the green economy through a multi-tiered approach.^v First, cities were divided into “small” and “large” categories based upon the total population in the metropolitan statistical area, utilizing the mean population level as the break-off point. Second, the factor of wealth was considered. Cities, within their subdivided categories of “large” and “small” metropolitan statistical areas, were then divided into “rich” and “poor” based upon median income at the metropolitan statistical area level, utilizing the mean median income level as the break-off point. Finally, within these categories, cities were then divided based upon a sustainability variable at the municipal level. Defining sustainability as the number of sustainability programs utilizing the number of programs as identified by Kent Portney’s work (2011), cities were then divided by having “low” or “high” levels of sustainability programs, defined as having greater or lesser than the mean number of sustainability programs.^{vi}

In the end, cities largely converged into 5 urban types,^{vii} graphically summarized by Figure 1 below. Type 1 cities, including 6 cases, are characterized by having a small population, low median income, and trailing sustainability indicators. Type 2 cities, including 6 cases, are characterized as having a small population, low median income, and leading sustainability indicators. Type 3 cities, including 11 cases, are characterized as having a small population, high median income, and leading sustainability indicators. Type 4 cities, including 11 cases, are characterized as having a large population, low median income, and trailing sustainability indicators. Type 5 cities, including 15 cases, are characterized as having a large population, high median income, and leading sustainability indicators.

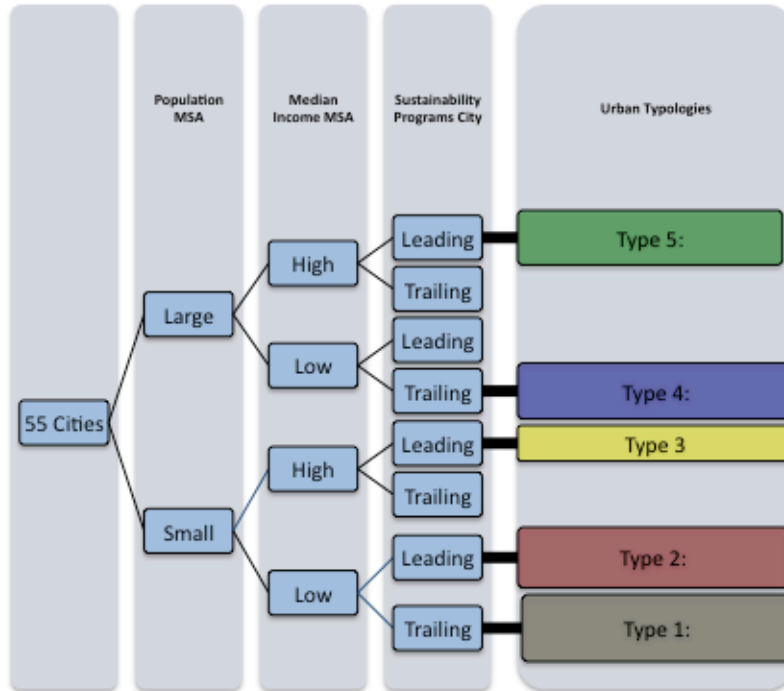
An interesting aspect of this division is the urban type that do not emerge from this sorting exercise. First, there are limited cases indicating high population, high median income, and trailing sustainability indicators. This may suggest that cities with a large population, high median income, and a lot of resources, will likely invest in sustainability programs. Second, there are limited cases indicating high population, low median income, and leading sustainability programming. Thus, perhaps cities that exhibit a high population and low median income will not likely have leading sustainability programs. The difference from the prior case lies in median income. Even though the later case may have high levels

of population, they also lack high levels of income, and thus are not seen as exhibiting leading sustainability programs. Third, there are limited cases indicating small population, high median income, and trailing sustainability programming. This further supports the linkage between median income. Even in the absence of a large population, there are few cases that exhibit the combination of a high median income and a lack of sustainability programs. No causal linkage, of course, can be made here.

Based upon the methodology described above, despite the methodological limitations, I have developed an urban typology that somewhat effectively groups cities according to appropriate and relevant baseline characteristics. Key variables for included cities, as characterized by their appropriate urban type, are displayed below in figure 4. In addition, in order to test to ensure that all categories were statistically significantly different across city type, I ran a Welch test (variances were not always homogenous and thus analysis of variance (ANOVA) could not be used) and find that the differences are statistically significant across urban type. Overall, this indicates that this division may be an effective way to group like cities in an analysis of the green economy. Several cities did not readily fit within the typology and were resultantly not included in the analysis below, bringing the total sample size down to 49 cities.

This approach enables me to understand, in a rudimentary manner, the ways in which green jobs and the green economy may be utilized as an organizing principal. Given the limitations of the methodology, this provides an initial exploratory effort towards such an examination that should be further developed as the subject of subsequent research. Providing further context, the sections below summarize key programs and policies where the term “green jobs” was referenced; with the aggregate number of references serving as a proxy for estimating the discourse around green economic development within urban areas.

Figure 1: Urban Typology Methodology



III. Interest and Investment in Green Jobs by Urban Type:

How are different types of cities engaging in the green economy? How is the relative level of interest in the green economy emerging across different metropolitan areas, domestically? Total measures of green jobs references provide a cursory estimation of relative interest in the green economy, or the extent to which the “green economy” frame is infiltrating environmental governance at the local level. Empirical evidence suggests that “green jobs” as an institutional framing device is indeed permeating environmental governance. Furthermore, empirical evidence suggests that differences exist in the frequency of discourse around green jobs. Type 1 cities have a mean number of references of 1.3, type 2 cities have a mean number of references of 42.4, type 3 cities have a mean number references of 39.2, type 4 cities have a mean number of references of 6.6, and type 5 cities have a mean number of references of 247.8125. I can further test whether or not these differences are statistically significantly different through the use of a

Welch statistic for equality of means; the test yields an F statistic of 2.939 ($p=.031$). I consequently reject the null hypotheses that the mean number of references within municipal websites is equal across urban type. Therefore, the discourse is quantitatively different for different types of cities and the typology developed above appears to provide some structure through which these differences can be effectively categorized. Although such an analysis fails to conclusively prove such a fact and should be further analyzed in future research projects, this initial analysis does suggest that different types of cities may therefore be discussing green jobs and corollary program development in substantively different ways.

Additionally, information on the nature of the reference (the particular program employed, or goal stated) was ascertained and listed with relevant links to the particular reference in Figure 3 below in the right-hand column. Each section briefly discusses a broad content analysis of the way in which green jobs are discussed and green jobs programs are referenced within cities.^{viii} This largely descriptive analysis aims to identify general trends in green jobs at the city level by municipal type. This also provides a more exhaustive list of the types of city programs that are being implemented around green jobs goals.

Type 1-- Unsustainable Underdogs: Unsustainable underdogs include: Wichita; Oklahoma City; Tulsa; Omaha; Memphis; Virginia Beach; and El Paso. These cities were selected to be located in relatively less populated metropolitan areas with an average population of 933,368. They have an average median income of \$39,484.29. According to Kent Portney's (2011) measurement index, these cities have relatively smaller amounts of sustainability programming. The average number of sustainability programs within this urban type is 17.43. This may somewhat engender from this urban types' relatively lower resources, as reflected by smaller population size and lower median income level. This may also be correlated with, and even engender, a low sustainability profile.

How does this urban type translate into a focus on green employment? As noted above, Type 1 cities tend to have a limited focus on green jobs. As reflected by figure 3 and figure 4 below, most cities do not reference green jobs within their city website and thus likely do not focus on green jobs as a

component of their policy platforms. The lack of focus on green jobs may be attributable to the limitations inherent within these types of cities.

Although the success appears to be very limited, Omaha is clearly the leader in this regard, and offers a strategy that might be palatable to similar metropolises. The strategy in Omaha is largely couched as a part of the economic development goals of the city, rather than as a part of the city's environmental policies and measures. Green jobs are specifically referenced as a part of their economic development plan. Additionally, the city has made some attempt to integrate the concept of green jobs into their manufacturing-based economic development goals. The city was able to leverage American Recovery and Reinvestment Act funding in order to facilitate the development of the HVAC-related manufacturing facility; 200 individuals will be employed and trained in the plant. As a fitting example of this thinking and framing, according to the City's related press release discussing recent efforts, "The partnership brings an environmentally progressive company to Omaha. 'We are taking a major step forward in growing the Omaha economy and creating new and sustainable jobs in our community,' said Mayor Jim Suttle. 'This is just the first step in my plan to bring 1,000 new jobs to the Eastern part of our city and I am proud these jobs are part of the clean energy economy.'" Through this effort, the green economy strategy in Omaha focuses on the need for employment and is thus, first and foremost, a jobs-driven strategy. Framing around jobs goals may provide the most politically feasible approach towards integrating green economy goals into municipal policy and planning programs.

Omaha, however, is not that norm. Overall for these cities, the green economy and green jobs discussion is not permeating the discourse and there is limited interest and progress in terms of developing green employment opportunities. The dearth of green economy strategies is consistent with the institutional characteristics of these types of cities. Most notably, there may be a lack of financial resources needed in order to enact the types of environmentally-centric policies that may create the impetus for green employment opportunities. These data suggest that a focus around green jobs is likely not a strong possibility within these types of metropolitan areas. Given this, such cities may not represent areas of obvious opportunity in the green economy.

Type 2-- Struggling Startups: Struggling Startups include: Albuquerque; Tucson; San Antonio; Louisville; Fresno; and Miami. Struggling Startups were selected to be located in relatively smaller populated metropolitan areas with an average population of 122,557. They exhibit an average median income of \$37,788.83. Given this, such cities may have limited resources. However, despite these limitations, these cities tend to have a very different institutional structure around environmental preservation than the “Unsustainable Underdogs”. In particular, these cities have impressive amounts of sustainability programming as measured by Portney’s (2011) sustainability measurement index. The average number of sustainability programs within this urban type is 27.33.

How does this city type engage in policies around the green economy? Type 2 cities, with the exception of Albuquerque, are somewhat focused on green jobs as a part of their municipal vernacular and policy strategies. In fact, these cities tend to specifically focus on green jobs as a stated policy focus. Rather than just integrated as a secondary and unspecific goal within broader environmental plans, these cities tend to devote programs specifically aimed at bolstering green jobs. They focus on green jobs, despite their diminutive size and relatively smaller income levels, in a very deliberate manner.

Several cities stand out in their stated efforts around the green economy. The City of Tucson operates a website specifically oriented around building a local green economy. There, at least in terms of stated goals, appears to be a particularly strong commitment to fostering opportunities that aim to incorporate diverse goals. Given the overabundance of references to green jobs within the city’s website, some degree of discussion is occurring indicating green jobs broadly as a policy aim. As an obvious corollary next step, resources are actively directed at bolstering opportunities in this regard.

Specifically, these cities tend to programmatically focus on workforce development. This may be attributable to the locale’s workforce needs. Cities of this type do face a lower median income level than the Type 5 cities summarized below and thus must be responsive to their constituency needs. These cities might be more motivated, given these needs and potential corollary political pressure, to create opportunities for those constituents at the lower end of the skills spectrum. Workforce development in

non-professional occupations is needed. Such an approach often brings new institutional partners into the discussion through the development of training curriculum, often at the community college level, and the need for local workforce investment boards to come to the table in the provision of job placement services and the coordination of resources. In order to best utilize resources, multiple cities have directly engaged in the development of “green jobs corps,” in order to provide niche training opportunities in the green economy. Such approaches often utilize partnerships with nonprofit groups. Many cities, moreover, have actively pursued training-related stimulus funding in the creation of these and like efforts.

There are also some particularly innovative programs relative to the clean technology vision of the green economy prevalently included in this city type. San Antonio, for example, has developed a plan around the green economy that includes a focus on clean technology. The City of Louisville is engaging in the green jobs discussion through a particularly robust set of financing incentives. Their website notes that: “The world is changing, and so are the products that the Economic Development Department offers. Small businesses can now take advantage of four incentive programs aimed at increasing energy efficiency and creating “green” jobs.” A \$2 million revolving loan fund called POWER LOAD (Providing Opportunities With Emissions Reductions) provides retrofitting for off-road diesel equipment. The Go Green Revolving Loan Fund is a revolving loan fund aimed at companies creating novel green products or jobs. The Non-Profit Energy Improvements Program provides \$1.3 million in grants for non-profit organizations seeking to implement energy savings in their facilities. Taken together, such programs may bolster opportunities for a niche market of companies—potentially leading to the bolstering of opportunities broadly constructed around green products and services.

Overall, it appears that these cities may provide ample testing ground for policy and planning measures aimed at the green economy. These cities do have a commitment to sustainability, as reflected in the number of environmental organizations and sustainability measures, despite their smaller size and smaller relative income levels. Such a commitment appears to provide strong motivation for results. Broadly, such cities demonstrate the potential to formulate policy and planning goals around the green economy at a smaller scale and with the employment of relatively fewer resources in general. They also

may provide space for stronger integration of equity considerations into the green jobs creation process through a heavy concentration on training and workforce development more broadly. Unlike type 3 cities, as discussed directly below, they may not cater more directly to higher-road, technologically advanced economic niches. Opportunities oriented around green collared jobs may be an effective approach towards green jobs development within these types of metropolises.

Type 3--Green Boutiques: Green Boutiques include: Sacramento; San Jose; Columbus; Austin; Charlotte; Nashville; Minneapolis; Raleigh; Indianapolis; Jacksonville; Milwaukee. Green Boutique cities were selected to be located in relatively lower populated metropolitan areas with an average population of 1,563,343. These cities have an average median income of \$49,277.09. Green Boutiques exhibit a strong institutional structure around environmental preservation and sustainability. Like type 1 cities, these cities exhibit significant sustainability programming according to Portney's (2011) measurement index. These cities average 28.17 sustainability programs.

Green job programs for Green Boutique cities are relatively prevalent, albeit inconsistent. The smaller size may account for an inability to foster comprehensive green jobs or green economy programs at any large magnitude. Such strategies are multifaceted and specifically focused on green jobs as an organizing principal, rather than just as a secondary outcome of some other policy or planning strategy.

Within this type of city, Minneapolis stands out as having a particularly comprehensive approach towards green jobs. The city has a relatively developed discourse around the green economy. In 2008, the city council passed a motion outlining a framework for exploring the green economy. Subsequently, the city has specifically developed an indicator for the green economy as a part of their sustainability plan. The city also provides an array of public resources, and specifically reaches out to businesses around energy efficiency. Through their "clean energy resource teams" website, they provide a particularly comprehensive array of information to businesses (see: <http://www.cleanenergyresourceteams.org/community-projects>). Their approach is also incorporative of workforce training and the integration of a green manufacturing initiative.

Overall, many of these cities tend to focus on clean tech initiatives. San Jose and Austin both provide particularly well developed examples of such approaches oriented around innovative, high technology employment opportunities. The focus on “clean-tech” makes sense given the higher income, higher skilled populations germane to these places; such cities may in fact boast a competitive advantage in these strategies as they may be best positioned to economically benefit from economic opportunities around environmental preservation and remediation. They are most likely to have “clean tech” industry to begin with, and to see economic benefits and opportunities from the bolstering of the green economy.

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Type 4-- Lagging Leviathans: Lagging Leviathan include: St. Louis; Santa Ana; Tampa; Mesa; Cleveland; Los Angeles; Long Beach; Pittsburgh; Fort Worth; Houston; and Detroit. Lagging Leviathans are located in relatively highly populated metropolitan areas with an average population of 4,791,298. They exhibit a median income of \$42,075.56. Broadly, these cities are characterized by a weakly developed institutional structure around environmental preservation. Kent Portney’s (2011) measurement index indicates modest sustainability programming for Lagging Leviathans. The average number of

sustainability programs within this urban type is 21.22. As indicated by previous sustainability studies, a lack of commitment to environmental issues may be correlated with lower income. The large population may fuel difficulties including jurisdictional challenges in organizing sustainability programming.

Type 4 cities tend to have a limited focus on green jobs as an organizing principal of public policy. Diversity and inconsistencies exist in green economy efforts for these cities. Many of the cities indicate no mention of the term “green jobs” on their city website—preliminarily indicating that these terms have not pervaded the municipal discourse. St. Louis was the exception and has developed a green jobs plan—indicating an unusual commitment to the concept.

Of the efforts that do exist, many of the government actions are aimed at developing the workforce, and tend to be focused more heavily on opportunities in “green collared” jobs (traditionally referred to as “blue collared jobs” that have an environmentally preservative component). This may be associated with the need to serve lower income populations within these metropolitan areas. Additionally, some references to green jobs are couched within project specific focuses. For example, Mesa has developed a solar energy park in order to develop opportunities around the green economy. Long Beach, moreover, has pursued green economy opportunities in connection with goods movement activities; they seek to capitalize specifically around opportunities related to the port complex in their jurisdiction and the neighboring Port of Los Angeles complex.

Type 5--Green Giants: Green Giants include: Boston; Seattle; Denver; Portland; Washington D.C.; New York; San Francisco; Oakland; Philadelphia; San Diego; Baltimore; Chicago; Las Vegas; Dallas; and Kansas City. Green Giants were selected to be located in relatively highly populated metropolitan areas with an average population of 3,578,734. Incorporated cities have an average median income of \$53,740.538. As measured by Kent Portney’s (2011) measurement index, these cities have impressive amounts of sustainability programming. The average number of sustainability programs within this urban type is 29.89. Type 5 cities tend to have comparatively large resources and relatively high levels of income, and thus can accommodate a range of green economy programs.

For many of these cities, “green jobs” is comparatively heavily mentioned within the city’s municipal website. However, not all cities choose to directly incorporate green jobs as a municipal focus. Likewise, there is relatively high diversity in terms of the types of green jobs initiatives that are pursued.

Among those that do have a green jobs focus, cities have a particularly wide breadth of green jobs programs. This may be attributable to their relatively higher levels of resources available to the city due to size. They may have a relatively robust array of industries and wealth to harness opportunities. They may also have the aggregate size needed in order to build city departments to particularly perform certain functions such as economic and workforce development. Such cities also have the infrastructure to devote websites to green jobs and to devote staff to such efforts.

Several cities have a focus on green jobs as a high-road economic development strategy particular to the green economy. For example, Chicago has a relatively robust commitment to green jobs. The city operates a clean technology job center. Moreover, the city has also engaged in a relatively diverse array of programming including jobs related to urban agriculture. Denver, likewise, is particularly focused on clean technology under the auspices of their economic development program. New York operates a green technology and manufacturing initiative as a part of their waterfront initiative and also has developed a program around solar empowerment zones. Such approaches are largely couched as a part of wider, innovative economic development initiatives.

In addition to clean tech strategies, many of these cities are also developing workforce development strategies. These workforce development initiatives may reflect the diversity of incomes germane to these large metropolitan areas. Chicago, for example, has workforce development programs specifically aimed at formerly incarcerated individuals. Such workforce development approaches may aim to provide targeted opportunities for constituents, and may seek to foster equity values into the integration of green jobs strategies.

Taken together, such cities tend to offer concerted approaches to green jobs strategies in disproportionately large measure. Large, relatively wealthier cities, with histories of preexisting sustainability policies and commitments, may provide fertile testing ground for policy and planning

mechanisms oriented around green jobs provision. Specifically, they may have the interest and resources to become a testing ground for particularly innovative and niche policies and programs around green jobs. Thus, it appears that there is strong effort around green jobs, perhaps somewhat attributable to a prevalence of resources within these cities. Therefore, cities that are characterized as falling under this urban type are likely areas of opportunity in the green economy based upon this assessment of institutional characteristics.

Figure 2: Characteristics by Urban Type

Urban Type	Average Population	Median Income	Average # of Sustainability Programs	# of Green Jobs References
1	933,368	39,484.29	17.43	1.3
2	1,225,057	37,788.83	27.33	43.4
3	1,563,342	49,277.09	28.18	39.2
4	4,791,298	42,075.56	21.22	6.6
5	3,578,733	53,749.38	29.89	247.8
Overall Average	2,409,438	46,544.53	25.33	101.24

Figure 3 Green Economy References and Resources Categorized by “Urban Type”

UNSUSTAINBLE UNDERDOGS	
These cities are located in relatively smaller populated metropolitan areas. They have a relatively low median income. They tend to have smaller amounts of sustainability programming, including those specific to the green economy. They also tend to have relatively small number of environmental nonprofits.	
Wichita	None
Oklahoma City	None
Tulsa	None
Omaha (9)	Mayor’s Office: Part of Economic Development Plan: http://www.ci.omaha.ne.us/mayor/component/wordpress/issues Manufacturing Initiative (ARRA funded): http://www.co.douglas.ne.us/omaha/mayor/images/stories/CDC%20Enterprises%20Announcement.pdf
Memphis	None
Virginia Beach	None
El Paso	None
STRUGGLING STARTUPS	
These cities are located in relatively smaller populated metropolitan areas. They have a relatively low median income. They tend to have higher amounts of sustainability programming, including those specific to the green economy. They also tend to have a relatively high number of environmental nonprofits	
Albuquerque	None
Tucson (12)	Green economy website: http://www.tucsonaz.gov/ocsd/jobs/
San Antonio (94)	Considerable and Direct Focus of Office of Environmental Policy Green Jobs Program: http://www.sanantonio.gov/oep/SustainabilityPlan/Appendices/Initiative%203/Attachment%201%20-%20SA%20Green%20Jobs%20Program%20Report%20.pdf Green Technology Development: http://www.sanantonio.gov/oep/SustainabilityPlan.asp?res=1280&ver=true http://www.sanantonio.gov/oep/SustainabilityPlan/Summaries/Clean%20and%20Green.pdf

Louisville (26)	Green Jobs Incentives: http://www.louisvilleky.gov/economicdevelopment/businessdevelopment/GreenIncentives.htm Related to ARRA: http://www.louisvilleky.gov/NR/rdonlyres/BA96DA70-729A-45AF-ADF5-DD8F10982B9F/0/AnnualReport22410.pdf
Fresno (80)	http://www.fresno.gov/NR/rdonlyres/DB41F259-98AF-4D40-9E15-064BCAE2E189/9864/10June2008EOGreenTechnology.pdf Training grants: http://www.fresno.gov/NR/rdonlyres/7B941935-B179-47A3-A634-9FD86A23D0B9/0/Reso201112techcorr.pdf Workforce investment, city council agendas: http://www.fresno.gov/NR/rdonlyres/A9873F5E-B3A0-4A81-A8B3-26C47F3E0517/0/IUNE2509.pdf
Miami (N/A)	Green jobs Corps: https://docs.google.com/a/usc.edu/viewer?a=v&q=cache:-9z8BNWwwcEJ:daystar2.cabq.gov:81/Attachments/7322.doc+%22green+economy%22+site:cabq.gov&hl=en&gl=us&pid=bl&srcid=ADGEEsSsNurlpnBxSzuGClkYoO9vlie-TFC_K66e-815xIUgMhU68WlhcKcTVetnF_30gnwbkI9gf3ZV7nBjvlltTR0IAw3dc9PrIztiKosVx-iAl-KW2txqll0LscCvffZ4wMC6H&sig=AHIEtBR_81bP0wdYM_iSI2R0VO61oHjIzw
GREEN BOUTIQUES These cities are located in relatively smaller populated metropolitan areas. They have a relatively high median income. They tend to have higher amounts of sustainability programming, including those specific to the green economy. They also tend to have a relatively high number of environmental nonprofits	
Sacramento (2)	Briefly mentioned in climate action plan: http://www.sacgp.org/documents/Phase-1-CAP_2-11-10.pdf
San Jose (208)	Comprehensive "green vision," including a focus on clean tech: http://www.sanjoseca.gov/Mayor/goals/environment/GVgoals.asp Cleantech Strategy: http://www.sanjoseca.gov/mayor/goals/environment/PDF/2011CleanTechAgenda.pdf
Columbus	None
Austin (77)	Strong focus on cleantech: http://www.ci.austin.tx.us/sustainability/homegrown.htm
Charlotte (5)	Some resources for businesses on practices, no official programs: http://charmeck.org/city/charlotte/FocusAreas/Environment/Pages/BusinessResources.aspx
Nashville (23)	Green jobs council: http://www.nashville.gov/mc/resolutions/term_2007_2011/rs2009_866.htm
Minneapolis (72)	Green Jobs Site: http://www.minneapolismn.gov/sustainability/green-jobs.asp Green Manufacturing Initiative: http://www.minneapolismn.gov/news/20080422GreenEconomy.asp http://www.minneapolismn.gov/mayor/news/20100622newsmayor_mayorslaunchthincgreen.asp Worker Training (RENEW): http://www.minneapolismn.gov/news/20110727RENEWProgram.asp
Raleigh (9)	Major focus of economic development and Office of Sustainability: http://www.raleighnc.gov/business/content/PlanEconDev/Articles/RaleighEconomicDevelopmentPartnership.html Green building training: http://www.raleighnc.gov/home/content/PubAffairs/Articles/GreenBuildingTraining.html
Indianapolis	None
Jacksonville	None
Milwaukee (35)	Office of sustainability: several plans relating to green jobs: http://city.milwaukee.gov/sustainability
ENVIRONMENTAL ENTREPRENEURS These cities are located in relatively large populated metropolitan areas. They have a relatively low median income. They tend to have lower amounts of sustainability programming, including those specific to the green economy. They also tend to have a relatively low number of environmental nonprofits.	
Mesa (0)	Economic Development/Solar Park: http://www.mesaaz.gov/economic/pdf/ArchivedNewsItrs/EconomicReporterJuly2009.pdf
Cleveland (5)	Green jobs as part of sustainability plan: www.city.cleveland.oh.us/cldn_images/PDF/Mayor/Briefinf_Paper.pdf
Los Angeles	None
Long Beach (35)	Green Jobs Center: http://www.longbeach.gov/cd/workforce/greenjobs/
Pittsburgh (2)	GHG inventory: http://www.ci.pittsburg.ca.us/Modules/ShowDocument.aspx?documentid=3168
Santa Ana	None
St Louis (17)	Green Jobs Report: http://stlouis-mo.gov/government/departments/slate/documents/st-louis-green-jobs-report.cfm
Tampa	None
Fort Worth	None
Detroit	N/A
Houston (7)	Sustainability plans and mayor's office mention: http://www.greenhoustontx.gov/index.html
GREEN GIANTS These cities are located in relatively large populated metropolitan areas. They have a relatively high median income. They tend to have higher amounts of sustainability programming, including those specific to the green economy. They also tend to have a relatively high number of	

environmental nonprofits.	
Boston (180)	Green Jobs Programs: http://www.cityofboston.gov/environmentalandenergy/greenjobs/ See case study.
Seattle (550)	Economic Development Website, green jobs from clean energy: http://www.seattle.gov/economicdevelopment/climatePrograms.htm Community Power Works: Home Retrofits Program: http://www.communitypowerworks.org/energy-efficiency-jobs/ Job Training and Workforce Development: http://www.seattle.gov/environment/documents/Green_Jobs_Overview.pdf "Green Jobs Strategy": http://clerk.seattle.gov/~public/meetingrecords/2010/regional20100720_3a.pdf "green" commercial building project; creative use of financial incentives: http://mayormcginn.seattle.gov/city-invests-in-innovative-bullitt-center/ Federal Funding, green jobs through retrofits and weatherization: http://www.seattle.gov/mayor/newsdetail.asp?ID=10679&dept=48
Denver (77)	Greener Denver: Including clean tech, and energy jobs http://www.denvergov.org/oed/DenverOfficeofEconomicDevelopment/Newsroom/tabid/435773/newsid488087/3726/Mayor-Hickenlooper-Launches-Greener-Denver-Climate-Prosperity-Program/Default.aspx Greenprint Denver: http://www.greenprintdenver.org/ Green and Healthy Homes Initiative: http://www.denvergov.org/DenverOfficeofStrategicPartnerships/Partnerships/NeighborhoodEnergyActionPartnership/tabid/436573/Default.aspx ARRA: economic development plan: http://www.denvergov.org/DenverOfficeofEconomicDevelopment/Newsroom/Announcements/tabid/435866/newsid488106/4494/New-Study-Analyzes-Return-On-Investment-of-City-Workforce-Development-Stimulus-Funding/Default.aspx
Portland (933)	Green Collared Jobs Initiative: http://www.portlandonline.com/mayor/index.cfm?c=51350&a=276841 Green Building Jobs: http://www.portlandonline.com/bps/index.cfm?a=220986&c=44851
Washington (1290)	Green Collared Jobs Initiative: http://green.dc.gov/green/cwp/view,a.1231.q.461044.asp
New York (497)	Green Economy Plan: http://www.nyc.gov/html/om/pdf/2009/pr465-09_plan.pdf Workforce Development Training: http://www.nyc.gov/html/sbs/wib/downloads/pdf/wib_initiatives.pdf http://www.nyc.gov/html/sbs/wib/downloads/pdf/green_workforce_framework.pdf Million Trees (jobs in urban forestry): http://www.nyc.gov/html/ceo/html/opportunities/milliontrees.shtml Green Jobs Brownfields: http://www.nyc.gov/html/oer/html/community/partnership.shtml Waterfront Redevelopment: http://www.nyc.gov:80/portal/site/nycgov/menuitem.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=http%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2009b%2Fpr335-09.html&cc=unused1978&rc=1194&ndi=1 Solar Empowerment Zones: http://home.nyc.gov:80/portal/site/nycgov/menuitem.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=http%3A%2F%2Fhome.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2010a%2Fpr262-10.html&cc=unused1978&rc=1194&ndi=1
San Francisco (92)	Green jobs site: http://www.sfenvironment.org/education-equity/green-jobs
Oakland (253)	Greenjobs site: http://www2.oaklandnet.com/Government/o/CityAdministration/d/EconomicDevelopment/s/WFD/DOWD008135
Philadelphia (101)	Green jobs site: http://www.phila.gov/green/greenworks/economy_GreenJobs.html
San Diego (85)	Workforce Investment/ARRA http://www.sandiego.gov/environmental-services/sustainable/pdf/greenforecast.pdf Cleantech Strategy (Mayor's Office): https://docs.google.com/a/usc.edu/viewer?a=v&q=cache:AuzFFbyRyN0I:www.sandiego.gov/environmental-services/sustainable/pdf/cleantech.pdf+%22green+economy%22+site:sandiego.gov&hl=en&gl=us&pid=bl&srcid=ADGEEShhKYaSXv6Ay8lIEYi-0ZirVQqIuRZnNUVMHairLenL3UDChv1XLHM0I3qdKh1xp9Jd6kdNOoxWOpMryqU40gLDGbtPzg0OY3C4N6174IFnn7gi34o881JCGU30-sC5jlgNYcx&sig=AHIEtbQd8p_4rdPGIIA-BRYdgD0JsKdYGA
Baltimore (19)	Workforce Training and Youthcorps: http://www.oedworks.com/resources/Two%20Plan%20Mod%20PY%202009.pdf Weatherization and Training: http://www.baltimorehousing.org/wgo_detail.aspx?id=345

Chicago (42)	Green Jobs Training: Greencorps Chicago: http://www.cityofchicago.org/city/en/depts/dae/provdrs/nat_res/svcs/greencorps_chicago.html Green Jobs for All training program: http://www.cityofchicago.org/content/dam/city/progs/recovery_and_reinvestment/NewsPDFs/1122Housing.pdf Retraining formally incarcerated (ARRA funded): http://www.cityofchicago.org/city/en/depts/mayor/press_room/press_releases/2010/march_20_10/0311_ex_offenders.html Mayoral Plan around agriculture: http://www.cityofchicago.org/city/en/depts/mayor/press_room/press_releases/2011/july_2011/mayor_emanuel_announcesplantocreatejobsspureconomicdevelopmentan.html Chicago Center Green Technology: http://www.cityofchicago.org/city/en/depts/dae/provdrs/ccgt.html
Atlanta (42)	Sustainability Plan: http://www.atlantaga.gov/media/nr_suswk_102510.aspx
Las Vegas (3)	Green Jobs Initiative from ARRA: http://www.lasvegasnevada.gov/information/19033.htm
Dallas	None
Kansas City (8)	Mayor's initiative: http://www.kcmo.org/CKCMO/CityOfficials/MayorsOffice/MayorsInitiatives/index.htm

IV. Discussion and Conclusion:

How can the green economy or green jobs movement be understood in the context of local, pro-environmental efforts? The forgoing research served as an initial effort to link the sustainable cities movement, and the empirical examination of sustainable cities, to the discourse germane to the green economy movement. As an incipient component of the environmental discourse, it is important for scholars to begin to understand how the green economy fits within the broader pursuit of sustainability within cities. It is important to understand how interest in the green economy is being expressed at the municipal level as an initial avenue of analysis into the emerging movement. For practitioners, this research additionally identifies general trends in green jobs at the city level, by municipal type. The content analysis provides a more exhaustive list of the types of city programs that are being completed around green jobs.

This approach allows researchers to identify the places that are already emphasizing green jobs as a part of the local environmental discussion, or as a mechanism through which to frame local, environmental action. The underlying assumption is that such efforts will, at some point in time, lead to positive environmental impacts. The interest, particularly from practice, often lies in how to craft opportunities leading to such positive impacts. Presenting a critical limitation, this research does not provide guidance around how to develop interest and how to foster efforts around green jobs. Thus, it

does not provide guidance in terms of developing a collective action framing around the green economy. Given the sustainability goals motivating such discussion and action around green jobs, future research should seek to go beyond the accounting of current efforts and the identification of current opportunities. Future research should seek to guide policymakers' efforts to create or invigorate green employment.

Future research should seek to guide future opportunities. Towards that end, scholars and practitioners can continue to consider how the green economy currently is (and potentially can be) linked to other environmental efforts and values in order to achieve desired results. Future research should seek to more fully understand the nexus between the green economy movement and institutional framework, and other institutional framings of the discordance between environmental values and values focused on economic growth. In particular, linking the discussion to climate change may offer an interesting and fruitful line of inquiry for scholars (see Hoffman, 2011). Climate change is now being examined from the social science perspective, as scholars seek to understand how environmental values and goals are being integrated into policy and planning mechanisms. As the green economy may link together economic and environmental ends, connections can be made with literature around the framing of the climate change debate. Green jobs may provide local benefits in environmental remediation and link local benefits to climate change mitigation and adaptation efforts. Understanding how green jobs can be used to link pro-environmental municipal policies and plans may aid in linking local environmental and economic benefits to climate change efforts.

Towards that end, and in particular, a key question for theory is whether or not the green economy can provide a "collective action frame" for local environmental governance. Specifically, as noted by Benford and Snow (2000), "collective action frames are constructed in part as a movement's adherents negotiate a shared understanding of some problematic condition or situation they define as in need of change, make attributions regarding who or what is to blame, articulate an alternative set of arrangements, and urge others to act in concert to affect change" (pg. 615). Collective action frames often necessitate government action. Specifically, social movements are oriented around remedies for problematic situations through an identification of the sources of blame or culpability. Identifying the

source of the problem, or diagnosing the problem through an assignment of blame, is often a source of controversy for different social movement organizations. Factions can sometimes develop. This process, focusing on blame and responsibility, is referred to by Benford and Snow (2000) as “diagnostic framing”

In many ways, the green economy may enable stakeholders to move into a prognostic framing, from a diagnostic framework. Here, specifically, environmental and economic values are intertwined within a broad sustainability framework through the green economy as a goal and framework around local sustainability. As noted by Benford and Snow (2000), “Prognostic framing, the second core framing task, involves the articulation of a proposed solution to the problem or at least a plan of attack, and the strategies for carrying out the plan” (pg. 615). Thus, green jobs as an institutional framing around environmental action may provide an opportunity for local action linked to sustainability. Future research should seek to further refine this understanding.

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ⁱ Inclusion of search terms provides a very loose indicator of emerging interest in the green economy. Its inclusion is meant to be illustrative, rather than a conclusive measure of interest or intent in regards to rising interest in the green economy. It is primarily meant for discussion purposes.

ⁱⁱⁱ This analysis is fundamentally limited by the factors chosen to create the typology. Many different factors may be linked, or correlated with green jobs. This analysis in no way asserts that these factors are the only significant variables. Future research could build on this limitation by identifying and examining additional factors. In the future, more detailed analysis incorporating these different factors may shed additional light on this.

ⁱⁱⁱ Median income provides a limited measure of economic wealth. The indicated relationship between economic wealth and interest in the green economy, and the inclusion of economic wealth as a dimension of the typology, is limited by this measurement issue. Future research should look towards less static and more complex measures of economic wealth.

^{iv} Kent Portney's (2011) index provides a ranking of "sustainability" in cities. Cities are ranked by a variety of criterion including: "smart growth activities," "land-use planning, policies, and zoning," "transportation planning, programs and policies," "pollution prevention, reduction, and remediation," "energy and resource conservation/efficiency," "sustainable inductors project organization/administration/management/coordination/governance." Although facing a variety of limitations, this index provides one method for measuring the governance dimensions of sustainability at the local scale. Measuring sustainability, and particularly a focus around sustainability as a matter of environmental governance, is difficult. This analysis is limited by the ability to measure such a commitment to sustainability. Such a measurement of commitment to sustainability is comparable across the included cities.

^v First, cities were organized based upon critical background categoristics of the corollary metropolitan statistical areas in which they sit; such factors were somewhat identified and defined in the section above. Rather than calculating such factors at the city level, utilizing the metropolitan statistical scale enables a richer and more comprehensive understanding of such factors that do not begin and end at city jurisdictional boundaries. I am ultimately attempting to understand economic linkages, and such a scale incorporates economically linked areas. Population numbers by city alone may not appropriately gauge the mass of individuals and thus potential employees. Aggregate resources in the region, moreover, extend beyond city action and may thus not be defined by differences in median income that start and stop at city jurisdictional borders. Future research can more fully delve into differences at different geographical and jurisdictional scale (i.e. the region, the city, the neighborhood level), and unpack how such differences dictate interest and opportunities in the green economy.

^{vi} The current typology was constructed in this order. However, the order through which variables are entered may have an impact on the way in which municipalities are sorted. Thus, there will be instances where certain cities in the "low" categories, may have higher numbers than in the "high categories" due to the methodology employed. This may occur in several cases, and across several categories. Future research could utilize different ordering in order to construct different versions of this analysis and to place cities differently. Thus, the typology is not meant to be conclusive. It is, instead, meant to provide a useable methodology through which some differences can be understood.

^{vii} Cities that did not fit into the sample include: Phoenix, Colorado, Honolulu, and Arlington. This brings the sample size down to 49 cities from the initial sample of the 55 most populous metropolitan areas.

^{viii} This analysis is meant to be exploratory and does not comprehensively assess activity around the green economy. It provides an initial assessment of activity and thus should be treated and understood as an initial attempt to understand the emergence of such activity.