Policy Focus Report • Lincoln Institute of Land Policy

Evaluating Smart Growth

State and Local Policy Outcomes

GREGORY K. INGRAM AND YU-HUNG HONG

Evaluating Smart Growth:
State and Local Policy Outcomes

Gregory K. Ingram and Yu-Hung Hong

Contents

Policy Focus Report Series

The policy focus report series is published by the Lincoln Institute of Land Policy to address timely public policy issues relating to land use, land markets, and property taxation. Each report is designed to bridge the gap between theory and practice by combining research findings, case studies, and contributions from scholars in a variety of academic disciplines, and from professional practitioners, local officials, and citizens in diverse communities.

About the Authors

Gregory K. Ingram is president and CEO of the Lincoln Institute of Land Policy and cochair of the Department of International Studies. Contact: *president@lincolninst.edu*

Yu-Hung Hong is a fellow at the Lincoln Institute of Land Policy and a visiting assistant professor at Massachusetts Institute of Technology. Contact: *hong@lincolninst.edu*

LINCOLN INSTITUTE OF LAND POLICY

113 Brattle Street
Cambridge, MA 02138-3400, USA

Phone: 617-661-3016 x127 or 800-526-3873
Fax: 617-661-7235 or 800-526-3944
Email: *help@lincolninst.edu*
Web: *www.lincolninst.edu*

ISBN 978-1-55844-193-4
Policy Focus Report/Code PF020

About this Report

The Lincoln Institute initiated a research project in late 2006 to evaluate the effectiveness of smart growth policies from 1990 to as far past 2000 as data allowed. The analysis focused on four states with well-established statewide smart growth programs (Florida, Maryland, New Jersey, and Oregon) and four states (Colorado, Indiana, Texas, and Virginia) that offered a range of other land management approaches.

This report summarizes the findings and recommendations of the complete evaluation, which is published in the 2009 Lincoln Institute book, *Smart Growth Policies: An Evaluation of Programs and Outcomes,* edited by Gregory K. Ingram, Armando Carbonell, Yu-Hung Hong, and Anthony Flint. This book is the source of the data and statistics cited here unless otherwise noted.

The goal of the evaluation was to examine the effectiveness of various policies in achieving five commonly identified smart growth objectives:

- promote compact development;
- protect natural resources and environmental quality;
- provide and promote a variety of transportation options;
- supply affordable housing; and
- create net positive fiscal impacts.

Using 52 indicators based on U.S. Census Bureau data and other state and local datasets, several research teams compared differences in performance among the selected states and between the groups of smart growth and other states. Another team surveyed opinion leaders on their perceptions about the efficacy of smart growth programs, and other researchers prepared case studies on the political, environmental, and regulatory conditions in the eight selected states.

Contributors

Policy Evaluation

- Growth Patterns and Trends: **Gerrit Knaap** and **Rebecca Lewis**, University of Maryland
- Natural Resources and Environmental Quality: **Terry Moore** and **Beth Goodman**, ECONorthwest, Oregon
- Transportation: **Tim Chapin** and **Keith Ihlanfeldt**, Florida State University
- Affordable Housing: **Stuart Meck**, Rutgers Center for Government Services, and **Timothy MacKinnon**, Monmouth University, New Jersey
- Fiscal Dimensions: **Robert W. Burchell** and **William R. Dolphin**, Rutgers Center for Urban Policy Research
- Survey of Opinion Leaders and Regulatory Analysis: **Allan Wallis** and **Tom Clark**, University of Colorado Denver

State Case Studies

- Florida: **Tim Chapin** and **Keith Ihlanfeldt**, Florida State University
- Maryland: **Gerrit Knaap** and **Rebecca Lewis**, University of Maryland
- New Jersey: **Stuart Meck**, Rutgers Center for Government Services
- Oregon: **Terry Moore** and **Beth Goodman**, ECONorthwest
- Colorado: **Allan Wallis**, University of Colorado Denver
- Indiana: **Eric D. Kelly**, Ball State University
- Texas: **Robert G. Paterson**, **Rachael Rawlins**, **Frederick Steiner**, and **Ming Zhang**, University of Texas at Austin
- Virginia: **Casey Dawkins**, Virginia Tech

Executive Summary

Portland, Oregon

This evaluation of the effectiveness of smart growth policies in the United States focused on four states with well-established statewide smart growth programs (Florida, Maryland, New Jersey, and Oregon) and four other states (Colorado, Indiana, Texas, and Virginia) that demonstrate a range of other land management approaches (Ingram et al. 2009). The evaluation was objectives-based and examined the extent to which five specific smart growth objectives were achieved, based on measureable and comparable performance indicators primarily during the decade from 1990 to 2000:

- promote compact development;
- protect natural resources and environmental quality;
- provide and promote a variety of transportation options;
- supply affordable housing; and
- create net positive fiscal impacts.

No state did well on all performance measures, although individual states succeeded in one or more of their priority policy areas. Maryland was successful in protecting natural resources through its land preservation programs and state funding for the purchase of farmland conservation easements. New Jersey policies that responded to state supreme court decisions led to an affordable housing approach that slowed house price escalation and encouraged rental and multifamily housing production.

Oregon's commitment to establishing urban growth boundaries was able to reduce development on farmland in the Willamette Valley. The state also performed well in reducing traffic congestion growth by

encouraging commuters to use transit and by systematically planning for bicyclists and pedestrians.

At the same time, some smart growth states failed to achieve objectives in policy areas that were not given high priority during the study period, such as providing affordable housing in Oregon and Maryland, and managing the spatial structure of urban growth in Florida.

The message is clear: achieving smart growth is possible, but states must remain focused on their key policy goals. No single approach is right for all states. For example, Colorado has no statewide smart growth program, but it outperformed some states with such policies by supporting local government actions to pursue effective land use planning within a regional context. The more successful states use a variety of regulatory controls, market incentives, and institutional policies to achieve their objectives.

RECOMMENDATIONS

Program Structure and Transparency

- The design of smart growth programs and supporting regulations and incentives should be guided by a vision of sustainable and desirable development outcomes.
- Any top-down or bottom-up smart growth policies must be coordinated at the regional level to be able to achieve their desired objectives.
- Policy makers must articulate the means of achieving smart growth objectives and specify implementation mechanisms, rather than just declare objectives.

Functional Linkages for Policy Design

- The design of growth management policies should take account of interactions among policies and coordination across relevant agencies.
- Smart growth policies should make use of economic incentives, such as pricing and tax policies, that have shown promise in other countries.
- Smart growth programs need to consider the income distribution consequences of their policies.

Sustainability and Monitoring of Programs

- Credible commitment from different levels of government is crucial for the successful implementation of smart growth programs.
- Improvements in measurement and collection of data, particularly related to environmental quality and public finance, are needed to better monitor program performance.
- More evidence is needed about the nature of interactions among smart growth policies—particularly those related to land use, transportation, and housing affordability.
- Clearer definition of performance indicators and measurement of their attainment would facilitate the evaluation of smart growth programs and contribute to their technical and political sustainability.

Although this evaluation of smart growth programs concentrates primarily on statewide performance during the 1990s, the findings and recommendations will be useful for formulating growth management policies in today's context of high energy costs, historic housing market volatility, and increasing pressures to reduce greenhouse gas emissions. Many smart growth objectives are precisely the outcomes posited to address these current challenges facing state and local policy makers.

CHAPTER 1

Low–Density Development and Smart Growth Policies

Baltimore, Maryland

Few public policy issues are as contested as urban sprawl. Across the United States, people are debating the issue of low-density development at the urban fringe as state and local governments try to reconcile growing demands for new housing and commercial development with needs to protect open space. The debate over sprawl often pits the public good against private self-interest. While most people agree that protecting natural resources and open space is important, many also value their property rights and resist policies that may reduce the value of their land holdings.

In response to this challenge, several U.S. jurisdictions have implemented smart growth principles since the early 1970s through planning for compact urban growth and transit-oriented development. These growth management approaches have attracted much public attention and research, but they have received little systematic evaluation. Several states have applied smart growth policies for decades, and others are just beginning to use them to address emerging issues in the twenty-first century.

AN HISTORICAL VIEW OF GROWTH PATTERNS

Low-density development at the urban fringe has been prevalent in the United States since the 1940s. The average amount of developed land per capita increased from 0.32 acres in 1982 to 0.38 acres in 2002. More important, the amount of newly devel-

oped land per added resident over this period averaged about 0.6 acres—nearly twice the level of average land consumption. Growth in population will increase overall land consumption, and income growth can explain much of the growth in area per person.

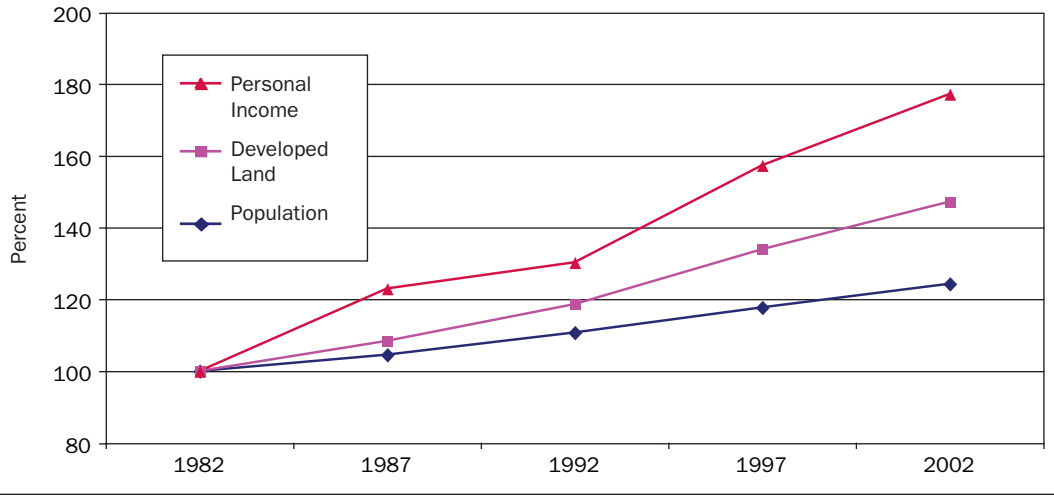
Figure 1 shows that between 1982 and 2002 the number of acres of developed land increased by 46 percent, while the U.S. population and personal income grew by 24 and 77 percent, respectively. This is consistent with the finding that land consumption will increase by about 30 percent if personal income doubles. If the land area per person remained constant, population growth would be responsible for growth in land area of 24 percent, leaving 22 percent of the 46 percent total area due to other factors. If all of this additional 22 percent growth was caused by the 77 percent increase in income, each 10 percent increase in income would have caused a 3 percent increase in land area per person, a relationship similar to that found in estimates of the demand for lot size (Glaeser, Kahn, and Rappaport 2008).

However, regional trends in population density are certainly not uniform. Figure 2 illustrates that the average density in the Northeast was the highest among the four regions in 1982, and more than twice that in the Midwest and South. Between 1982 and 2003, the incremental density was lower than the average density in all regions, indicating that all development was oriented toward lower densities. The West experienced rapid population growth, but managed to keep its incremental density higher than the other regions (see Fulton et al. 2001 for similar findings).

THE EVOLUTION OF SMART GROWTH POLICIES

In the face of this decreasing density and the spread of development at the fringe of many urban areas, some states and localities began to put policies in place to shape settlement patterns. By the early 1990s, these efforts came to be knows as "smart growth" programs. What is now termed smart growth has evolved from a continuous process of state land use policy development that has coalesced around a set of objectives: promote compact development; protect natural resources and environmental quality; create

FIGURE 1
Percent Growth in Personal Income Influences Growth in Developed Land and Population, 1982–2002

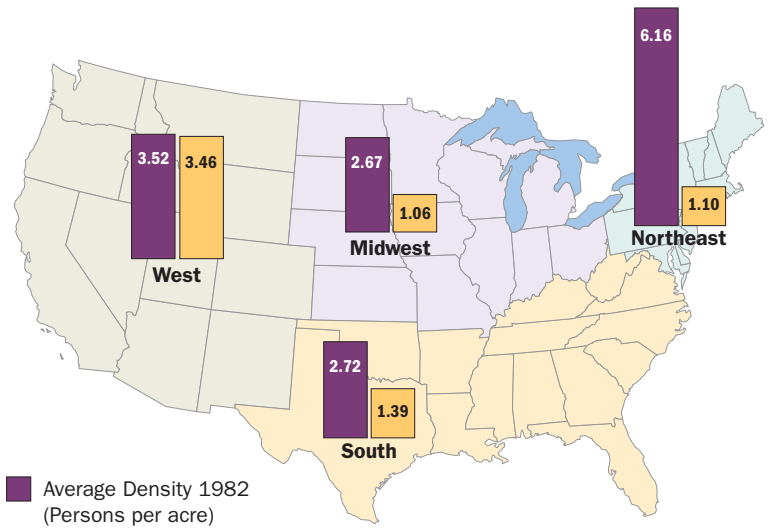


Notes: Personal income is in 2005 dollars. Population and developed land estimates do not include Alaska.

Sources: U.S. Census Bureau (1990c; 2000c); U.S. Census Bureau (1990d; 2000d); U.S. Census Bureau (2007); and U.S. Department of Agriculture (1982; 1987a; 1992; 1997; 2003).

FIGURE 2

Average and Incremental Densities Vary Across U.S. Regions, 1982–2003



Sources: U.S. Census Bureau (2007); U.S. Department of Agriculture (2003).

transportation options and walkable neighborhoods; supply affordable housing; generate net positive fiscal impacts; encourage community collaboration and facilitate transparent and effective development decision making processes (Smart Growth Network 2009).

The smart growth movement can be divided into four waves. The first three waves were defined by John DeGrove (1984; 1992; 2005). We propose a fourth wave to characterize the emerging features of the smart growth movement in the twenty-first century (Ingram at el. 2009). The first wave commenced in the 1970s with the enactment of growth management programs to advance environmental protection in California, Colorado, Florida, Hawaii, North Carolina, Oregon, and Vermont. These programs were based on the regulation and control of land development either throughout the state or within specially designated zones (DeGrove 1984).

The second wave, from the 1980s into the early 1990s, marked a shift from regulating and controlling growth to planning that was aimed at promoting economic growth and protecting natural resources. The deployment of infrastructure also became more important as a land use planning tool. The second-wave smart growth states included Florida, Georgia, Maine, New Jersey, Rhode Island, Vermont, and Washington (DeGrove 1992).

The third wave, beginning in the mid-1990s, was distinguished by the addition of positive incentives to influence growth and by more growth-accommodating policies. Some states shifted from land use regulation, urban growth boundaries, and requirements for local comprehensive plans to urban revitalization, zoning reform, and better coordination of state agencies and their growth policies. More emphasis was also placed at the local, metropolitan, and regional levels, and less on the hegemony of statewide programs. The third wave brought several additional states into the movement, including Maryland, Minnesota, Pennsylvania, Tennessee, and Utah (DeGrove 2005).

A fourth wave of smart growth policies is still emerging. The need to respond to climate change, environmental challenges, and soaring energy costs, along with a new emphasis on investments in public infrastructure, have bolstered the demands being placed on smart growth initiatives. Because automotive travel produces a large share of greenhouse gas emisions, support is increasing for land use policies that foster more compact development patterns, transit use, and walking.

New regional approaches are likely to encourage development proposals that adhere to a smart growth framework. Market forces are also encouraging more compact, mixed-use development as households attempt to limit their travel costs and achieve other energy savings.

Florida

AN OPPORTUNE TIME FOR EVALUATION

Smart growth programs in some states are now in their fourth decade, but new environmental objectives have raised the stakes on their success. With many years of experience behind us, and the likelihood that reliance on growth management policies will grow in the future, this is an opportune moment to evaluate how effective smart growth policies and programs have been at achieving their goals and objectives.

This evaluation is based on a comparison between four states that had statewide smart growth policies in place by 2000 (Florida, Maryland, New Jersey, and Oregon) and four other states that did not (Colorado, Indiana, Texas, and Virginia). Some of these latter states did facilitate local and regional smart growth initiatives by enabling local governments to promulgate local options, while others did little or nothing. These eight states constitute a purposive and not a random sample as part of the research methodology (box 1).

The analysis revealed that the treatment varied greatly across the four smart growth states, producing a range of outcomes that overlap with some of those in the other selected states. Outcomes and policies were thus found to be more continuous across the eight states rather than dichotomous between the two groups of states.

This evaluation addresses two key questions. First, does the presence of state-level smart growth programs result in objectively measurable improvement in performance? Second, to the extent that smart growth programs are successful, what underlies this success? Conversely, if they fail, what are the causes of their shortcomings?

BOX 1

Research Methodology

The evaluation measured the achievement of five smart growth objectives in each of the eight states. The analytic methods used varied according to the data available, ranging from descriptive statistics to fixed-effect regression models (Ingram et al. 2009, 10–20). The focus was on changes in performance indicators over time, given that current levels of many measures (e.g., population density) reflect the cumulative effects of past policies, technologies, and relative prices. The effects of recent policies are likely to be observed only in current changes in performance indicators. It is also likely that some smart growth objectives reinforce each other, and others are antagonistic.

To make comparisons across states over multiyear periods, the evaluation developed a set of performance indicators that were defined consistently over time and available for all states. These indicators relied heavily on data from the U.S. Census Bureau and other nationally collected datasets uniformly available at the state and county levels. The analysis generally starts in 1990 and continues as far past 2000 as data allow, but focuses primarily on the decade of the 1990s. In addition to the performance indicators, the evaluation also analyzed how opinion leaders perceive the effectiveness of smart growth programs, and how implementation has changed over time.

CHAPTER 2

Growth Patterns and Trends

Fort Worth, Texas

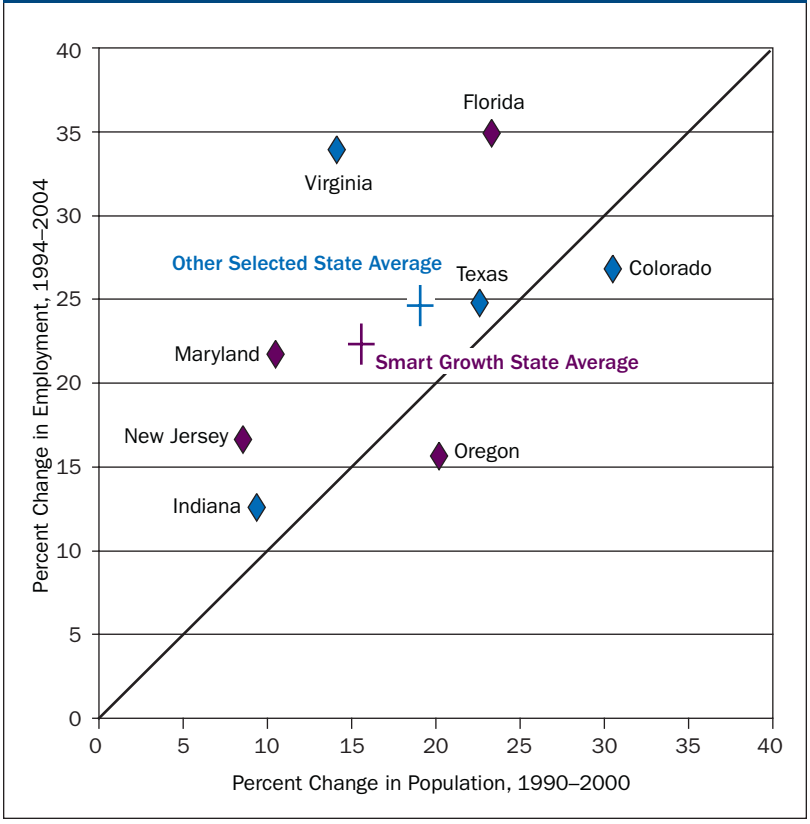
A major objective of smart growth policies is to alter the spatial distribution of population and employment, principally by increasing the density and intensity of development, promoting compactness, and slowing the sprawling of development to rural and undeveloped areas. Four measures of growth patterns are used to assess relative changes in spatial structure in the eight states: land use patterns, spatial concentration, urbanization, and centralization (Ingram et al. 2009, 22–45).

A baseline review of the size and growth of the eight case study states in 2000 shows that they range widely in population (from more than 20 million in Texas to 3.4 million in Oregon); size (from 265,000 square miles in Texas to 7,500 square miles in New Jersey); and population density (from 1,115 persons per square mile in New Jersey to 35 in Oregon). Their population and employment growth rates over time vary much less, however. As figure 3 shows, on average, population increased more slowly in the smart growth states (15.9 percent) than in the other selected states (19.4 percent) from 1990 to 2000, as did employment (22.5 percent versus 24.8 percent) from 1994 to 2004.

LAND USE PATTERNS

Land uses vary considerably across the states. For example, about half of state area is rangeland in Texas, cropland in Indiana, forestland in Virginia, and federal land in Oregon. The area of developed land, which is most relevant to smart growth policy, increased in each of the eight states in every five-year interval from 1982 through 1997.

FIGURE 3
Employment Growth Generally Exceeded Population Growth



Note: Employment counts are derived from the U.S. Census Bureau's Zip Code Business Patterns in 1994 and 2004, with 1994 the earliest year for which data were available. Counts do not include government workers, farm workers, or part-time or self-employed persons.

Sources: U.S. Census Bureau (1990b; 1996; 2000b; 2006).

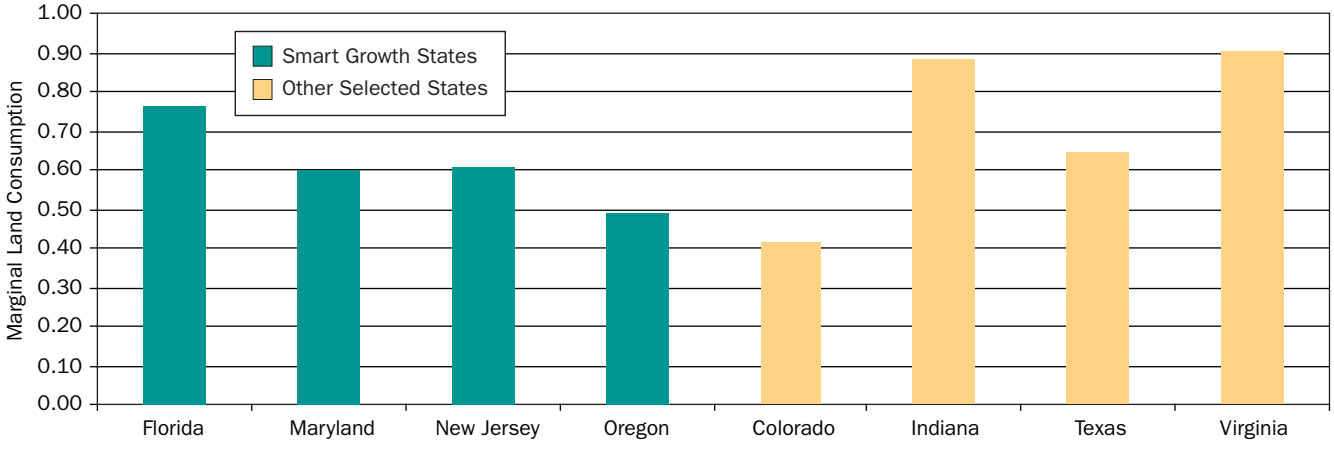
The largest proportional increase in developed land occurred in Florida, followed by Virginia; the smallest increase was in Indiana. The average proportional increase was 26 percent for the four smart growth states and 21 percent for the four other states.

Because the states differ so widely in land use and growth, these proportional increases can be made comparable by relating the increase in each state's developed land area to the increase in population over similar periods. Figure 4 shows the ratio (marginal land consumption) as the increase in square miles of developed land per 1,000 new residents. While the average for smart growth states is lower than for the other selected states, the best performers—Oregon and Colorado—are from the two different groups (box 2).

SPATIAL CONCENTRATION

The distribution of population over space can be measured by the Gini coefficient, which is an index of inequality based on the Lorenz curve measuring how evenly a variable is spread. When activities are uniformly

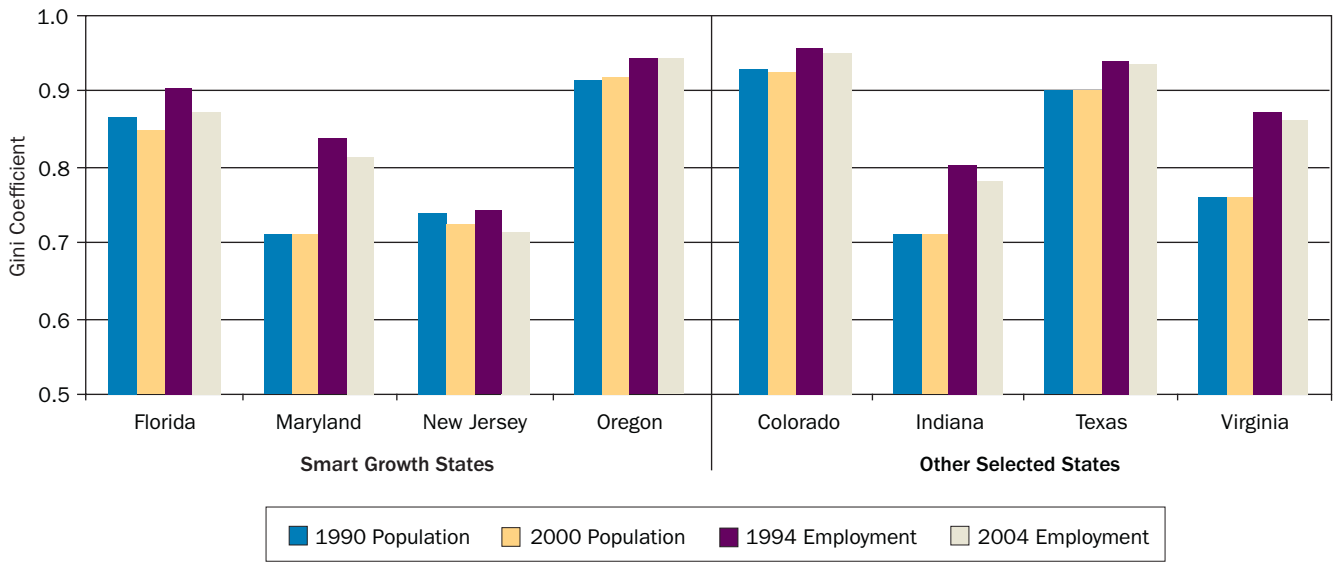
FIGURE 4
Developed Land Generally Increased Less in Smart Growth States than in Other Selected States



Notes: Averages are 0.61 for the smart growth states and 0.71 for the other selected states. Growth in developed land is measured from 1987 to 1997 in square miles. Population growth is measured from 1990 to 2000. Marginal land consumption is square miles per 1000 additional residents.

Source: U.S. Department of Agriculture (2000).

FIGURE 5
Population and Employment in Most States Became Less Concentrated



Sources: U.S. Census Bureau (1990b; 1996; 2000b; 2006); GeoLytics (2002).

distributed, the Gini coefficient is zero; when activity is concentrated in one place, it is one. Decreases in the spatial Gini coefficient over time therefore indicate that the development pattern is becoming more dispersed. Spatial Gini coefficients vary from 0.25 to 0.90 across all U.S. states, and are usually high in states with only one large city and low in states with no large cities and dispersed populations. Here the concern is more about the change in concentration over time than its level, which reflects the legacy of the past more than the effects of current policies. Increased concentration (higher Gini coefficients) would generally be consistent with smart growth policies.

Figure 5 shows statewide Gini coefficients calculated from census tract data for population and from zip code data for employment over ten-year intervals. Oregon is the only state where population concentration increased and employment concentration did not decrease. While employment was typically more concentrated than population, its concentration declined more than that of population over the decade. The average reduction in Gini coefficients for the smart growth states was greater than for the other states, for both population (-.007 versus -.002) and employment (-.021 versus -.011). This outcome is generally counter to smart growth objectives. While these differences have similar patterns for most states, they are not statistically significant across states.

Gini coefficients for population and employment also were calculated for each large metropolitan area (with population over one million) in the eight case study states. The results are similar to the statewide outcomes, but with larger Gini coefficients. Again, the average reduction in Gini coefficients in the smart growth states was greater than that in the other selected states for both population (-.019 versus -.017) and employment (-.044 versus -.028). Echoing the state results, Portland was the only metropolitan area where population concentration did not decrease.

BOX 2

Urban Growth Management in Oregon and Colorado

From 1982 to 1997, Oregon and Colorado distinguished themselves by having smaller increases in marginal land consumption than any of the other case study states. Oregon experienced a decline in the amount of developed land per capita over the 1990s, and in Colorado 88 percent of the population lived in only 5 percent of the census tracts during the same period.

Oregon has one of the first and best-known statewide smart growth programs in the country (Ingram et al. 2009, 188–198). The 1960s development boom in the state consumed productive farmland and raised fears about pollution, deteriorating quality of life, and loss of the state's economic base. In response, Oregon passed the 1973 Senate Bills 100 and 101 that emphasized the need to protect its agricultural and forestry lands by establishing an urban growth boundary (UGB).

The UGB identifies and separates land that can be urbanized from land that must remain rural, and encourages compact development. Oregon's urbanization goal requires all cities to define, adopt, and plan development within growth boundaries that provide enough land to accommodate projected residential and employment growth over 20 years. Some communities also identify urban reserved areas intended to accommodate growth over a longer time horizon.

The state also provides incentives in the form of grants and technical assistance to jurisdictions undertaking planning functions. In the 1980s, the state and federal governments provided $24 million in planning grants to local governments, or nearly 63 percent of the planning budget during that period (Rohse 1987). Between 1997 and 2007, these planning grants declined to $12 million. Oregon also defers taxes on farmland and forestland. A recent study estimates the total amount of taxes deferred between 1974 and 2004 at more than $4.8 billion (Richmond 2007).

Colorado's approach to managing urban growth in the early 1970s was to enable local governments to engage in planning and to implement land use controls, but not to have a mandated statewide growth control program (Ingram et al. 2009, 200–208). The Colorado Constitution and Local Government Land Use Control and Enabling Act granted counties and municipalities the authority to plan and regulate land use. In principle, the Land Use Commission and the Department of Local Affairs could override local planning permission for land development

Portland, Oregon

Denver, Colorado

in preserved areas. In practice, however, the state role has been to assist, not direct, local governments to identify and adopt guidelines for matters of state interest.

During the 1990s, the Great Outdoors Colorado Trust Fund was established to receive half of the proceeds of the Colorado Lottery. A portion of the trust's funds can be awarded for open space planning grants. Consistent with general citizen support for preserving open space, Colorado ranked first in the nation between 1999 and 2004 in the dollar value of voter-approved open space bonds and tax measures (Trust for Public Land 2005).

Colorado also provides several examples of voluntary regional collaborations designed to manage growth. The establishment of the Denver Region Council of Governments Metro Vision 2020 is most noteworthy. It includes the Mile High Compact and has created a voluntary growth boundary covering the six-county area along the Front Range of the Rocky Mountains where more than 60 percent of the state's population resides. Other elements of Vision 2020 call for reinforcing spines of development along transit corridors. Passage of the $4.7 million FasTracks bond initiative in 2004 also provided significant support for the implementation of Vision 2020.

URBANIZATION

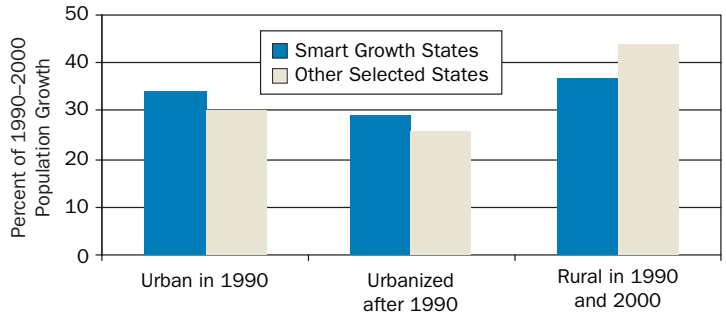
Smart growth programs seek to encourage infill development in urbanized areas and reduce the spread of development to adjoining rural areas. To assess performance on these objectives, population growth was classified by three locations: areas denoted as urban in 1990; those newly urban between 1990 and 2000; and those rural in both 1990 and 2000. The smart growth states had a larger share of new residents settle in urban and newly urbanized areas, and a smaller share in rural areas (figure 6).

Oregon had the highest share of population growth in already urbanized areas at 49 percent; New Jersey was second at 45 percent; and Colorado was third at 38 percent. Indiana had the lowest share at 6 percent. Using this same classification for large metropolitan areas, the results were similar to those at the state level. Portland had the highest share of additional residents settle in already urbanized areas in the 1990s (59 percent), while Miami–Ft. Lauderdale had the second highest (54 percent).

CENTRALIZATION

To measure changes in the centralization of population and employment over time, each large metropolitan area in the eight

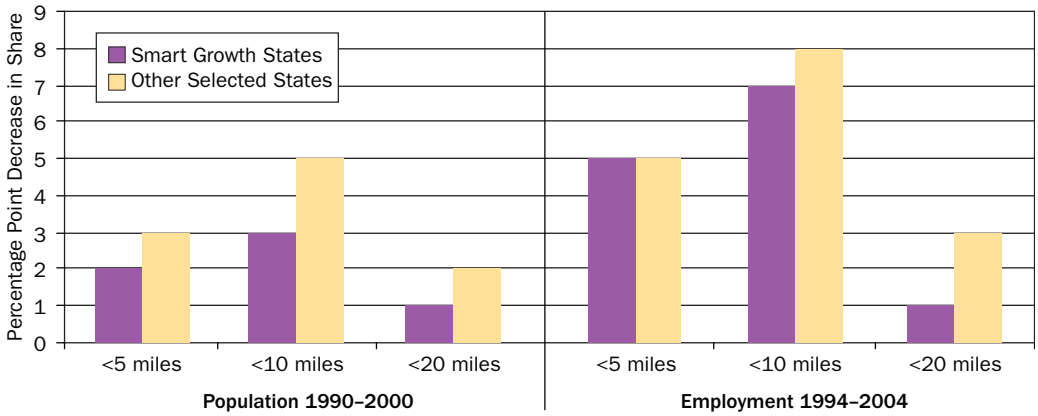
FIGURE 6
Smart Growth States Kept More Population Growth in Urbanized Areas



Sources: U.S. Census Bureau (1990b; 2000b); GeoLytics (2002).

FIGURE 7

Metropolitan Area Population and Employment Decentralized Less in Smart Growth States



Sources: U.S. Census Bureau (1996; 2006).

case study states was divided into concentric rings with radii of 5, 10, 20, and 30 miles. The shares of population and employment located within each ring were calculated at the beginning and end of a ten-year period. As might be expected, employment was more centralized than population. The shares of population and employment within the 5-, 10-, and 20-mile rings decreased or remained the same in all metropolitan areas. Employment decentralized more than population. Figure 7 shows that there was less decentralization in the metropolitan areas of the smart growth states, a result consistent with the analysis of urbanization above.

SUMMARY

Overall, the changes in growth patterns in the smart growth states show some consistency with smart growth objectives. In these four states, marginal land consumption per new resident was lower, the share of new population locating in urban areas was higher, and population and employment decentralization was lower than in the four other selected states. Smart growth states also added a smaller share of new population in rural areas. At the same time, however, the concentration of population and employment declined more in the smart growth states than in the other states.

When ranked in terms of overall performance, the top three states were Oregon, Colorado, and New Jersey, with Florida ranked eighth. Oregon performed well across most measures including land use, urbanization, and concentration. Colorado's strong showing indicates that smart growth outcomes can be attained without a mandatory statewide smart growth policy.

CHAPTER 3

Natural Resources and Environmental Quality

Virginia

While smart growth policies are intended to improve the environment and protect natural resources, the strength of the linkages between specific programs and objectives varies. Smart growth policies often relate directly to land use, including land conservation, but only indirectly to air and water quality through impacts on transportation and development patterns.

Data are reasonably accessible for land use and land conservation measures that are consistent over time and across states, but it was impossible to obtain comparable data for air and water quality. As a result, all natural resource and environmental performance measures in this evaluation pertain to the use and conservation of land (Ingram et al. 2009, 46–57).

LAND CONSERVATION

While all of the case study states support land trusts and related conservation easements, state policies differ in many details. Maryland and Oregon have programs to protect open space and environmentally sensitive land and to preserve agricultural land. Maryland provides state funding to purchase conservation easements on farmland. New Jersey preserves agricultural lands by purchasing development rights, and protects environmentally sensitive lands through regional planning. Florida has purchased over 2.5 million acres of environmentally sensitive land, but has yet to fund its program for protecting agricultural lands.

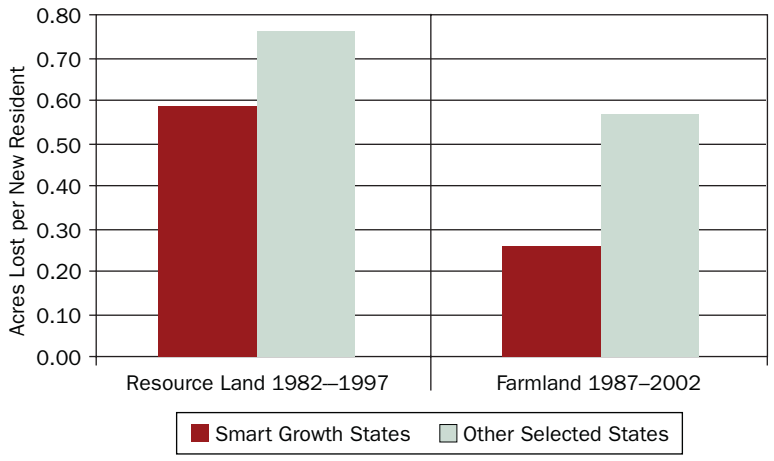
Among the other selected states, Colorado offers state tax credits for private conservation easements, purchases conservation

land, and uses lottery proceeds to fund park and conservation programs. Indiana has a modest land trust program funded from sales of affinity license plates. Texas has three programs aimed at the preservation of forestland, one of which involves state purchase of conservation easements. Virginia has no statewide program, but facilitates local efforts to adopt conservation policies.

RESOURCE LAND AND FARMLAND

The analysis relied on two comprehensive datasets available at five-year intervals. The first, the National Resource Inventory, provides information on several land use categories, five of which were aggregated into a single measure termed resource land: cropland, pastureland, rangeland, forestland, and conservation reserve program land. The second dataset, available from the National Agricultural Statistics Service, collects information on farm acreage through a census of farms. Changes in the amounts of resource land and farmland were related to the change in population in each of the eight state cases.

FIGURE 8
Smart Growth States Lost Less Land per New Resident than Other Selected States



Sources: U.S. Department of Agriculture (1987b; 2000; 2002).

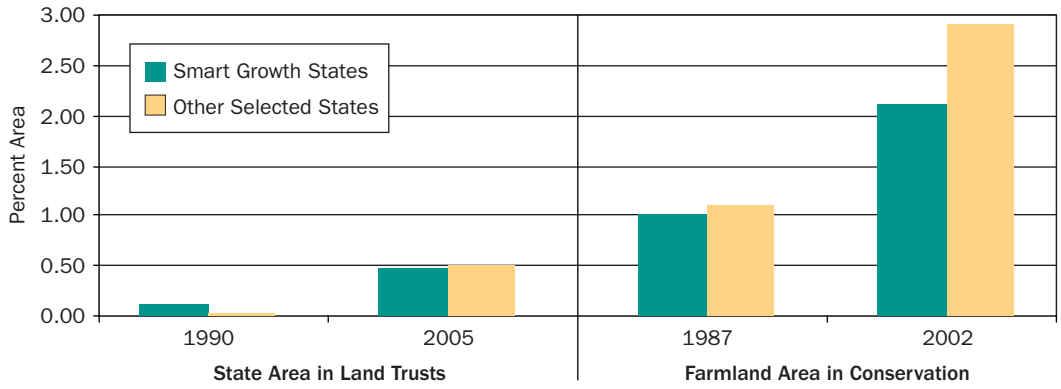
As figure 8 indicates, the smart growth states experienced smaller losses per new resident in both land categories. Maryland lost the least amount of resource land per new resident (0.38 acres), while Indiana (0.90 acres) and Oregon (0.88 acres) lost the most. Virginia lost the least amount of farmland per new resident (0.04 acres), while Colorado (2.36 acres), Indiana (1.63 acres), and Oregon (0.89 acres) lost the most. Oregon's loss is surprising given the state's goal of protecting farmland. Further analysis revealed, however, that the loss was primarily in the sparsely populated eastern part of the state. The densely settled Willamette Valley region around Portland actually increased the amount of farmland per added resident by 0.05 acres.

LAND TRUSTS AND CONSERVATION PROGRAMS

All eight case study states support the placement of private land in land trusts and of farmland in conservation programs. During the two overlapping 15-year periods shown in figure 9, smart growth states performed less well than the other selected states, but the within-group performance varied widely. In 2005, New Jersey (3.6 percent) and Maryland (2.5 percent) had the highest percentages of their areas in conservation easements held by land trusts, while Oregon (0.1 percent) and Florida (0.2 percent) had among the lowest.

In terms of farmland in conservation programs, Colorado (5.6 percent) performed best in 2002, followed by Maryland and Oregon (both at 2.8 percent). The share of area in land trusts is thus a poor predictor of the share of farmland in conservation programs, except in Maryland where both are reasonably high.

FIGURE 9
Smart Growth States Protected Smaller Shares of Their Area in Land Trusts and Farmland Conservation Programs



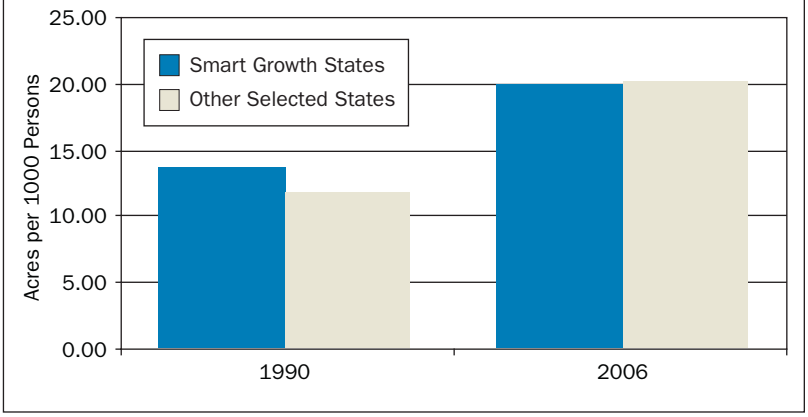
Notes: Land trust data excludes land owned by The Nature Conservancy. Farmland data includes land enrolled in Conservation Reserve and Wetlands Reserve programs.

Sources: Land Trust Alliance (n.d.; 2005); U.S. Department of Agriculture (1987b; 2002).

STATE PARKLAND

A final indicator related to natural resources is the amount of land devoted to state parks. Acres of parkland per 1,000 persons, the level of service measure used by the National Recreation and Park Association, has changed over time in the two groups of states. As figure 10 shows, the smart growth states were slightly ahead of the other selected states on this indicator in 1990, but the difference between the two groups was negligible by 2006. In that year, Colorado had the most parkland per 1,000 persons (42.5 acres), followed by New Jersey (38.5 acres). Virginia had the lowest service level (8.1 acres) and Indiana the next lowest (10.3 acres).

FIGURE 10
Smart Growth States Lost Their Lead in State Parkland After the 1990s



Source: National Association of State Park Directors (n.d.).

SUMMARY

The evidence on natural resource and environmental quality measures is mixed, with neither group of states clearly outperforming the other in terms of protecting undeveloped areas. At the individual state level, Maryland had the highest average ranking across all measures (box 3), with New Jersey and Colorado tied for second. Indiana had the lowest average ranking. Colorado again performed well despite its lack of a statewide smart growth program.

BOX 3

Land Conservation Programs in Maryland

Maryland is the gatekeeper to the largest and most productive estuary in the United States, the Chesapeake Bay. Because most of Maryland lies within the watershed, the health of the bay has been a major driver of the state's land use and environmental policies for many years.

This evaluation revealed that Maryland had the largest percentage increase in acres of farmland enrolled in land preservation programs among the eight selected states (Ingram et al. 2009, 166–175). About 2.5 percent of Maryland's land was privately conserved in 2005, the second highest level among the selected states. In addition, Maryland preserved 343,000 acres—about 5 percent of its total land area—through state and county transfer of development rights and purchase of development rights programs (Lynch et al. 2007).

Beginning in the 1960s, the Maryland General Assembly and various governors proposed and enacted a series of land use laws designed to protect the environment. These laws were intended to help the state acquire parkland, protect forests and wetlands, reduce soil erosion, preserve farmland, and regulate storm water runoff. Much of the focus turned to the Chesapeake Bay following passage of the Chesapeake Bay Agreement in 1983.

The emphasis on land use grew in the 1990s, beginning with the Economic Growth, Resource Protection, and Planning Act of 1992 (the Growth Act) and the Smart Growth Areas Act of 1997, which took an inside/outside approach in an effort to direct growth to Priority Funding Areas (PFAs) while preserving undeveloped areas through the Rural Legacy Program.

The centerpiece of the Smart Growth Areas Act attempted to influence development decisions by restricting "growth-related" state spending to specific areas. County governments were required to designate certain areas as PFAs, which included all incorporated municipalities; heavily developed areas inside the circumferential highways around Baltimore and the Maryland suburbs of Washington, DC; and other areas meeting specific state criteria.

The counties were required to map their PFAs and submit their plans to the Maryland Department of Planning (MDP) for review and comment. The goal was to use the power of the state budget as an incentive for smarter growth. State programs were geared either to support development within the PFAs or to protect undeveloped land outside them.

Chesapeake Bay, Maryland

CHAPTER 4
Transportation

Dallas, Texas

Smart growth proponents view transportation as a major determinant of land use patterns and an important manifestation of the success of smart growth policies. They argue that expanding transport options, altering transport pricing, and fostering pedestrian-friendly settings yield less single-occupant car travel, less congestion growth, and more trips by transit, biking, and walking. These patterns are associated with more compact, mixed-use, and dense urban forms. This evaluation therefore looked at performance indicators related to mode choice and traffic congestion to assess how they are associated with smart growth programs, which reflect different policy approaches (Ingram et al. 2009, 58–75).

Transportation data that are defined consistently across states are reasonably available, including census data that record commute mode and travel time. Data from the Texas Transport Institute, which estimates annual delay per peak-period traveler and a peak-period travel time index, have been used to examine levels and changes in congestion.

Census data are available every 10 years for all states and municipalities, and the Texas Transport Institute data are available annually for 85 U.S. metropolitan areas. Congestion data were used for cities with populations of one to three million, and seven of the eight case study states (all but New Jersey) had at least one such metropolitan area with congestion data. Vehicle miles traveled (VMT) was one explanatory variable used to analyze the change in congestion.

COMMUTE MODES

Data on mode choice for work trips were tabulated for cities and counties with an average density of at least 50 persons per square mile. Counties were sorted into three density categories—very high (more than 500 persons per square mile), high (101 to 500), and medium (50 to 100)—to control for the level of urbanization.

Figure 11 shows that the transit share of work trips varied greatly with population density in both the smart growth and other selected states. The transit share of work trips across the country during the 1990s was 6 percent in very high density counties, 1 percent in high density counties, and 0.5 percent in medium density counties.

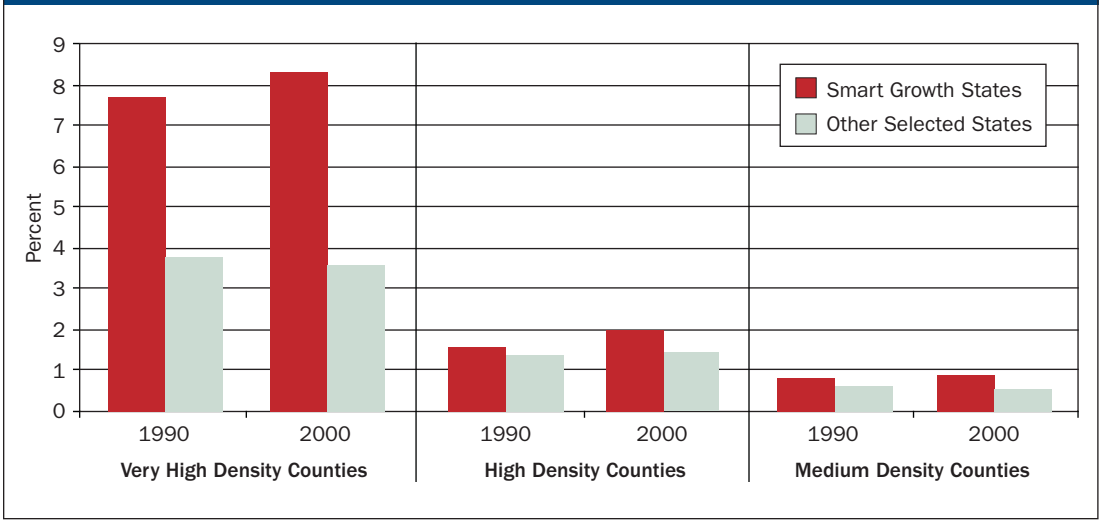
Work trip transit shares in all four smart growth states exceeded U.S. averages, as did those in Colorado. In addition, average work trip transit shares increased from 1990 to 2000 in the smart growth states in all density categories, but generally declined in the other selected states except Colorado.

Given that smart growth programs typically provide bike lanes, bike racks, sidewalks, and priced parking, they should increase the share of bike/walk commutes or at least retard its decline. But as figure 12 indicates, while the bike/walk share was generally higher in the smart growth states, its share declined over time and was essentially unrelated to population density. The exception to this pattern is Oregon, where the bike/walk share increased from 1990 to 2000 by more than 10 percent—likely reflecting the state requirement that local governments produce bike and pedestrian plans as part of their transportation plans (box 4).

CONGESTION

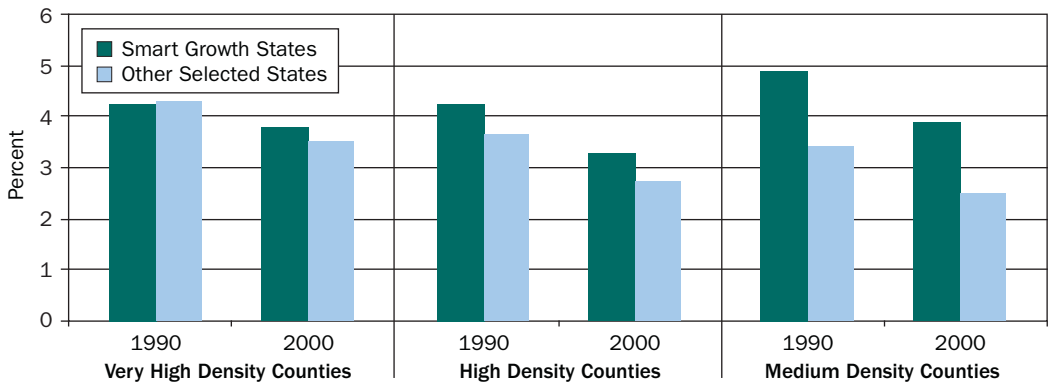
The relationship between the form of development and traffic congestion is much debated. Some analysts believe that dense, compact development promotes transit use and shorter automobile trips, while others contend that decentralization reduces the distances from home to work and spreads car travel more widely over existing transport capacity. Since smart growth programs typically seek to reduce congestion, assessing the change in travel delays over time is essential.

FIGURE 11
Work Trip Transit Shares Started Higher and Rose in Smart Growth States



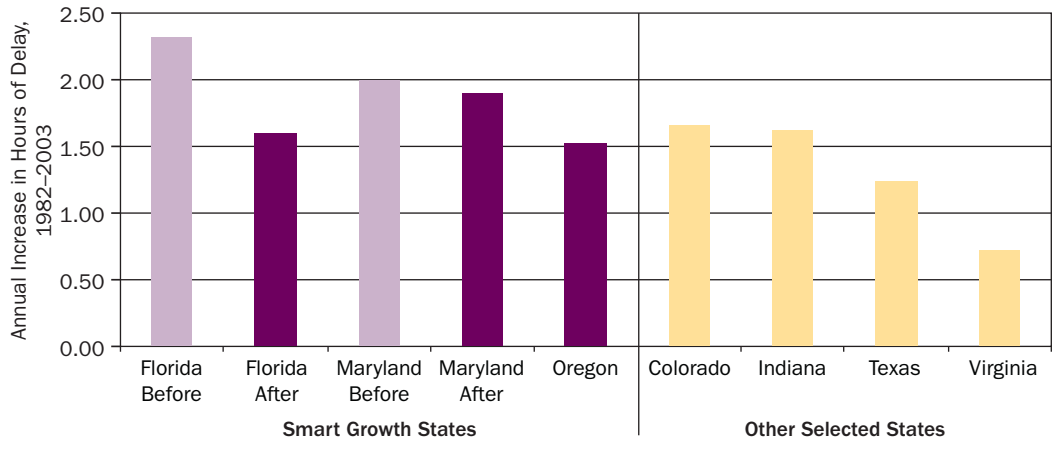
Sources: U.S. Census Bureau (1990e; 2000e).

FIGURE 12
The Bike/Walk Share Generally Started Higher in Smart Growth States, but Declined During the 1990s



Sources: U.S. Census Bureau (1990e; 2000e)

FIGURE 13
Annual Increases in Traffic Delays in Smart Growth States Declined After Smart Growth Programs Were Introduced



Source: Ingram et al. (2009, 65).

Figure 13 shows average annual increases in peak-period hours of delay, including data for Florida and Maryland before and after their respective programs were initiated. Oregon's start date preceded the available data, and no data were available for New Jersey. The results are mixed. The average annual increase in congestion in the smart growth states (1.73 hours) exceeds that in the other selected states (1.31 hours). Yet the initiation of smart growth programs in Florida and Maryland reduced the annual increase in traffic delays, thus providing some evidence of program success.

The results from a sample of six smart growth states indicate that smart growth

BOX 4

Transportation Planning in Oregon

Oregon's integration of transportation planning with land use management is among the most advanced in the country (Ingram et al. 2009, 188–198). The state's transportation plans must be based on an inventory of local needs and consider all modes (cars, freight, bicycle, pedestrian, public transit). In 1993 the state created the Oregon Transportation and Growth Management Program (TGM), a partnership between the Oregon Department of Land Conservation and Development and the Oregon Department of Transportation. One of the primary goals of TGM is to make walking, biking, and using transit safe and convenient. The program also aims to enhance the state's road system as a whole and to improve the ability of commercial enterprises to move goods and services along the highways (Oregon Transportation and Growth Management Program 2009).

TGM's funding from the Federal Highway Administration enables the state to leverage its own investment with federal dollars. TGM recognizes that scattered development without good connections between local destinations increases the need for driving and that well-planned development with good street and walkway connections improves transportation options (such as walking and biking) and can reduce automobile usage.

Thus TGM promotes planning concepts including mixed-use, compact development; good connectivity between local destinations; revitalizing downtown and main streets where good transportation options are already available; transit-oriented development; and bicycle and pedestrian networks. From 2007 to 2009, TGM granted $3.8 million in financial and technical assistance to 60 local transportation projects throughout Oregon.

TGM also sponsors community workshops, lecture series, and other events to improve public understanding of land use and transportation planning concepts. Through its Quick Response and Transportation System Plan Assessments programs, TGM offers direct design assistance and assessments of transportation needs to communities. These functions aid local governments in their search for grants to carry out necessary projects. Its Code Assistance program helps local governments revise zoning and development codes.

programs have a statistically significant and behaviorally meaningful effect on congestion. The travel delay regression indicates that smart growth programs reduced the annual increase in delay by 2.2 hours for every year that the program was in place. For example, if the travel delay had been increasing by 4.0 hours per year, smart growth programs would reduce that number to 1.8 hours per year.

An attempt was also made to relate the congestion reduction from smart growth programs to three underlying causal factors —increased population density, increased transit ridership, and changes in VMT. Taken together, these variables were found to explain no more than 20 percent of the effect of state smart growth programs on congestion.

SUMMARY

Analysis of the transportation indicators, especially work-trip transit ridership and changes in congestion, provides reasonably strong evidence that smart growth programs are associated with desirable outcomes. While the evidence on bike/walk commutes was less compelling than that on transit, smart growth states had somewhat higher shares of work trips by these modes.

When performance across the three major indicators was aggregated for each state, Oregon ranked at the top. That state did very well in transit and bike/walk commutes, and was the top smart growth state in terms of congestion. Indiana and Texas were at the bottom of the overall rankings. It is noteworthy that the four states that performed best in the rankings on transportation (Oregon, Virginia, Colorado, and New Jersey) also performed best on growth patterns and trends.

CHAPTER 5

Affordable Housing

Boulder, Colorado

While improving the affordability of housing is a common goal of smart growth programs, the emphasis placed on this objective varies across the case study states. New Jersey has the strongest state-level program, which stems from the *Mt. Laurel I* and *II* state supreme court decisions requiring municipalities to provide realistic opportunities for low- and moderate-income housing on a regional fair-share basis.

Florida requires that local plans include a housing element. Oregon has a requirement for provision of "needed housing," while Maryland has no specific state-level housing mandate. None of the other selected states had a state-level affordable housing requirement during the 1990s, although Virginia added such a requirement in 2003 (Ingram et al. 2009, 76–87).

HOUSING VALUES

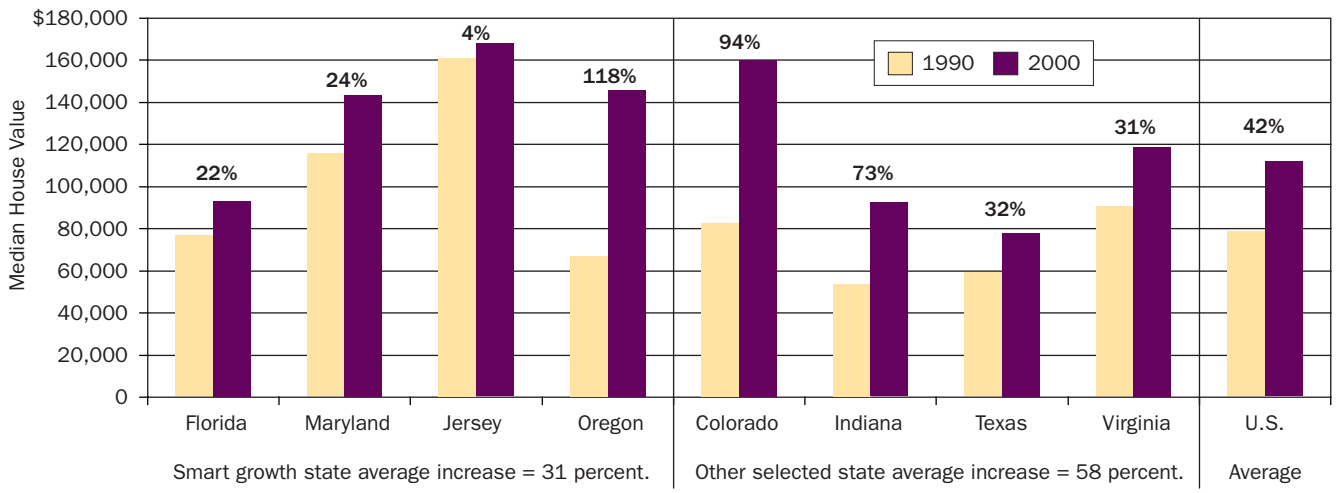
The first measure used to assess housing affordability was the change in median housing values from 1990 to 2000. Figure 14 shows that median values rose in all eight states, with the largest percentage increase (118 percent) in Oregon. Although New Jersey posted the smallest percentage increase, it had the highest median housing value of the eight case study states in both 1990 and 2000. Colorado had the second highest median value in 2000, followed by Oregon and Maryland. Housing in the smart growth states was clearly more expensive than in the other selected states.

Even so, the average increase in median prices was lower in the smart growth states (31 percent) than in the other selected states (58 percent). As a result, the difference in median house values between the two groups shrank from $34,000 in 1990 to $25,000 in 2000. The source of the price increases in the smart growth states could have been on the demand side (greater amenities), the supply side (higher regulatory costs), or both.

MULTIFAMILY AND RENTAL HOUSING

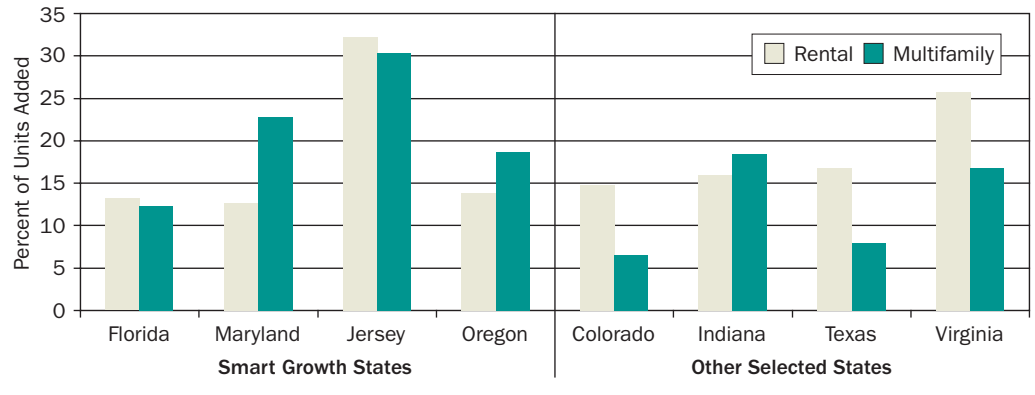
States that successfully promote affordable housing are likely to produce more multifamily and rental units. As figure 15 shows, all eight case study states added varied shares of rental units during the 1990s. Multifamily units made up a larger average share of new housing in the smart growth states (21 percent) than in the other selected states (13 percent). Smart growth states were

FIGURE 14
Percentage Increases in Median House Value Varied Widely Among the Case Study States



Note: Includes all owner-occupied units.
Sources: U.S. Census Bureau (1990a, table H061A; 2000a, table H85).

FIGURE 15
Smart Growth States Added a Larger Share of Multifamily Units During the 1990s



Sources: U.S. Census Bureau (1990a; 2000a).

BOX 5

The Council on Affordable Housing in New Jersey

The Council on Affordable Housing (COAH) is a key planning agency that administers the New Jersey Fair Housing Act (Ingram et al. 2009, 177–187). The enactment of this legislation was a response to a series of state supreme court decisions, known as the *Mt. Laurel* cases, which dealt with affordable housing and exclusionary zoning. In the first case, *Southern Burlington County NAACP v. Township of Mount Laurel, 67 N.J. 151*, the court ruled in 1975 that developing municipalities have a constitutional obligation to provide a realistic opportunity for the construction of low- and moderate-income housing.

In the second case, *Mt. Laurel II (92 N.J. 158)* in 1983, the court held that all municipalities should share the obligation to provide the opportunity for the development of affordable housing, and provided specific judicial guidelines for municipalities to follow, so as to fulfill their constitutional obligation. Municipalities that enacted zoning had to provide realistic opportunities to meet their fair share of low- and moderate-income housing in their regions.

Under the Fair Housing Act, COAH's responsibilities include defining housing regions; estimating moderate and low-income housing needs; setting criteria and guidelines for municipalities to determine and address their fair share numbers; and reviewing and approving housing elements/fair-share plans and regional contribution agreements for municipalities. Once its housing element and fair share plans are approved, the municipality has a degree of protection from *Mt. Laurel*–type lawsuits.

During the 1990s, the council used an allocation formula to establish goals for all municipalities in the state. As of 2008, COAH had begun round three and moved to a "growth share" formula that bases the affordable housing determination for a municipality on the actual growth of market-rate units and nonresidential development.

Cranbury, New Jersey

also less likely to add housing in rural areas. New Jersey had the highest shares of both rental and multifamily units of the eight case study states (box 5), while Maryland had the lowest rental share and Colorado had the lowest multifamily share.

HOUSING COST BURDEN

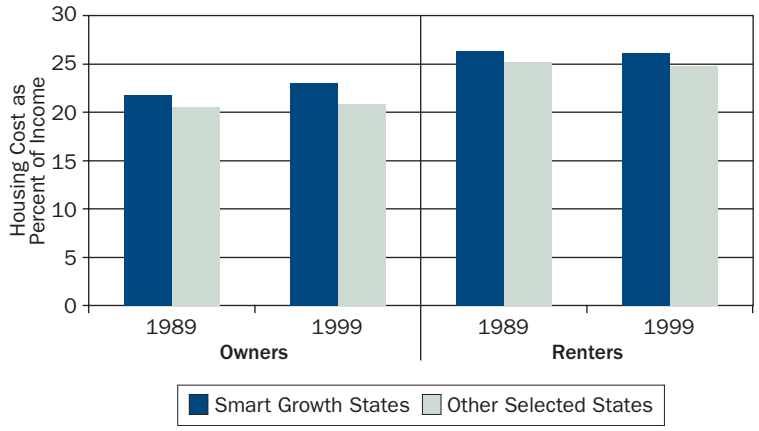
Affordability is determined by both housing prices and household incomes. The housing cost burden is the percent of income spent on housing, commonly measured by the ratio of median house prices and rents to median household income. Figure 16 indicates that renter and owner housing cost burdens were slightly higher in the smart growth states than in the other selected states. The share of income spent on housing changed little from 1989 to 1999, except that owners in smart growth states saw their cost burdens edge up from 22 percent to 23 percent.

In both groups of states, the housing cost burden for renters was consistently higher than for owners. The renter burden fell slightly in all states except Oregon (up 5.5 percent) and Colorado (up 1.1 percent). The owner cost burden rose the most in Indiana (15.6 percent) and Oregon (13.7 percent), and decreased the most in Texas (-3.8 percent) and Virginia (-2.3 percent).

A generally accepted standard of affordability is that housing costs should be less than 30 percent of household income. Accordingly, a specific indicator of affordability (or its lack) is the share of households whose housing cost burden exceeds 30 percent of income. As shown in figure 17, the share of cost-burdened owners rose between 1989 and 1999 in both groups of states, while the share of cost-burdened renters fell or was unchanged.

The shares of both cost-burdened owners and renters were higher in the smart growth states than in the other selected states. Oregon posted the largest increase in the share of cost-burdened owners (5.8 percent), followed by Maryland (3.8 percent). Texas was the only

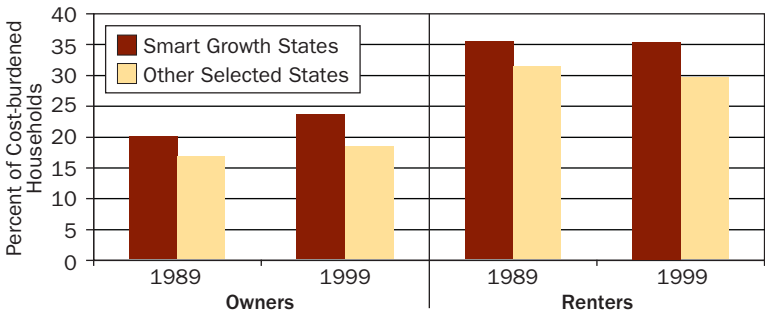
FIGURE 16
Housing Cost Burdens Were Generally Higher in the Smart Growth States, Especially for Renters



Note: Cost-burdened owners and renters are defined as those paying 30 percent or more of income for housing.

Source: U.S. Census Bureau (1990a; 2000a).

FIGURE 17
The Share of Cost-burdened Owners Rose in the Smart Growth States in the 1990s



Note: Cost-burdened owners and renters are defined as those paying 30 percent or more of income for housing.

Source: U.S. Census Bureau (1990a; 2000a).

state to show a decline. The share of cost-burdened renters increased only in Oregon (2.5 percent) and Maryland (0.1 percent), and fell the most in Texas (-3.9 percent). Note that these changes in housing cost burdens do not account for any offsetting cost reductions, such as for transportation, that may be associated with smart growth programs.

Statistical regressions were used to analyze the determinants of the change in the shares of cost-burdened owners and renters across the case study states. Regressions that hypothesized a uniform effect from smart growth programs found a statistically significant relationship. Smart growth programs were associated with increased shares of cost-burdened households.

Additional regressions that allowed each state to have an independent effect found that the shares of cost-burdened renters and owners increased the most in Oregon and the least in Texas. But New Jersey and Florida—smart growth states that require affordable housing elements in local plans—performed better than Oregon and Maryland for owners, and better than Oregon, Maryland, Virginia, and Colorado for renters.

SUMMARY

These results indicate that smart growth programs that lack an affordable housing element have been associated with increases in housing cost burdens, especially for owners. While smart growth states experienced a smaller increase in median housing prices and added a greater share of multifamily units in the 1990s, they also had higher shares of cost-burdened owners and renters than the other selected states.

Regression results indicate that the smart growth states had greater increases in the share of cost-burdened owners than of renters. New Jersey, with its court-mandated affordable housing requirement, was first overall in a composite ranking across all housing affordability indicators. Oregon ranked last, having experienced the largest increases in housing values, housing cost burdens, and shares of cost-burdened households.

CHAPTER 6

Fiscal Dimensions

Indianapolis, Indiana

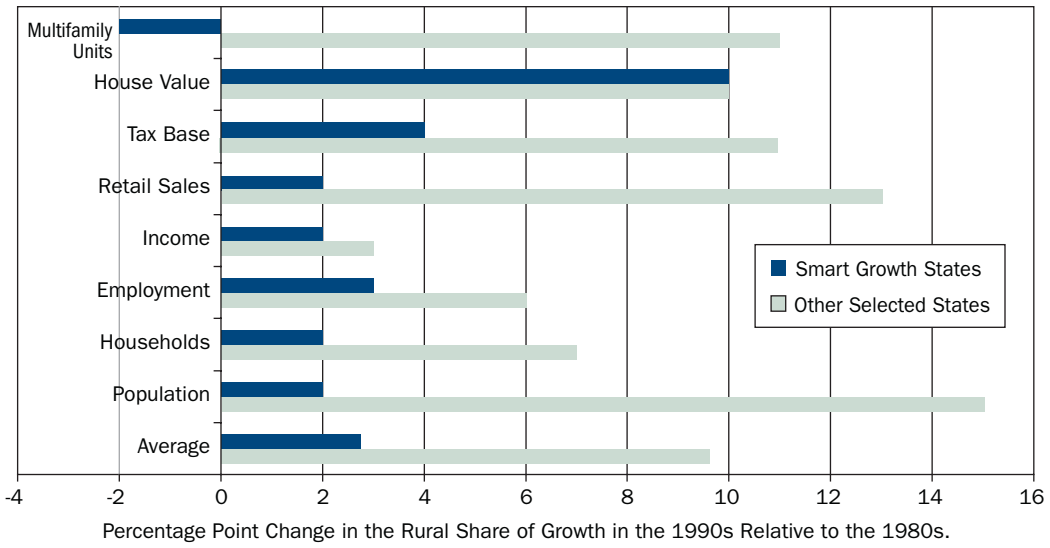
Smart growth programs seek to concentrate economic activity in areas that are already developed and to control growth in undeveloped and rural areas. Fiscal revenues and expenditures have a role to play in these efforts. Some central questions are the extent to which revenues from developed areas are sufficient to pay for expenditures, and how the balance of revenues and expenditures compares between smart growth and other states.

To examine these issues, counties in the eight case study states were separated into two groups according to their population densities—rural/undeveloped, and urban/suburban or otherwise developed (Ingram et al. 2009, 88–115). The densities that defined the two categories varied with the average population density of each state. The analysis looked at ten variables related to economic development for which comparable data were available for the decades from 1980 to 1990 and from 1990 to 2000: population growth and density, households, employment, personal income, retail sales, tax base, housing values, multifamily units, and journey-to-work travel times.

The shares of incremental growth in each variable that occurred in each state's urban/suburban and rural/undeveloped counties were calculated for both decades. The proportion in the 1980s was then subtracted from that in the 1990s to provide a simple summary statistic measuring the change in the distribution of economic activity. For example, if rural counties received 8 percent of a state's population growth in

FIGURE 18

Smart Growth States Had Less Growth in Rural/Undeveloped Areas in the 1990s than in the 1980s



Source: U.S. Census Bureau (1980; 1990c; 2000c); Woods and Poole Economics, Inc. (2005).

the 1980s and 13 percent in the 1990s, the net increment for rural counties would be 5 percent.

Figure 18 shows how much the shares of statewide growth in rural/undeveloped counties changed from the 1980s to the 1990s on eight of the ten variables. The only activity where that share decreased was multifamily housing in the smart growth states. In all other cases, the rural/undeveloped share of growth was equal to or larger in the 1990s than in the 1980s. It is striking that the rural growth rate for all activities in the smart growth states was less than or equal to that in the other selected states. This indicates that smart growth states were more successful in fostering density in urban/suburban areas and in moderating the growth of development in rural/undeveloped areas.

The analysis of fiscal impacts was based on public finance data drawn from the U.S. Census of Governments. However, the 2002 census had two serious data problems that made it necessary to impute values for many missing variables before expenditures and revenues could be analyzed. First, a significant amount of information for New Jersey and Texas was missing, because local jurisdictions did not report it. Second, some expenditures and revenues are not counted, especially if they are nonrecurring or in the form of intrajurisdictional transfers (table 1).

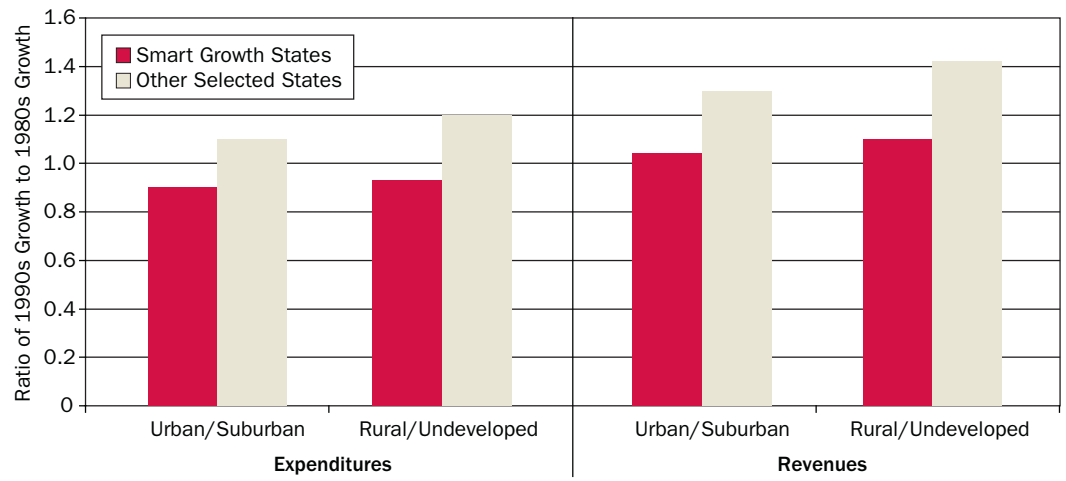
Figure 19 shows the ratios of the respective growth of expenditures and revenues (in constant dollars) in the 1990s and in the 1980s. A ratio over 1.0 indicates that growth accelerated; that is, its absolute magnitude in the 1990s exceeded that in the 1980s. This figure reveals three trends: (1) both expenditures and revenues grew faster in rural areas than in urban/suburban areas; (2) revenues grew faster than expenditures in all areas; and (3) smart growth states had lower growth in both expenditures and revenues than the other selected states. The faster growth in rural areas reflects the increase in develop-

TABLE 1
Expenditures and Revenues in the Evaluation

Expenditures		Revenues	
Included	**Excluded**	**Included**	**Excluded**
Local public infrastructure and services investments	Transfers between the same or different levels of government	Property, sales, income franchise, lodging, fuel, and other taxes	Impact fees for capital improvements
Salaries/wages and other expenditures	Public services provided by community associations	Fees collected from inspections, building permits, and ordinance filings	
Debt service to support large-scale capital project	Educational expenditures in noneducational budgets of selected municipalities and counties	Traffic and parking fines	
Purchases of computers, office furniture, and regular vehicles	Municipal subsidies to charter schools	Service charges for contracted solid waste removal, animal control, and special assessments for improvements	
	New components of expenditures such as start-up computer costs	Intergovernmental transfers	
	New spending due to the addition of new government divisions or annexation		

Source: Ingram et al. (2009, 104–105).

FIGURE 19
Aggregate Expenditures and Revenues Increased Less in Smart Growth States than in Other Selected States



Source: U.S. Census Bureau (1982; 1992; 2002).

ment as documented in figure 18, while the other patterns may reflect prudent fiscal management in the smart growth states.

Fiscal impact, a common metric used to evaluate fiscal performance, is the ratio of the change in revenues to the change in expenditures. When this ratio is greater than 1.0, revenues are growing faster than expenditures. The analysis indicates that the smart growth states had a more favorable fiscal

balance (1.2) in the 1990s than the other selected states (1.0) in urban/suburban areas. What explains this outcome? Analysis of the change in tax bases and tax rates reveals that the smart growth states increased taxes somewhat more than the other selected states to strengthen their fiscal positions.

SUMMARY

Overall, smart growth states did better than the other selected states in controlling the growth of economic development activities in rural areas, and in achieving a favorable balance of incremental revenues over incremental expenditures. It is noteworthy that the more favorable fiscal balances in the smart growth states result from larger tax increases. This suggests that these states are generally more supportive of the public sector than the other selected states, in terms of both the regulatory structure underlying smart growth programs and the provision of financial resources to the public sector. New Jersey performed best overall on measures of the distribution of growth and fiscal impact, followed by Florida and Maryland. The lowest ranking states were Indiana and Virginia.

CHAPTER 7

Survey of Opinion Leaders

Baltimore, Maryland

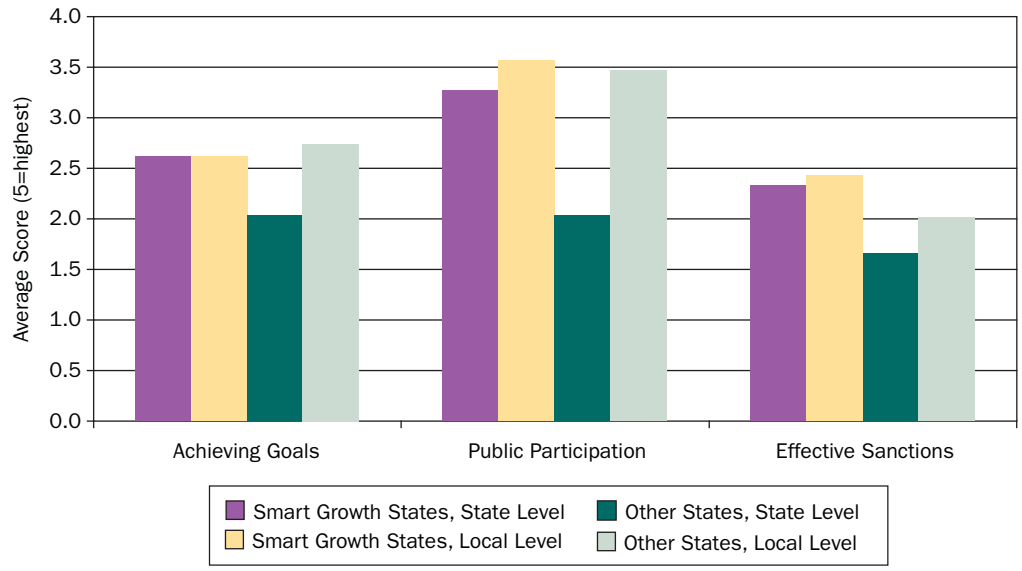
This evaluation also included a survey of 117 state and local opinion leaders—about 15 in each of the eight case study states. The questionnaire covered the period from 2000 to 2007 and addressed five major topics related to smart growth programs: effectiveness in achieving goals; effectiveness of sanctions and incentives; public participation; costs of regulatory compliance; and the government's role in guiding land use decisions. The survey was careful to differentiate between state- and local-level efforts and activities because several of the other selected states enable local governments to apply smart growth policies (Ingram et al. 2009, 116–133).

Respondents in the smart growth states were two to three times more likely to believe that the costs of smart growth policies and the time required to complete the review process had "become a lot higher" than respondents in the other selected states. Opinion leaders generally had similar views about the role of government in smart growth policies, except that those from the other selected states were more likely to believe that state governments should defer to local governments on such issues.

Responses on the effectiveness of achieving goals, of public participation, and of sanctions are summarized in figure 20. Opinion leaders felt that smart growth states had been more effective than the other selected states at the state level, but that the other selected states had been nearly as effective at the local level. These views reaffirm

FIGURE 20

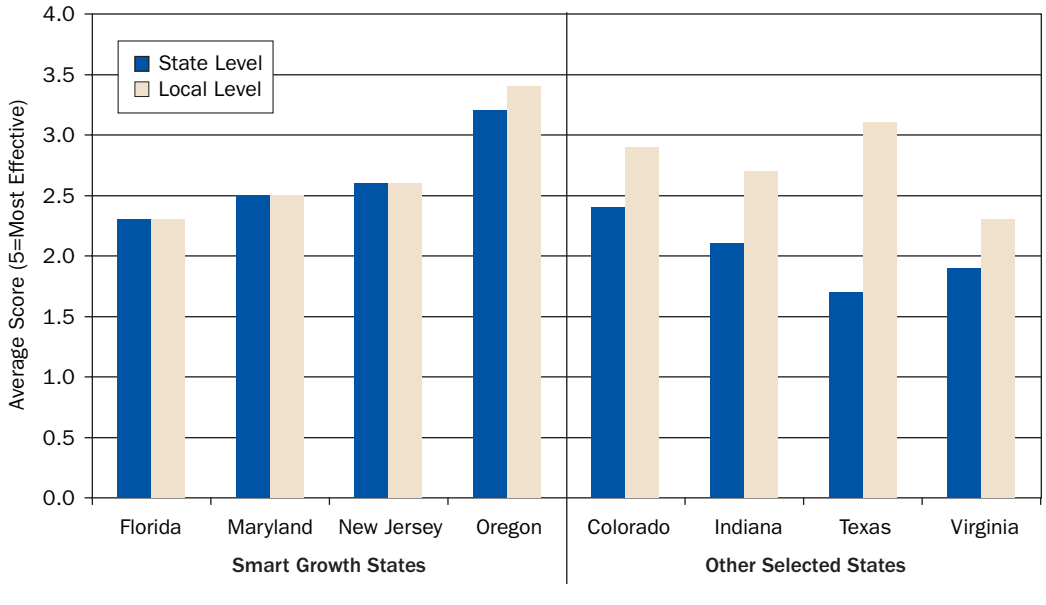
Survey Respondents Viewed State-level Programs in the Other Selected States as Least Effective



Source: Ingram et al. (2009, 118–125).

FIGURE 21

Perceptions of State-level Effectiveness in Achieving Smart Growth Goals Vary More than Those of Local-level Effectiveness Across All States



Source: Ingram et al. (2009, 119).

earlier findings in this report that states without statewide programs, such as Colorado, have succeeded in achieving smart growth objectives through locally implemented policies.

This point is reinforced in figure 21, which shows by state the opinion leaders' views of the effectiveness of state and local governments in achieving smart growth objectives. The lack of a statewide smart growth program apparently contributes to increased local activism in the other selected states that may exceed the perceived effectiveness of programs in smart growth states.

The strength of state regulatory regimes was assessed as a composite of five attributes: state requirements for local planning; state specification of the size of communities that must plan; and state requirements for internal consistency, vertical consistency, and horizontal consistency. The Wharton Residential Land Use Regulatory Index was used to measure the strength of local housing development regulation (Gyourko, Saiz, and Summers 2006).

Figure 22 shows that both state and local regulations are strong in the four smart growth states. Colorado, which does well on many smart growth performance indicators, also has relatively strong local regulations, suggesting that if they are reasonably consistent within a state they can produce smart growth outcomes similar to those in states with strong state-level regulation (box 6).

In addition, whether a state is subject to Dillon's Rule (a legal doctrine holding that localities have only those powers specifically delegated by state law) has little relation to the presence of strong state or local regulations. For example, Maryland is a Dillon's Rule state and Oregon is not, yet both have strong state and local regulations (Richardson and Gough 2003).

FIGURE 22
Smart Growth States Have Stronger State and Local Residential Regulations

Note: SD=Standard deviation.

Source: Ingram et al. (2009, 146).

BOX 6

Local Government Planning Roles in Colorado

Colorado currently has no statewide mandated growth management program. Instead, the state's approach has been largely to create a toolbox of planning powers that local governments can adopt. The few mandatory requirements often reflect federal requirements devolved by the state to local or regional jurisdictions. State agencies offer fairly modest technical support for planning (Ingram et al. 2009, 200–208).

Although there is no mandatory state planning requirement, there are many locally initiated regulations. Under Colorado Revised Statutes, counties and municipalities with a certain population level or growth rate must prepare and adopt a master plan. The Department of Local Affairs annually calculates which local governments meet certain growth thresholds, and receives plans for advice and comment. Nevertheless, the state has no authority to approve plans or to enforce recommendations.

In addition, since Colorado has no state or mandatory regional plans, there is no consistency requirement. In fact, the state does not mandate internal consistency with local comprehensive plans. In effect, such plans are advisory and presumed to be modified when zoning is amended. Similarly, the state does not require that local capital improvements—including those by school districts, utilities, or other units of local government—be consistent with local plans. Local governments primarily use their own powers to protest a land use permitted by an adjacent jurisdiction that would have a negative impact on their own jurisdictions.

To encourage regional collaboration and planning, the state has created several programs designed to work as voluntary partnerships and/or incentive programs, such as the Colorado Wetlands Partnership, Colorado Voluntary Clean-up and Redevelopment Act, and Greater Outdoors Colorado. In addition, the Colorado Division of Housing and the Colorado Housing Finance Authority make resources available to local governments that want to provide low-income housing. Tax incentives were established in 2000 to encourage developers to build low-income rental housing.

Rocky Mountains, Colorado

CHAPTER 8

Conclusions & Recommendations

Richmond, Virginia

The evidence presented here does not sustain the premise that statewide programs are either necessary or sufficient to attain all smart growth objectives, although most statewide programs clearly make progress on one or more of them. While the sample smart growth states as a group only marginally outperformed the other selected states overall, one of the smart growth states performed best on each objective. At the same time, however, another smart growth state often performed well below average on each objective.

There is a marked tendency for smart growth states to perform well in an area that is a high priority for that state (table 2). Thus, Oregon ranked highest on spatial structure and transportation measures, New Jersey on affordable housing, and Maryland on natural resources and environmental protection. In contrast, Oregon and Maryland ranked low on affordable housing, an objective that their programs did not emphasize, and Florida ranked low on spatial structure.

The programs adopted by both the smart growth and other selected states differ greatly in their details, even beyond their emphasis on specific objectives, but some common patterns and linkages exist among some objectives. For example, the four states with the highest rankings on spatial structure also rank highest on transportation, supporting the idea that transportation and development patterns are closely related.

The correlations in table 3 also support that conclusion. The second strongest correlation is between environmental protection and fiscal dimensions, which suggests that

TABLE 2
State Performance Rankings Vary Among Smart Growth Objectives

	Spatial Structure	Environmental Protection	Transportation	Housing Affordability	Fiscal Dimensions
Smart Growth States					
Florida	8	6	5	5	3
Maryland	6	1	6	7	4
New Jersey	3	2	4	1	1
Oregon	1	6	1	8	8
Other Selected States					
Colorado	2	2	3	6	2
Indiana	7	8	7	4	6
Texas	5	4	7	2	5
Virginia	4	4	2	3	5

Source: Ingram et al. (2009, 146)

TABLE 3
Correlations Across Smart Growth Objectives Show Mixed Effects

	Spatial Structure	Environmental Protection	Transportation	Housing Affordability	Fiscal Dimensions
Spatial Structure	1.00				
Environmental Protection	0.33	1.00			
Transportation	0.76	0.09	1.00		
Housing Affordability	-0.17	0.06	-0.32	1.00	
Fiscal Dimensions	-0.08	0.62	-0.13	0.41	1.00

Source: Ingram et al. (2009, 147)

land preservation and conservation occur more often in states with strong fiscal balances and modest development in rural areas.

On the other hand, the performance on fiscal dimensions is independent of the performance on transportation and spatial structure. The correlation between housing affordability and transportation is somewhat negative, indicating that the factors associated with high transit use may also raise housing prices. These correlations suggest potential synergies and antagonisms among various smart growth objectives, and highlight the need for careful program design.

As noted earlier, states without statewide programs that did well in achieving smart growth objectives provided supportive and enabling conditions for local governments to pursue those objectives. This is the case in Colorado, where several metropolitan areas on the Front Range have implemented similar smart growth programs—essentially simulating a statewide program. Texas and Virginia also facilitate or do little to constrain local smart growth initiatives. Indiana does very little to support smart growth policies at either the state or local levels and performs poorly across all five objectives.

Because smart growth programs involve strengthened regulatory controls on development, higher housing prices are often seen as an inevitable consequence. This evaluation, however, does not support the view

that smart growth is always associated with increases in housing prices or reductions in housing affordability. The evidence for New Jersey indicates that housing affordability can be achieved in a state that performs well on the main smart growth objectives when it mandates the promotion of affordable housing. Smart growth states with weak or no affordable housing mandates at the state level perform poorly in this area.

While no state performs well across all objectives, the rankings do support the conclusion that smart growth programs can and do achieve smart growth goals. Thus, this evaluation counters what might be termed "the smart growth impossibility theorem," that is, the conjecture that historic growth patterns and behaviors are so entrenched that they cannot be changed. The mixed results and imperfect performance of the smart growth states seem to reflect the priorities of specific programs and how the states focused their efforts.

These findings support several recommendations that can be grouped under three headings: program structure and transparency; functional linkages and program design; and program sustainability and monitoring. As state and local governments spend ever greater amounts of time and money in pursuit of smart growth objectives to meet new challenges such as climate change, it is essential to improve the efficacy of policies, the transparency of objectives and their performance indicators, and the evidence that objectives are being met.

RECOMMENDATIONS ON PROGRAM STRUCTURE AND TRANSPARENCY

A vision of sustainable and desirable development outcomes needs to inspire and motivate smart growth programs and inform the package of policies, rules, incentives, and regulations that support such programs.

Boulder, Colorado

Florida and Oregon best embody the evidence for this recommendation. Florida has a long history of promoting and requiring planning at all governmental levels. But when its outcomes were evaluated in terms of smart growth objectives, the state performed poorly compared with other states in this study. Florida has not articulated a coherent strategy for managing growth or a vision of what constitutes desirable development outcomes. Instead, it has followed a process-oriented approach that—at times because of unfortunate policy interactions—has essentially encouraged low-density development on the fringe of metropolitan areas. In contrast, Oregon's smart growth program, whose mission is clearly described in its initiating legislation, has focused strongly on preventing development on agricultural lands adjacent to urban areas and has had measurable success in achieving that objective in the Willamette Valley.

Smart growth policies can be implemented on either a top-down or a bottom-up basis, but an approach that coordinates policies at the regional level is a minimal requirement to achieve smart growth objectives.
This evaluation found that states with statewide smart growth programs tended to do somewhat better across a range of performance indicators than most states that had no such programs. Oregon and New Jersey have succeeded in more than one aspect of smart growth.

Exceptions to this pattern were often found in Colorado and sometimes in Texas and Virginia, which do not have statewide policies but do allow local governments to pursue extensive growth management programs. Colorado actually performed better than several states with statewide smart growth programs. A handful of its metropolitan areas on the eastern edge of the Rocky Mountains have taken a similar approach to urban development, with Denver making an aggressive effort to slow sprawl. This consistent policy approach at the local level essentially mimics an effective statewide program and provides coherence at the regional level.

Smart growth programs implemented by local governments with no regional coordination are unlikely to yield good outcomes because of negative spillover effects from communities pursuing their parochial interests. In addition, state-level programs that are poorly coordinated or do not take account of policy interactions across agencies also will perform poorly.

Smart growth policies should articulate the means of achieving objectives and specify implementation mechanisms, rather than just declare objectives.
It is easy for policy makers to endorse legislation that extols the virtues of smart growth, such as improved environmental quality, more affordable housing, and reduced traffic congestion. But without confronting the challenges of how to achieve those objectives, such legislation is little more than statements about preferred states of the world.

Real progress on the smart growth agenda has come in states that have grappled with implementation and come up with new means of achieving smart growth objectives. For example, Maryland's initiatives have gained notice because of their avowed use of incentives to promote smart growth, which are seen as an advance over prior regulatory or command-and-control approaches.

The results of this evaluation suggest that achieving smart growth objectives is extremely challenging. Further progress is needed in developing and refining policies that both build on past experience and try

Houston, Texas

new approaches to policy implementation that are politically feasible, technically sound, and economically efficient.

RECOMMENDATIONS ON FUNCTIONAL LINKAGES AND PROGRAM DESIGN

The design of growth management policies should take account of interactions among policies and coordinate well across relevant agencies. In some cases, policies are put in place that focus narrowly on specific objectives. But those policies are part of a larger framework and may have potential synergies or antagonisms with other policies.

One outstanding example is Florida's concurrency policy, which required that development can occur only where there are adequate infrastructure and other public facilities. In retrospect, it is clear that Florida's unused infrastructure capacity existed largely on the fringes of urban areas, and that the concurrency policy helped to force development to those areas and thus exacerbated sprawl. While infill development was a policy objective in Florida, needed infrastructure investments were not forthcoming.

As another example, none of the eight case study states requires government approval of conservation easements, raising the possibility that such easements can be inconsistent with existing land use plans.

Smart growth policies should make use of economic incentives, such as pricing and tax policies, that have shown promise in other countries. While Maryland has instituted policies that use incentives, such as facilitating growth in areas already served by infrastructure, relatively few programs have used pricing

mechanisms to attain smart growth objectives. In transportation, for example, no U.S. city has implemented congestion fees along the lines of those in London and Singapore, even though the evidence indicates that these programs have successfully reduced peak-period congestion and promoted transit use.

While many municipalities levy impact fees on new development, these charges are based primarily on estimates of the capital investment attributable to the development, not on estimates of negative externalities (such as increased congestion, emissions, and greenfield development). Several municipalities do impose additional charges or levies, including the requirement that developers provide a percentage of affordable dwellings within a larger project or contribute to an affordable housing fund. However, outside of proposals such as cap-and-trade schemes that allow trading of emissions, prices and fees have modest roles in smart growth plans. This is an area that deserves more focus.

Smart growth programs need to consider carefully the income distribution consequences of their policies. With the exception of affordable housing, smart growth programs generally pay little attention to their income distributional effects. While most smart growth programs do include affordable housing elements, these policies are working well in only a few states —most notably New Jersey. Affordable housing policies are critical because many smart growth program elements have been associated with higher housing prices.

Whether price pressures come from the demand side (because of the greater attractiveness of smart growth areas) or the supply side (because new constraints on low-density housing are not offset by incentives for multifamily housing) is still unclear, but production of affordable housing is an achievable and important objective.

Other aspects of smart growth programs, especially those associated with transportation, are also likely to produce benefits for low-income residents in terms of improved access to employment or lower travel costs. Policies and programs that promote walking, cycling, and transit accessibility and use are likely to expand the opportunities of low-income households, many of whom may have limited transportation options. Improving transit accessibility more generally is also likely to benefit low-income workers who are current transit users.

RECOMMENDATIONS ON PROGRAM SUSTAINABILITY AND MONITORING

Because smart growth programs must be implemented over a long period to achieve results, success requires credible governmental commitment to these policies. Some of the smart growth states included in this evaluation benefited from consistent application of policies over time, while others did not. Oregon has sustained its focus on the adequacy of state-mandated plans for development. In contrast, Maryland's Governor Glendening implemented an innovative set of smart growth policies that his immediate successor largely ignored.

New Jersey has made a highly credible commitment to one aspect of smart growth programs following the state supreme court's *Mt. Laurel* decisions requiring implementation of policies to promote affordable housing. Many observers attribute the state's success in providing affordable rental housing to the subsequent oversight of policies and implementation that executive decision making or inattention cannot undo. The need for credible governmental commitment strengthens the preference for state-level smart growth

policies, since it may be difficult to make such commitments at the local or even regional levels.

Measurement and collection of data, particularly related to environmental quality and public finance, are inadequate and need to be improved. Several objectives of smart growth programs, particularly those related to the environment, lack sufficient data to allow formulation of performance indicators that can be tracked over time or compared across jurisdictions. State-level data are particularly weak for assessing air and water quality and for creating measures related to flora and fauna. Comparable data are currently available only for performance measures related to land uses.

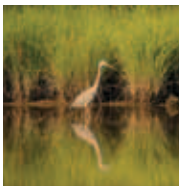
In the area of local public finance, existing datasets should be able to support the formulation of performance indicators, but they are missing extensive amounts of data and do not readily sustain comparisons over time or across states.

Finally, data on population and many related measures are collected for geographic areas whose boundaries change over time. Reconfiguring zonal systems to make them consistent over time is very costly for individual studies and would be done more efficiently at a centralized level.

Smart growth programs would benefit from more research on important interactions among policies used to achieve different objectives. Much is known about the determinants of urban form and household behavior in urban settings. However, stronger evidence is needed about the interactions among land use, transportation, and emissions, as well as between land use policies and housing affordability. Policies are being put in place whose success depends on specific expectations about such interactions. For example, although there is still substantial uncertainty about the magnitude of the relationship between residential densities and vehicle miles traveled, the results expected from many smart growth policies depend importantly on assumptions about the nature of this relationship.

Clearer definition of performance indicators and measurement of their attainment would facilitate the evaluation of smart growth programs and contribute to their technical and political sustainability. This evaluation makes clear that few smart growth programs define specific performance indicators to measure the success of their policies. In addition, the states have not collected the data necessary to monitor their performance or to carry out an evaluation of overall program effectiveness. Oregon's benchmark reporting system and Maryland's National Center for Smart Growth Research and Education are among the rare efforts to create monitoring capacity.

Smart growth programs benefit from well-defined and measurable objectives, as well as from procedures to monitor relevant performance measures that demonstrate how the programs can achieve those objectives. Effective monitoring can help maintain voter support for smart growth policies and guide adjustments when the evidence indicates that policies are not working.



REFERENCES

DeGrove, John M. 1984. *Land, growth and politics.* Washington, DC: Planners Press.

———. 1992. *The new frontier for land policy: Planning and growth management in the states.* Cambridge, MA: Lincoln Institute of Land Policy.

———. 2005. *Planning policy and politics: Smart growth and the states.* Cambridge, MA: Lincoln Institute of Land Policy.

Fulton, William, Rolf Pendall, Mai Nguyen, and Alicia Harrison. 2001. *Who sprawls most? How growth patterns differ across the U.S.* Washington, DC: The Brookings Institution, Survey Series.

GeoLytics. 2002. *CensusCD 1990 long form in 2000 boundaries.* East Brunswick, NJ: GeoLytics, Inc.

Glaeser, Edward L., Matthew E. Kahn, and Jordan Rappaport. 2008. Why do the poor live in cities? The role of public transportation. *Journal of Urban Economics* 63:1–24.

Gyourko, Joseph, Albert Saiz, and Anita Summers. 2006. *A new measure of the local regulatory environment for housing markets: The Wharton residential land use regulatory index.* Working Paper 558. Philadelphia: University of Pennsylvania, Zell/Lurie Real Estate Center.

Ingram, Gregory K., Armando Carbonell, Yu-Hung Hong, and Anthony Flint. 2009. *Smart growth policies: An evaluation of programs and outcomes.* Cambridge, MA: Lincoln Institute of Land Policy.

Land Trust Alliance. 2005. *2005 national land trust census report. www.landtrustalliance.org/about-us/land-trust-census*

———. n.d. 1990 Census Data Cumulative Totals. Unpublished.

Lynch, Lori, Karen Palm, Sabrina Lovell, and Jay Harvard. 2007. *Using agricultural and forest land values to estimate the budgetary resources needed to triple Maryland's preserved acres.* College Park: University of Maryland, Harry R. Hughes Center for Agro-Ecology, Inc.

National Association of State Park Directors. n.d. Summary of state park acreage. Unpublished. www.naspd.org

Oregon Transportation and Growth Management Program. 2009. *2007-2009 Biennial Report. http://www.oregon.gov/LCD/TGM/docs/0709biennialreportfinal.pdf*

Richardson, Jesse J., and Meghan Z. Gough. 2003. *Is home rule the answer? Clarifying the influence of Dillon's Rule on growth management.* Washington, DC: Brookings Institution.

Richmond, Henry. 2007. *Oregon's public investment in conservation, prosperity, and fairness. www.oregonpublicinvestment.com/*

Rohse, Mitch. 1987. *Land use planning in Oregon: A no-nonsense handbook in plain English.* Corvallis: Oregon State University Press.

Smart Growth Network. 2009. *Smart Growth Online. http://www.smartgrowth.org/about/principles/default.asp*

Trust for Public Land. 2005. *Value of voter-approved open space and tax measures, 1999 to 2004.* TPL LandVote Database and Mapping System. *www.tpl.org*

U.S. Census Bureau. 1980. *Census of population and housing.* Washington, DC: Government Printing Office.

———. 1982. *U.S. census of governments.* Washington, DC: Government Printing Office.

———. 1990a. *1990 census summary tape file 3. http://factfinder.census.gov/servlet/DatasetMainPageServlet?_ds_name=DEC_1990_STF3_&_program=DEC&_lang=en.*

———. 1990b. *Census 1990: Summary tape file 1. http://factfinder.census.gov*

———. 1990c. *Census of population and housing.* Washington, DC: Government Printing Office.

———. 1990d. *Census of population income survey.* Washington, DC: Government Printing Office.

———. 1990e. *Means of transportation to work for workers 16 years and older* (Question P045 in the 1990 Decennial Census).

———. 1992. *U.S. census of governments.* Washington, DC: Government Printing Office.

———. 1996. *Census zip code business patterns: 1994. http://factfinder.census.gov*

_____. 2000a. *2000 census summary file 3. www.census.gov/Press-Release/www/2002/sumfile3.html*

———. 2000b. *Census 2000: Summary tape file 1. http://factfinder.census.gov*

_____. 2000c. *Census of population and housing.* Washington, DC: Government Printing Office.

_____. 2000d. *Census of population income survey.* Washington, DC: Government Printing Office.

———. 2000e. *Means of transportation to work for workers 16 years and older* (Question P30 in the 2000 Decennial Census).

———. 2002. *U.S. census of governments.* Washington, DC: Government Printing Office.

———. 2006. *Census zip code business patterns: 2004. http://factfinder.census.gov*

———. 2007. *Revised intercensal population estimates. www.bea.gov/regional/spi/default.cfm?satable=summary*

U.S. Department of Agriculture. 1982. *Summary report of the natural resources inventory. http://www.nrcs.usda.gov/technical/NRI/*

———. 1987a. *Summary report of the natural resources inventory. http://www.nrcs.usda.gov/technical/NRI/*

———. 1987b. *U.S. census of agriculture. www.agcensus.usda.gov/*

———. 1992. *Summary report of the natural resources inventory. http://www.nrcs.usda.gov/technical/NRI/*

———. 1997. *Summary report of the natural resources inventory. http://www.nrcs.usda.gov/technical/NRI/*

———. 2000. *Summary report: 1997 national resources inventory.* Washington, DC, and Ames, Iowa: Natural Resources Conservation Service and Iowa State University, Statistical Laboratory.

———. 2002. *U.S. census of agriculture. www.agcensus.usda.gov/*

———. 2003. *National resources inventory 2003 Annual NRI. www.nrcs.usda.gov/technical/NRI/2003/Landuse-mrb.pdf*

Woods and Poole Economics, Inc. 2005. *Complete economic and demographic data source (CEDDS).* Washington, DC: Woods and Poole Economics, Inc.

Lincoln Institute of Land Policy
www.lincolninst.edu

Lincoln Institute is a private operating foundation whose mission is to improve the quality of public debate and decisions in the areas of land policy and land-related taxation in the United States and around the world. The Institute's goals are to integrate theory and practice to better shape land policy and to provide a nonpartisan forum for discussion of the multidisciplinary forces that influence public policy. The Institute seeks to inform decision making through education, research, demonstration projects, and the dissemination of information through publications, our Web site, and other media. Lincoln Institute programs bring together scholars, practitioners, public officials, policy advisers, and involved citizens in a collegial learning environment.

Ordering Information

To download a free copy of this report or to order copies of the printed report, visit *www.lincolninst.edu* and search by author or title. For additional information on discounted prices for bookstores, multiple-copy orders, and shipping and handling costs, send your inquiry to *lincolnorders@pssc.com*.

Production Credits

PROJECT MANAGER & EDITOR
Ann LeRoyer

DESIGN & PRODUCTION:
DG Communications/*NonprofitDesign.com*

PRINTING:
Recycled Paper Printing, Boston

Printed on recycled paper using soy-based inks.

Photographs

FRONT COVER
Top left: JupiterImages.com
Top right: Travel Portland
Bottom left: Photos.com
Bottom right: JupiterImages.com

OTHER
IndexOpen.com: 2
JupiterImages.com: 4, 7, 9, 37
Northern Light Productions: 12
Ann LeRoyer: 13, 36
iStockphoto.com: 15, 18, 19, 22, 29
Anne Battis: 24, 39
Alan Mallach: 26
Gerrit Knaap: 33
Ming Zhang: 41

LINCOLN INSTITUTE OF LAND POLICY
113 Brattle Street
Cambridge, MA 02138-3400 USA

Phone: 617-661-3016 or 800-526-3873

Fax: 617-661-7235 or 800-526-3944

Web: www.lincolninst.edu

Email: help@lincolninst.edu



Evaluating Smart Growth

State and Local Policy Outcomes

The findings of this report support three sets of recommendations that may be useful to state and local policy makers as they formulate smart growth objectives in the current context of high energy costs, historic housing market volatility, and increasing pressures to reduce greenhouse gas emissions.

Program Structure and Transparency

- The design of smart growth programs and supporting regulations and incentives should be guided by a vision of sustainable and desirable development outcomes.
- Any top-down or bottom-up smart growth policies must be coordinated at the regional level to be able to achieve their desired objectives.
- Policy makers must articulate the means of achieving smart growth objectives and specify implementation mechanisms, rather than just declare objectives.

Functional Linkages for Policy Design

- The design of growth management policies should take account of interactions among policies and coordination across relevant agencies.
- Smart growth policies should make use of economic incentives, such as pricing and tax policies, that have shown promise in other countries.
- Smart growth programs need to consider the income distribution consequences of their policies.

Sustainability and Monitoring of Programs

- Credible commitment from different levels of government is crucial for the successful implementation of smart growth programs.
- Improvements in measurement and collection of data, particularly related to environmental quality and public finance, are needed to better monitor program performance.
- More evidence is needed about the nature of interactions among smart growth policies—particularly those related to land use, transportation, and housing affordability.
- Clearer definition of performance indicators and measurement of their attainment would facilitate the evaluation of smart growth programs and contribute to their technical and political sustainability.

LINCOLN INSTITUTE OF LAND POLICY

ISBN 978-1-55844-193-4
Policy Focus Report/Code PF020

ISBN 978-1-55844-193-4
9 781558 441934