Education and Smart Growth Policies in U.S. Cities: A Response to Lenahan O'Connell*

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Objective. This response to Lenahan O'Connell's article "Exploring the Social Roots of Smart Growth Policy Adoption by Cities" examines whether the relationship between education and the adoption of smart growth programs in U.S. cities is reflective of the new political culture and rooted in postmaterial values or, perhaps, just reflective of a slightly different way of thinking about traditional economic development. *Methods.* Using data for 45 U.S. cities that have articulated broad policies to try to become more sustainable, this analysis includes a measure of the severity of air pollution as an indicator of the need for smart growth programs. *Results.* The measure of need is more strongly related to the pursuit of smart growth than is either education or income. *Conclusions.* Since the level of air pollution is frequently understood to make economic growth difficult or impossible, the results suggest that smart growth programs might be just as likely motivated by traditional economic development as by postmaterial values, and there is a need to develop a deeper understanding of the motivates for adopting such programs.

Lenahan O'Connell has launched into a very important line of inquiry that essentially tries to relate the presence of postmaterial public values (the new political culture) to the types of pro-environment, pro-sustainability smart growth programs pursued by cities in the United States. His argument is quite simple—that the people who are most likely to possess such postmaterial public values are better-educated people, and that these better-educated people are more likely to be civically and politically engaged. Hence, local leaders are more responsive to their demands, and as a result they decide to pursue policies and programs consistent with those values. Since smart growth policies and programs—those that seek to regulate and manage growth particularly through regulating land use—are consistent with those values, cities with better- (college-) educated populations are more likely to pursue smart growth. O'Connell's empirical analysis shows that the residents of cities with larger numbers of smart growth policies and programs tend to be, on average, better educated. Even though they also

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SOCIAL SCIENCE QUARTERLY, Volume 89, Number 5, December 2008

tend to have higher incomes, the relationship is stronger for education than for income. He takes this as evidence in favor of the thesis that it is post-material values rather than pure economic interest or other motivations that drive support for smart growth.

There is no doubt that understanding this link between public values and policy outputs (adoptions), perhaps with institutions of governance and civil society as intermediate influences, is of great importance today. O'Connell's analysis certainly represents a step in the right direction, but it may be only a very small step. I say this because, despite the use of a fairly promising set of data, his underlying model seems wholly underspecified (and perhaps misspecified) for the conceptual project at hand. What I mean by this is that O'Connell's primary mission is to try to sort out the independent role of education (especially college education) from the role of income in influencing smart growth policies, a task not entirely different from those wishing to investigate the urban environmental Kuznets curve (Kahn, 2006). Given the conceptual and empirical difficulties of sorting out these influences, it is not at all clear that his analysis succeeds.

Difficulties in operationalizing many of the variables aside, O'Connell's analysis tends to overlook the central point of smart growth, that is, the primary reason why it is advocated, and this has to do with the expectation that the pursuit of smart growth represents a rational and effective way for cities to grow economically without sacrificing the biophysical environment, especially without generating such severe amounts of air emissions that people no longer wish to live in the city. The reason I raise the importance of understanding smart growth policies in the environmental protection context is that it raises the distinct possibility that O'Connell's analysis is at least a partial artifact not so much of fundamental changes in values toward the postmaterial as it is a reflection of recognition of serious environmental problems. It is one thing if residents of a city support smart growth because they are concerned about climate change and global warming; it is quite another if they support smart growth because they have an immediate need to redress a local environmental problem. Even if it is educated people who are more likely to understand that smart growth offers the opportunity to redress, say, local air pollution problems, doing so does not necessarily carry with it the same public values implications as suggested by O'Connell.

It is certainly true that in prior times, those concerned about economic growth would never accept the idea that local policies should do anything other than ignore the local biophysical environment. Yet the experience of many cities, including some whose policymakers are just as concerned with economic growth as ever before, suggests that ignoring the local environment undermines the local economy. Cities such as Chattanooga and Pittsburgh discovered by the late 1980s that their air pollution was hindering economic growth rather than enabling it. As changes in the economies of cities brought on by globalization robbed cities of much of their manu-

facturing employment base, they also diminished a good bit of the locally generated air emissions. As city leaders contemplated how to rebuild their local economies, one point of agreement seemed to emerge. They did not want to return to the days of accepting high levels of pollution as the price for economic growth (Portney, 2003). My point is that this set of experiences seems quite different from those depicted in the postmaterial values explanation for pursuit of smart growth.

Although I do not have access to the data O'Connell used, I investigated a model similar to his using my data for 45 U.S. cities that have articulated broad sustainability policies as of January 1, 2007 (Portney, 2008). I do not have exactly the same variables used by O'Connell, but most are pretty comparable. I develop this model to raise the distinct possibility that the O'Connell results tell only part of the story. Here, I use a dependent variable that represents the number of smart growth policies pursued by the 45 cities, standardized using the same method as O'Connell. This dependent variable is limited to including seven possible programs: the use of cluster economic development; the creation of at least one ecovillage or urban infill housing project; presence of a brownfield redevelopment program; use of zoning to prevent development in environmentally sensitive areas; the presence of a comprehensive smart growth management plan; the use of tax incentives to promote smart growth; the development of an ecoindustrial park; and the operation of local public transit. The average number of programs pursued by these 45 cities is 4.5, with a standard deviation of 1.4. Seattle is the only city that pursues all seven programs, and Cincinnati is the only city that pursues none of them.

I include independent variables of median family income in 1989, total population size in 1989, population change between 1979 and 1989, the average annual unemployment rate between 1994 and 1999, the percent of the population that was African American in 1989, and dichotomous variables measuring whether the city is in a state that has statewide planning requirements, and whether the city is in the South. I present three sets of regression results. The first model includes the percent of the adult population with at least a high school diploma. In the second model, I simply substitute for this education measure a variable measuring the level of air pollution (the average daily air pollution standards index in 1994). The third model includes a term measuring the interaction effects between education and air pollution (to capture the effects of having an educated population and high air pollution simultaneously). In Model 1, neither income nor education is significantly correlated with smart growth. We can also see that the level of air pollution is more closely related to the pursuit of smart growth than is either income or education. Indeed, in Model 2, the air pollution standards index is the only variable whose coefficient is statistically significant. In the third model, which replaces the education and air pollution measures with a term that represents the interaction between them,

TABLE 1

OLS Regression Showing Effects on the Standardized Number of Smart Growth Policies and Programs in 45 U.S. Cities with Sustainability Programs

	Model 1			Model 2			Model 3		
Independent Variable	B	Beta	Sig.	B	Beta	Sig.	B	Beta	Sig.
State planning requirement	0.079	0.044	0.81	0.168	0.093	0.60	0.153	0.085	0.62
Median family income, 1989	−0.000003	−0.335	0.20	−0.000004	−0.326	0.19	−0.000004	−0.351	0.08
Percent African-American population, 1989	−0.014	−0.281	0.38	−0.012	−0.226	0.46	−0.010	−0.193	0.42
Total population size, 1989	0.00000002	0.282	0.19	0.00000002	0.284	0.16	0.00000002	0.306	0.11
Population change, 1979–1989	−0.002	−0.029	0.90	−0.005	−0.077	0.73	−0.004	−0.070	0.75
Average unemployment rate, 1994–1999	−0.048	−0.067	0.74	−0.196	−0.270	0.21	−0.185	−0.256	0.20
City in the South	0.122	0.045	0.82	0.244	0.089	0.63	0.220	0.080	0.65
Percent with at least a high school diploma, 1989	**0.005**	**0.050**	**0.89**	**0.012**	**0.116**	**0.74**	—	—	—
Average Air Standards Index, 1994	—	—	—	**0.029**	**0.429**	**0.03**	—	—	—
Air Pollution Standards Index/percent with high school diploma interaction	—	—	—	—	—	—	**0.029**	**0.448**	**0.02**
Constant	1.283	—	0.67	−0.144	—	0.96	0.856	—	0.46
Adjusted R^2		0.133			0.260			0.271	

we see that the interaction term exhibits an even stronger relationship than the pollution index did in the first model.

What this suggests, of course, is that when cities have a significant pollution problem combined with a relatively well-educated adult population they are more likely to pursue smart growth policies and programs. I do not present these results to suggest that they are definitive—indeed, the 45 cities included in my analysis are decidedly not a random sample of the cities analyzed by O'Connell. I do so to demonstrate the distinct possibility that the relationship between education and pursuit of smart growth may be motivated just as much by immediate need as by postmaterial values. Of course, this aggregate analysis has real difficulty sorting out the meaning of these relationships. Could it be that the strength of this interaction term is simply a reflection of the increased recognition of the importance of dealing with environmental (in this case, air emissions) problems for the purpose of maintaining or improving the quality of life? Of course, this is a possibility. The apparent fact that cities with better-educated populations and with less of an air pollution problem do not seem as interested in pursuing smart growth, however, suggests otherwise.

O'Connell's analysis also raises the issue of whether and how the local political process might be different in cities pursuing smart growth policies, and this issue is addressed largely by the inclusion of a single independent variable measuring whether each city has at least one "smart growth activist group," one "other environmental activist group," or neither type of group. The finding that this variable is a "significant positive predictor" of the number of smart growth programs perhaps illustrates the importance of the civil society in urban governance today, a fact not lost on other analysts of local sustainability (Moore, 2007; Portney and Cuttler, 2007). Without knowing in great detail how this variable was operationalized it is difficult to know whether such groups in fact reflect a new political culture, or merely a new use of existing political culture. There is some evidence that it may well be the latter, with the caveat that local nonprofit organizations that engage in cooperative rather than advocacy behavior with city officials seem better able to achieve their programmatic goals (Berry et al., 2006; Portney and Cuttler, 2007).

A more clearly specified model might posit that, controlling for the need for smart growth, including measures of preexisting environmental quality and sprawl, income growth leads to the development of postmaterial values (measured in this instance by the percent of the population that is college educated), and the development of postmaterial values affects the character of the local governance regime, including the propensity for local pro-smart-growth nonprofit organizations to form. The presence of local pro-smart-growth organizations then influences the enactment of smart growth policies and programs. As we move forward with increasingly refined empirical analyses, it will be possible to begin to better specify the models with which we work.

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