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Lincoln Institute of Land Policy

113 Brattle Street
Cambridge, MA 02138-3400 USA

Tel: 617-661-3016 or 1-800-526-3873

Fax: 617-661-7235 or 1-800-526-3944

E-mail: annleroy@lincolnst.edu (editorial content)
help@lincolnst.edu (information services)

Web: www.lincolnst.edu

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Bogotá's TransMilenio Bus
Rapid Transit System
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Appreciating the Property Tax

The property tax has been subject to much popular criticism and political pressure in recent decades. Several states have implemented, or are considering, a variety of caps and limits on property assessments, property tax rates, or total revenue raised from the property tax. Perhaps the best-known example is California's Proposition 13, which ties property assessments to the purchase price of a dwelling (rather than its current market value) and limits the tax rate that can be levied on homes.

It is worth taking another look at the property tax and considering its strengths and weaknesses as a source of funding for local government services.

One of its major strengths is that local public services generally benefit local taxpayers. Police and fire protection, trash removal, and street cleaning directly affect real property and real property values in the taxing jurisdiction. Moreover, because land and buildings are immobile, it is difficult for local property owners to escape a tax on their real estate holdings. By contrast, a local sales tax can encourage purchases in a low-tax locality, and a local income tax can encourage relocation by high-income earners.

Many observers believe that taxpayers are particularly sensitive to the property tax because it is highly visible and is levied at regular intervals. This visibility undoubtedly invites more scrutiny from taxpayers, which sometimes leads to new proposals for property tax limits. However, this scrutiny also leads taxpayers to engage with their local governments to review how tax revenues are being spent on services, thus promoting both civic engagement and fiscal discipline in local governments. These outcomes are strengths of the property tax, not weaknesses.

Local governments typically cannot incur deficits in their operating budgets, so they must be able to accurately predict both their revenues and expenses during each fiscal year. Property tax revenues are more predictable and stable within a fiscal year than revenues from virtually any other tax. The property tax base changes little during the year, and nonpayment rates of property taxes are low because the consequences of nonpayment are severe. By comparison, revenues from income and sales taxes can and do vary



Gregory K. Ingram

dramatically within a fiscal year because they closely track variations in overall economic activity. In addition, data indicate that property tax revenues are more stable across fiscal years than either revenues from other taxes or state aid payments to local governments because property tax revenues are less correlated with business cycles.

Although many observers believe that property taxes as a share of income are high-

er for low-income households than for high-income households, terming them "regressive," this view is problematic for several reasons. First, most simple analyses of property tax incidence ignore renter households (who typically have below-average incomes), and are based only on the principal residence, whereas many high-income households have more than one home.

Second, because local property taxes are used mainly to provide local services to households who choose to live in the service-providing community, property taxes are essentially payments for those services. To the extent that property taxes are payments for benefits received by property owners, it makes no more sense to characterize them as regressive than it would to consider household payments for other goods such as food or clothing as regressive. Third, empirical studies show that the value of local services received by households is often capitalized in their property values. Finally, sales taxes—often proposed as an alternative to property taxes—are clearly regressive.

Special challenges arise when local property taxes are used to fund local public services that spill over municipal boundaries or that raise issues of equity. For example, many states have altered the use of local property taxes to fund local schools by reducing the variation in per-pupil expenditures among local jurisdictions in order to improve the equity of school funding. These changes essentially reflect the view that the local provision of education is appropriate, but the level of funding for education should not be completely determined or borne by local governments.

In short, property taxes are extremely well suited as a source of funding for local services, and they are widely used in both industrial and developing countries. **I**

LAND VALUE IMPACTS OF BUS

THE CASE OF BOGOTÁ'S TRANSMILENIO



© TransMilenio

Daniel A. Rodríguez and Carlos H. Mojica

During the last decade, bus rapid transit (BRT) has revolutionized regional transportation planning in much of the developing and developed world. BRT went from being a fringe transportation option used in a handful of Brazilian and Australian cities to becoming a prominent mass transportation alternative for local and national governments.

BRT is not a single concept; rather, it encompasses a variety of applications designed to improve the level of service of bus-based mass transportation to deliver comfortable, cost-effective mobility emulating rail transit (Wright and Hook 2007, 11). It relies on coordinated improvements in technology, infrastructure, and equipment to achieve quality service (U.S. General Accounting Office 2001). Operationally, BRT applications can include buses running on exclusive rights-of-way with dedicated stations and preboarding fare payments, or buses operating in mixed traffic lanes on city arterials.

Arguably the BRT concept with highest recognition is the provision of an exclusive right-of-way for bus transit coupled with high-frequency service. In South America, BRT systems in Curitiba, Brazil, and Bogotá, Colombia, feature networks of dedicated lanes designated for exclusive use by large-capacity, articulated buses, with expedited boarding and alighting.

Twelve Latin American cities, three Australian cities, seven U.S. cities, eight Asian cities, and eighteen European cities have BRTs in place. Some are complete systems while others are single lines. Systems actively under construction also span the globe, including Dar es Salaam in Tanzania, Jinan in China, Bologna in Italy, Mérida in Venezuela, and Auckland in New Zealand. As of March 2007, GTZ, Germany's federal development enterprise, estimated that there were at least 27 cities with

RAPID TRANSIT

active BRT planning processes, while 14 BRT systems are considering further expansions (Wright and Hook 2007).

The dramatic success of BRT is due in part to the cost-effectiveness and relative flexibility of the investments required. BRTs often can transport as many passengers as most conventional light rail systems at a fraction of the cost. BRTs also compare well with heavy rail systems, except under circumstances of very high passenger demand exceeding 50,000 passengers per hour per direction. Like rail systems, however, the cost-effectiveness of BRT hinges on the ability to have supportive land uses that concentrate activity along system corridors. Therefore, in most cases BRTs have been built in corridors with proven demand.

Transportation Investments and Land Re/development

It is also plausible that BRTs can attract dense development that will in turn enhance the BRT system in the future. This reciprocal connection between BRT investments and land development has been a cornerstone of Curitiba's success. Despite the importance of this connection for the future viability and cost-effectiveness of BRTs, however, there is limited empirical evidence available. With many cities considering new BRT lines or system expansions, understanding whether changes in land development can occur is critical to anticipate the benefits of the system and to estimate the fiscal impacts of the investment.

Urban economic theory provides a starting point to explain how transportation investments can in-



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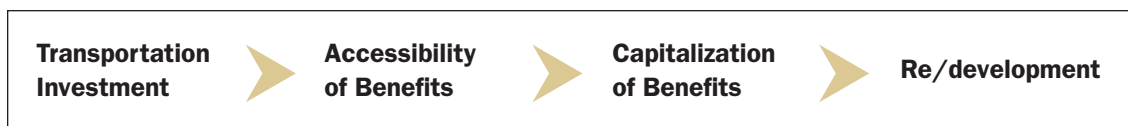
fluence land development or redevelopment. Such investments are expected to provide accessibility benefits to those positively affected by it, through travel time savings afforded by the investment.

In a metropolitan land market, a transportation investment is expected to provide accessibility advantages to parcels close to the investment compared to parcels relatively unaffected by it. Because the number of parcels benefiting from the accessibility improvements is finite, households and firms valuing such benefits in a competitive market are expected to be willing to pay more for properties with good access over other properties, all else held equal. In this way, the access benefits of transportation investments, if they exist, will be capitalized into property values.

The capitalization of accessibility benefits stimulates development by enhancing the attractiveness of parcels for development or redevelopment. Parcels that were not previously considered prime candidates for real estate investment appear more attractive after the transportation investment is announced or implemented. Alternatively, a parcel already developed or in the planning stages may be developed more intensely as a result of the increase in values. This relationship is the cornerstone of transit-oriented development (see figure 1).

In addition to the development potential instigated by the transportation investment, land value

FIGURE 1
Transportation Investment and Property Development Flow Chart



increases are also relevant to municipal finances and project-specific financing. The success of local instruments such as tax increment financing and value capture hinges on the land value and related development changes associated with the project.

Bogotá's TransMilenio System

Bogotá, the capital of Colombia, has approximately 6.8 million inhabitants occupying just over 29,000 hectares of urbanized area (Alcaldía Mayor de Bogotá 2003). Before TransMilenio, all pub-

lic transportation in Bogotá was provided by private bus operators organized into firms or associations, which added and stopped services with little government oversight. Revenue to the bus operators was based solely on passenger fares, causing intense competition among drivers at the curb. This operating framework resulted in considerable social costs, such as congestion, poor quality, and poor safety (due to underinvestment in vehicle maintenance). In 1999 residents experienced average vehicle speeds of only 9 kph (5.6 mph) during the daily peak commuting period.

By the late 1990s, concerned with an oversupply of transit capacity, poor environmental and safety conditions, and decreasing vehicle speeds, the city government invested in an extensive BRT network, but it covered only areas with very high demand for public transportation. Areas of the city not reached by the BRT continued to be served by the original associations, and the environmental and time impacts of their activity remained. The BRT investment, TransMilenio, was part of a broader, integrated strategy to address mobility challenges, reclaim public spaces for pedestrians, and increase access to green space.

TransMilenio has been implemented in two phases, with a third phase currently under engineering design. The first phase was planned in 1998, built in 1999–2000, and launched in December 2000 along two corridors. The second phase, which started operating late in 2003, gradually added three more corridors. All phases have been implemented through a successful public-private arrangement: the government funds the infrastructure and oversees long-term planning functions, and private firms bid for the operation of sets of routes or catchment areas.

The system comprises specialized infrastructure, including exclusive lanes for high-service capacity, enclosed boarding stations, and a fleet of articulated buses with an off-board fare collection system. Coordinated service with feeder routes allows access to TransMilenio from neighborhoods farther away from the bus route. As of November 2007, the system had 114 stations, operated more than 1,000 buses, and carried 1.4 million one-way trips per day at an average speed of 27 kph.

Considered a premier example of BRT, Bogotá's case illustrates the transformation of traditional transportation corridors with severe pollution, safety problems, and unattractive surroundings to a new system with significantly shorter travel

Previous Studies of Bogotá's TransMilenio and Property Values

The first study relied on asking prices for apartment rentals in 2003 (Rodríguez and Targa 2004). The authors examined whether asking prices were related to proximity to the BRT for 494 multifamily residential properties in a 1.5 km area of influence surrounding two TransMilenio corridors. They detected a premium of 6.8 to 9.3 percent for every 5 minutes of walking time closer to a BRT station. They also found that properties on the busway but not necessarily close to a TransMilenio station had a lower premium, presumably due to the negative noise and pollution effects of bus traffic.

In the second study, Muñoz-Raskin (2006) used data on the values of 130,692 new multifamily properties provided by the Bogotá Department of Housing and Control from 2001 to 2004. He found that properties within the immediate proximity of feeder lines (0–5 minute walk) were valued more than those requiring a 5–10 minute walk. His findings also show that high-value properties were valued higher if they were close to a feeder line, but in the case of trunk lines, the effect was the opposite.

The third study was completed in 2007 using assessed property values from cadastral data for 1,547 properties within 1 km of TransMilenio (Mendieta and Perdomo 2007). The study found that property prices increased between 0.12 and 0.38 percent, depending on the distance to the BRT, for every 5 minutes of walking time closer to a BRT station.

The fourth study used 304 residential properties and 40 commercial properties to compare asking prices in two zones, one with and one without BRT access (Perdomo et al. 2007). Properties were matched using propensity scores and asking values were compared. The results were mixed, with most comparisons yielding statistically insignificant results. In only one case a premium of 22 percent for residential properties with BRT access was detected at standard levels of confidence.

times, less noise, and fewer greenhouse gas emissions (Cain et al. 2006).

Land Value Impacts of TransMilenio

TransMilenio has been the focus of at least four studies relating land values to the BRT system (see box). Although the evidence to date of the relationship between TransMilenio and property values has been useful, its ability to inform policy remains limited. For example, these studies rely on cross-sectional data, so it is impossible to isolate whether the BRT caused the land value change, or whether planners sited the stations in locations that were already valued by residents. Furthermore, despite the interest of policy makers in expanding established BRT systems and finding ways to finance them, no studies have examined whether expansions provide benefits to properties that were already served by the BRT system.

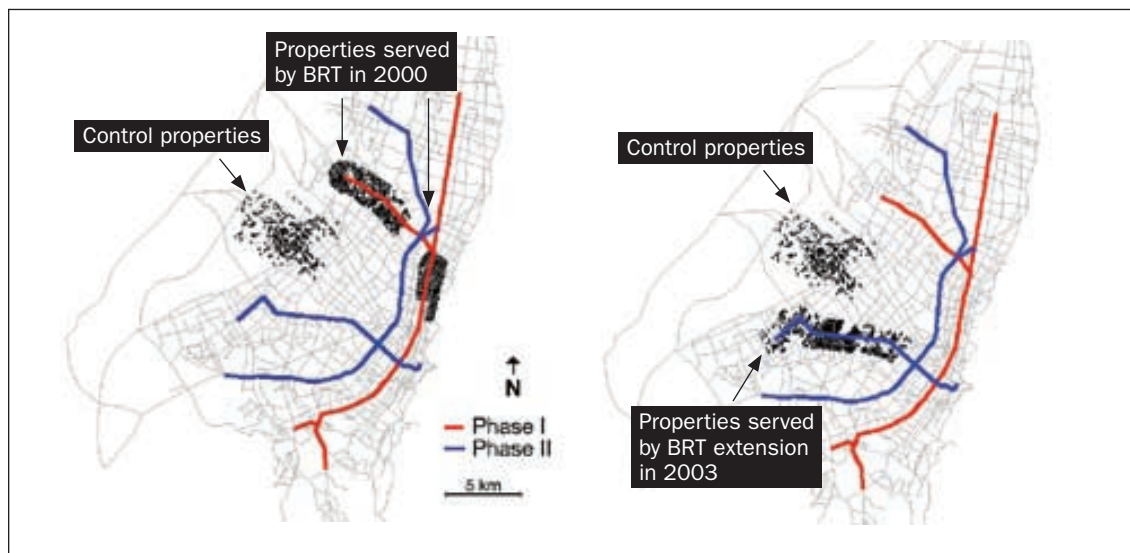
Using before and after data on property asking prices, we examined whether prices changed as the TransMilenio system expanded. Understanding how prices changed in Bogotá is particularly important given the long-standing experience of the Colombian government with land value capture instruments and the increased interest of finding new financing sources for future BRT extensions (Furtado 2000).

Our data came from a sample of properties in the Bogotá metropolitan area between 2001 and 2006. The Phase II TransMilenio extension, opened to the public in December 2003, provided the setting for the study. In the analysis we used single-family properties located within 1 km of the BRT system that benefited from the system extension in one of two ways: by gaining local access to TransMilenio due to the extension, or by gaining regional access due to the expanded reach of the network, which we label “network effect.”

To measure network effects we used properties that previously had only local access to a TransMilenio station, but now benefit from the expanded reach of the BRT system. By contrast, properties that did not have local TransMilenio access prior to December 2003, but also benefited from the expansion, are used to examine the local access effects (see figure 2).

All properties likely to be affected by TransMilenio are deemed as belonging to network effect or local access intervention areas. However, because property values may change from before to after intervention for reasons other than the TransMilenio changes, we also include properties in a control area that did not benefit directly from any of the TransMilenio investments, or other bicycle route or major park investments.

FIGURE 2
Mapping Helps Identify Properties to Evaluate TransMilenio’s Land Value Impacts

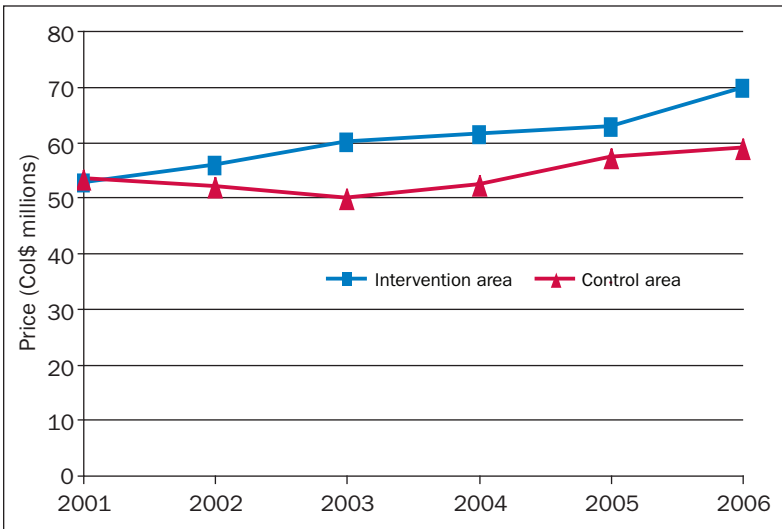


The left panel shows properties in selected neighborhoods that had access to TransMilenio before 2003 (red lines) and that may have benefited from the system extension (blue lines). The right panel shows properties that benefited directly from the extension because prior to 2003 they had no local access to TransMilenio. Properties that did not benefit directly from the 2003 extension or from other large public works projects are used as controls.



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FIGURE 3
Network Effects: Estimated Yearly Changes in Prices for Intervention and Control Area Properties, 2001–2006



Note: As of May 2007, US\$1 = Col\$1,980.

FIGURE 4
Network Effects: Estimated Yearly Percent Difference in Prices for Intervention and Control Area Properties, 2001–2006



Simple descriptive statistics from both intervention areas and the control area show that properties in the network effect area were more expensive than those of the other two areas, both before and after. Properties in the local access area had similar prices to the control area before and after. Furthermore, asking prices increased at different rates. For properties in the network effect area, prices appreciated 5.1 percent, compared to 9.5 percent for properties in the local access area and 7.7 percent for those in the control area during the same period. These differences can be deceptive, however, because the properties being offered in the market may have been different before and after the intervention.

For example, the control area has significant amounts of industrial uses (22.7 percent) and vacant lots (14.1 percent) relative to the other two areas (network effect area: 0.5 percent industrial and 0.8 percent vacant; local access area: 13.7 percent industrial and 7.0 percent vacant), even though population densities are similar. The control and local access areas have little or no commercial uses, while the network effect area has a more balanced mix of residential and commercial land uses. Therefore, a regression analysis was necessary to help us isolate the price variation identified from the effects of inflationary pressures, differences in the supply of housing, or the impact of the TransMilenio extension on housing prices. Our models also corrected for the correlation that exists for properties that are closer together in space, relative to those that are further apart.

Property Value Changes in BRT Serviced Areas

Our regression model findings for the network effect area relative to the control area showed consistent evidence that prices for 2001 and 2002 were similar between the intervention and the control areas, with no appreciation occurring. However, we detected a consistent positive appreciation in the intervention area from 2003 onwards, relative to the control area.

The resulting asking prices from the estimates are shown in figure 3, which was constructed using a simulation based on estimated coefficients and their variance–covariance matrix. The values represent a property that was between 10 and 20 years old, with all other variables set to their median values, while changing the year from 2001 to 2006.

Properties in the intervention area appreciated earlier and more than properties in the control area. Figure 4 shows changes in prices between the intervention and the control areas in percentage terms. The 2003 spike in prices in the intervention area may be the result of owner anticipation of the opening of the BRT extension, or other real estate submarket changes not accounted for in our variables. Although similar anticipation effects for mass transit extensions have been documented elsewhere (Knaap, Ding, and Hopkins 2001), none have been examined or documented for the network effects that such extensions create.

Property Value Changes in Non-BRT Serviced Areas

Our regression model findings for the local access area relative to the control area showed mixed evidence of price increases in areas not previously serviced by the BRT system. In some cases (depending on the model specified) prices in the intervention area were higher than in the control area for properties offered in 2001, 2003, 2004, and 2006. Other models showed less consistent relationships. A test of the coefficients for the before period and the coefficient for the after period shows no joint difference in property prices.

The Bottom Line: TransMilenio and Property Values

Overall our results paint a mixed picture of the appreciation of prices due to BRT extensions. On the one hand, the evidence suggests price appreciation for properties already served by BRT, since they also benefited from the extensions. The estimated asking price premium is between 15 and 20 percent, although the appreciation began one year before the extension was inaugurated. This is significant, given that we know little about the potential magnitude of these effects. By contrast, we found limited evidence of asking price increases for properties along a corridor that previously did not have a local BRT station, but that now is served by the extension.

We cannot claim unequivocally that the price increases were the result of the BRT extension, because they may be the result of local real estate submarket variations. For example, the City of Bogotá emerged from a deep recession that ended in the early 2000s. If the recession effects were not uniform across neighborhoods, it is possible that

ABOUT THE AUTHORS

DANIEL A. RODRÍGUEZ is associate professor of city and regional planning and director of the Carolina Transportation Program at the University of North Carolina at Chapel Hill. Contact: danrod@unc.edu

CARLOS H. MOJICA is a graduate student working in both city planning and transportation science at the Massachusetts Institute of Technology. Contact: cmojica@mit.edu

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they can explain the differential found. Furthermore, it is possible that the properties already served by BRT were simply capitalizing the benefits of the original investment made only four years earlier.

CONTINUED ON PAGE 24

CONSERVATION THROUGH THE BALLOT BOX

USING LOCAL REFERENDA TO PRESERVE OPEN SPACE

© Ed Funk/Courtesy of The Trust for Public Land

Residents of Beaufort County in South Carolina's Lowcountry approved taxpayer-financed bonds in 2000 (\$40 million) to acquire land and development rights on more than 10,000 acres, and in 2006 (\$50 million) to create parks, trails, and buffer areas.

H. Spencer Banzhaf, Wallace E. Oates, and James Sanchirico

The conservation movement has used both private enterprises and public programs to preserve lands of ecological, aesthetic, and historical value. One notably successful effort has employed referenda for the conservation of open space. Between 1998 and 2006, some 1,550 referenda appeared on state, county, and municipal ballots across the United States, and their success rate was very high: nearly 80 percent of these measures passed, many by a wide margin.

These referenda encompass a broad range of conservation objectives: the preservation of farm land; the protection of ecologically sensitive wetlands, meadows, and forests; and the creation of new recreational sites, to name a few. Some of

these measures have been initiated at the grassroots level and others by public officials.

The U.S. experience with referenda for conservation purposes, especially their striking success rate, raises some intriguing questions. What does this experience tell us about the preferences of the U.S. electorate for the conservation of open space? In particular, can we draw some generalizations from these local referenda concerning what people want in the way of open space preservation?

A second set of issues relates to the form and effectiveness of the referenda instruments themselves. Do certain kinds of referenda fare better than others? For example, are proposals that rely on local bond finance more likely to pass than those that are funded through increases in local property taxes (or other forms of local taxation)? What are the lessons for conservation advocates

in their efforts to promote the preservation of open space?

Our recent study, supported by the Lincoln Institute of Land Policy, has used the LandVote data set of all known U.S. open space referenda from 1998 to 2006 (Banzhaf, Oates, and Sanchirico 2007). LandVote is compiled by The Trust for Public Land; the Land Trust Alliance helped in this effort until 2001. These data indicate the number of yes and no votes cast in each referendum, and in most cases provide descriptive information concerning the referendum itself: the mechanism used to finance the proposed measure; the purpose of the preservation; and often the level of funding.

The data tell an interesting story. Figure 1 shows the number of open space referenda that were passed compared to those voted on in each state. We see that successful referenda are a nationwide phenomenon, although they are somewhat more prevalent in the Northeast. Figure 2 documents the high levels of support that these measures have received. Each bar in this histogram depicts the fraction of all elections in which the yes vote fell within the indicated 5 percent band.

We have supplemented the basic LandVote data with a number of other variables (e.g., U.S. Census attributes of the community; county-level land use and agricultural data; information on the presence of endangered species; and a set of key political variables) to explore the characteristics of communities which are (or are not) protecting open space and the forms of referenda measures that receive the most support.

A Basic Issue in Statistical Inference

Before turning to our findings in more detail, we must address one especially challenging issue of statistical inference. The basic (and powerful) theorems of statistical analysis with which we can make inferences about whole populations from samples of observations typically depend upon the randomness of the sample. Otherwise, there may be systematic biases in the subpopulation being tested, resulting in erroneous inferences concerning the characteristics of the larger population. If we are interested in drawing broad inferences about the preferences of the U.S. population at large for open space preservation, we would ideally need a random sample of individuals or communities.

However, the communities that have held open space referenda are not a random sample of U.S. counties or municipalities. In fact, environmental

FIGURE 1
Open Space Referenda Across the United States, 1998–2006

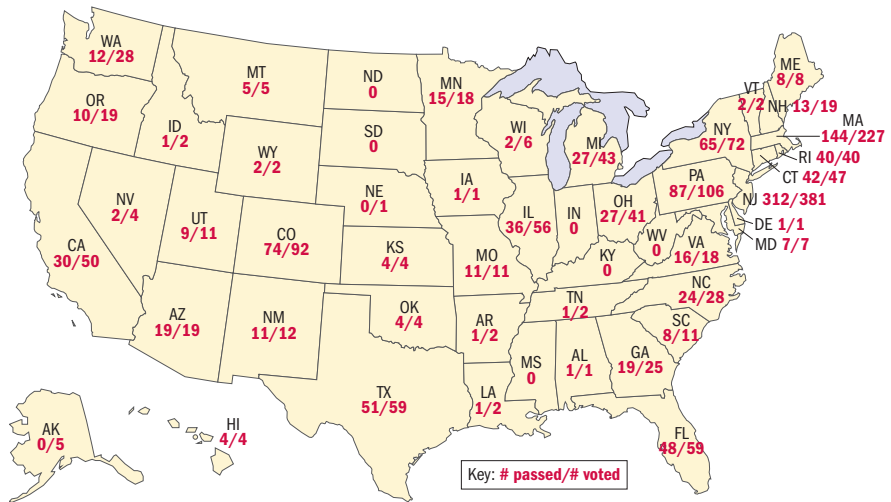
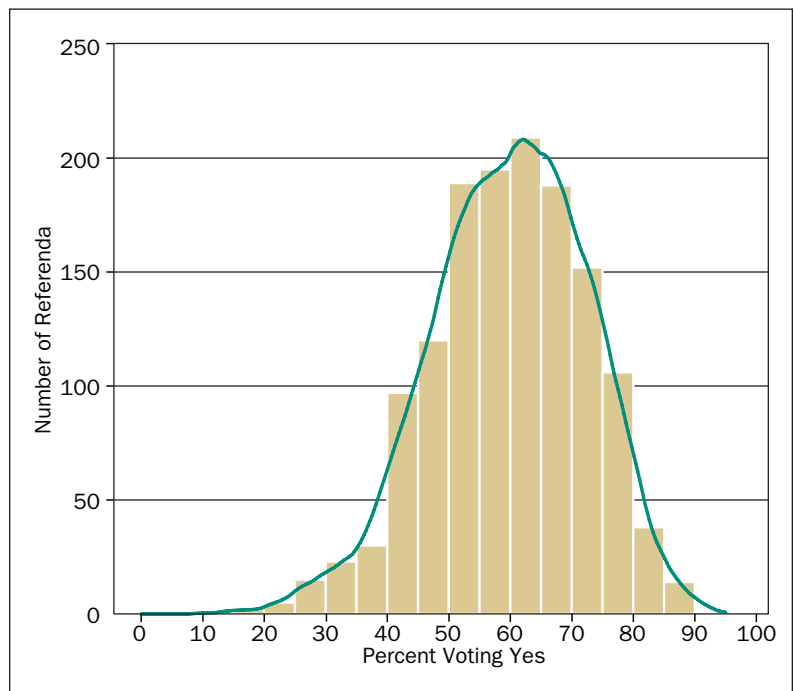


FIGURE 2
Open Space Referenda Show High Levels of Support



organizations have selected, often with great care, those jurisdictions where there is evidence that such measures have a high likelihood of success. The Conservation Fund and The Trust for Public Land have even published handbooks that explain how to design referenda measures and where best to introduce them (Hopper and Cook 2004; McQueen and McMahon 2003). Our sample of

communities that have actually held open space referenda is surely not random, so we cannot take their characteristics and outcomes as representative of attitudes or preferences for the country as a whole.

Economists have devoted much attention to this selection bias problem, and have developed a set of statistical techniques to address it. These approaches typically involve the statistical estimation of a first-stage equation (called the selection equation) that explains the propensities or characteristics that lead individuals (or, in our case, communities) to behave in the prescribed way (for our purposes, to hold referenda). Using the results from this equation, we can proceed to a second-stage outcome equation, which explains the percentage of yes votes in our sample of local referenda in a way that controls for the self-selection of those communities that actually held referenda.

Some Findings from the Selection and Outcome Equations

The first-stage equation, which allows us to control for self-selection in the outcome equation, also provides some interesting results concerning the characteristics of those communities that have chosen to hold open space referenda. For example, communities with higher levels of education and lower levels of support for President Bush in the 2000 election were more likely to hold conservation referenda.

With regard to ecological concerns, we find that communities with a relatively large number of endangered species and with more surface water exhibit a higher likelihood of holding open space referenda. In addition, communities with a larger percentage of their populations living in urbanized areas were more inclined to hold conservation referenda. This may reflect a desire to preserve what remains of more limited open space—the increased value of a scarce commodity.

Of greater interest are the results in our second-stage outcome equations, which tell us what determines the extent of the yes vote in our sample of referenda (after controlling for the selection problem). Here we see that the communities that chose to hold open space referenda in particular years are precisely those that are more likely to vote in favor of them at that time.

This finding offers two (not mutually exclusive) interpretations. First, it may reflect the astuteness of community leaders in responding to local preferences. Second, it could result from the effective targeting of jurisdictions by regional or national

land trusts; this interpretation is consistent with another study that found communities with more land trusts are more likely to support conservation at the polls (Sundberg 2006).

With respect to the characteristics of communities, we find that more educated populations and those with fewer children are more likely to vote in favor of open space referenda. More densely populated cities also tend to support these measures, which (as in the selection equations) may indicate a concern with the preservation of a relatively modest amount of remaining open space.

A particularly intriguing (and complex) issue is the role of home ownership in the support of open space measures. Studies of local fiscal behavior find that communities with a relatively large fraction of renters tend to spend more on local public programs (Oates 2005). Observers have suggested that this “renter effect” may result from renters’ perception that they do not have to pay for these services. Under local property taxation, the formal liability for the payment of the taxes rests with the landlord; the renter never sees a tax bill. Thus, there may be a kind of “renter illusion” under which renters are simply unaware of the extent to which local property taxes affect their rents. If it is true that renters think they get local public services for free, then they may be favorably disposed to support local open space preservation. (Renters also tend to support other forms of local public expenditure.)

Homeowners may have their own reasons to favor land conservation programs. Not only does preservation provide a wide range of amenities, but the associated restriction on land available for development can serve to limit the supply of housing in an area and thereby increase the value of existing homes. We might thus expect a “homeowner effect” that manifests itself in a finding that communities with a higher rate of home ownership have a higher probability of supporting open space referenda at the polls. Of course, homeowners must see the value of these gains as exceeding the increase in their taxes (either in the form of increased current property taxes or future tax liabilities under bond finance).

We have included in our equations a variable indicating the percentage of homeowners in the jurisdiction. As we have seen, the impact of this variable is unclear. The sign of this variable could be either positive (if the homeowner effect dominates the renter effect) or negative (if the renter effect



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is dominant). Unlike other studies of local public expenditure where the estimated sign of this variable is typically negative, we generally find in our outcome equations that the homeowner variable has a positive sign.

For the case of open space referenda, the homeowner effect thus seems to dominate the renter effect. In our sample of counties, for example, we find that a 10 percent increase in the percentage of homeowners in a county is associated with a 3 percent increase in the yes vote on the referendum. In our study of municipalities, we find a more modest 1 percent increase in support. Communities with a larger fraction of homeowners seem to be more favorably disposed to support conservation referenda.

Financing Open Space Referenda

One of the major policy results emerging from this study is that referenda proposals involving bond financing obtain significantly greater voter support than those that rely on local property taxation. Local residents seem to have a decided preference for debt finance over tax finance.

The choice between bond and tax finance is an issue of great interest to public finance scholars.

In the nineteenth century, the famous British economist, David Ricardo, pointed out that there is a formal equivalence between financing a measure by current taxation or by issuing debt. In one case, individuals (or a group of individuals in a community) pay for a project now by taxing themselves in the current period; in the other, they delay payment until some future time by issuing what are effectively IOUs. But in a perfectly functioning credit market, the present value of the future payments to redeem the IOUs (or bonds), which are discounted at the market rate of interest, will be the same as the current tax payments. Thus, so long as individuals have costless access to credit markets, they really should be indifferent to the alternatives of tax and debt finance.

This proposition has become enshrined as the Ricardian Equivalence Theorem, which implies that the mix between tax and debt finance in the public budget is essentially irrelevant. If the government chooses to cut taxes by issuing bonds and increasing future tax liabilities, individuals will simply respond by increasing their current savings in order to maintain their planned profile of consumption over time. In such a setting, deficit finance has no impact whatsoever on the level of aggregate

In both 2000 and 2004, voters in Gallatin County, Montana, overwhelmingly passed a \$10 million open space bond to help conserve more than 40 square miles of important farmland and wildlife habitat throughout the county.



In 2006 the residents of Simsbury, Connecticut, demonstrated strong support for open space conservation by voting to spend \$7 million toward the purchase of 336 acres of land owned by The Ethel Walker School. The property includes an important aquifer that supplies water to the town and contains an exceptional diversity of habitat.

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spending and the economy. This result is hedged by a number of important conditions, but it is a very strong and controversial proposition. It has given rise to a substantial body of empirical testing with quite mixed findings.

The case for Ricardian equivalence is much more compelling in the context of local public finance than in a national setting because the source for this equivalence is the normal operation of local land markets. A wide body of empirical literature has shown that all kinds of local features, including the quality of local schools, accessibility to jobs, environmental amenities, and levels of local taxes, are capitalized into local property values. People are willing to pay more to live in communities with superior levels of amenities and lower taxes (Fischel 2001).

Thus, if a community opts for debt finance (rather than current taxation), it is encumbering itself with an equivalent level of future tax liabilities that will tend to become capitalized into local property values. Residents can effectively choose to finance their public expenditures through current taxes or an equivalent reduction in the market value of their homes. It is straightforward, in a simple model of local finance, to demonstrate this equivalence—to show that rational individuals should be indifferent between tax and debt finance at the local level.

Using our unique data set, we are able to undertake a direct test of Ricardian equivalence, and we

find a clear preference for debt over tax finance in our second-stage outcome equations. Around the mean values of our data, a municipal referendum making use of bond finance is likely to gain 8 to 9 percentage points of yes votes at the polls as compared to a proposal relying on local property taxes. A county referendum is likely to gain 3 percentage points. Other studies of these referenda have found the same result (Nelson et al. 2006). Kotchen and Powers (2006) claim that these findings constitute a clear rejection of Ricardian equivalence.

On closer inspection, we find that this conclusion is not necessarily true—and for an interesting and important reason. In order for Ricardian equivalence to hold, individuals must be able to borrow on the same terms as their governments. But this is clearly not the case in the context of state and local finance in the United States. The interest income on state and municipal bonds is exempt from taxation under the federal income tax, which makes them very appealing to potential buyers. As a result, state and local governments find that they can typically borrow at rates of interest substantially (several percentage points) below the rates available to other borrowers, including both private borrowers and the federal government.

Under such conditions it makes perfect sense for individual borrowers to try to make use of the leverage available to their state and local governments. Rational borrowers would want to shift their portfolios of debt toward issues by their state

and local governments; this would effectively allow them to substitute lower-priced public debt issues for their own private debt. Thus, the finding that local residents prefer bond financing to current property taxation does not represent a rejection of Ricardian equivalence. We would expect this finding in any setting where public borrowing takes place on more favorable terms (i.e., lower interest rates) than private borrowing.


In sum, although this observed preference for bond finance cannot be taken at face value as a rejection of Ricardian equivalence, it nonetheless has quite significant implications for the design of local referenda for the preservation of open space. Such referenda stand a better chance of passage if they are funded through local bond issues than if they rely on current property taxation.

Local Referenda and the Conservation Movement

The widespread use and success of local referenda for the preservation of open space provide some *prima facie* support for the conservation movement's effectiveness in using this instrument to pursue its objectives. Our estimated models indicate, for example, that communities that have held these referenda are predicted to have relatively higher levels of support, averaging some 5 to 7 percentage points, than communities that have not held conservation referenda. These communities also tend to be located in areas with more endangered species and with more surface water resources to protect. All these findings are consistent with the view that the conservation movement has successfully identified communities where referenda have a relatively high likelihood of passage, although many local referenda are still approved without outside support.

This success does not mean that there is no room for improvement, however. Consider the following conceptual exercise. For the 240 county referenda between 1998 and 2006, we identify the top one-third (80), which our selection model tells us were the most likely to hold an open space referendum. We might think of this group as the set of communities most likely to be selected for referenda under current practices of the conservation movement. Then, using our outcome equation, we identify the 80 communities most likely to be successful in passing such measures. This set of communities would presumably be the top priority if our model were used as a planning tool.

The two sets do not fully coincide. We find that the set chosen by "current selection practices" receives an average "yes" vote of 62 percent, with 64 jurisdictions receiving more than 50 percent. In contrast, the 80 communities that our model predicts to have the most successful outcomes receive an average "yes" vote of 68 percent, with 79 of the 80 receiving more than 50 percent. This model thus identifies several jurisdictions with high predicted support for referenda, but where such measures were not actually introduced.

Our research not only provides some helpful description of historic patterns and experience with conservation referenda; it also can help to inform and guide land trusts and other conservation organizations in their efforts to help communities preserve open space in the United States. 

▶ ABOUT THE AUTHORS

H. SPENCER BANZHAF is associate professor in the Department of Economics at Andrew Young School of Policy Studies, Georgia State University, Atlanta. Contact: hsbanzhaf@gsu.edu

WALLACE E. OATES is professor in the Department of Economics at the University of Maryland in College Park and a University Fellow of Resources for the Future. Contact: oates@econ.umd.edu

JAMES SANCHIRICO is associate professor in the Department of Environmental Science and Policy at the University of California, Davis and a University Fellow of Resources for the Future. Contact: jsanchirico@ucdavis.edu

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Jim Levitt focuses his work on conservation innovation—present-day and historic innovations that protect land and biodiversity. He has a particular interest in the role that innovations in conservation finance play in advancing the work of professional and volunteer conservation practitioners.

In addition to his responsibilities as coordinator of the Lincoln Institute's annual Conservation Leadership Dialogue meetings, Levitt directs the Program on Conservation Innovation at The Harvard Forest, Harvard University, and is a research fellow at the Ash Institute for Democratic Governance and Innovation at Harvard's Kennedy School of Government. He is the editor of *From Walden to Wall Street: Frontiers of Conservation Finance* (Island Press/Lincoln Institute of Land Policy, 2005) and *Conservation in the Internet Age: Threats and Opportunities* (Island Press, 2002).

Levitt has served on the National Advisory Board of the Long-Term Ecological Research Program sponsored by the National Science Foundation, and is a member of the boards of several nonprofit conservation organizations, including the Massachusetts Audubon Society and QLF/Atlantic Center for the Environment. He has a B.A. from Yale College, with distinction in anthropology, and holds a Master's in Public and Private Management from the Yale School of Management. Contact: james_levitt@harvard.edu.

James N. Levitt

LAND LINES: *How did you become interested in the conservation of land and biodiversity, and in the subject of innovation among conservation practitioners?*

JIM LEVITT: As a boy growing up in Kansas City, I loved being outdoors on family trips to Arizona and Colorado, and at summer camps in Wisconsin and Maine. My interest in ecology intensified as a teenager in the late 1960s, during the emergence of the environmental movement. Then, as an anthropology major at Yale College, I had a chance to focus on the interaction of human cultures and the environment, and on how cultures can learn and change over time. Summer internships on the Burnt Church Indian Reserve in New Brunswick, Canada, reinforced my enthusiasm for what is today called sustainable development.

After college I worked in the U.S. Department of the Interior as a program assistant to the Alaska Task Force that helped to pass the Alaska National Interest Lands Act. This legislation protected more than 100 million acres of national parks and monuments, wildlife refuges, forests, and wild and scenic rivers, and still stands as the largest single conservation initiative in American history. I was able to watch leaders like Secretary of the Interior Cecil Andrus, Congressman Morris Udall, and the legendary activists Edgar and Peggy Wayburn realize conservation objectives that were both figuratively and literally monumental. I aspired to follow their examples and somehow, someday, make a significant contribution to the field of conservation.

Returning to the Yale School of Management as a graduate student, and in two subsequent decades as a management consultant advising corporate and public sector clients on strategy, I learned a great deal about how large organizations work, and about the complexity of achieving lasting change. Through service on nonprofit boards during the same period, I was able to stay current with trends in conservation practice.

When I had the opportunity to be a Fellow at the Taubman Center for State and Local Government at Harvard's Kennedy School in 1998, and subsequently to serve as coordinator of the Lincoln Institute's Conservation Leadership Dialogue (CLD) series, the two streams of interest in strategy and conservation merged into what has become nearly a decade of work on what I term "conservation innovation." It is an odd juxtaposition of almost contradictory terms, but I have learned that in conserving ancient places and ecosystems that we value, conservation practitioners are constantly called upon to come up with new ways of doing business—what I call "landmark conservation innovations."

LAND LINES: *Can you share some examples of landmark conservation innovations?*

JIM LEVITT: Such examples abound in the history of the United States, and throughout the world. They range from the protection of the Boston Common by self-governing Puritan settlers in 1634 to the establishment and growth in Kenya of the Greenbelt Movement, an effort led by Nobel Prize winner Wangari Maathai in the recent decades. These innovations involve such disparate fields as conservation science, education, advocacy, land protection (including project finance), and stewardship.

Typically, the most significant of these initiatives are characterized by five traits: *novelty*, indicating notable creativity in conception; *strategic significance*; measurable *effectiveness*; transferability or *replicability* from one jurisdiction or nation to another; and the *ability to endure*, leaving marks on professional practice and in land use atlases for decades and even centuries.

Consider the example of the U.S. national park system. When President Ulysses S. Grant established Yellowstone as a national park in 1872, setting aside about 1 million acres, it was the first and only national park in the world. (Abraham Lincoln had reserved Yosemite in 1864, but as a state park.) By the year 2000, nearly every nation in the world had established national parks, collectively covering nearly 1 billion acres—that is a thousand-fold increase in 128 years.

The creation of Yellowstone has proved to be highly creative, inspiring land protection efforts worldwide; strategically significant in the growth of the conservation movement; effective in both acres protected and lives enriched; and transferrable to every continent

on earth. Furthermore, the idea is still going strong today, with new parks and national monuments being created in recent years from Utah to Uruguay.

Similarly, the birth of the land trust movement in 1891, inspired by the effort to protect the magnificent trees known as the Waverley Oaks growing along Beaver Brook in eastern Massachusetts, has had global implications. The land trust movement has spread around the world, with vibrant private land conservation movements now taking root from Chile and the Czech Republic to New Zealand. It is humbling to see how, over the space of several generations, such organizations can become powerful forces for conservation. It is true that “great oaks do from little acorns grow.”

LAND LINES: *How do these examples inform us as we face the immense conservation challenges of this century, including global climate change?*

JIM LEVITT: The challenges we face are indeed immense. From inland drought to rising sea levels to the spread of invasive species, the warming of the earth’s climate may lead to some quite dire environmental consequences. For example, Jesse Logan, a biologist recently retired from the U.S. Forest Service, offers very specific scenarios of how pine beetles, once confined to the American West by frigid winter temperatures, may now spread devastation in pine forests across the North American continent due to winter warming in high latitudes.

Likewise, historic drought conditions in the Colorado River Basin threaten the water and power supplies throughout the southwestern U.S. And, however critical these problems might be for Americans, the changing hydrologic cycle in Bangladesh and India could lead to truly catastrophic threats to human and wildlife populations there.

LAND LINES: *Are these threats beyond the scope and ability of humankind to address?*

JIM LEVITT: I don’t believe so. At least three times in the past century in the United States, we have gathered our best minds and best spirit to forcefully address threats

to our natural resources and environment. During Theodore Roosevelt’s presidency, Gifford Pinchot was instrumental in creating the U.S. Forest Service, leading to the dramatic recovery of the nation’s forests.

Three decades later, under President Franklin Roosevelt, Hugh Hammond Bennett, founder of the Soil Conservation Service, finally helped us come to grips with the tragic consequences of the Dust Bowl. And in the 1960s and 1970s, inspired by Rachel Carson’s *Silent Spring*, we created the Environmental Protection Agency and the Endangered Species Act. Our children, who can now see bald eagles in substantial numbers in places where they had virtually disappeared, are the beneficiaries.

Certainly, to address the challenges of climate change and disruptive human impacts on the planet, we need new ideas, new tools, and new programmatic initiatives. We need *new energy technologies* that can help us very substantially reduce the release of greenhouse gases into the atmosphere. We need *enforceable regulations* that will control the release of carbon emissions on a global basis. We need *new markets*, such as carbon trading markets and wetland mitigation markets, that will unleash the remarkable power and creativity of private entrepreneurs to establish sustainable economies around the globe. And we need a comprehensive approach to *adaptive management* of working and protected landscapes and seascapes to help us cope with the changes in the climate and related ecosystem dynamics that are already being registered today.

LAND LINES: *How are you working with the Lincoln Institute to advance the conservation community’s thinking on these issues?*

JIM LEVITT: Through the Institute’s Conservation Leadership Dialogue process, we have already had heartening success in bringing conservation finance concepts to light with the publication of *From Walden to Wall Street*, which was principally aimed at opportunities in the United States.

This year’s meeting, being held in Washington, DC, in May, will focus on a framework for adaptive management that employs cross-sectoral cooperation at

multiple scales to (1) observe, (2) forecast and plan, (3) take action on the ground, and (4) reassess the efficacy of those actions. The creation of a comprehensive, international system of adaptive land management would, if accomplished, constitute a landmark conservation innovation of considerable historic importance.

In January 2009, we plan to hold a CLD session on Conservation Capital in the Americas on the campus of the Universidad Austral de Chile, in the beautiful riverfront city of Valdivia. We hope to engage conservationists from both North and South America at the meeting, and to publish a book based on the productive exchange of ideas.

LAND LINES: *How will innovation in the field of conservation finance make a difference in this effort?*

JIM LEVITT: At the end of the day—or, perhaps better said, at the beginning of the day—we will need historic levels of funding, from the public sector as well as private markets, to bring to life the ideas that are big and bold enough to substantially address the threat of global warming.

The good news is that the field of conservation finance is brimming with new and highly promising ideas that have been tested and are ready for deployment. These include: provision of debt and equity finance for limited development projects; the establishment of ecosystem service markets to mitigate the impacts of development on soil, water, and wildlife resources; the establishment of global carbon trading markets that can reward actors that find effective ways to reduce greenhouse gas emissions; the use of tax incentives that encourage individuals and businesses to protect private land for the public benefit; and the implementation of micro-finance and growth finance facilities that can unleash the entrepreneurial energies of people around the world to achieve their sustainable development goals.

It is an exciting time to be involved in conservation finance. The Washington, DC, and Valdivia conferences should add to the global momentum in this field. **L**

Making the Property Tax Work: Experiences in Developing and Transitional Countries

Students of public finance and fiscal decentralization in developing and transitional countries have long argued for more intensive use of the property tax. It would seem the ideal choice for financing local government services. Based on a Lincoln Institute conference held in October 2006, the chapters in this book take this argument one step further in drawing on recent experience with property tax policy and administration.

Two main sets of issues are addressed. First, why hasn't the property tax worked well in most developing and transitional countries? Second, what can be done to make the property tax a more relevant source for local governments in those countries? The numerous advantages of the property tax as a local government revenue source are analyzed and discussed in detail as are the many perceived disadvantages.

Compiled by editors Roy Bahl, Jorge Martinez-Vazquez, and Joan Youngman, this volume examines whether the property tax can be made to work under a variety of circumstances. The underlying theme that runs through most of the chapters is that the property tax is in a perpetual transition, and its policies and administration are always changing. Yet most analyses are optimistic that the transitions are moving in the right direction.

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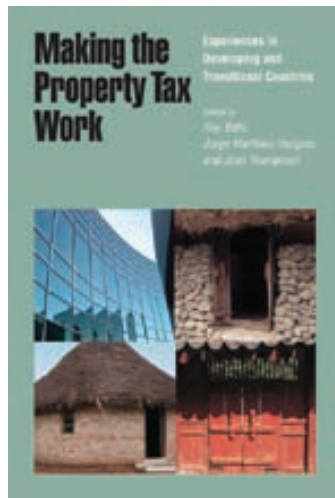
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ABOUT THE EDITORS

Roy Bahl is professor of economics at the Andrew Young School of Policy Studies at Georgia State University in Atlanta, and is a member of the Lincoln Institute board of directors. He consults on state and local government issues in the United States and on fiscal policy reform with governments in developing and transitional economies. Contact: prcrwb@langate.gsu.edu

Jorge Martínez-Vázquez is professor of economics and director of the International Studies Program at the Andrew Young School of Policy Studies at Georgia State University in Atlanta. He studies tax reform and intergovernmental fiscal relations. Contact: jorgemartinez@gsu.edu

Joan Youngman is senior fellow and chair of the Department of Valuation and Taxation at the Lincoln Institute of Land Policy. She is an attorney specializing in state and local taxation and the legal problems of valuation for property taxation. Contact: jyoungman@lincolninst.edu

Fiscal Decentralization and Land Policies

The study of fiscal decentralization has important policy implications for urban growth management, environmental conservation, and property taxation. First, fiscal decentralization gives local governments powers to set local taxes and make local expenditures. Second, in many countries local governments also have powers to regulate land uses within the general guidelines set by higher authorities. These two powers interact so that municipalities often make land use decisions while considering their fiscal effects. Hence, an understanding of the degree to which local and provincial governments can exercise power, make decisions about their revenues and expenditures, and are held accountable for outcomes is crucial for land policy research and education.

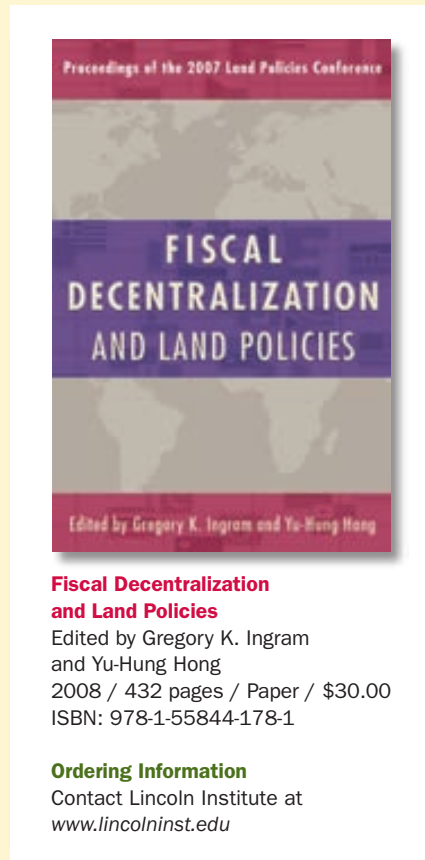
In June 2007 Gregory K. Ingram and Yu-Hung Hong organized the second in a series of Lincoln Institute–sponsored land policy conferences to address international trends and issues. Its goals were to review decentralization experiences in Organisation for Economic Co-operation and Development (OECD) countries and developing nations and to explore areas of consensus and disagreement among scholars and analysts on the opportunities and risks of decentralization.

Three key themes emerged from the conference and are presented in this volume: (1) the extent and effectiveness of local service provision under decentralization; (2) the connections between decentralization and local policies, appraising how decentralization is related to jurisdiction size, public school finance, local environmental policy, and urban economic development strategy; and (3) the effects of intergovernmental transfers on other issues such as local fiscal prudence and the association between decentralization and income distribution.

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ABOUT THE EDITORS

Gregory K. Ingram is president and CEO of the Lincoln Institute and cochair of the Department of International Studies. He has published in the areas of housing and land markets, urban economics, infrastructure, environment, and development. Contact: gkingram@lincolnininst.edu

Yu-Hung Hong, fellow at the Lincoln Institute and visiting assistant professor at Massachusetts Institute of Technology, is engaged in research and teaching on utilizing land as a public revenue source. Contact: hong@lincolnininst.edu

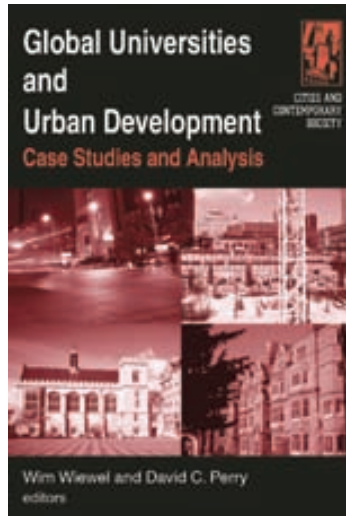
Global Universities and Urban Development: Case Studies and Analysis

Continuing their Lincoln Institute–sponsored research on the role of universities in urban development, Wim Wiewel and David C. Perry have edited this book on global universities to complement their previous volume on U.S. institutions, *The University as Urban Developer: Case Studies and Analysis* (M.E. Sharpe and Lincoln Institute, 2005).

This work is part of the Institute’s City, Land, and The University project to improve the collective capacity of leaders to achieve the multiple interests of cities, universities, and communities in ways that are mutually agreeable. This new book thus continues the dialogue between universities and their host communities about the roles and responsibilities of all the city’s residents (i.e., individuals and institutions, public sector and private sector) in contributing to the quality of life in the city.

Linking the fields of real estate development, higher education, and urban design, this volume offers case studies of universities in 13 countries in Europe, Asia, Latin America, and the Middle East. Universities outside the United States are most often public entities, and their development practices exemplify how the modern state operates. The role of the knowledge economy in urban and global development has, in turn, forced a new consideration of universities as elements of the state and has provided an empirical position from which to assess the changing role of the state in this dynamic new era.

The book features contributions from noted urban scholars, campus planners and architects, and university administrators who provide a broad perspective of the issues and practices that comprise university real estate development around the globe. A concluding chapter by the editors offers practical evaluations of the cases and identifies best practices in the field.



Global Universities and Urban Development: Case Studies and Analysis

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ABOUT THE EDITORS

Wim Wiewel is provost and senior vice president for academic affairs at the University of Baltimore. Contact: wim@ubalt.edu

David C. Perry is director and professor of the Great Cities Institute at the University of Illinois at Chicago. Contact: dperry@uic.edu

Toward a Vision of Land in 2015: International Perspectives

The Lincoln Institute of Land Policy has collaborated with the International Center for Land Policy Studies and Training (ICLPST) in Taiwan for many years, and in October 2006 the two organizations cohosted a conference on land-related issues to commemorate the 100th international training course held at the center. The conference gathered some of the best thinkers on land issues to discuss their invited papers on topics that would be important between the present time and the year 2015, the target date to which United Nations member states have agreed for a set of Millennium Development Goals. For example, the seventh goal, to “ensure environmental sustainability,” calls for preserving environmental resources, improving the lives of slum dwellers, and increasing access to safe drinking water.

Edited by Gary C. Cornia and Jim Riddell, this book compiles the conference proceedings and alerts policy and decision makers to the changing circumstances of how society views, values, and uses land. Some of the issues addressed in this volume help policy makers think about how to utilize land to help govern a community. This topic includes using land as a revenue source for the funding of government or as a tool in economic development.

Other chapters offer insights and advice about technical and policy innovations that might improve our understanding of land use decisions, or discuss the need for a careful reevaluation of the process of thinking about land and its fundamental importance in a society.

On many dimensions, these chapters offer optimistic outlooks for the future of land. Technology is changing the way land is now managed and used; and the evidence of improvements in land records, agricultural technology, estimation of land values, and dissemination of information about land use is encouraging. Worth considering are the suggestions to examine



**Toward a Vision of Land in 2015:
International Perspectives**

Edited by Gary C. Cornia
and Jim Riddell
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land decisions within a framework of sustainable development, particularly regarding the sustainability of food supplies.

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ABOUT THE EDITORS

Gary C. Cornia is professor of public management in the Romney Institute of Public Management at the Marriott School of Management of Brigham Young University in Provo, Utah. He is also a member of the boards of directors of the Lincoln Institute and ICLPST. Contact: gary_cornia@byu.edu

Jim Riddell is a course coordinator at the International Center for Land Policy Studies and Training (ICLPST) in Taiwan and is based in Edina, Minnesota. Contact: jimriddell@yahoo.com

European Spatial Research and Planning

With the publication of *European Spatial Research and Planning*, the Lincoln Institute adds a third volume to its series of investigations of spatial planning, research, and policy in Europe, all of them edited by Andreas Faludi. The previous titles are *Territorial Cohesion and the European Model of Society* (2007) and *European Spatial Planning* (2002). Each of these books examines the European experience with spatial planning, with an expectation that it may hold lessons for land policy in the United States.

This new book taps into the treasure trove of research that is ESPON, the European Spatial Planning Observation Network, which has yielded a plethora of studies on the real and anticipated outcomes of European territorial policy. The ESPON research underpinning this volume reveals that policy goals such as sustainable economic growth and territorial cohesion have far-reaching consequences across sectors and geography. The ESPON corpus provides the chapter authors with the means to examine developments at the intersection of research and policy.

As with the previous two volumes, the approach to this book began with inviting a select group of people from all over Europe to give papers on their experience with various aspects of ESPON's work. The seminar took place at the University of Luxembourg in May 2007.

The chapters provide a comprehensive view of how the search for evidence to support the agenda of the European Spatial Development Perspective (ESDP)—now the *Territorial Agenda*—has proceeded, what the evidence has been in some key areas, what the implications are, and what other conclusions could have been drawn. The authors also demonstrate that a learning exercise like ESPON can contribute to



European Spatial Research and Planning

Edited by Andreas Faludi
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shaping a political agenda, which could perhaps serve as a source of inspiration for fellow planners across the Atlantic.

Perhaps the most striking area of difference between Europe and the United States in the context of territorial policy has to do with demography. Europe is facing a population deficit by mid-century of the same order as the expected increase in U.S. population in that period. While it is true that the United States has by no means come to grips with its own immigration issues, it is perhaps still fair to observe that immigration policy will continue to contribute significantly to the tension between Europe's continental vision, and its place within a greater regional neighborhood, and the wider world.

The book features more than 30 full-color maps and numerous other figures that illustrate the concepts and trends discussed. Many of these images were developed directly through ESPON research.

Contents

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▶ ABOUT THE EDITOR

Andreas Faludi is professor of spatial policy systems in Europe at the OTB Research Institute for Housing, Urban and Mobility Studies at Delft University of Technology in The Netherlands. Contact: a.faludi@ipact.nl

Visioning and Visualization: People, Pixels, and Plans

Two remarkable phenomena have affected the practice of planning over the past two decades: the rise of public involvement as an integral component of urban decision making, and the technological innovations that enable the visualization and simulation of physical reality. Together these phenomena anticipate the future, turning the planning process into a journey of discovery for professionals and laypeople alike.

Building on a series of workshops sponsored by the Lincoln Institute over the past five years, authors Michael Kwartler and Gianni Longo present principles, techniques, and cases based on their professional experiences in developing sophisticated public involvement processes that are used to apply information technology to planning and design. They suggest ways that digital visualization tools can be integrated in a public process to present participants with clear choices and help them make informed planning decisions. Evidence from communities throughout the country shows that public involvement supported by visualization leads to better plans and more livable places and communities.

This book will assist urban professionals, public sector leaders, and the public in navigating the complex and evolving public planning process. Richly illustrated with more than 100 color figures, photographs, and computer simulations, the material is organized in six chapters:

Chapter 1, The Context, presents an historic overview of the public involvement and digital visualization fields. It traces the trajectory of public involvement in planning from confrontational and adversarial tactics to the present emphasis on cooperation and inclusion. It expands on the evolution of representation techniques from perspective drawings to computer-aided visual simulations.

Chapter 2, Principles, Benefits, and Lessons Learned, outlines principles to guide the integration of public process



Visioning and Visualization: People, Pixels, and Plans

Michael Kwartler and Gianni Longo
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and visualization tools in a democratic decision-making process. It also explores lessons learned in the application of digital visualization tools to planning activities.

Chapter 3, Public Involvement Techniques in Planning, illustrates a range of public involvement techniques that invite the use of visualization tools.

Chapter 4, Visual Simulation Tools, introduces specific tools and their uses in planning, such as representing existing conditions, visualizing alternatives, and monitoring impacts.

Chapter 5, Implementation, describes formal and informal ways the implementation of a plan can benefit from feedback opportunities created by visualization tools.

Chapter 6, Case Studies, presents four case studies spanning from the regional to the neighborhood scale where public involvement and visualization tools were used to help the public make informed decisions.

- Southwest Santa Fe City/County Master Planning Initiative for the City and County of Santa Fe, New Mexico
- Near Northside Economic Revitalization Planning Process for the City of Houston, Texas

- Kona Community Development Plan for the County of Hawaii, Hawaii
- Vision 2030: Shaping our Region's Future Together, a five-county vision developed for the Baltimore (Maryland) Regional Transportation Board

Visioning and Visualization is intended to be particularly helpful for those planning to initiate a public visioning process supported by visualization tools. Because the authors explain both the “why” of visioning along with the “how” of visualization, the reader is well-equipped to design the vision process and select appropriate tools and professional consultants to help carry it out. Visualization is seen in this work as a kind of analysis or inquiry—an activity that assists those engaged in the visioning process in exploring planning scenarios and design options under conditions of complexity and uncertainty.

ABOUT THE AUTHORS

Michael Kwartler, an architect, planner, urban designer, and educator, is the founding director of the Environmental Simulation Center (ESC) in New York City, a nonprofit research laboratory created to develop innovative applications of information technology for community planning, design, and decision making. Contact: kwartler@simcenter.org

Gianni Longo is an architect and founding principal of ACP-Visioning & Planning in New York City. For the past two decades, he has pioneered the development of programs designed to involve citizens in the planning and decision-making process. Contact: glongo@acp-planning.com

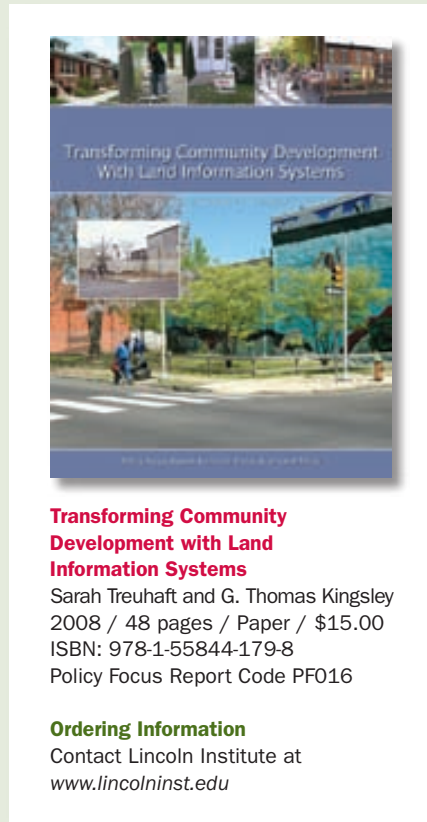
Transforming Community Development with Land Information Systems

A new era of data democracy has arrived, enabling tremendous improvements in land information systems and opening up a wealth of opportunities for the practice of community development and the management of community resources. Geographic information systems (GIS) and Web services have dramatically expanded the ability to access, analyze, disseminate, and display vast quantities of data. These powerful technologies make it possible for cities, counties, and even regions to integrate their administrative databases and make parcel-level information available to the public via the Internet.

Community organizations that gather and analyze data, together with the national networks that support them, also play a crucial role in the democratization of data—serving as bridge-builders for technology, government, and the community. With this extensive information infrastructure in place, community development practitioners now have greater access to the detailed property data that are so vital for analyzing and monitoring changes in neighborhood real estate markets.

This report is part of a multiyear research and action project by PolicyLink, the Urban Institute, and the Lincoln Institute of Land Policy to advance the field of parcel data systems and their application to community revitalization and equitable development. It describes how pioneering organizations and partnerships are turning robust, integrated parcel data systems into powerful tools for guiding community change.

Case studies of five cities and regions—Chicago, Cleveland, Minneapolis–St. Paul, Philadelphia, and Washington, DC—detail some of the nation’s most promising applications of property-level information. They were selected to demonstrate how land information systems can be used to address a wide range of community development challenges on both an urban and regional scale, such as the following:



Transforming Community Development with Land Information Systems
Sarah Treuhaft and G. Thomas Kingsley
2008 / 48 pages / Paper / \$15.00
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Policy Focus Report Code PF016

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- *Providing decision support for major initiatives.* In Cleveland, parcel data are being used to inform land acquisition decisions and model block efforts in six neighborhoods targeted for revitalization.
- *Informing foreclosure prevention strategies.* University-community partnerships in Cleveland and Minneapolis–St. Paul are developing systems to identify properties at risk of foreclosure and to design effective interventions.
- *Targeting outreach to low-income homeowners.* Community organizations in Chicago and Philadelphia have used parcel data to target services and resources to help low-income owners maintain and improve their homes.
- *Planning commercial district revitalization.* Using Web-based GIS tools, community groups in Chicago have surveyed local commercial districts to support economic development and transit-oriented development planning.

- *Supporting community organizing.* A resident task force in one of Cleveland’s most distressed neighborhoods used data on loan transactions to identify and take legal action against property flippers.
- *Monitoring and preserving affordable housing.* An enhanced parcel data system is supporting collaborative efforts to preserve Section 8 units and manage the affordable housing stock in Washington, DC.

These and other advanced applications described in this report demonstrate the vast potential that integrated parcel data systems hold for the creation of equitable and sustainable communities. Fulfilling this promise, however, requires ongoing investments in systems, institutions, and processes. In particular, the support of government at all levels and of institutions and foundations is needed to bring emerging solutions to scale, disseminate best practices in the use of parcel data, and foster continued innovation in land information systems to support community change.

▶ ABOUT THE AUTHORS

Sarah Treuhaft is a senior associate at PolicyLink in Oakland, California. She conducts research and writes on a variety of equitable development topics such as the use of data and mapping for community building and regional equity strategies. Contact: Sarah@policylink.org

G. Thomas Kingsley is a senior researcher and research manager in housing, urban policy, and governance issues at the Urban Institute in Washington, DC, and is the author of numerous publications in those fields. Contact: tkingsley@urban.org

Courses and Conferences

The education programs listed here are offered for diverse audiences of elected and appointed officials, policy advisers and analysts, taxation and assessing officers, planning and development practitioners, business and community leaders, scholars and advanced students, and concerned citizens. For more information about the agenda, faculty, accommodations, tuition, fees, and registration procedures, visit the Lincoln Institute Web site at www.lincolninst.edu/education/courses.asp.

For information about other programs offered by the Program on Latin America and the Caribbean, visit www.lincolninst.edu/aboutlincoln/lac.asp, and for information about the Program on the People's Republic of China, visit www.lincolninst.edu/aboutlincoln/prc.asp.

Programs in the United States

MONDAY, APRIL 7

**Holy Cross Hogan Center,
Worcester, Massachusetts**

**Eds, Meds, and Municipalities:
Developing Shared Goals
and Strategies for Mutually
Beneficial Results**

**Roz Greenstein, Lincoln Institute of
Land Policy; and Dale Allen, The Cecil
Group, Boston**

The Lincoln Institute of Land Policy and The Cecil Group are offering a day-long conference to achieve a better understanding of the dynamics involved in the relationships between institutions, neighborhoods, and municipalities, and to provide a toolkit to increase long-term, mutually beneficial strategies for leaders

and practitioners from institutions and municipalities. The strategies focus on programmatic, physical, and investment opportunities to spur community and economic development that results in positive returns for all parties—a major theme in the Lincoln Institute's Department of Economic and Community Development and its City, Land, and the University program.

Programs in Latin America

MONDAY–FRIDAY, APRIL 7–11

Bogotá, Colombia

**Property Taxation in Latin America
Martim Smolka, Lincoln Institute of Land
Policy; and Claudia DeCesare, independent
researcher and consultant.**

Leading practitioners involved in the policies and administration of property taxes share experiences and exchange views on tax issues in this seminar. Theoretical and practical aspects of the property tax are examined: determination of property values; links with urban finance; components and definition of the tax base; assessment performance; tax rates and exemptions; information systems (cadastre, maps, and GIS); collection and appeal; and responsibilities of policy makers and administrators.

SUMMER 2008

Asunción, Paraguay

**Large Scale Urban Projects Course
Martim Smolka, Lincoln Institute of Land
Policy; Claudia DeCesare, independent re-
searcher and consultant, Brazil; and Eduar-
do Reese, Universidad Nacional General
Sarmiento, Buenos Aires, Argentina**

This professional development course examines projects designed to redefine uses to large land tracks in urban areas of Latin American cities. It focuses on the tools and instruments available for alternative land use regulatory regimes and on methodologies to evaluate the impacts of these projects. The projects include those designed to promote the redevelopment, regeneration, or conversion of deteriorated or abandoned urban areas, and the rehabilitation of historical centers and city center building stock.

Lincoln Lecture Series

The Institute's annual lecture series is presented at Lincoln House in Cambridge, Massachusetts, beginning at 12 p.m. (lunch is provided), unless otherwise noted. Consult the Lincoln Institute Web site (www.lincolninst.edu) for information about other dates, speakers, and lecture topics. The programs are free, but pre-registration is required. Contact help@lincolninst.edu to register.

WEDNESDAY, APRIL 23

**The Resilience of New Orleans:
Urban and Coastal Adaptation to
Disasters and Climate Change**

**Doug Meffert, visiting fellow, Lincoln
Institute of Land Policy, and deputy director,
Tulane/Xavier Center for Bioenvironmental
Research, New Orleans**

WEDNESDAY, MAY 28, 4:00–6:00 PM

**Global Universities and Urban
Development: Case Studies
and Analysis**

**Lecture, Book Signing,
and Reception**

**David C. Perry, Great Cities Institute,
University of Illinois at Chicago**

Wim Wiewel, University of Baltimore

TUESDAY, JUNE 10

The London Climate Action Plan
Nicky Gavron, Deputy Mayor, London

THURSDAY, JUNE 12

**Understanding the Performance of
Taxes on Property in Latin American
Countries: A Preliminary Analysis**

**Claudia DeCesare, consultant on property
taxation and valuation, Brazil**

Requests for Proposals on Latin America

The Lincoln Institute's Program on Latin America and the Caribbean coordinates research activities and seminars to promote the advancement of knowledge on urban land policies, land markets, and related themes in the region. Each year scholars are invited to submit proposals for a competitive selection of research projects in response to a Request for Proposals process. In 2008 proposals will address five research themes: the measurement and assessment of residential segregation in large Latin American cities; cadastres, GIS, and other land information systems; land procurement by the public sector and related expropriation issues; the impact of public sector interventions on land prices; and alternative instruments to finance urban development.

The RFP guidelines will be posted on the Lincoln Institute Web site in early June, and the deadline for submitting proposals is July 10, 2008. Consult the Web site at <http://www.lincolninst.edu/education/rfp.asp>



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THE CASE OF BOGOTÁ'S TRANSMILENIO

CONTINUED FROM PAGE 7

Other potential explanations for the results that may be of interest to planners considering BRT investments include the timing of the effects. The capitalization of benefits from the BRT extensions may take a long time to occur. Our analysis covers only up to three years after the extension was inaugurated, but the development impacts of transportation projects tend to take longer. A related explanation is that properties also appreciate in anticipation of transportation investments, rather than when extensions are inaugurated.

It is also possible that the effects differ for neighborhoods within each study area. Although we used properties within 1 km of a BRT station (the catchment area identified by local planners in their TransMilenio feasibility studies), it is possible that prices increased, but only for a subset of properties (for example, those closest to a station). Finally, it is likely that the land value impacts of public investment in transportation are different for commercial, multifamily, and single-family properties. Price increases for commercial space have been detected in other cities (Cervero and Susantono 1999; Cervero and Duncan 2002).

There is no simple way of unambiguously examining the land value impacts of large public investments. In this study, we attempted to build on prior studies and overcome their limitations. Our findings show some promise for financing infrastructure through the land value increases they may create. But ambiguities and caveats remain that are not easily resolved. In the meantime, decision makers will continue to explore solutions to mass transportation options and ways to finance it, and BRT will contribute to addressing the pressing mobility needs of cities around the world. **L**

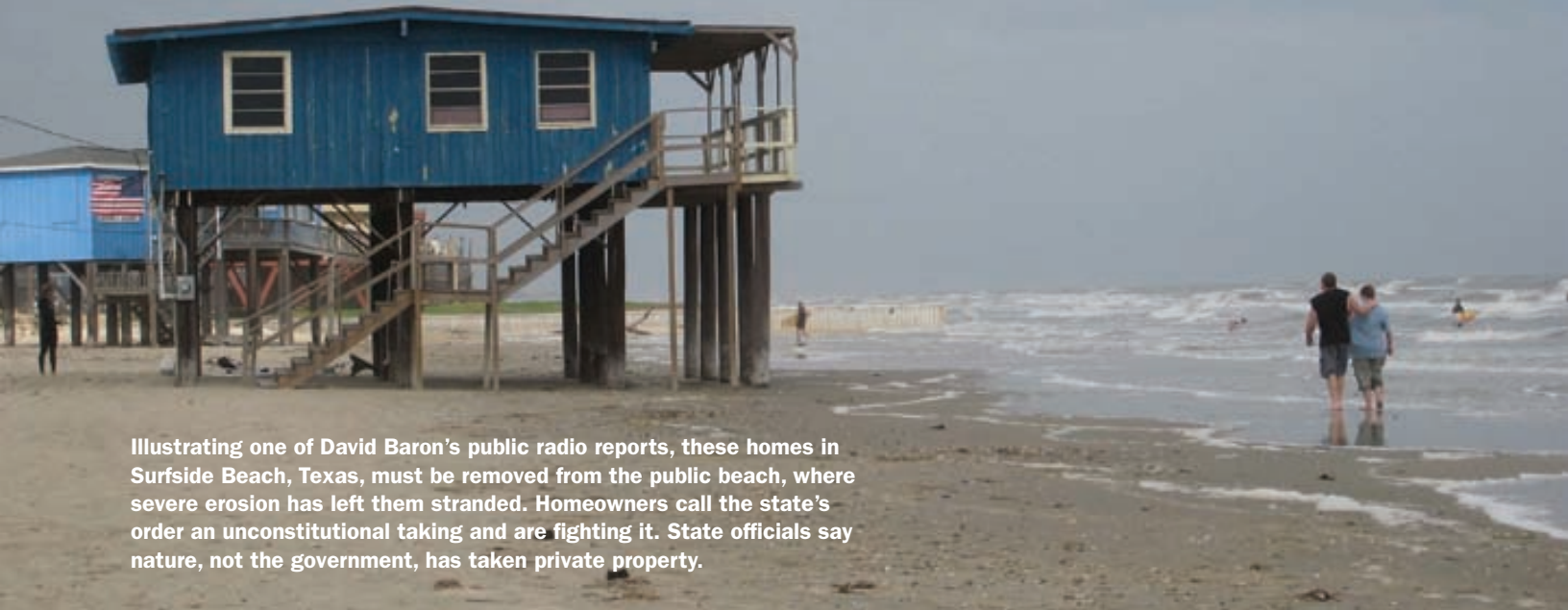
Research Fellowships Available

The Lincoln Institute's Program on the People's Republic of China offers research fellowships through the newly established Lincoln Institute-Peking University Center for Urban Development and Land Policy in Beijing. These fellowships are designed to help qualified scholars enhance their capacity in land and tax policy fields that address the Institute's primary interest areas in China. Priority topics include urban economics, land use and policy, urban and rural planning, local public finance, and property taxation. The deadline for these applications is May 16, 2008.

The Department of Planning and Urban Form supports fellowships in planning and the built environment, with a particular focus on three themes: spatial externalities and multi-jurisdictional governance issues; the interplay of public and private interests in the use of land; and land policy, land conservation, and the environment. The application deadline for these fellowships is September 15, 2008.

Application guidelines and additional information on all of these fellowship programs are available on the Institute's Web site at <http://www.lincolninst.edu/education/fellowships.asp>

What's New on the Web



Illustrating one of David Baron's public radio reports, these homes in Surfside Beach, Texas, must be removed from the public beach, where severe erosion has left them stranded. Homeowners call the state's order an unconstitutional taking and are fighting it. State officials say nature, not the government, has taken private property.

© David Baron

The Lincoln Institute of Land Policy is supporting a new public radio series titled *Shifting Ground* that aims to bring new depth to the reporting of land use issues. This occasional series, airing on *All Things Considered* on National Public Radio, explores how land policy has an impact on the ground. The series showcases innovative tools and practices that are being applied in communities facing land use challenges across the country.

The producer of the series is David Baron, an award-winning author and journalist who has worked in public radio for more than 20 years, previously as science/environment correspondent for NPR and science editor for the Public Radio International/BBI program, *The World*. His book, *The Beast in the Garden: A Modern Parable of Man and Nature* (W.W. Norton, 2004), explores the growing conflict between people and wildlife in suburban America.

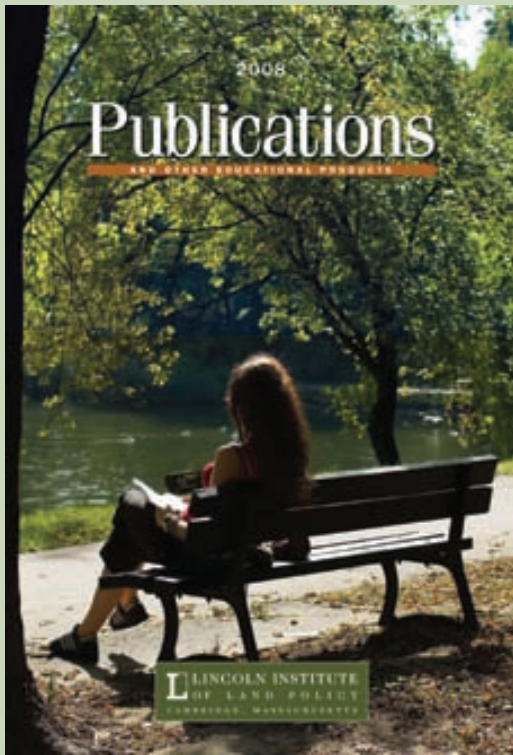
The Lincoln Institute provided support for Baron's research for the series through its Department of Planning and Urban Form. The series is also supported by The Orton Family Foundation, based in Burlington, Vermont.

"Stories about land use are often technical and abstract," Baron notes. "Zoning, setbacks, comprehensive plans—just mention the terms, and eyes glaze over. We decided the key to this series would be storytelling, and though the stories are place-specific, they touch on issues that listeners can relate to, wherever they live."

One installment looks at conservation easements, a popular tool for protecting private land from development, by exploring the case of an easement at a Wyoming ranch put in place in 1993 and then undone years later. Another story looks at a community in Nevada that is trying to save its rural character in the face of suburban growth. Other stories in the series are based in New York, Texas, and Michigan, addressing the siting of wind farms, the difficulties of removing homes from eroding beaches, and the use of green burials as a land conservation tool.

The first installment was aired in late February, and others will continue throughout the year. Each program will be archived and available on the *Shifting Ground* Web site, which is accessible at the Lincoln Institute Web site under Publications and Multimedia at www.lincolnst.edu/pubs/shifting_ground.asp.





The **Lincoln Institute's 2008 Publications Catalog** features more than 100 books, policy focus reports, and multimedia resources. These publications represent the work of Institute faculty, fellows, and associates who are researching and reporting on a wide range of topics in valuation and taxation, planning and urban form, and economic and community development in the United States, Latin America, Europe, China, South Africa, and other areas. To request a copy of the catalog, e-mail your complete mailing address to help@lincolninst.edu or call 1-800-LAND-USE (1-800-526-3873). The complete catalog is also posted on our Web site.



Online Publications

The Lincoln Institute Web site hosts all issues of **Land Lines** published since 1995 and an increasing number of other publications. The search functions have been upgraded to help you find the title, author, or type of publication that you want. Go to www.lincolninst.edu/pubs/index.asp to begin your search.



Policy Focus Reports

The Lincoln Institute has published 16 policy focus reports since 1995, and several other reports are being prepared for distribution this year. All of these reports are available for free downloading, and most are also available for purchase. See page 22 for information about the most recent report.

Working Papers

More than 520 working papers are posted online for free downloading. These papers include the results of Institute-sponsored research, course-related materials, and occasional reports or papers cosponsored with other organizations. Some papers by associates affiliated with the Institute's programs in Latin America and China are available in Spanish, Portuguese, or Chinese.

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