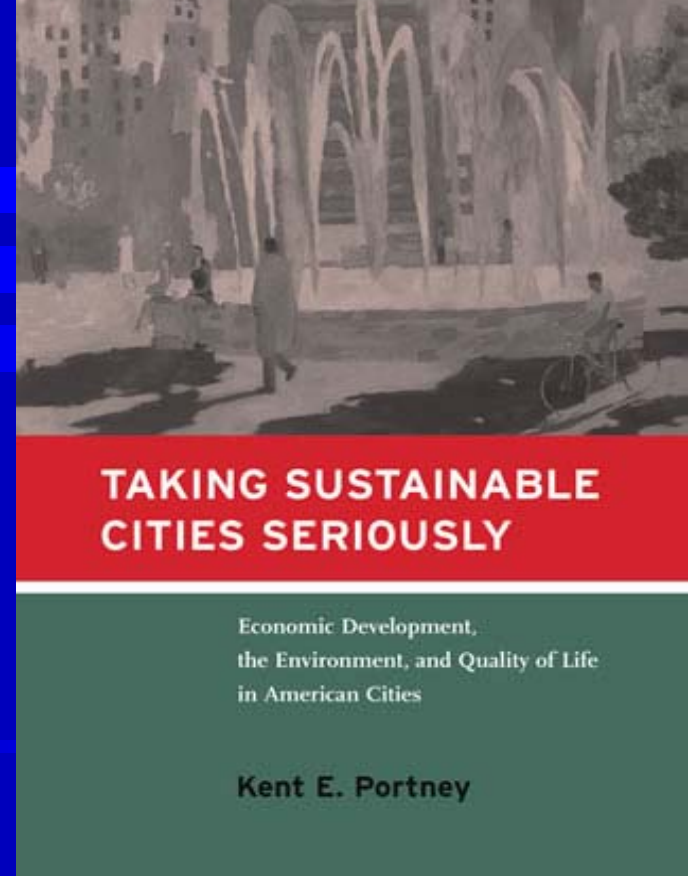


# Taking Sustainable Cities Seriously:

*An Update and  
Research Agenda  
for the Future*



*Kent E. Portney, Tufts University*

Prepared for Presentation to the  
“Sustainable Development for the 21<sup>st</sup> Century”  
Lecture Series, UCLA, June 2, 2005



# **The Cities and Programs Studied**

**Chattanooga, TN  
Jacksonville, FL  
Orlando, FL  
Tampa, FL**

**Sustainable Chattanooga  
Jacksonville Indicators Project, Jacksonville Community Council  
Sustainable Communities  
The Tampa/Hillsborough County Sustainable Communities  
Demonstration Project**

**Seattle, WA  
Olympia, WA  
Portland, OR  
Milwaukee, WI  
Santa Monica, CA  
San Francisco, CA  
San Jose, CA**

**Sustainable Seattle/The Comprehensive Plan  
Sustainable City Indicators/Sustainable Community Roundtable  
The Comprehensive Plan  
Campaign for Sustainable Milwaukee  
Santa Monica Sustainable City Program  
The Sustainability Plan  
Sustainable City Program (Sustainable City Major Strategy –  
San Jose 2020)**

**Santa Barbara, CA  
Austin, TX**

**The South Coast Community Indicators Project  
Sustainable Communities Initiative and Sustainability Indicators  
Project of Hayes, Travis, and Williamson Counties**

**Indianapolis, IN  
Boulder, CO  
Cambridge, MA  
Boston, MA  
Brookline, MA  
Scottsdale, AZ  
Phoenix, AZ  
Tucson, AZ**

**IndyEcology  
The Sustainability Program  
Sustainable Cambridge, Cambridge Civic Forum  
Sustainable Boston Initiative  
Comprehensive Plan  
Scottsdale Seeks Sustainability  
Comprehensive Plan, Environmental Element  
The Livable Tucson Vision Program**

# More Cities and Programs

Cleveland, OH  
New Haven, CT  
Albuquerque

Sustainable Cleveland Partnership, EcoCity Cleveland  
Vision for a Greater New Haven  
Comprehensive Plan, Sustainable Albuquerque Progress Report  
The Green Alliance, Albuquerque's Environmental Strategic Plan

Anchorage

Anchorage 2020 Comprehensive Plan; Healthy Anchorage  
Indicators Project

Santa

Comprehensive Development Plan

Baltimore

Plan Baltimore

Buffalo

The Comprehensive Plan; Green Gold Initiative

Chicago

Chicago Area Central Plan

Denver

Denver Comprehensive Plan 2000

Kansas City

Metro Kansas City Outlook; The Environmental Management  
System

Grand Rapids

The Grand Rapids Master Plan 2002

Lansing/E. Lansing

Urban Options – Sustainable Lansing

Los Angeles

The General Plan

Minneapolis

The Sustainability Plan

New York

Consolidated Plan 2002; Social and Environmental Indicators  
Project

Pittsburgh

Sustainable Pittsburgh

Sacramento

Sacramento General Plan

San Diego

Sustainable Communities Program; City of Villages General Plan

St. Louis

Sustainable Neighborhood Program

Washington, D.C.

The Comprehensive Plan: Sustainable Washington Alliance

## **Sustainable Indicators Project**

- 1. Indicators project active in last five years**
- 2. Indicators progress report in last five years**
- 3. Does indicators project include “action plan” of policies/programs?**

## **"Smart Growth" Activities**

- 4. Eco-industrial park development**
- 5. Cluster or targeted economic development**
- 6. Eco-village project or program**
- 7. Brownfield redevelopment (project or pilot project)**

## **Land Use Planning Programs, Policies, and Zoning**

- 8. Zoning used to delineate environmentally sensitive growth areas**
- 9. Comprehensive land use plan that includes environmental issues**
- 10. Tax incentives for environmentally friendly development**

## **Transportation Planning Programs and Policies**

- 11. Operation of public transit (buses and/or trains)**
- 12. Limits on downtown parking spaces**
- 13. Car pool lanes (diamond or HOV lanes)**
- 14. Alternatively fueled city vehicle program**
- 15. Bicycle ridership program**

## **Pollution Prevention and Reduction Efforts**

**16. Household solid waste recycling**

**17. Industrial recycling**

**18. Hazardous waste recycling**

**19. Air pollution reduction program (i.e. VOC reduction)**

**20. Recycled product purchasing by city government**

**21. Superfund site remediation**

**22. Asbestos abatement program**

**23. Lead paint abatement program**

## **Energy and Resource Conservation/Efficiency Initiatives**

**24. Green building program**

**25. Renewable energy use by city government**

**26. Energy conservation effort (other than Green building program)**

**27. Alternative energy offered to consumers (solar, wind, biogas, etc.)**

**28. Water conservation program**

## **Organization/Administration/Management/Coordination/Governance**

- 29. Single government/nonprofit agency responsible for implementing sustainability**
- 30. Part of a citywide comprehensive plan**
- 31. Involvement of city/county/metropolitan council**
- 32. Involvement of mayor or chief executive officer**
- 33. Involvement of the business community (e.g. Chamber of Commerce)**
- 34. General public involvement in sustainable cities initiative (public hearings, "visioning" process, neighborhood groups or associations, etc.)**

# **Top Twenty-Four Cities' Scores on the "Taking Sustainable Cities Seriously" Index**

<b>Seattle</b>	<b>30</b>
<b>Denver</b>	<b>29</b>
<b>Albuquerque</b>	<b>27</b>
<b>Los Angeles</b>	<b>27</b>
<b>Minneapolis</b>	<b>27</b>
<b>Boulder</b>	<b>26</b>
<b>San Jose</b>	<b>26</b>
<b>Scottsdale</b>	<b>26</b>
<b>Chicago</b>	<b>26</b>
<b>Portland</b>	<b>25</b>
<b>Santa Monica</b>	<b>25</b>
<b>San Diego</b>	<b>25</b>

<b>San Francisco</b>	<b>23</b>
<b>Kansas City</b>	<b>22</b>
<b>New York City</b>	<b>21</b>
<b>Sacramento</b>	<b>21</b>
<b>Tampa</b>	<b>19</b>
<b>Chattanooga</b>	<b>18</b>
<b>Tucson</b>	<b>18</b>
<b>Anchorage</b>	<b>18</b>
<b>Washington DC</b>	<b>18</b>
<b>Austin</b>	<b>17</b>
<b>Baltimore</b>	<b>17</b>
<b>Buffalo</b>	<b>17</b>

# **Bottom Cities' Scores on the "Taking Sustainable Cities Seriously" Index**

<b>Cambridge</b>	<b>15</b>
<b>Jacksonville</b>	<b>15</b>
<b>Phoenix</b>	<b>15</b>
<b>Boston</b>	<b>14</b>
<b>Brookline (MA)</b>	<b>14</b>
<b>Cleveland</b>	<b>14</b>
<b>Atlanta</b>	<b>14</b>
<b>Pittsburgh</b>	<b>14</b>
<b>Grand Rapids</b>	<b>14</b>

<b>St. Louis</b>	<b>12</b>
<b>Orlando</b>	<b>11</b>
<b>Santa Barbara</b>	<b>10</b>
<b>Milwaukee</b>	<b>9</b>
<b>Indianapolis</b>	<b>9</b>
<b>New Haven</b>	<b>8</b>
<b>Olympia</b>	<b>8</b>
<b>Lansing/East Lansing</b>	<b>7</b>

# Correlations Between the Index of Taking Sustainability Seriously and Demographic Characteristics in Forty-One Cities

Independent Variable	Correlation Coefficient	Significance
Total Population, 2000	.238	.13
Total Population, 1990	.233	.14
Total Population, 1980	.220	.17
Population Change %, 1980 to 1990	.181	.25
Population Change %, 1980 to 2000	.215	.18
Total Land Area (square miles)	.078	.63
Population Density (Population per sq mile)	.147	.36

# Correlations Between the Index of Taking Sustainability Seriously and Local Resource Characteristics in Forty-One Cities

Independent Variable	Correlation Coefficient	Significance
Median Family Income, 1990	.184	.25
Poverty Rate, 1990	-.158	.32
Average Unemployment Rate, 1994-99	.032	.84
Median House Value, 1990	.234	.14
Total City Government Spending, 1997-98	.129	.42
Per Capita Government Spending, 1997-98	.026	.87

# Correlations Between the Index of Taking Sustainability Seriously and Population and Employment Characteristics in Forty-One Cities

Independent Variable	Correlation Coefficient	Significance
<b>Percent African American, 2000</b>	<b>-.355</b>	<b>.02</b>
<b>Percent African American, 1990</b>	<b>-.294</b>	<b>.06</b>
<b>Percent Hispanic, 2000</b>	<b>.289</b>	<b>.07</b>
<b>Percent Hispanic, 1990</b>	<b>.325</b>	<b>.04</b>
<b>Percent Under 18 Years Old, 1990</b>	<b>-.242</b>	<b>.13</b>
<b>Percent Over 65 Years Old, 1990</b>	<b>-.199</b>	<b>.21</b>
<b>Median Age of the Population, 1990</b>	<b>.419</b>	<b>.00</b>
<b>Percent High School Graduates , 1990</b>	<b>.263</b>	<b>.09</b>
<b>Percent Employed in Manufacturing, 2000</b>	<b>-.014</b>	<b>.93</b>
<b>Percent Employed in Service Sector, 2000</b>	<b>-.354</b>	<b>.02</b>

# Correlations Between the Index of Taking Sustainability Serious and Measures of Environmental Predisposition in Forty-One Cities

Independent Variable	Correlation Coefficient	Significance
Percent Driving Alone to Work, 1990	-.024	.88
Percent Commuters Using Public Trans '90	.059	.71
Days PSI 51+ in 1994	.373	.02
Average PSI during 1994	.395	.01
Total Government Spending on Environment, 1997-98	.249	.12
Per Capita Spending on Environment, 1997	.304	.05
Location on the West Coast (CA, OR, WA)	.261	.10
Avg % Democratic Pres Vote, 1996-00 +	.022	.91
Percent Christian church membership	-.457	.00

# Correlates of the Taking Sustainability Seriously Index

	$\beta$	SE $\beta$	b	T	Significance
<b>Percent African American, 2000</b>	<b>-.30</b>	<b>.080</b>	<b>-.085</b>	<b>-.376</b>	<b>.709</b>
<b>Median Age, 1990</b>	<b>.576</b>	<b>.401</b>	<b>.205</b>	<b>1.430</b>	<b>.160</b>
<b>Percent Hispanic, 1990</b>	<b>.19</b>	<b>.090</b>	<b>.306</b>	<b>2.059</b>	<b>.048</b>
<b>Percent Employed in Service Sector, 2000</b>	<b>-1.166</b>	<b>.426</b>	<b>-.525</b>	<b>-2.730</b>	<b>.010</b>
<b>Poverty Rate, 1990</b>	<b>.532</b>	<b>.250</b>	<b>.478</b>	<b>2.132</b>	<b>.041</b>
<b>Percent Christian Population, 2004</b>	<b>-.701</b>	<b>.354</b>	<b>-.315</b>	<b>-1.981</b>	<b>.057</b>
<b>Constant</b>	<b>55.85</b>	<b>30.80</b>	<b>----</b>	<b>1.810</b>	<b>.079</b>

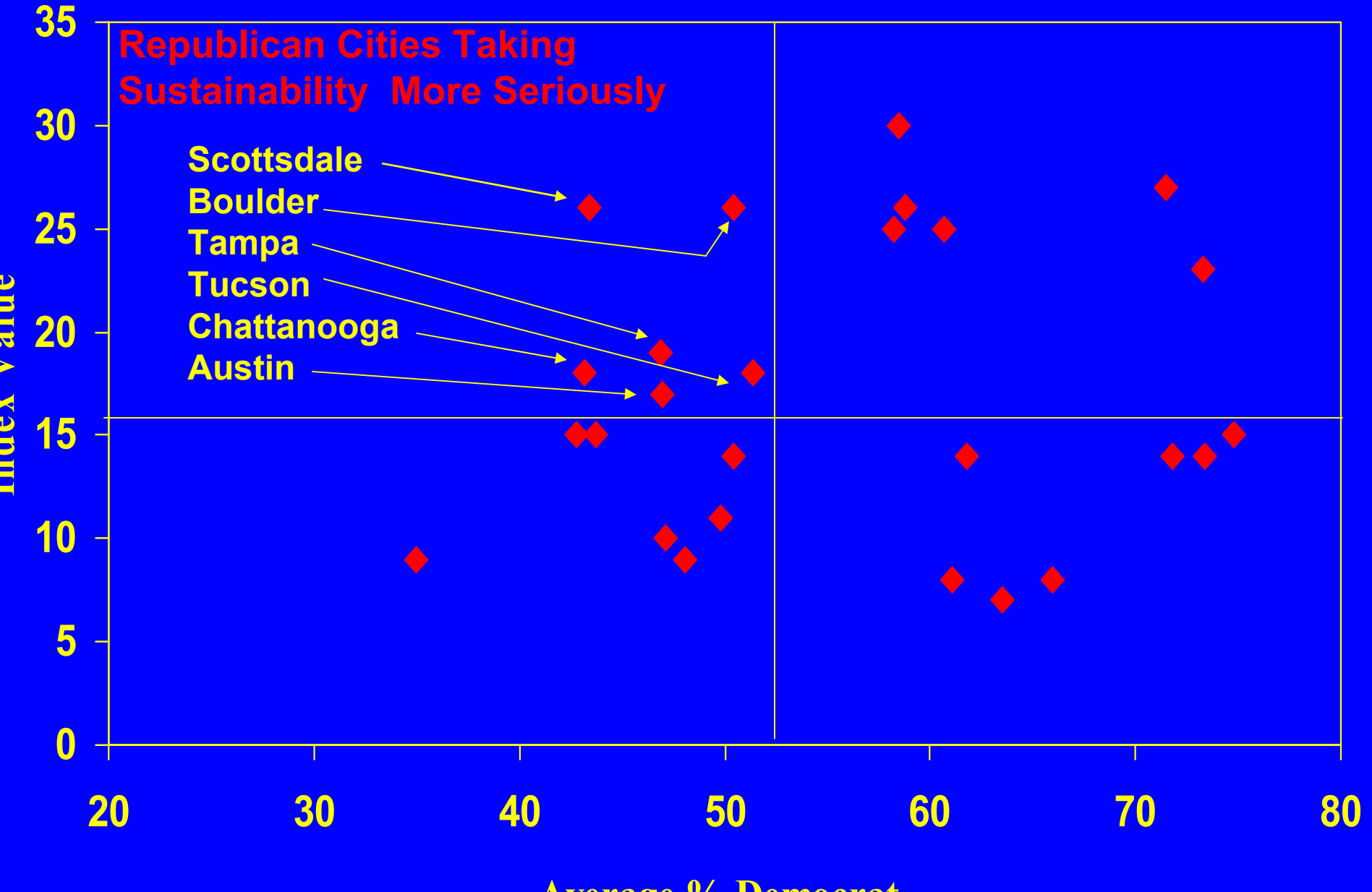
**Multiple R** .705    **R Square** .498    **Adjusted R Square** .403

## Analysis of Variance

	DF	Sum of Squares	Mean Square
<b>Regression</b>	<b>6</b>	<b>793.3</b>	<b>132.2</b>
<b>Residual</b>	<b>32</b>	<b>801.0</b>	<b>25.0</b>

**F = 5.3**    **Significance of F = .00**

# Plot of Average % Democratic Vote and the Index of Sustainability



# Where Does the Research Go From Here?

- **More cities adopt sustainability programs each year – expand the database**
  - Oakland, Cincinnati, and others
- **Better theoretical explanations**
- **Broader array of comparison cities**
- **More elements of what it means to take sustainability seriously – including:**
  - Open space programs
  - Pesticide reduction programs
  - Environmental and social justice components

# A Research Agenda

- **Analysis of the “economics” of sustainability**
  - What are the costs of the programs?
  - How much revenue do cities spend and save?
  - What does the pursuit of sustainability do to growth, especially personal income growth?
  - What do cities give up (opportunity costs)?
- **Analysis of the “benefits” of sustainability programs**
  - How much does the environment actually improve?
  - How much more “livable” do people think the city is?

# The Benefits Side

- **What do all these programs and policies accomplish in terms of tangible results?**
  - **Does the “ecological footprint” of the city get smaller over time?**
  - **Does the quality of the environment improve over time?**
    - **Water quality?**
    - **Air quality?**
    - **Flows of toxic materials and wastes?**
    - **Ecological diversity?**

# Results?

- **Does environmental and social inequity decline?**
- **Is there an aggregate improvement in energy usage? Energy efficiency? P/C electric usage? P/C gasoline consumed?**
- **Is there aggregate improvement in other natural resource usage?**
- **Is there improvement in public health?**