

## New Research on Population, Suburban Sprawl and Smart Growth

### Factsheet:

#### Population Growth and Suburban Sprawl: A Complex Relationship



Suburban sprawl -- defined as irresponsible, often poorly-planned development that destroys green space, increases traffic and air pollution, crowds schools and drives up taxes -- is a major concern for Americans across the country. And, increasingly, the impact of population growth on suburban sprawl has become a topic of discussion and debate.

New research confirms that though population growth is rarely its sole cause, it often contributes in a major way to sprawl. This research, conducted by Professor Rolf Pendall of Cornell University also confirms that the importance of population growth as a driver of sprawl varies across the United States: In the West and South it is significant, often a major factor; in the East and Mid-west it is a minor and sometimes inconsequential factor.

But the most intriguing aspect of this research is the light it sheds on solutions. Pendall found that smart-growth solutions, which focus on channeling growth into areas with existing infrastructure, were effective at slowing sprawling growth regardless of its cause. Other solutions that focused on curtailing population growth by reducing the density of land use, actually increased the amount of sprawl and failed to reduce population growth, he found.

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Professor Rolf Pendall of Cornell University analyzed suburban sprawl over the course of the 1980s in 282 metropolitan areas. He found that the population growth variable explains about 31 percent of the growth in land area. They found that even those areas that experienced no population growth increased in urbanized land area by an average of 18 percent.(1)

This new evidence supports the conclusions of a study by former mayor of Albuquerque and author David Rusk. Rusk studied 213 urbanized areas and found that between 1960 and 1990 population increased from 95 million to 140 million (47 percent) while urbanized land increased from 25,000 square miles to 51,000 square miles (107 percent).(2) This means that density per square mile decreased by 28%.

Data collected by the U.S. Department of Housing and Urban Development for its State of the Cities 2000 report (1994-1997 time period) show a continuation of this trend: Our urban areas are expanding at about twice the rate that the population is growing.(3) It is important to remember that if there are multiple causes of sprawl, then their impact is multiplied together, so that if population increases by 50%, and density decreases by 50%, land consumed will increase not by 100%, but by 300%. So poor land use makes the impact of population growth worse, and vice-versa.

A regional breakdown of Rusk's data shows some significant variations. In some areas of the United States, metropolitan area sprawl is largely a consequence of flight from central cities, but in other parts of the country net population growth is playing a larger role in exacerbating sprawl. Population growth is clearly a bigger factor in the South and the West (particularly along the coasts) than in the Midwest and Northeast.(4) In fact, according to a recent study of 277 metropolitan areas by Janet Rothenberg Pack of the University of Pennsylvania, from 1960-1990 our western cities nearly doubled in population, southern cities increased 70 percent, and cities in the Midwest and the Northeast grew by a more modest 25 percent and 12.5 percent respectively.(5)

## Subsidies and Population Growth: The self-fulfilling Cycle

A growing body of research shows that many communities are subsidizing new development in the form of new roads, water and sewer lines, schools, and emergency services.(6) Communities are also subsidizing growth by offering incentives to new businesses or industries that locate there, often sacrificing tax revenues needed to serve existing residents and businesses.

This issue has arisen recently in Texas, where officials and citizens are debating a proposal to spend \$17 billion on water-related infrastructure, like dams and reservoirs, over the next 50 years. This new development is designed to support a projected near-doubling of the state's population.(7) The big question is: Does this kind of infrastructure planning prove to be a self-fulfilling prophecy?

There's evidence in the transportation arena that this cycle of subsidies does encourage growth. A recent study prepared for the Brookings Institution found that "changes in metropolitan patterns are induced by highways."(8) And the Maryland Public Interest Research Group found a "magnet effect" as well as a "ripple effect" whereby new highway construction not only attracted new development, but that this effect became more pronounced as distance from an urban area increased.(9) In other words, the further we extend roads and other infrastructure from existing communities, the more this tends to generate sprawl.

In addition to infrastructure investments, cities, states and communities across America spend billions of dollars to attract corporations to their areas. These relocations are often a contributor to sprawl. Greg LeRoy of the Good Jobs First program at the Institute on Taxation and Economic Policy (ITEP) studied this phenomenon in Anoka, a suburb of Minneapolis-St. Paul area. What he found was that 26 of the 29 companies which had relocated (thanks to \$7.5 million worth of free land subsidies) came from the "urban core area or closer to it than Anoka."(10) In the process, about 1200 jobs moved away from the central city.(11)

In an earlier study of 550 economic development disclosure subsidies in Minnesota, LeRoy and Tyson Slocum of ITEP found an equally disturbing pattern: Little heed was paid in terms of the kinds of job growth encouraged by \$176 million worth of economic incentives. The per-job subsidies were sizable, with "One hundred and twenty-three deals approved at a cost of more than \$35,000 per job...[and] Thirty-eight deals approved at \$100,000 or more per job."(12) What Minnesota jurisdictions received in exchange for these incentives were jobs paying lower wages than normal. In fact, "About two-thirds of the deals were approved despite very low projected wages-20% or more below market levels for their industries. Roughly half the deals report actual wages that low."(13)

This dynamic is similar to what Bruce Katz and Joel Rogers of the Brookings Institution refer to when they talk about "low road" economic strategies for metropolitan areas.(14) And it matters not just for central cities, but for metropolitan regions as a whole. In fact, Katz and Rogers found that, "By the late 1980s, across a very wide range of metropolitan regions, every \$1,000 gained or lost in per capita city income was associated with a \$690 gain or loss in per capita suburban income. And indeed, recent evidence suggests the urban-suburban economic linkage is getting tighter over time."(15)

Katz and Rogers as well as LeRoy highly recommend setting wage floors when writing contracts, grants, or offering subsidies for new businesses. This is crucial and helps to counter the misconception that all job growth is always good. Regions looking out for their long-term economic interests need to hew to a "high road" strategy. This also helps to address the problem of rapid population growth, which is most likely spurred by an anything-goes job growth strategy uninformed by concerns about wage levels.

Subsidies have clearly played a role in encouraging, or at least enabling, sprawling development. But the good news is that breaking the cycle of subsidies can help us curb

suburban sprawl while also restraining population growth by tying it to the availability of key resources, like water.

### **Solutions That Work: Grow Smarter**

Professor Rolf Pendall's recent study<sup>(16)</sup> found that smart-growth tools like Adequate Public Facilities Ordinances (APFOs), which require that infrastructure like roads and sewer lines be fully paid for before new development moves forward, are very effective. His research bears out the effectiveness of a strategy that demands that growth should pay its own way.

Interestingly, Pendall's research has also confirmed the importance of supporting farmers and shoring up the farm economy. He found that "...the value of farm products sold per acre of farmland is by far the most important variable related to sprawl versus compactness. Every additional \$1000 of productivity in 1982 was associated with about 70 new residents per 100 new urban acres between 1982 and 1992."<sup>(17)</sup>

Another key smart-growth solution that has proven very effective is the use of greenbelts. Greenbelts create designated growth areas with distinct boundaries and protection for open spaces outside of those boundaries.

Most of these policies also deal with population growth. However, their focus isn't on overall numbers of people, it's on the location of human settlements. More specifically, their general purpose is to channel population growth away from areas that should be off-limits, like floodplains, wetlands, and important habitats.

The state of Oregon is the best example of this policy. Oregon adopted several statewide planning statutes in 1973, including one requiring the adoption of plans which zone for affordable housing within urban growth boundaries and the creation of protective zones outside of them. The plan has meant the protection of 25 million acres worth of farm and forest lands. It has also allowed Portland's population to grow by 50 percent since the 1970s while its land area increased by a mere 2 percent.<sup>(18)</sup>

On the opposite side of the growth management spectrum is Atlanta, variously referred to as "Hotlanta" and "Sprawl City" because of its rapid growth. From the mid-80s to the mid-90s, Atlanta grew at about the same rate as Portland (32 percent versus 26 percent).<sup>(19)</sup> But without strong growth management rules, Atlanta has sprawled rapidly. In fact, during the 1990s, the region doubled in size from 65 miles north to south to a staggering 110 miles. This growth hasn't been evenly distributed. In 1998, growth in Atlanta's suburbs was 100 times the growth in the city.<sup>(20)</sup>

As Professor Chris Nelson of Georgia Tech found when he compared growth issues in Atlanta and Portland from the mid-80s to the mid-90s, smart growth policies like urban growth boundaries yield plenty of other benefits. Atlanta's property taxes have shot up 22 percent in that period, whereas Portland's dropped 29 percent. Vehicle miles traveled jumped 17 percent in Atlanta but rose a bare 2 percent in Portland. And the extra miles drivers must travel in Atlanta have an impact on air quality: Nelson found that ground-level ozone, measured by number of days with unhealthy concentrations in the ambient air, plummeted in Portland by 86 percent but rose 5 percent in Atlanta.<sup>(21)</sup>

In addition to cutting the subsidy cycle and using greenbelts to protect our open spaces, the Sierra Club strongly favors other tools which provide an economic disincentive for sprawl, including:

- Location-Efficient Mortgages, which provide better loan terms based on a home's proximity to public transportation or the center of a city;
- Impact fees, which are charged to developers to pay for new infrastructure;

- Split-rate property taxes, which encourage development in existing communities by taxing buildings at a lower rate than land; and
- Cutting subsidies for low-wage industries and by setting specific requirements such as wage floors (LeRoy of ITEP suggests they be set at local market levels) as well as low or no pollution levels.

All of these tools intrinsically deal with population growth by rendering areas, especially environmentally fragile places, off-limits to new development and instead channeling growth into areas that can handle it.

### **Ineffective and Inequitable Ideas: Reducing Density**

Though smart growth solutions have proven effective, tactics that attempt to discourage population growth by reducing density can back-fire and lead to more sprawl and more growth.

Professor Pendall surveyed the use of growth management tools by planners and engineers in 159 counties that gained population between 1982 and 1992. He performed a regression analysis on the impact of these tools on sprawl-based land consumption.(22) His findings are striking: Tools aimed specifically at slowing population growth by use of low-density zoning, were actually associated with more sprawl.(23)

In a separate study Pendall highlights another reason to be wary of tools aimed at simply capping growth by reducing density: They can be racially and economically exclusionary, in part because they are invariably implemented only in certain jurisdictions within a metropolitan region.(24) In this article, using a survey of more than 1,000 jurisdictions in the 25 largest U.S. metropolitan areas, Pendall shows that low-density-only zoning excludes blacks and Hispanics by restricting the construction of multifamily and rental housing.(25)

Pendall convincingly sketches out a "chain of exclusion" whereby low-density-only-zoning leads to exclusion of racial minorities either directly or by spurring a shift to lower housing production and single-family unit housing, leading to a lower percentage of renters and lower rental affordability.(26)

### **Conclusions**

Sprawl is driven by myopic public policies, irresponsible private practices, outdated cultural norms and population growth. The mix of these factors is different in every metropolitan area, and varies widely from region to region. Poor planning and population growth interact with each and exacerbate their negative impacts. The solutions must, similarly, be crafted on the basis of local circumstances and needs.

Though population is one of the factors that creates sprawl, not all solutions that appear to focus on population actually work. Solutions that focus on low density in particular can backfire. Not only can these "solutions" actually increase the amount of suburban sprawl, but also they are often unfair and exclusionary.

The good news is that smart growth solutions - like cutting the subsidies to both development and job relocation that feed sprawl and using greenbelts to protect fragile areas - can actually restrain population growth while curbing suburban sprawl. In short, whatever the mix of population growth and poor land use practices that cause sprawl in a given region, smart growth solutions are still the most effective and equitable way to combat suburban sprawl.

For more information see the Sierra Club's fact sheet on the [relationship between population and suburban sprawl](#).

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## Endnotes

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6. Challenge to Sprawl Campaign, *Sprawl Costs Us All: How Your Taxes Fuel Suburban Sprawl*, Sierra Club 2000. See also Transit Cooperative Research Program Report 39, "The Costs of Sprawl – Revisited," Transportation Research Board, National Research Council, National Academy Press, 1998.
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8. Marlon G. Boarnet and Andrew F. Haughwout, "Do Highways Matter? Evidence and Policy Implications of Highways Influence on Metropolitan Development," *Brookings Institution*, August 2000.
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13. Ibid.
14. Bruce Katz and Joel Rogers, "The Next Urban Agenda," *The Next Agenda: Blueprint for a New Progressive Movement*, Robert L. Borosage and Roger Hickey, Eds., 2001.
15. Ibid.
16. Rolf Pendall, "Do land-use controls cause sprawl?" *Environment and Planning B: Planning and Design* 1999, volume 26.
17. Ibid.
18. *Once There Were Greenfields*, Natural Resources Defense Council and Surface Transportation Policy Project, 1999.
19. Arthur C. Nelson, "Effects of Urban Containment on Housing Prices and Landowner Behavior," *Lincoln Institute of Land Policy's Land Lines*, May 2000.
20. Introduction, *Sprawl City: Race, Politics, and Planning in Atlanta*, Edited by Bob D. Bullard, Glenn S. Johnson, and Angel O. Torres, Island Press 2000.
21. Nelson, "Effects of Urban Containment on Housing Prices and Landowner Behavior," *Land Lines*, May 2000.
22. Pendall, "Do land-use controls cause sprawl?" *Environment and Planning B: Planning and Design* 1999, volume 26.
23. Ibid.
24. Rolf Pendall, "Local Land Use Regulation and the Chain of Exclusion," *American Planning Association Journal*, Spring 2000.
25. Ibid.
26. Ibid.