

**Where the Jobs Are Going:
Job Sprawl in U.S. Metropolitan
Regions, 2001–2006**

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Characteristics of Sprawl

- Ewing (1997) identified four development types or patterns considered sprawl: low density, strip, scattered, and leapfrog
- Emphasis here on physical characteristics
- Employment is an underemphasized component of sprawl
- While much of the research on sprawl is cross-sectional, relying on a single year of data, sprawl is a temporally dynamic phenomenon requiring measures that capture changes in pattern over time

Problems with Sprawl

- Much published research documenting the adverse effects and costs of sprawl
- “People drive more, have to own more cars, breathe more polluted air, face greater risk of traffic fatalities, and walk and use transit less in places with more sprawling development patterns” (Ewing, Pendall, and Chen 2002)
- Accessibility (or, proximity) of jobs to residential areas is a critical dimension of land use when it comes to mobility and sustainability

Data

- Total employment data at the 5-digit ZIP code unit of geography for the years 2001 and 2006 from ZIP Code Business Patterns
- Data set included 24,067 ZIP codes within 358 metropolitan areas
- ZIP Code Business Patterns excludes all self-employed persons and most government employees plus others; hence, an incomplete picture
- For some ZIP codes, data have been suppressed to prevent disclosure of an individual employer

Data

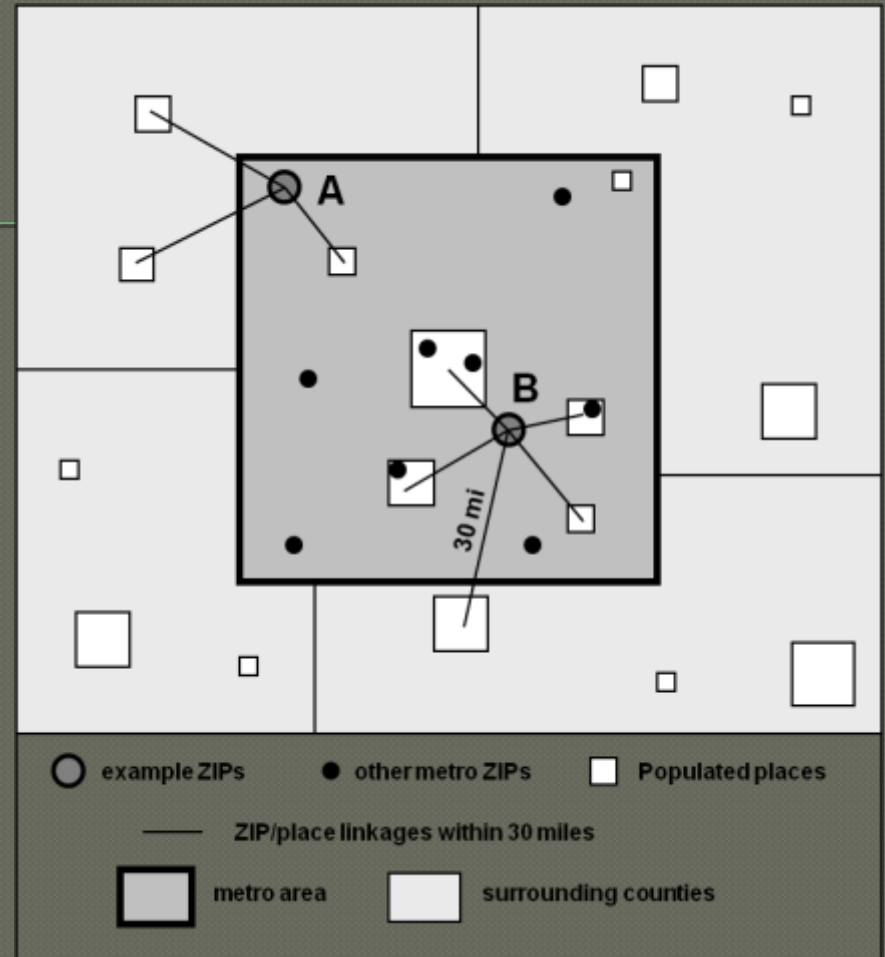
- ZIP code point features (ESRI, 2006) represented either a ZIP code centroid for areal ZIP codes or post office locations, or a unique ZIP code point for a single building or organization
- Used point features identifying locations of populated places, defined by the U.S. Census, including census-designated places, consolidated cities, and incorporated places
- Data were imported into a GIS environment using ArcGIS software for all spatial data processing

Methods Overview

- Using a Geographic Information System, we investigated how spatial patterns of job locations have changed from 2001 to 2006 in relation to preexisting (year 2000) populated places, within and adjacent to 358 U.S. metropolitan areas
- We developed and applied a job sprawl metric that measured employment change over time

Methods

- We performed inter-point distance calculations required to quantify ZIP code spatial proximities (a proxy for accessibility) to populated places
- 30-mile threshold
- 24,067 metropolitan ZIP code points
- 24,670 populated places in the conterminous U.S.
- 2,171,686 ZIP-to-place linkages
- Method does not limit linkages to just those within an individual metropolitan region



Schematic diagram of ZIP code accessibility to populated places

The Job Sprawl Metric

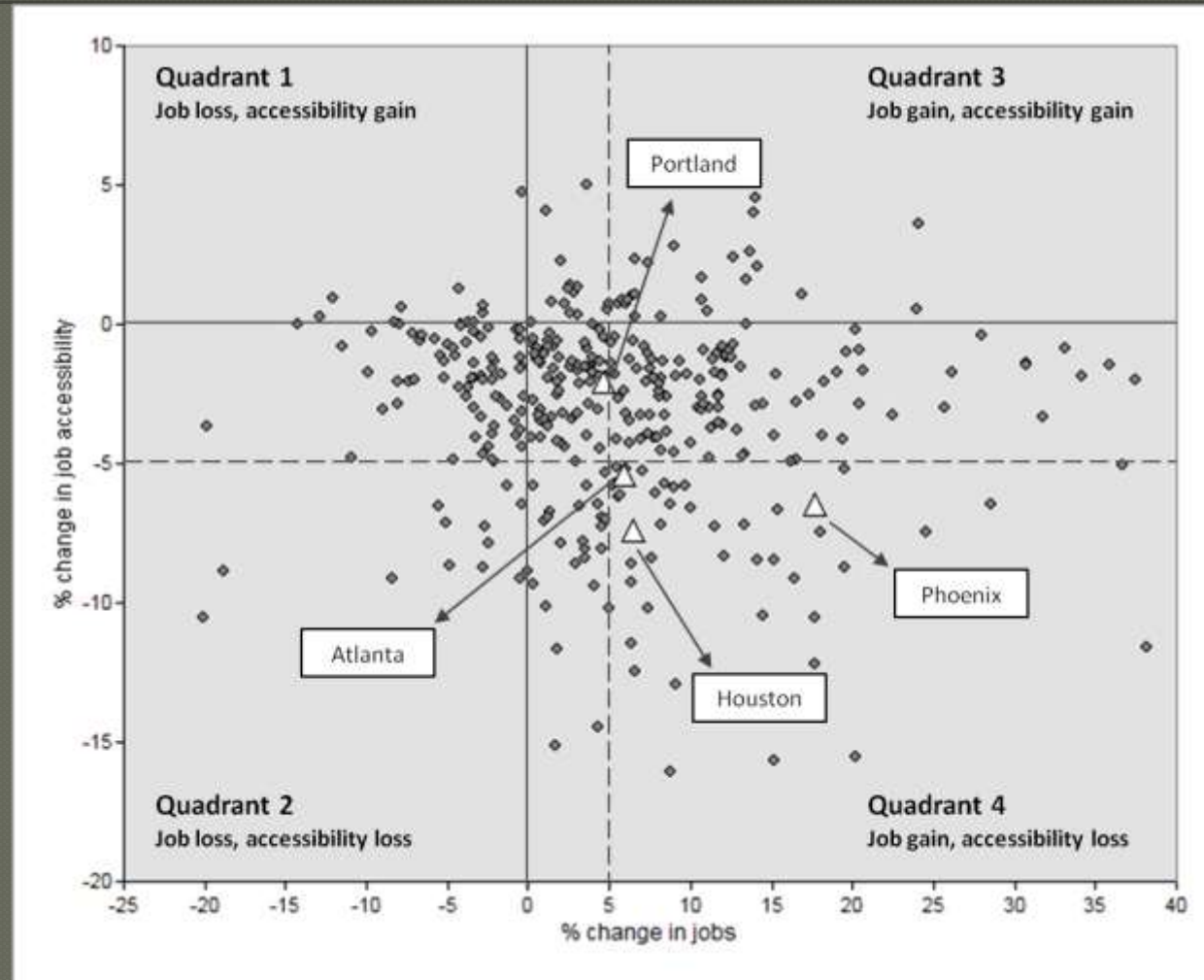
- ◉ Decreasing job accessibility is used as an indicator of job sprawl
- ◉ Job sprawl is the percent change in job accessibility over time (-5% or more = sprawl)
- ◉ Metric shows the spatial dispersion of jobs from defined populated centers; it measures job sprawl relative to a base year population (2000 in our case)
- ◉ It is a relative and not absolute indicator of job sprawl
- ◉ Not designed to simultaneously measure residential sprawl

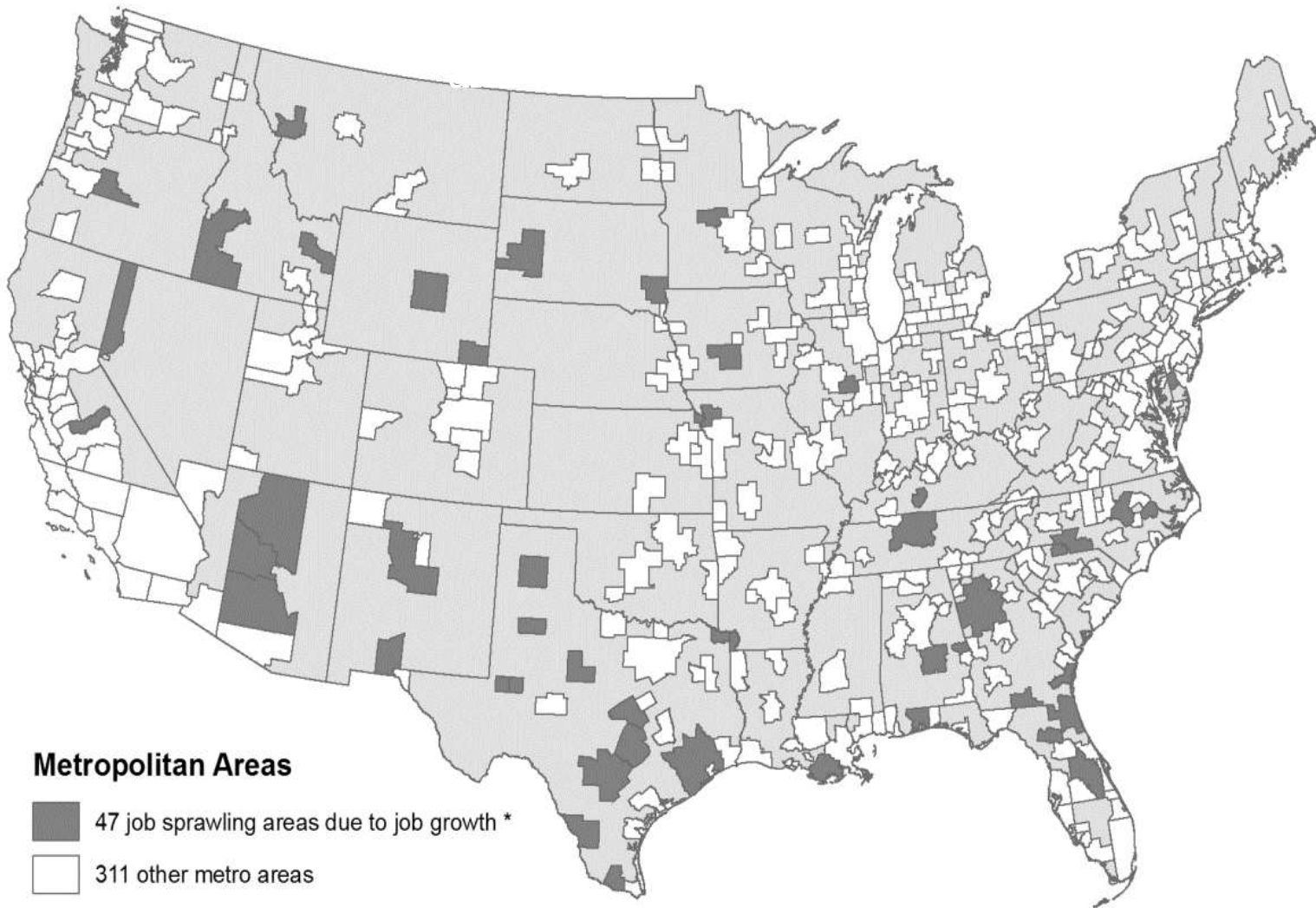
Results Nationally

- Regions may experience either positive or negative job growth and either positive or negative changes in job accessibility
- Of 358 metropolitan regions, 227 (63%) experienced job gain and a decrease in job accessibility, confirming the stereotypical pattern of job sprawl in growing regions
- Mean percent change in job accessibility was -3.2 for all 358 metro regions

Scatterplot of % change in jobs versus % change in job accessibility, 2001-2006

To highlight the “worst offenders,” arbitrary thresholds of 5 for percent change in jobs and -5 for percent change in job accessibility were applied as indicated by the dashed vertical and horizontal lines

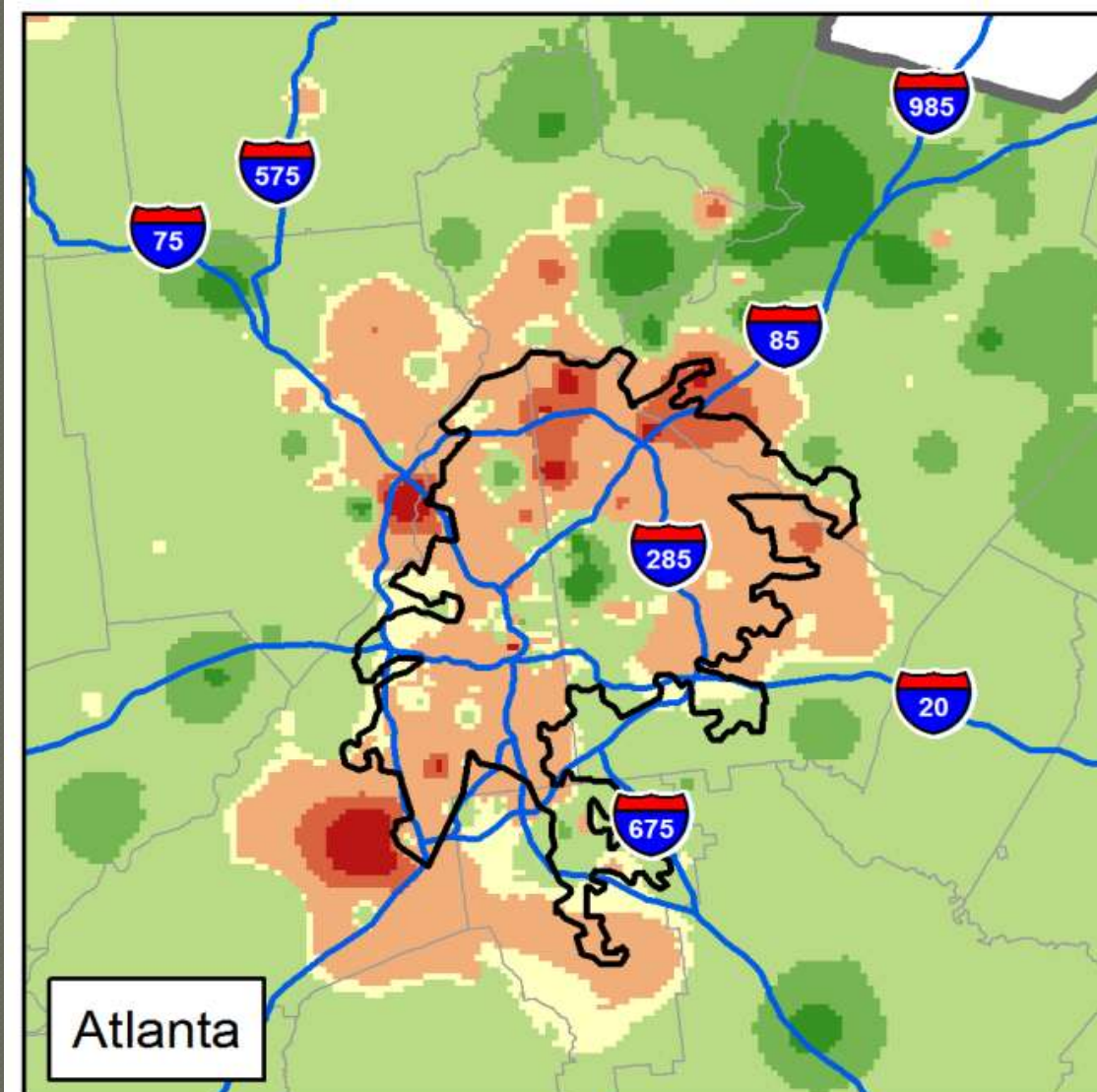




* Areas with less than -5% change in job accessibility and greater than 5% change in jobs, 2001-2006.



* Values mapped for 47 job sprawling metro areas associated with job growth, 2001-2006.



Atlanta

2001-2006 Job Change

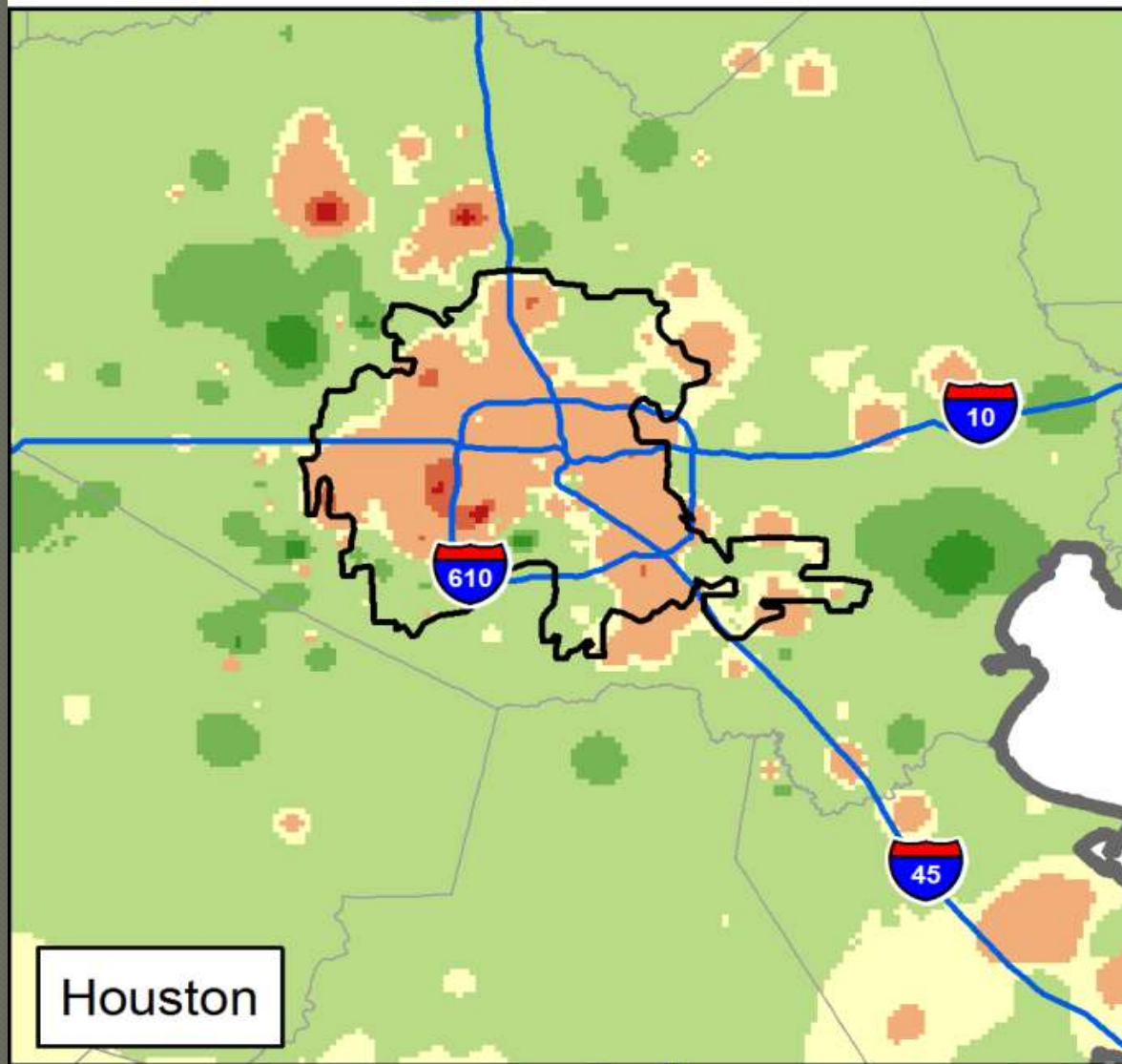


Interstates and Boundaries

- Interstate Highway
- County
- Focal Urban Area
- Metropolitan

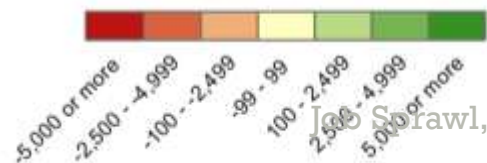


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Houston

2001-2006 Job Change

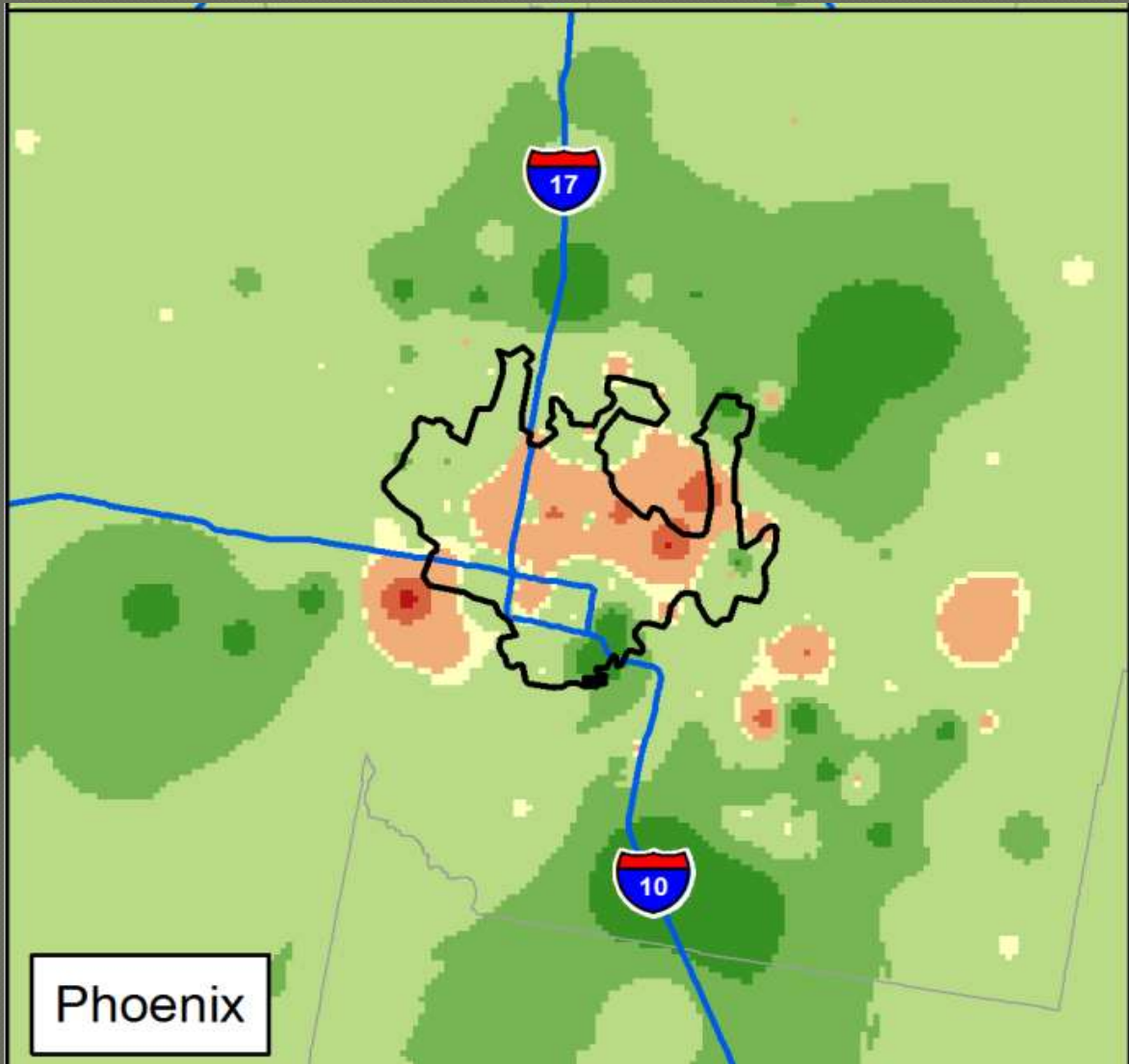


Interstates and Boundaries

- Interstate Highway
- County
- Focal Urban Area
- Metropolitan



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Phoenix

2001-2006 Job Change

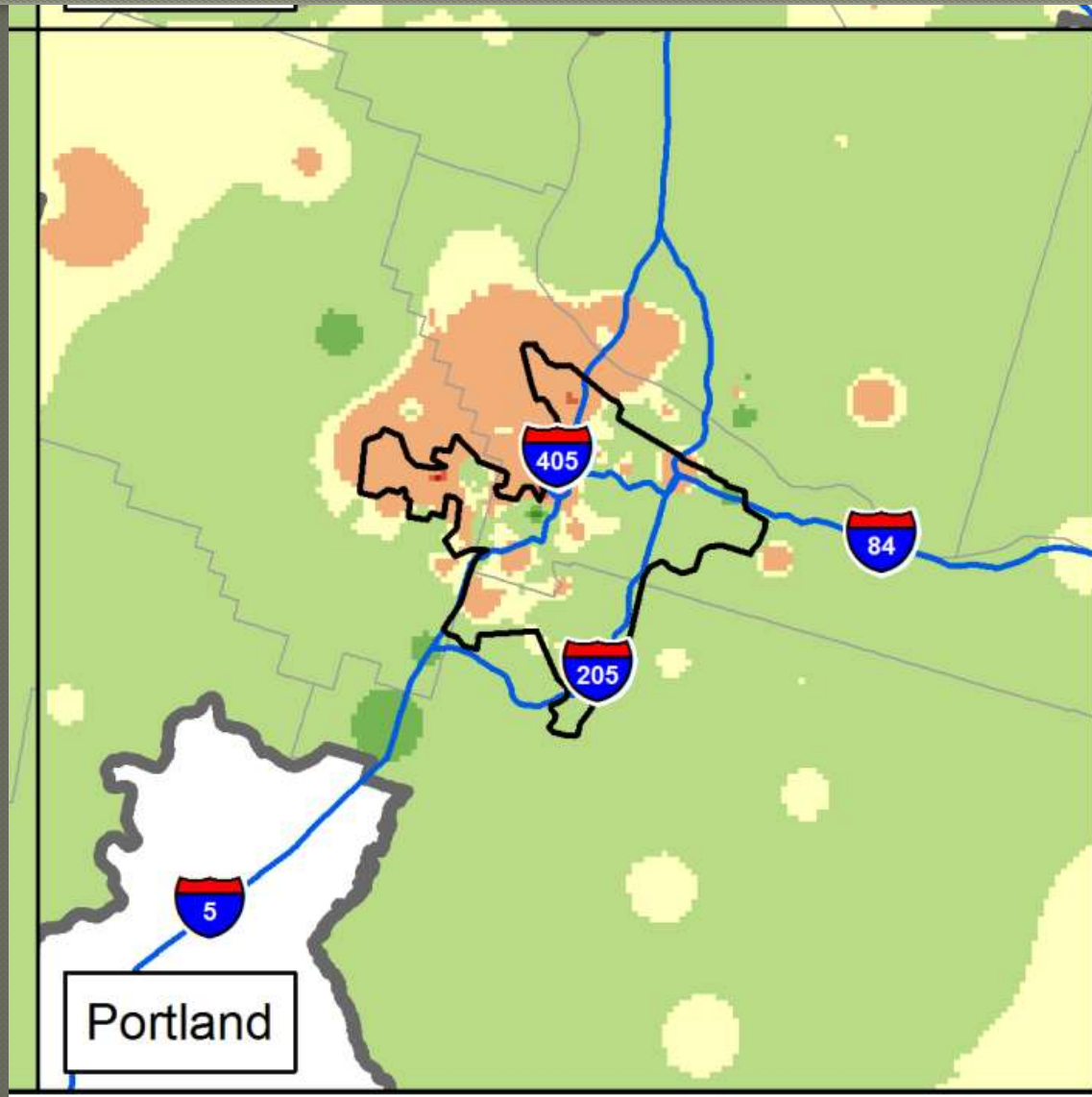


Interstates and Boundaries

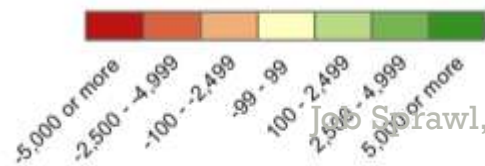
- Interstate Highway
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2001-2006 Job Change



Interstates and Boundaries

-  Interstate Highway
-  County
-  Focal Urban Area
-  Metropolitan



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Urban Containment Regions

Metropolitan statistical areas (MSA)	% change in job accessibility, 2001–2006
Bend, OR	-11.6
Corvallis, OR	-0.2
Portland–Vancouver–Beaverton, OR–WA	-2.0
Olympia, WA	-1.7
Bellingham, WA	-3.3
San Diego–Carlsbad–San Marcos, CA	-1.0
Tucson, AZ	-2.8
Sarasota–Bradenton–Venice, FL	-7.8
Cape Coral–Fort Myers, FL	-1.9

- Urban containment explicitly and directly inhibits the outward location of employment-generating land uses
- Thus they should perform better than the mean of -3.2% job sprawl
- Six of the nine selected urban containment regions had job sprawl scores better than the mean, but they all were negative, meaning job accessibility decreased

Residentially Sprawling MSAs in the South

Metropolitan statistical areas (MSA)	% change in job accessibility, 2001–2006
Anniston–Oxford, AL	0.1
Clarksville, TN–KY	-2.6
Decatur, AL	-2.0
Dothan, AL	-8.7
Florence, SC	-1.6
Goldsboro, NC	-9.1
Hickory–Morganton–Lenoir, NC	0.0
Myrtle Beach–Conway–North Myrtle Beach, SC	-2.8
Ocala, FL	-3.0
Rocky Mount, NC	0.0
Sumter, SC	-9.2

- 11 MSAs in southern states that had the worst possible low-density, residential sprawl scores in 2000
- Expectation: these would perform worse than containment programs
- However, eight of 11 of the southern residential sprawl MSAs did better than the mean for all MSAs

Conclusions/Implications

- From 2001 to 2006 in the vast majority of MSAs, jobs became more inaccessible relative to census-defined populated places: 227 (63%) of the 358 MSAs experienced job gain and a decrease in job accessibility, thus confirming the stereotypical pattern of job sprawl in growing regions
- Are nonresidential (employment) land use patterns highly responsive to—if not dictated by—residential development patterns?

Conclusions/Implications

- Our results provide evidence that jobs from 2001 to 2006 did not follow people and their year 2000 populated places
- Will the job sprawl identified by our study help fuel another round of residential sprawl, or has that residential sprawl already begun?
- Is job decentralization (suburbanization) inevitable, to the point that planners should embrace some sort of “smart sprawl”?
- Or is job decentralization only half the story?

Smart Growth's Blind Side

Sprawl and Smart Growth Research Session (S519)

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Published paper

Leigh, N. G. and Hoelzel, N. Z. (2012). Smart growth's blind side. *Journal of the American Planning Association*, 78(1), 87-103.

American Planning Association

Los Angeles, CA – National Conference April 15, 2012 4:00-5:15

Smart Growth's Blind Side

Smart growth has a policy blind side...

- Fails to recognize connections between urban industrial land and activities it supports with sustainable urban development
- Views urban industry “as a relic, if not a ruin” hindering sustainability (Bronstein, 2009)
- Doesn't encourage *industrial* revitalization in mixed-use, transit-oriented, or infill redevelopment
- May weaken industrial land and cities' recovery from the Great Recession

Presentation Outline

- Urban industrial land at risk
 - Industrial revitalization strategies
 - Industrial land loss in U.S. cities
 - Production, distribution & repair on urban industrial land
- Smart growth's blind side
 - Evidence from policy guidance
 - Evidence from smart growth's best policies and projects
- Correcting smart growth's blind side
 - 5 recommendations
 - Concluding remarks and useful resources

Study Motivation

- Atlanta's 1st sustainable industrial plan
 - 2009 Georgia Tech studio
- Review of local industrial policies
 - Prepared 2002-2010
 - 13 peer cities to Atlanta
- Productive industrial land in cities is at risk
- Implications for local economic development
- Industry is pitted against “mainstream” smart growth development
- Insights from smart growth literature?

Urban Industrial Land Loss

Loss of Industrial Land to Rezoning in Select U.S. Cities

Cities	Industrial Land Lost (acres)	% lost	Annual Loss (acres)	Years
Atlanta, GA ^a	800	12	160	2004-2009
Boston, MA ^b	960	38	25	1962-2001
Minneapolis-St. Paul, MN ^c	1,812	18	121	1990-2005
New York, NY ^d	1,797	14	359	2002-2007
Philadelphia, PA ^e	1,645	8	91	1990-2008
Portland, OR ^f	489	2	49	1991-2001
San Francisco, CA ^g	1,276	46	71	1990-2008
San Jose, CA ^h	1,470	9	77	1990-2009

Sources: ^a Leigh et al. (2009); ^b Boston Redevelopment Authority (2001); ^c CDC Associates (2008); ^d Pratt Center (2009); ^e City of Philadelphia (2011); ^f City of Portland (2003); ^g San Francisco (2008); ^h City of San Jose (2009); compiled by authors.

Urban Industrial Land



Production

Berkeley, by Author



Distribution

Atlanta by Author



Repair

Atlanta by Author



Public Services

Los Angeles by Author

Research Approach

Identify: extent that smart growth publications address issues and priorities in local industrial policies; conflicts with industrial policies

- 8 smart growth publications and 2 PAS reports
 - 2002-2009
 - APA, CNU, ICMA, SGN, SGLI, IEDC, NALGEP, U.S. EPA
- U.S. EPA Office of Sustainable Communities smart growth clearinghouse
- Review of scholarly research
- Typology of urban industrial development issues and priorities

Smart Growth Report Examples



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Cover art sources (left top to right bottom): Smart Growth America; National Association of Local Government Environmental Professionals and Smart Growth Leadership Institute; Association of Metropolitan Planning Organizations; International Economic Development Council; U.S. Environmental Protection Agency and Smart Growth Network; Center for Applied Transect Studies; American Planning Association; Vermont Forum on Sprawl and Vermont Business Roundtable; International City/County Management Association; International City/County Management Association; International City/County Management Association; and American Planning Association.

Smart Growth's Blind Side

Urban Industrial Development Issues and Priorities in 14 Local Industrial Policies

Smart Growth Issues and Priorities Impacting Urban Industrial Development

Land use planning issues and priorities

1. Loss of industrial land and *ad hoc* zoning conversions threatening productive industrial areas.
2. Market-driven overpricing of industrial land and competition from other land uses.
3. Encroachment and compatibility of uses within and surrounding industrial areas.

1. *Rezone land for functionality and compatible mixes of use.*
2. *Facilitate transit-oriented development (TOD) and greater access to jobs.*
3. *Foster compact and dense infill development.*

Local economic development planning issues and priorities

1. Lack of available productive industrial land for advanced manufacturing and sustainable industrial businesses.
2. Link workforce training to quality, local industrial jobs.
3. Foster supportive and innovative business climates for industry.

1. *Balance jobs and housing.*
2. *Reduce job sprawl and job-resident spatial mismatch.*
3. *Improve employment diversity, quality, and wages in urban job centers.*

Smart Growth's Blind Side

- Land Use Planning Issues and Priorities
 1. Rezone land for functionality and compatible mixes of use
 2. Facilitate transit-oriented development (TOD) and greater access to jobs
 3. Foster compact and dense infill development
- Smart Growth's Blind Side Examples
 - Industrial uses prohibited in TODs (APA, 2009, p. 168)
 - Industrial development and jobs are not “transit-friendly”
 - No discussion of form-based codes for urban industry

Smart Growth's Blind Side

- Local Economic Development Planning Issues and Priorities
 1. Balance jobs and housing
 2. Reduce job sprawl and job-resident spatial mismatch
 3. Improve employment diversity, quality, and wages in urban job centers

- Smart Growth Blind Side Examples
 - No guidance on sustainable mix of industrial jobs for balancing jobs and housing
 - No specifics on planning greater diversity and quality of employment in urban industrial *job* districts
 - Industrial stakeholders absent in discussing public-private redevelopment projects

Ideas of What Caused The Blind Side

- Deindustrialization and shift to service-based economy?
- Property-led local economic development and “passive” investment?
- Public and policymakers’ perceptions of industry and concerns over industrial “legacy” (i.e., NIMBYism)?
- Pro-growth coalitions and decline of local industrial stakeholders in planning process?
- Lack of attention and communication within planning community?

Correcting The Blind Side

- **How can planning contribute to correcting smart growth's blind side?**
 1. Make industry a smart growth priority for sustainable local economic development
 2. Include urban industrial land use planning in smart growth (e.g., mixed use, form based codes, TODs)
 3. Improve understanding of costs and benefits of industrial reuse of urban brownfields, and identify industry's contribution to sustainability in central cities
 4. Link industrial land use to local production needs of the green economy
 5. Involve urban industrial stakeholders

Conclusion & Useful Resources

- Final thoughts
 - Productive industrial areas are at risk in cities
 - Implications for sustainable local economic development
 - Pursuing industry and smart growth should not be an either/or proposition
 - Reconsider your economic development and land use plans
- To learn more (in addition to our article)
 - *Progressive Planning* (winter 2012 issue dedicated to urban manufacturing)
 - Brookings Institution (recent reports about supporting urban manufacturing)
 - Urban Manufacturing Alliance (SF Made and the Pratt Center)
 - UC Berkeley's Center for Community Innovation (links to several local industrial policies)
 - Past APA conferences (e.g., 2008 *Industrial Lands Debate* on CD)

End – Thank You

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