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Land Lines

OCTOBER 2012

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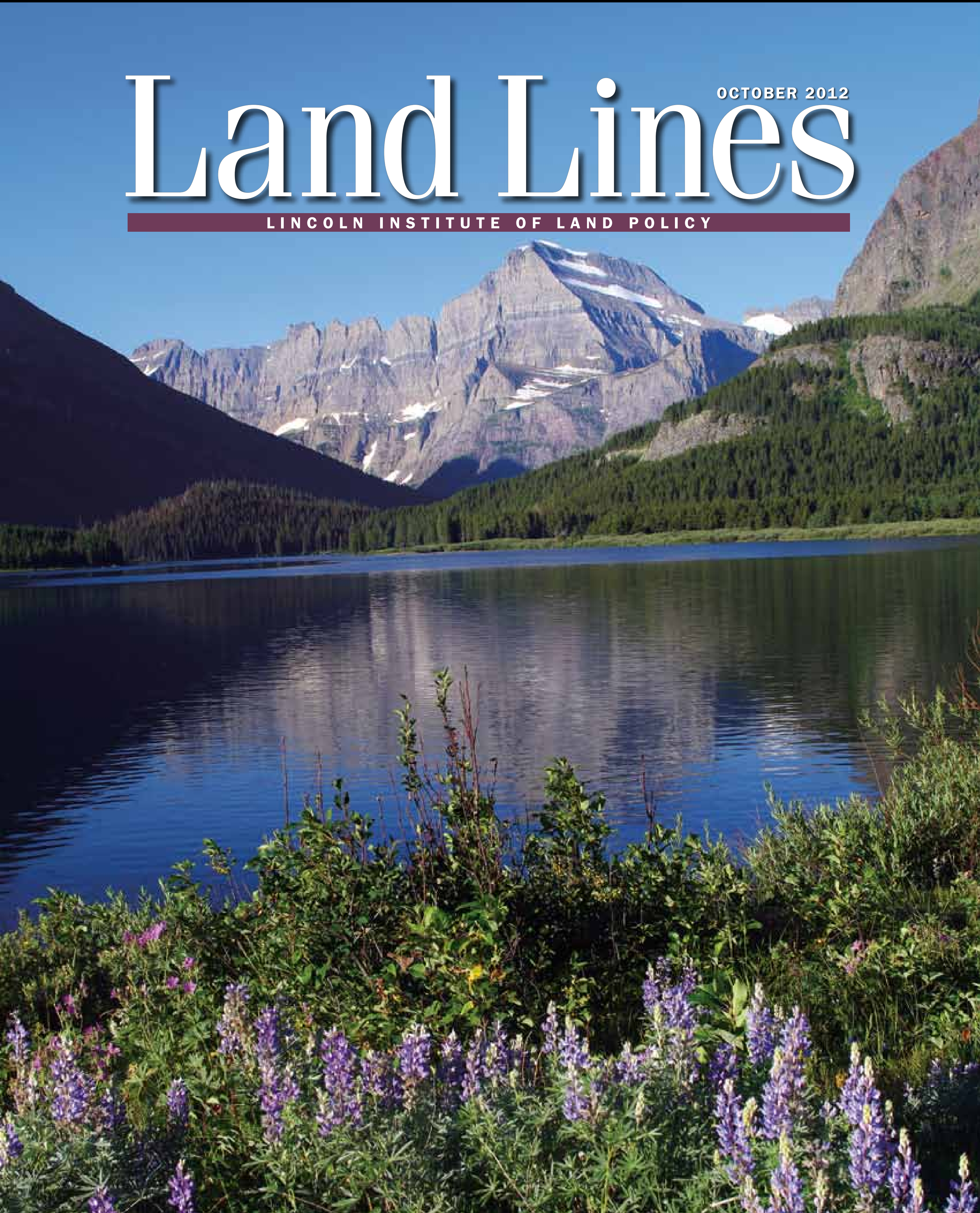

Land Lines

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LINCOLN INSTITUTE OF LAND POLICY

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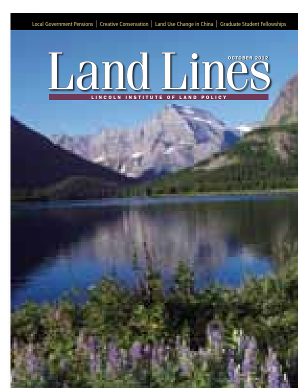

Lake Sherburne, Glacier National Park, Montana.

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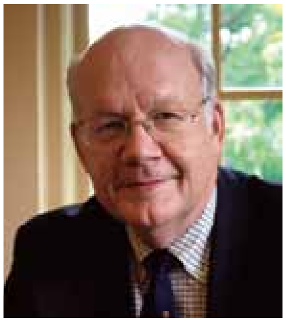
Fostering Networks on Conservation and Affordable Housing



Gregory K. Ingram

Policies affecting the use, regulation, and taxation of land in the United States are promulgated and applied primarily by states and local governments, and real estate markets are largely local and not national in scope. However, national policies including those on taxation, property rights, and mortgage financing have a significant impact on local land and housing policies and their outcomes. Accordingly, it often makes sense for local policy makers and activists to combine forces so they can learn from each others' experiences and ensure that their viewpoints are present in national land policy debates. The Lincoln Institute has played, and continues to play, an important role in sponsoring research and fostering training, communication, and organizational activities that promote land policies consistent with the its mission.

One example is the Lincoln Institute's role in helping to establish the Land Trust Alliance (LTA), the national network of nonprofit conservation organizations that protect natural resources such as farmland, forests, and wilderness areas. The Lincoln Institute in 1981 provided a fellowship to Kingsbury Browne, a Boston-based conservationist and lawyer, to visit land trust leaders throughout the country. He discovered that they had no organized means to communicate and learn from each others' experience. His work and counsel led the Lincoln Institute to carry out a national survey of the 400 known local and regional land conservation organizations at the time and to sponsor a national meeting for 40 representatives in October 1981. As a result of that meeting, the Land Trust Exchange was incorporated and initiated activity in July 1982. This year, as the Land Trust Alliance, the organization is celebrating its 30th anniversary.

LTA has become a major presence in the conservation community, and the Lincoln Institute continues to support its networking goals. For example, the Lincoln Institute sponsors the annual Kingsbury Browne Fellowship, which supports research, writing, and mentoring by outstanding individuals whose vision and creativity have contributed to land conservation and the land trust community. The Lincoln Institute also participates in LTA's annual Rally and has supported selected projects, such as the *2010 National Land Trust Census Report* that summarizes the land conservation and organizational activities of the 1,760 known land trusts at the time of the survey.

The Lincoln Institute has also played a key role over the past few years in developing a practitioners' network on large landscape conservation, bringing together those working on projects at a regional scale, such as the Crown of the Continent, an 18-million-acre area spanning the US–Canadian border including portions of Montana, Alberta, and British Columbia. Still in its formative stages, this international network provides a semiannual forum to exchange information and best practices, examine emerging policy initiatives, and advance the theory and practice of large landscape conservation.

In a similar initiative, the Lincoln Institute supports the National Community Land Trust Network, formally organized in 2006. Community land trusts (CLTs) are local nonprofit organizations that own land and provide housing whose affordability is preserved permanently. While CLTs have existed for more than 30 years, coordination and communication among them was limited until the national network was established. With about 200 member CLTs in 2012, the network provides training, supports research, and disseminates guidelines and good practice to its members.

The Lincoln Institute maintains a role in the network's training program, the Community Land Trust Academy, which offers courses, conferences, and other activities ranging from a general introduction for new residents and staff members to sessions on standard legal documents, financing, and city-CLT partnerships. The Lincoln Institute published *The Community Land Trust Reader* (2010), a compendium of articles on the historical background and current practices of the international CLT movement, edited by John Emmeus Davis, former dean of the Academy. In addition, the Lincoln Institute sponsors research disseminated in working papers and analytic work, including a 2007 survey of CLTs in the United States.

Information about these conservation and community land trust networks and their related programs and publications is available on the Lincoln Institute website at *www.lincolninst.edu*.

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Pension Legacy Costs and Local Government Finances

Loss of jobs and a shrinking tax base in Detroit, Michigan, compound the city's pension liability problem.

Richard F. Dye and Tracy M. Gordon

How will local government finances be affected by the large and increasing burden to pay for previously obligated pension costs? How, in particular, will these pension legacy costs change residents' perceptions of the local property tax and their willingness to pay? As a first step in a larger Lincoln Institute of Land Policy research agenda on these questions, we ask: What is known—and just as importantly, what is not known—about the magnitude of unfunded local government pension liabilities in the United States? (see Gordon, Rose, and Fischer 2012)

It is a first principle of public finance that current services should be paid with current revenues and that debt finance should be reserved for capital projects that provide services to future taxpayers. This principle is violated when pension liabilities associated with current labor services are not funded by current purchases of financial assets and instead have to be paid for by future taxpayers.

Alas, principles of prudence in public finance are not always observed, and local governments in the United States have accumulated substantial unfunded pension liabilities in recent years. This situation breaks an important link in the relationship between taxpayers and the services they receive—the rough correspondence between the overall value of public services and the resources taken from the private sector. There is considerable debate about the strength of this correspondence and how price-like the relationship is between value paid and value received for individual taxpayers, but there can be little question that using current revenues to pay for past services weakens the link.

Growing Public Awareness

State and local government employee pensions are in the headlines almost daily (box 1). Only a few years ago, they were the nearly exclusive province of a few elected officials, appointed boards, investment advisors, actuaries, and credit rating agencies. What changed? The most immediate answer is the Great Recession, which sapped not only state tax revenue but also the value of pension plan assets. In particular, state and local pension fund equity holdings lost nearly half of their value, dropping from a peak of $2.3 trillion in September 2007 to a low of $1.2 trillion in March 2009 (Board of Governors of the Federal Reserve System 2012).

Although stock markets have largely recovered and state and local plan equity holdings have climbed back over $2 trillion, public pensions remain under scrutiny. Credit rating agencies increasingly are taking unfunded pension liabilities into account when developing their assessments of state and local government borrower risk. In addition, analysts are growing more vocal in their criticisms of methods commonly used to evaluate pension funding levels.

The federal government is also paying attention. Alarmed by the prospect of defaults, Congress held a series of hearings into state and local government finances in early 2011. More recently, the Republican staff of the Joint Economic Committee (JEC) has issued reports raising the specter of a Eurozone-like crisis due to unfunded state pension liabilities (JEC 2011; JEC 2012).

In light of these criticisms and concerns about growing pension costs, 43 states enacted significant reforms to their pension systems between 2009 and 2011 (Snell 2012). The most common changes were: increased employee contribution requirements (30 states); raised age and service for eligibility (32); adjusted formulas for calculating benefits (17); and reduced cost of living increases (21). In some states the changes applied to new employees only, but in others they affected active workers and current retirees. The latter actions have proven especially controversial, prompting lawsuits in Colorado, Minnesota, New Jersey, and South Dakota.

Most of the heightened attention to government employee pensions has concentrated on state government plans, while local public employee pensions remain relatively unexplored. Although local plans represent a modest share of total public pension membership (10 percent) and assets (18 percent), their failures could be devastating. Mobile residents and businesses could flee communities that levy higher taxes to rebuild pension assets rather than to provide basic services. A shrinking tax base would leave the fund even worse off and potentially less able to pay promised benefits. The result could be more cities like Prichard, Alabama.

BOX 1

Where Are Local Pensions in Trouble?

To understand where local pensions were experiencing particular difficulties, Gordon, Rose, and Fischer (2012) used media monitoring software to conduct a search of all U.S. domestic news outlets for the first three months of 2012. To satisfy the query, articles had to include the word "pension" in conjunction with terms that identify local governments (e.g., municipality, city, or county) and descriptions of funding problems (e.g., liability, deficit, underfunded, cut, default, reform, or problem). The search yielded over 2,000 separate articles from places all over the country.

Their analysis suggests several types of places are experiencing pension troubles. One group consists of jurisdictions that have been losing people and jobs over time. A prominent example is Detroit, Michigan, which has twice as many retirees as active workers. Also in this category is Prichard, Alabama, which has lost more than 45 percent of its population since 1970 and by 2010 had fewer than 23,000 residents. It simply stopped sending pension checks to its former employees in September 2009 and declared bankruptcy one month later. For such communities, pension problems may also be a symptom of larger fiscal distress or political dysfunction.

Another group of jurisdictions rode the housing boom and bust. Examples include fast-growing California cities like Stockton, which just entered bankruptcy proceedings this year, the largest city ever to do so. More puzzling are relatively affluent places, such as New York's Suffolk or Nassau Counties, which appear unable to make tough spending cuts or raise taxes because of political gridlock. Instead, many of these jurisdictions have turned to borrowing to meet their pension obligations.

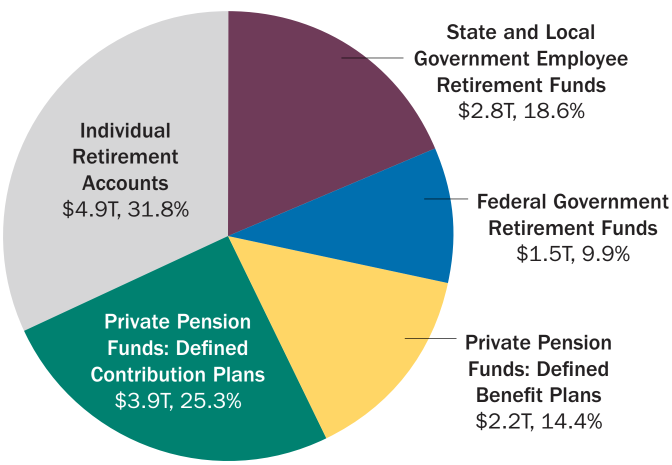
Only two recent municipal bankruptcies (Vallejo, California, and Central Falls, Rhode Island) stemmed from public pensions and employee compensation pressures together with falling revenues. Other places such as Harrisburg, Pennsylvania, and Jefferson County, Alabama, are struggling with poor investment decisions. Also, major cities such as Atlanta, San Francisco, and New York have taken steps to limit pension growth, often with cooperation from local public employee unions. Central Falls managed to extract concessions from active police officers and fire fighters as well as current retirees, but even this was insufficient to stop the slide toward bankruptcy.

Looking at State and Local Pension Plans Together

State and local pensions are an important part of the nation's retirement system. Figure 1 shows the distribution of the total of $15.3 trillion in retirement assets at the end of 2011 by type of plan. State and local public employee retirement funds held a combined $2.8 trillion in assets, or almost one-fifth of the total.

Every state has at least one public employee pension plan and some have many. There are more than 220 state plans—some of which are state-administered plans that cover local government workers—and almost 3,200 local government plans (table 1). Together these plans cover 14.7 million current workers, 8.2 million current beneficiaries, and 4.8 million people eligible for future benefits but not yet receiving them.

FIGURE 1
Shares of $15.3 Trillion in U.S. Total Retirement Plan Assets by Type of Plan, 2011



Source: Board of Governors of the Federal Reserve System (2012).

TABLE 1
Number and Membership of State and Local Government Pension Plans: U.S. Totals, 2010

Item Name	State and Local	State	Local
Number of Plans	3,418	222	3,196
Total Membership	19,413,445	17,400,791	2,012,654
Active Members	14,657,193	12,933,268	1,723,925
Inactive Vested Members	4,756,252	4,467,523	288,729
Beneficiaries Receiving Payments	8,246,396	6,993,890	1,252,506
Active Members per Beneficiary	1.8	1.8	1.4

Source: U.S. Census Bureau (2012).

State and local pensions are all the more important because 27.5 percent of government employees do not participate in Social Security (Nuschler, Shelton, and Topoleski 2011). These uncovered public employees are highly concentrated in a handful of states. Figure 2 ranks the 16 states with the highest concentrations of government workers *not* covered by Social Security. Almost all state and local government employees in Ohio and Massachusetts and more than half in Nevada, Louisiana, Colorado, California, and Texas are not covered.

Another key feature of state and local pensions is that they are mostly defined benefit (DB) plans. Benefits are calculated by a formula, typically something like:

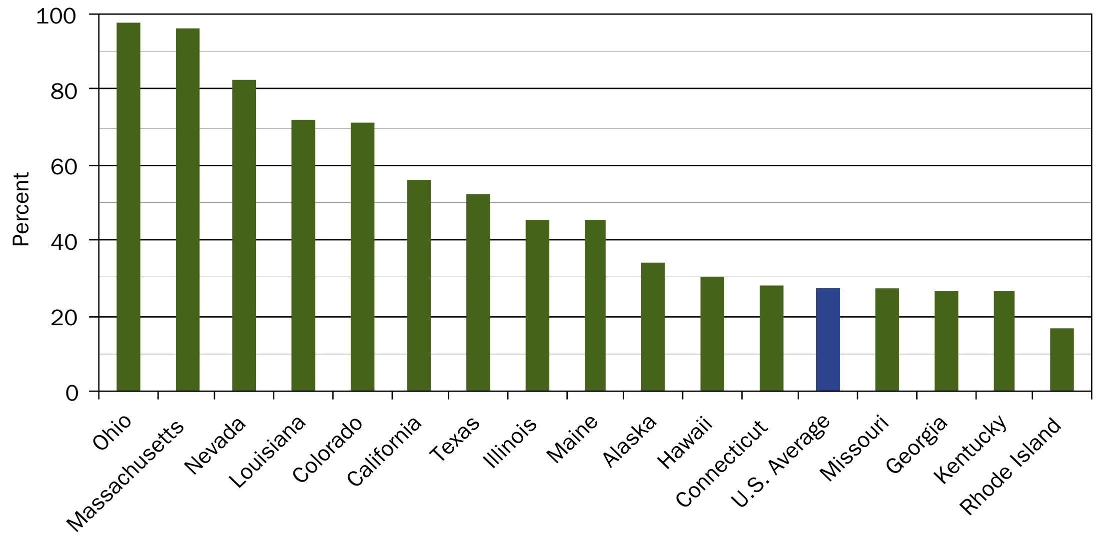
(Average salary in final 3 years) x
(Years of service) x
(2% for each year of service) =
Benefits

Most state and local government pensions also include a cost of living adjustment. A minority of public sector workers are enrolled in defined contribution (DC) plans where a specified amount is put in a retirement fund for each year of work. Compared to DC plans, DB pensions protect employees from investment, inflation, and longevity risks. As of 2009, nearly 80 percent of state and local workers were enrolled in DB plans and just over 20 percent were in DC plans. Private sector workers had the opposite mix: 20 percent in DB plans and 80 percent in DC plans (U.S. Bureau of Labor Statistics 2011).

DB plans used to be more prevalent in the private sector but have been disappearing partly because the Employee Retirement Income Security Act of 1974 (ERISA) imposed minimum funding standards, required insurance contributions, and other administrative burdens on them.

The weaker funding and reporting requirements that apply to public pensions allow governments to shift labor costs into the future. This is an implicit form of borrowing that can evade balanced budget rules and avoid the voter approval usually required for issuing bonds.

FIGURE 2
States with More than 15 Percent of All State and Local Government Workers NOT Covered by Social Security (and U.S. Average)



Source: Nuschler, Shelton, and Topoleski (2011).

Funding and Reporting Requirements for State and Local Pensions

For most of their history, state and local pensions were financed out of general revenues on a pay-as-you-go basis. The current practice of prefunding state and local pension plans began in the 1970s and 1980s. While public sector plans were not covered by ERISA, the act did mandate a report on their practices. The 1978 report found a "high degree of pension cost blindness . . . due to the lack of actuarial valuations, the use of unrealistic actuarial assumptions, and the general absence of actuarial standards" (Munnell et al. 2008, 2).

This wake-up call led to voluntary increases in funding levels by many plans and increased attention to actuarial and accounting standards. The Government Accounting Standards Board (GASB) was formed in 1984, issued its first rules for pension plans in 1986, and extensively revised its actuarial valuation standards in 1994. Compliance with these rules is voluntary, but is rewarded by credit rating agencies, auditors, and other data consumers. Unlike ERISA rules that require specific valuation methods for all private plans, GASB sets out criteria that allow some latitude as to which specific methods are used by public plans. As a consequence there are serious transparency and comparability concerns with the self-reported data on state and local pension plan liabilities.

Employer Contribution

The calculation of a plan's Actuarial Accrued Liability (AAL) requires the following information: ages and salary histories of members; assumptions for salary growth, retirement ages, asset earnings, and inflation; longevity probability tables; and a discount rate to translate estimated future values into present values. Unfunded Actuarial Accrued Liability (UAAL) equals AAL minus plan assets.

The "Normal Cost" of a pension plan is the increase in AAL due to the current year of service by existing employees. ERISA requires that normal cost be covered by employee and employer contributions. GASB specifies an "Annual Required Contribution" (ARC) of normal cost plus a 30-year amortization of UAAL. The problem is that, contrary to its name, payment of ARC is not strictly required in most jurisdictions.

Choice of Discount Rate

The issue that has received the most recent attention is the choice of discount rate. Current GASB rules allow discounting future liabilities based on projected investment returns, which averaged 8 percent per year prior to the recession. But most economists and financial theorists would agree with Brown and Wilcox (2009, 538) that "the discount rate used to value future pension liabilities should reflect the riskiness of the liabilities," not

This abandoned Packard Plant in Detroit, Michigan, reflects the city's hard times.

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the assets. Constitutional and other legal guarantees make government pensions of low risk, while historical investment returns include a risk premium.

State and local governments cannot avoid long-term risks such as a protracted productivity slump or a decade-long down market. Therefore, the historical long-term rate of return on an equity-heavy portfolio—before risk adjustment—is too high a discount rate. Higher discount rates can make pensions appear better funded than they truly are. This reduces contribution requirements and imposes unwarranted obligations on future taxpayers if the high rates of return are not achieved. Worse, there is an incentive for plan managers to seek high-risk portfolios in order to get a higher discount rate and lower ARC.

There are strong arguments that the 8 percent discount rate used by many public pension plans is too high, but there is less agreement on just how much lower the appropriate rate should be. Rather than review the arguments, we report one estimate of just how much of an impact a lower rate would have. Munnell et al. (2012) calculate the would-be change in reported liabilities if all plans used a 5 percent rather than an 8 percent discount rate. They estimate that state and local liabilities would increase from \$3.6 trillion to \$5.4 trillion and aggregate funding ratios (Assets/AAL) would fall from 75 to only 50 percent. This is a huge change, and represents a doubling of unfunded liabilities (UAAL = AAL – Assets).

Recent Changes in GASB Standards

GASB (2012) has released new accounting standards to take effect in 2013 and 2014. The key change requires state and local governments to apply different discount rates to the funded and unfunded portions of liabilities. An earnings-based rate will still be applied to the funded portion, but a lower, riskless rate will be applied to UAALs. The impact of this change on reported liabilities depends on how well funded a plan is: no change for fully funded plans; a small change for well funded plans; and large increases in reported liabilities and decreases in funding ratios for poorly funded plans. The new standards also require that the UAAL be shown on the government's balance sheet, which will increase the visibility of unfunded liabilities to voters.

What Do We Know About Local Pensions?

Despite mounting concerns about the fiscal health of local pension plans, systematic knowledge about them is rare. The best available information comes from the U.S. Census Bureau's (2012) *Annual Survey of State and Local Public Employee Retirement Systems.*

TABLE 2
Income Sources, Payments, and Total Assets of State and Local Government Pension Plans: U.S. Totals in Millions of Dollars, 2010

Item Name	State and Local	State	Local
Total Contributions	$125,540	$97,748	$27,791
Employee Contributions	39,107	32,976	6,131
State Government Contributions	36,099	35,575	524
Local Government Contributions	50,334	29,197	21,137
Earnings on Investment	346,108	289,471	56,637
Total Payments	213,787	173,466	40,321
Benefits	200,986	163,508	37,478
Withdrawals	4,152	3,499	653
Other Payments	8,648	6,459	2,189
Total Cash and Investment Holdings	$2,674,753	$2,221,293	$453,460

Source: U.S. Census Bureau (2012).

Detailed data for each government entity is reported every five years. Plan-level data for a sample that includes roughly half of the 3,200 local plans is reported each year and is used to create estimates of totals for each state by type of government. Tables 1 and 2 exemplify the types of information in the survey.

The main virtues of the Census Bureau's employee retirement survey are its quality and comprehensiveness. A key disadvantage is lack

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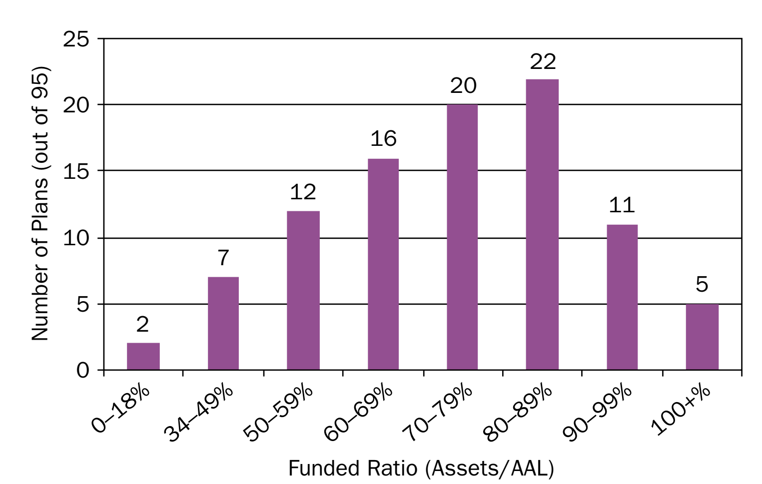
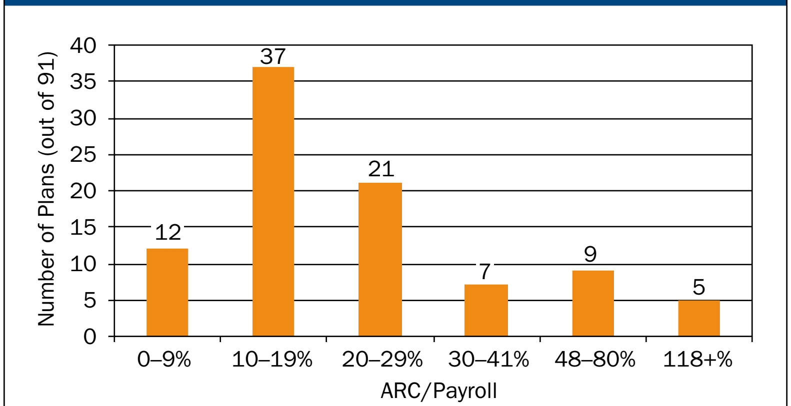
Stockton, California's economic decline has led to bankruptcy proceedings.

FIGURE 3
Frequency of Local Pension Plans Ranked by Funded Ratio, 2010



Source: Munnell et al. (2011).

FIGURE 4
Frequency of Local Pension Plans Ranked by Annual "Required" Pension Contribution (ARC) as a Share of Current Payroll, 2010



Note: ARC/payroll can be abnormally high for some "closed plans" with few remaining active employees and very small payrolls.
Source: Munnell et al. (2011).

of timeliness, since the most recent local data available is for fiscal year 2010. Another problem is that the Bureau only recently began reporting plan liabilities, and it does so only for state plans. Like other pension data sources, the Census Bureau does not collect information on DC plans or other post-employment benefits (OPEBs).

Nevertheless, the employee retirement survey provides some insights into local pensions. For example, the number of local plans per state varies greatly: 7 states have no local plans; 20 states have fewer than 10; Florida and Illinois have over 300 each; and Pennsylvania has over 1,400. The number of active members per beneficiary is a crude measure of how well employee contributions can fund the plan. Table 1 indicates the national average for local plans is 1.4 workers per retiree, but there is considerable variation across states. This support ratio is less than 1 in 12 states; between 1 and 2 in 31 states; and over 2 in 7 states, with Utah having the highest ratio at 6.8.

Neither of these pieces of information tell us how well funded local pensions are. For this information, we must turn to independent surveys. Most have good coverage of state plans, but they generally survey only a few of the larger local plans: e.g., the National Association of State Retirement Administrators' (NASRA) annual survey of member plans. A small number of national studies have focused on local, as opposed to state, pension liabilities. For example, Novy-Marx and Rauh (2011) analyze local pension finances using data from Consolidated Annual Financial Reports (CAFRs) for city and county plans holding more than $1 billion in assets as of 2006.

The Boston College Center for Retirement Research (CRR) maintains a Public Plans Database (PPD) for the largest state and local plans with data from individual plan actuarial reports and local government CAFRs. Using the PPD plus information on some additional local plans, CRR recently issued a report with data for 2010 from a sample of 97 plans in 40 states (Munnell et al. 2011). This is a modest sample relative to the total of 3,200 local plans, but by concentrating on large plans it covers 59 percent of local pension assets and 55 percent of participants.

An important finding is the wide dispersion around the average funding ratio of 77 percent in 2010 (figure 3). Of 95 large plans in the CRR sample with usable information, only 16 had assets covering more than 90 percent of liabilities. At the other tail are 9 plans with below 50 percent funding (Munnell et al. 2011). This study also shows the ARC as a percent of local government payroll. The overall average for 2010 is 22 percent, and again there is wide dispersion (figure 4). Of 91 large plans in the CRR sample with usable information, more than half (49) have ARC below 20 percent of payroll, but 16 have shares in the less manageable 30 to 80 percent range. Five plans have such large pension obligations that if paid in full they would cost more than 100 percent of payroll.

Keep in mind that local governments in most states are not required to pay the full amount of the ARC. We do not have data at the local level, but a state-level study reported wide variation in the percent of ARC actually paid across plans, across years, and across states (State Budget Crisis Task Force 2012). Munnell et al. (2011) calculate pension payments actually made as a share of local budgets and again find considerable variation, with 14 percent of the sample governments devoting more than 12 percent of their budgets to pay for pensions.

Conclusions

Local government pensions are on average significantly underfunded. The key reason is that, absent a legal compulsion to do so, many governments have not set aside enough funds each year to cover the extra pension liabilities incurred in that year, much less to amortize unfunded liabilities from earlier years. In effect, they are borrowing to pay for current labor services and shifting the burden to future taxpayers.

We know much less about the 3,200 locally administered plans that we do about the 220 state plans. The best information on local plans comes from researchers who review the detailed financial reports of the plans and local governments. Of necessity, these studies concentrate on the larger plans. We do know that there is wide variation across plans on key measures: the share of liabilities that are covered by assets; the would-be full contribution to cover both current year pension costs and amortization of unfunded liabilities (ARC) relative to payroll or annual revenues; the share of ARC that is actually paid; and the share of the current budget that goes to pension costs. A significant fraction of local governments are in trouble by one or more of these measures.

Worse, what we know about liabilities comes from municipalities' self-reported data and their own choice of discount rate. In almost all cases this discount rate is inappropriately high, and the use of a lower discount could more than double unfunded liabilities. The result is a big problem with local pension liabilities that threatens local government finances, but we do not know how big, and we do not know how unequally it is distributed.

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Creative Conservation: Reflections on a Way to the Future

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Nez Perce Creek meanders through Yellowstone National Park in Wyoming.

Bob Bendick

Yellowstone National Park seems so wild today because in 1872 it became the first national park on Earth and because the wildfires in 1988 and the successful reintroduction of wolves in the 1990s have restored the dynamic character of the original landscape. In his recent PBS television series, filmmaker Ken Burns called our national parks "America's best idea," but a growing number of people within the conservation movement now believe that, at best, fully protected areas like Yellowstone are only part of the conservation solution. They argue that we should be saving nature for people, not from the impacts of people, and that our efforts should encompass more different kinds of areas with less emphasis on "preserved" lands.

This is a variation on the 100-year-old debate between conservationist John Muir and forest manager Gifford Pinchot: Should we protect nature for its intrinsic value or should our approach be much more utilitarian? The latter view sought to maximize the long-term production of water, harvestable wildlife, and timber, and now would include carbon storage, biofuels, nutrient removal, protection from natural hazards—in sum, all the things that the natural world provides.

Contemporary discussions raise another issue about the pervasiveness of human impacts on natural areas. Yellowstone and every other place on the planet are profoundly influenced by human decisions. Aldo Leopold (1966, 254) perceived this dilemma more than 60 years ago when he wrote, "man's invention of tools has enabled him to make changes of unprecedented violence, rapidity and scope." These tools are far more powerful today. In her recent book, *Rambunctious Garden,* science writer Emma Marris (2011) advances the argument that we will have to learn to accept a nature altered by human activities. It is not sufficient to think about preserving natural areas to allow the unimpeded function of their natural systems. Every place requires some form of management, even if only to protect what remains of its "natural" condition.

The extent to which humans have become responsible for nature was brought home to me in a recent conversation with Phil Kramer, The Nature Conservancy's Caribbean director. He described the die-back of coral reefs in that region and his team's efforts to restore them by selecting coral genotypes that seem most resilient to warmer water, growing those corals in nurseries, and then using them to rebuild reefs at many locations.

For thousands of years, consciously and unconsciously, humans have shaped their environments to fit their needs, but this kind of intentional intervention to respond to the growing threats to nature represents a new direction that is different from Muir's preservation and Pinchot's scientific management. We are now trying to *create* our conservation future at increasingly large scales. This creative conservation process builds on the analytical approaches to conservation of the past, but does not depend only on baseline analysis of historic ecosystems to establish goals for the future. Rather, it requires that our goals be derived from a synthesis of human and natural needs and benefits guided by what Aldo Leopold (1966, 239) called "a land ethic"—an informed personal responsibility for the health and future of our land and water.

Challenges to Protecting Nature

This approach to conservation faces a lively debate within the conservation community. Many people hold on to the idea of restoring disturbed areas to wilderness and to the ultimate power of nature, but others recognize that these approaches can be only a part of our future. From my perspective, the energy of the conservation community is better directed not to internal debate but to meeting the real challenges we face in sustaining the core framework and functions of natural systems for their benefit to people and to nature itself. What are these challenges?

- A declining regard for and understanding of science, including the kind of conservation and wildlife management science that Americans have pioneered for more than 100 years;
- The increasingly evident impacts of climate change, regardless of the cause, on the stability of natural processes and their relationship to people's health and safety;
- A short-term horizon for making decisions about land and water management, policy, and use that conflicts with the long spans of time needed to develop and implement creative, large-scale conservation policies and projects;
- The increasingly skillful and effective use of well-funded campaigns to advance specialized economic or political objectives, regardless of the larger consequences for society today and for future generations;
- A growing reluctance to regulate the impacts of activities that affect the health of land, air, and water, although it was clear long ago, in an America with much less government, that market forces alone cannot assure the production and protection of public goods such as the human and ecological benefits of natural systems;
- The framing of the protection of our air, land, and waters as a partisan political issue, which disregards the past leadership and many contributions of both major parties to conservation in this country; and
- The growing separation of many Americans from actual experiences in the outdoors that could help to foster an appreciation and understanding of conservation issues and provide balance to anti-environmental arguments.

Strategies for Creative Conservation

At this pivotal point in America's conservation history, what does the conservation movement have to do to resolve the conflicts between today's political parties, the global human pressures on our natural systems, and the need to create an environmental future in this country and around the world that is ethical, sustainable, and achievable? The answers, I believe, come not from Washington, but rather from a nationwide movement of landowners, government agencies, nonprofit organizations, and community groups working together to protect the places they value, such as the Blackfoot Valley in Montana, the Flint Hills of Kansas, and the Connecticut and Hudson River Valleys in the East. Popular projects such as these suggest a number of strategies that can contribute to lasting and large-scale conservation success.

Work at the landscape scale.

In a world with many stresses and threats to nature, we know that disconnected pieces of natural systems are unlikely to survive. Most federal agencies are beginning to think in these terms, but many institutional barriers must be overcome to make the conservation of what The Nature Conservancy calls "whole systems" the usual way of doing business.

Use multiple conservation tools at the same time.

It is essential to integrate preservation, traditional private and public land management, and restoration in places defined by both natural and human attributes. The combination of working at a large scale and using multiple approaches suggests that government must achieve an unprecedented level of coordination in how it uses its influence and resources.

Recognize, respect, and quantify the short- and long-term human benefits of conservation.

Conservation organizations must become expert in understanding and explaining the value of nature in shaping the future world. As multiple interests try to piece together the future, they must be able to represent accurately how important the natural components of that future will be.

Do not discard the idea of baseline conditions.

It is not always possible to sustain nature as it has existed in the past, but we can give the highest priority to protecting those places where ecological processes can continue, where change can be managed, and where we can, as The Nature Conservancy's scientist, Mark Anderson, says, "save the stage if not all the players."

Learn to balance adaptive management with long-term goals.

This requires bringing together a willingness to admit and adjust to mistakes with the consistency of purpose and action needed to influence the future of large systems. It takes time to reach the kind of long-term consensus building about the desired future condition that communities are trying to achieve. Successful, creative conservation projects extend over decades, not years.

Maintain fair and consistent environmental laws.

Environmental and land use regulatory processes and economic incentives and disincentives can and should be restructured in ways that will establish a more consistent and flexible framework for shaping the future and bring a positive environmental influence to the operation of markets. But regulatory standards must be maintained to ensure a level playing field and to protect the environment and human health while enabling long-term economic growth. The broad use of the mitigation hierarchy (avoid, minimize, compensate) can be helpful here. This approach to the siting of infrastructure and development can enable investment and economic growth while providing net benefits for nature.

Do more to ensure the involvement of citizens and diverse stakeholders in planning for the future.

If our society is not simply protecting nature, but creating a future world, then all of us have an even greater right—and I would say a responsibility—to be involved in setting those goals. We no longer live in a mainframe society. Most decisions are driven by networked individual actions, and citizens need a renewed sense of empowerment in determining the character of the places where they, live, work, and recreate. Conservation, too, will become a more decentralized, from-the-bottom-up process. The engagement of young people is particularly important, and environmental issues must be made relevant to the diverse residents of the nation's metropolitan areas where the great majority of Americans live.

Identify, train, and mentor a new generation of local conservation leaders.

A new generation of conservationists skilled at working with diverse interests will be able to create a future that brings together environmental and long-term economic needs.

Shared Problem Solving

Of course, doing these things could put creative conservation in the crossfire between those for whom nature is irrelevant and those who are fearful that changing anything about environmental regulation or protection of public lands will open the door to cataclysmic change. But these steps can advance practical solutions to the nation's growing political impasse on conservation and the environment. At the heart of this impasse is the shared belief that we have lost control over the future of our families and communities, and that we have become victims of the actions of distant forces.

Done right, creative conservation can give all of us significant roles in shaping the future of the places most important to us—our home ranges. It also offers two benefits that can have powerful political traction—the opportunity for better places to live, work, and visit that provide tangible benefits to our lives, and the sense of respect and self-worth implicit in helping to determine the future of the places we love.

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The commemorative arch at Yellowstone National Park welcomes visitors.

Such an approach might move the environmental politics of both conservatives and liberals toward shared problem solving. For conservatives—is it planning for the future they oppose, or just planning by those with whom they disagree? Are they willing to include the hopes of citizens for their own communities as a legitimate part of the less government and more market-driven future they would like to see? For liberals—are they willing to trust people who work on the land to make more decisions about the fate of our land and water, or are they, too, really more interested in centralized control to achieve their own vision of what should be? Can the opportunity to work together to create good futures for the real places that surround our lives be the literal and symbolic common ground that can heal some of our society's divisions?

The stone arch at the North Entrance to Yellowstone was erected to commemorate the creation of the park and is inscribed "For the Benefit and Enjoyment of the People." Theodore Roosevelt put the cornerstone of the arch in place when he visited Yellowstone in 1904, at a time when Americans increasingly saw government as a protector of the common good. Yellowstone was an example of that spirit.

But now, in the twenty-first century, it seems to me that the gateway arch also has an important message about looking outward from the park, down Paradise Valley where the Yellowstone River heads toward the Missouri, the Mississippi, and the Gulf of Mexico. The conservation challenge before us, against all odds and whether we like it or not, is to create a future for the benefit of the people, based on a respect for and understanding of the multiple values of nature in many more places across America.

If approached place-by-place in this way, Americans with diverse points of view can rally to the cause of conservation as not just something to think about on vacation, not just a luxury, but as a durable foundation for healthy, safe, more prosperous and more spiritually rewarding lives for all of our children and grandchildren. L

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Land Use Changes and Economic Growth in China

Canfei He, Zhiji Huang, and Weikai Wang

The conversion of land from agricultural production to urban and industrial development is one of the critical processes of change in developing economies undergoing industrialization, urbanization, and globalization. Urban land use changes taking place in China have attracted much scholarly attention, especially in light of the extensive economic reforms, remarkable economic growth, and profound structural changes over the last three decades. The transition from a planned to a market economy and from authoritarian to more decentralized provincial and local government has generated a new institutional setting for changes in land use (Lin and Ho 2005).

The prevailing view is to characterize land use change as the outcome of economic growth and structural change. This argument aligns itself with the neoclassical growth model in which land plays a decreasing role in economic growth. However, these changes in land use can be both the consequence of economic growth and the drivers of such growth (Bai, Chen, and Shi 2011; Ding and Lichtenberg 2011).

The reality is much more complicated. Instead of being driven by growing population, urban land expansion in China is motivated by land finance, whereby local governments raise revenue and attract investment by leasing and developing land. As a result, land-centered urban policy has been identified as one of the most important driving forces operating behind the spectacular expansion of cities since the mid-1990s (Lin 2007). Supplying agricultural land for nonagricultural purposes effectively allows the local government to "kill many birds with one stone" (Ping 2011). As a result, land development fuels economic growth, especially in urbanized areas.

Land use changes in China are also affected in significant ways by land supply policies, which have been adjusted regularly to meet the demands of economic development. Illegal land supply is a leading cause of excessive and uncontrolled investment, which occurs when local governments do not supply land to land users according to current land use plans or following the final permission of the central government. As a result, the central government started to use land policy as a major aspect of national macro-economic control in late 2003.

Among other measures, land transfers have been conducted through auction or tender since 2004, and land supply policy has shifted from quantity control to structural control since 2006. Land use indexes distributed by the central government to the local governments emphasized only the quantity of land before 2006, but currently the distribution of land uses among categories is set by the central government and even the intensity of land use is defined.

This legacy can be seen in the State Council's establishment of the highly centralized State Land Supervision (SLS) system in 2006. Nine new regional offices were charged with investigating illegal land supply across the country (Tao et al. 2010). The new land policy has played an active role in improving land use by forbidding land to be leased to projects inconsistent with national industrial policy, development plans, and entry standards. Following the introduction of these reforms, the amount of land supplied illegally has decreased greatly due to stringent control, while

TABLE 1
Land Use Changes in China, 2004–2008

Major Land Use Categories	Land Use Composition (%)		Land Use Change (2004–2008)	
	2004	2008	Rate of Change (%)	Change of Area (million mu)
Agricultural Land	69.11	69.10	– 0.01	– 0.72
Cultivated Land	12.88	12.80	– 0.61	– 11.27
Orchards	1.19	1.24	4.72	7.99
Forestland	24.72	24.84	0.45	15.87
Pasture	27.63	27.54	– 0.32	– 12.69
Other Agricultural Land	2.69	2.68	– 0.16	– 0.63
Construction Land	3.32	3.45	3.98	18.83
Settlements and Industrial/Mining Sites	2.71	2.81	3.87	14.92
Cities	0.18	0.22	19.61	5.12
Designated Towns	0.17	0.20	13.33	3.32
Rural Settlements	1.74	1.74	– 0.09	– 0.22
Stand-alone Industrial/Mining Sites	0.38	0.43	12.42	6.70
Transportation Land	0.23	0.26	9.89	3.31
Railways	0.04	0.04	7.01	0.39
Highways	0.19	0.21	10.35	2.79
Land for Water Conservancy Facilities	0.38	0.38	1.11	0.60
Unused Land	27.57	27.44	– 0.46	– 17.91
Unused Land (potentially developable)	24.47	24.35	– 0.48	– 16.70
Other Unusable Land	3.10	3.09	– 0.27	– 1.22

Note: 1 hectare (ha) = 15 mu; 1 million mu = 666.666 thousand hectares.
Source: Ministry of Land and Resources (2008).

GDP generated per unit of developable land has increased substantially (China Land and Mine Resources Law Center 2007). It is expected that this stringent land policy will have a significant impact on the spatial pattern of land use and may affect the association between land use changes and economic growth in China.

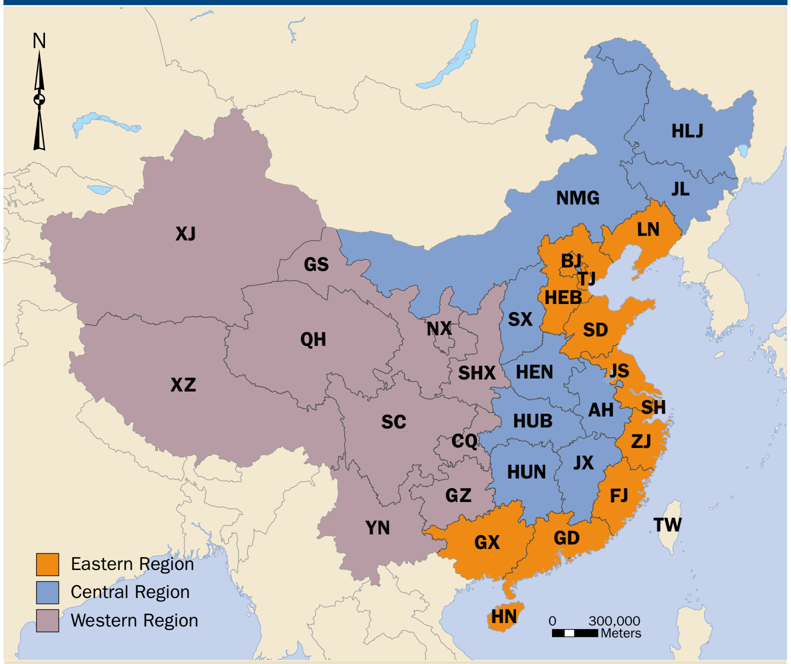
Changes in Land Use Patterns Across China

Land policy in China has changed dramatically since 2004, and one would also expect a different pattern of land use since then. Based on official county-level data from 2004 and 2008, we examine land use change at the provincial prefecture city level and explore the spatial relationship between land use change and economic growth. Official land use change data are divided into several land use categories at three levels every year. The first level includes agricultural land, construction land, and unused land; the second level contains ten categories of land uses; and the third level contains 52 subcategories.

Table 1 shows land use changes nationally from 2004 to 2008, during which time more land was converted into uses for construction while the amount of agricultural land and unused land declined. Among agricultural land categories, pasture land and cultivated land shrank by 12.69 million mu (0.85 million hectares) and 11.27 million mu (0.75 million hectares) respectively. Unused land fell by 17.91 million mu (1.19 million hectares).

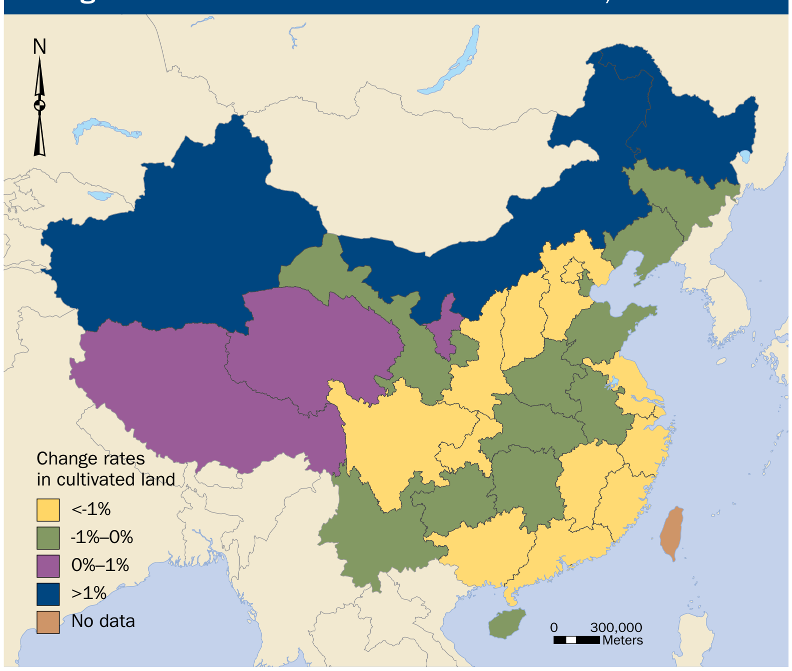
Given recent rapid industrialization and urbanization, it is not surprising that the fastest land conversions in China have been to construction uses, which added 18.83 million mu (1.26 million hectares).

FIGURE 1
Location of Chinese Provinces



AH: Anhui	**HEB:** Hebei	**JX:** Jiangxi	**SHX:** Shaanxi
BJ: Beijing	**HEN:** Henan	**LN:** Liaoning	**SX:** Shanxi
CQ: Chongqing	**HLJ:** Heilongjiang	**NMG:** Inner Mongolia	**TJ:** Tianjin
FJ: Fujian	**HN:** Hainan	**NX:** Ningxia	**TW:** Taiwan
GD: Guangdong	**HUB:** Hubei	**QH:** Qinghai	**XJ:** Xinjiang
GS: Gansu	**HUN:** Hunan	**SC:** Sichuan	**XZ:** Xizang (Tibet)
GX: Guangxi	**JL:** Jilin	**SD:** Shandong	**YN:** Yunnan
GZ: Guizhou	**JS:** Jiangsu	**SH:** Shanghai	**ZJ:** Zhejiang

FIGURE 2
Changes in Cultivated Land in Chinese Provinces, 2004–2008



Source: Ministry of Land and Resources (2008).

In the category of settlements and industrial/mining sites, cities, designated towns, and industrial/mining sites witnessed the fastest land expansion, with growth rates of 19.61, 13.33, and 12.42 percent respectively, while the land area of rural settlements decreased. Significant amounts of land were also converted for the use of transportation, particularly the construction of highways.

This national-level analysis hides many spatial variations in land use changes in particular provinces and regions (figure 1). Thus we explore land use changes at the provincial level, focusing on the changes to cultivated land, urban land (including cities and designated towns), stand-alone industrial/mining sites, rural settlements, and transportation land for highways.

Figure 2 shows that losses of cultivated land occurred mainly in eastern and central China. Economic growth, urbanization, and industrialization have accelerated in Hebei, Jiangsu, Zhejiang, Guangdong, and Guangxi provinces, where the most cultivated land was converted to urban, industrial, and transportation purposes. Shanxi, Shaanxi, Chongqing, and Sichuan provinces also saw rapid conversion of cultivated land to nonagricultural activities. Those provinces are located in China's transitional geographic belt, where cultivated land is the best choice for construction and development. In contrast, inland provinces including Tibet, Qinghai, Xinjiang, Inner Mongolia, and Heilongjiang saw some increases in cultivated land.

Land for rural settlements is influenced by both new countryside policies and rural income growth. Increases in income have influenced the conversion of land to rural settlements in the eastern provinces such as Guangdong, Fujian, Zhejiang, Guangxi, Hebei, and Tianjin, and in some inland provinces including Heilongjiang, Inner Mongolia, Xinjiang, Qinghai, Tibet, Yunnan, Guizhou, Hubei, and Shanxi. However, some provinces experienced significant decreases in land used for rural settlements, particularly in Jiangsu, Jiangxi, and Anhui. This decline may be associated with new countryside policies, which have actually forced farmers into towns.

Urbanization and industrialization are the major drivers of nonagricultural land expansion in China. The urbanization rate grew from 40.50 to 45.68 percent between 2004 and 2008, when all provinces experienced urban and industrial land expansion (figure 3). However, most urban land expansion occurred south of the Yangtze River. In the north, only Shandong, Anhui, and Jiangsu experienced substantial urban and industrial land changes.

The rapid growth in the amount of land used for industrial/mining sites is seen largely in the eastern provinces, both in terms of absolute and relative changes, especially in Fujian, Jiangsu, Zhejiang, and Hebei (figure 4). With relatively smaller growth rates, Guangdong, Shandong, and Liaoning also saw a large amount of land converted to industrial/mining sites. The western provinces of Inner Mongolia, Qinghai, and Tibet witnessed rapid growth of land for industrial/mining sites but small absolute growth.

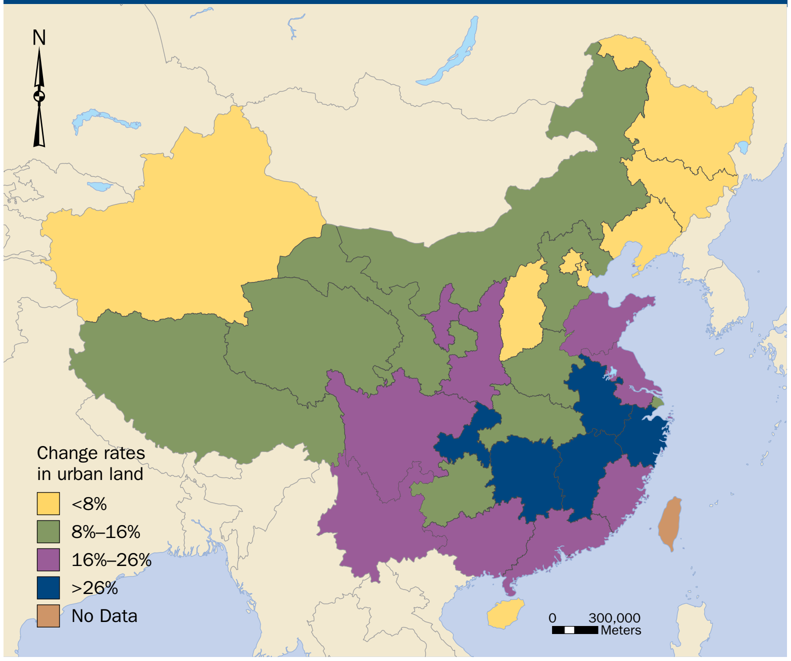
From 2004 to 2008, China launched a major drive to develop transportation networks by building more railways and highways to support economic growth. Nationally, land used for transportation grew at about 10 percent during this period. Many provinces witnessed faster growth in land used for transportation than the nation as a whole, including Inner Mongolia, Hebei, Qinghai, Jiangsu, Zhejiang, Fujian, Chongqing, Hubei, Anhui, Jiangxi, and Guangxi. Land requisition for highways was largely concentrated in the eastern provinces, with the largest absolute increases in Zhejiang, Jiangsu, and Hebei provinces.

Overall, China has witnessed remarkable land use changes, particularly in the eastern provinces and some central provinces. The spatial pattern of land use change is consistent with the spatial shift of economic growth, because eastern provinces enjoy institutional and locational advantages and agglomeration economies. They have attracted the majority of foreign investments, particularly those in capital- and technology-intensive industries, and are the dominant exporters of Chinese products.

Acceptance into the World Trade Organization has further benefited industrial firms located in eastern China with greater access to international markets. On the other hand, as industries continue to agglomerate, the eastern region has experienced rising land, workforce, and environmental costs, forcing some traditional industries to move to the central provinces. Some of these areas have attracted more recent investment and experienced faster economic growth, thus raising their importance among China's regional economies.

FIGURE 3

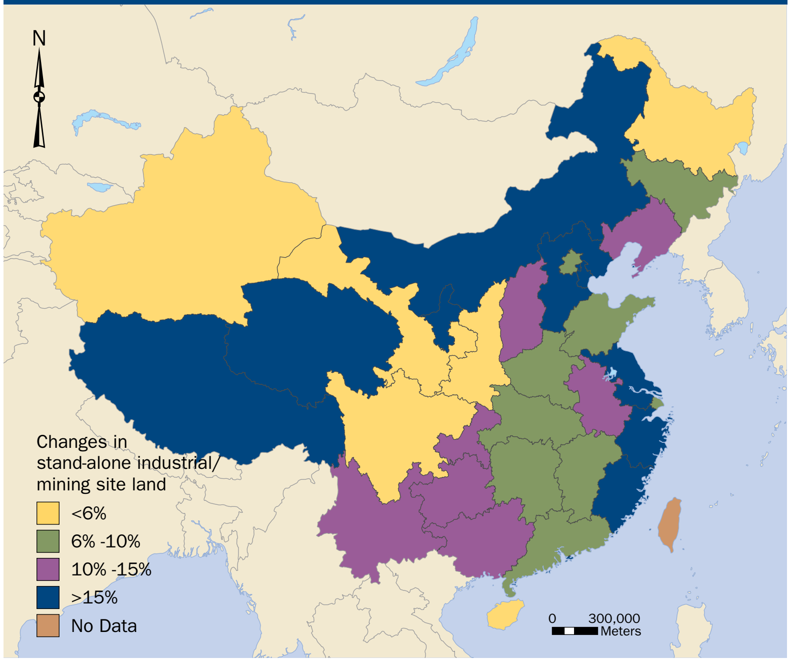
Changes in Urban Land (Cities and Designated Towns) at the Provincial Level, 2004–2008



Source: Ministry of Land and Resources (2008).

FIGURE 4

Changes in Stand-Alone Industrial/Mining Sites at the Provincial Level, 2004–2008



Source: Ministry of Land and Resources (2008).

Correlations Between Land Use Change and Economic Growth

To investigate the relationship between land use changes and economic growth systematically across cities and provinces, we calculate the correlation coefficients between the GDP growth rate from 2005 to 2009 and the rate of change of different land categories. The extent of the correlation may depend on a variety of economic, locational, and institutional conditions. We examine the impact of city size, location, and industrial structure, the amount of foreign direct investment (FDI), and land supply constraints on the relationship between land use changes and economic growth. The correlation coefficients are further computed using city subsamples classified by those factors.

The unexpected results showed that only a few significant but small correlation coefficients exist between the rate of change in land use and the economic growth rate (He, Huang, and Wang 2012). The change in other transportation land (including airports, ports, and pipelines) holds a significant positive coefficient. Correlation coefficients for urban land, industrial/mining sites, railways, and highways are barely significant.

Some evidence shows that city size, geographical location, fiscal situation, land supply, and realized FDI may moderate the correlation between land use change and economic growth. For instance, urban land expansion is associated with economic growth positively in central China but negatively in eastern and western regions. Stand-alone industrial/mining sites increase significantly with economic growth in western China. But overall, the correlation between the rate of land use change and economic growth is rather weak.

Since land can be treated as an input in the production function, the quantity of land may contribute directly to GDP growth. We compute the correlation coefficients between absolute GDP growth from 2005 to 2009 and absolute land use change from 2004 to 2008 to explore this relationship and find they are strongly correlated. Nationally, more cultivated land converted to nonagricultural uses contributes significantly to absolute GDP growth, with a correlation coefficient of -0.26. More land for urban uses and industrial/mining uses, are significantly and positively associated with GDP increases.

Significant correlation coefficients between land use change and economic growth suggest that land has been a significant driver of economic growth, but this positive contribution is moderated by a variety of factors including a city's size, location, industrial structure, fiscal condition, and utilization of FDI. Conversion of cultivated land to nonagricultural uses is shown to contribute to economic growth, particularly in cities with more than 5 million people, realized FDI greater than US$200 million, strong agricultural land constraints, secondary industrial domiance, and location in central China.

Clearly, nonagricultural land is more productive than cultivated land in large and industrial cities. In recent years, as the implementation of central government policies targeted development in central China, the inland provinces have attracted more domestic and foreign investment and seen rapid economic growth as cultivated land has been converted to urban and industrial uses.

Comparatively, urban land expansion holds a stronger correlation with GDP growth in smaller cities and those located further inland. These types of cities are more likely to depend on land leasing to generate local revenues since they face more stringent fiscal constraints. In these areas, capital accumulation from land leasing is a typical local development strategy. In addition, urban land expansion plays a larger role in stimulating economic growth when fiscal limitations are steeper, land supply is strictly controlled, tertiary industries dominate, and more foreign investment is utilized. Industrial land expansion also contributes significantly to economic growth, especially in cities with stringent fiscal constraints and more industrial activities.

The recent transportation infrastructure development boom has contributed to economic growth as well. Land expansion for highways has stimulated economic growth with no constraints. Cities located in the western regions and those with poor fiscal revenues particularly benefit from new highways while expansion of railways is less associated with economic growth. The building of other transportation infrastructure (airports, ports, and pipelines) has played a critical role in facilitating economic growth in smaller and more eastern cities as well as in those whose economies are dominated by service industries.

The correlation analysis provides clear evidence to show that urban, industrial, and transportation land expansion is positively and significantly associated with economic growth. Converting cultivated land has contributed to economic expansion in many regions of China, but the importance of nonagricultural land expansion in economic growth is moderated by social, economic, and geographical conditions.

Conclusion and Discussion

Since the implementation of its economic reform, China has pursued a resource-intensive growth model that has forced land to play a critical role in sustaining its rapid economic growth. This has resulted in a large supply of developable land and rapid conversion from agricultural to nonagricultural purposes. Land in China is not only the outcome of economic growth but is also its driver.

The conversion of cultivated land to nonagricultural uses has been concentrated in the eastern and central parts of the country. With the implementation of new countryside development strategies and the enforcement of stricter land supply constraints, China witnessed a reduction in rural settlements across most of the central and northeastern regions. Urban and industrial land expansion has dominated land use changes throughout the nation. Transportation development, including new highways, railways, airports, seaports, and pipelines, has also been a major cause of land consumption in recent years, particularly in the eastern and central regions.

The principle component analysis based on land use change data from prefecture level cities indicated substantial spatial variation in land use changes among Chinese cities and showed that they are auto-correlated spatially. Correlation analysis further showed a weak relationship between the growth rate of GDP and the rate of land use change. But absolute land use change and absolute GDP growth are strongly correlated, indicating that land quantity is a critical input in economic growth.

Land is usually regarded as playing a marginal role in economic growth in Western economic growth theories. Our exploratory analysis suggests the opposite in China. As China urbanizes, industrializes, and globalizes, it is experiencing substantial land use changes that are correlated with economic growth. This significant relationship is associated with China's particular state-owned land ownership and land use rights systems. As such, land can be used as a powerful macroeconomic intervention tool. The long-term lease of land use rights grants incentives for local governments to sell land to generate lump-sum revenues, which are then used to finance urban and industrial development and infrastructure provision.

Consequently, land has played a critical role in China's rapid economic growth. However, this form of land-centered urbanization and industrialization has already caused serious social tensions, environmental degradation, and economic fluctuation. The lump-sum revenues generated by land leases are not sustainable considering that, even as large as it is, China has a limited land supply. The role of land as a driver of economic growth can be expected to decline as China gradually undergoes industrial advancement.

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Karl E. Case is professor of economics emeritus at Wellesley College, where he held the Katherine Coman and A. Barton Hepburn Chair in Economics and taught for 34 years. He is currently a senior fellow at the Joint Center for Housing Studies at Harvard University.

Professor Case is also a founding partner in the real estate research firm, Fiserv Case Shiller Weiss, Inc., and serves as a member of the Board of Directors of the Depositors Insurance Fund of Massachusetts. He is a member of the Standard and Poors Index Advisory Committee, the Academic Advisory Board of the Federal Reserve Bank of Boston, and the Board of Advisors of the Rappaport Institute for Greater Boston at Harvard University. He has served as a member of the boards of directors of the Mortgage Guaranty Insurance Corporation (MGIC), Century Bank, Lincoln Institute of Land Policy, and the American Real Estate and Urban Economics Association. He was also an associate editor of the Journal of Economic Perspectives *and the* Journal of Economics Education.

After receiving his B.A. from Miami University in Ohio in 1968, he spent three years on active duty in the Army and received his Ph.D. in economics from Harvard University in 1976. His research has been in the areas of real estate, housing, and public finance. He is author or coauthor of five books including Principles of Economics, Economics and Tax Policy, *and* Property Taxation: The Need for Reform, *and he has published numerous articles in professional journals.* Principles of Economics, *a basic text coauthored with Ray C. Fair and Sharon Oster, is in its tenth edition. Contact: kcase@wellesley.edu*

LAND LINES: *How did you become involved with the Lincoln Institute of Land Policy?*

CHIP CASE: I learned about the Lincoln Institute in the 1970s, when it was sponsoring conferences for the Taxation Resources and Economic Development (TRED) Committee. I had written my dissertation on property taxes and had been invited to attend one of those conferences. In the fall of 1980, I began my first sabbatical year from Wellesley College and needed a way to fund my research. I arranged a meeting with Arlo Woolery, who was executive director of the Institute at the time, and he agreed to support my work.

My relationship with the Lincoln Institute has continued over the four decades since then. I was on the Board of Directors in the mid-1990s and on the executive search committees for H. James Brown, the former president of the Lincoln Institute, and Gregory K. Ingram, the current president and CEO. I taught at many Institute-sponsored programs with the Land Reform Training Institute (now the International Center for Land Policy Studies and Training) in Taiwan for 15 years, and have participated in programs in Cuba and China multiple times as well.

Much of my research is in the spirit of what the Institute is about, and I continue to make regular presentations at various conferences and seminars. I was especially pleased to be involved with a conference on "Housing and the Built Environment: Access, Finance, Policy," held in Cambridge in December 2007. The Institute later published the papers and commentaries as "Essays in honor of Karl E. Case" in a volume titled *Housing Markets and the Economy: Risk, Regulation, and Policy*, edited by Edward L. Glaeser and John M. Quigley.

LAND LINES: *What sort of work have you done for the Lincoln Institute recently?*

CHIP CASE: Earlier this year I served as a discussant for the "Urban Economics and Public Finance Conference," which was organized by Lincoln Institute visiting fellow Daniel McMillen with the Department of Valuation and Taxation. This annual program brings together leading scholars in the fields of urban economics and public finance to present and discuss their research. It's a great forum and a good opportunity to showcase new empirical work.

I also recently returned from a Lincoln Institute program in Beijing, where I gave a series of lectures to planners and economists at the Peking University–Lincoln Institute Center for Urban Development and Land Policy. My role was to help decipher what has been happening in the U.S. housing market and to provide insight into the relationship between the housing market crash and the current financial crisis.

Chinese officials are very interested in learning from the market experience of the United States. To say that the housing market in China is in a boom period would be an understatement. In most cities, the market is straining under the limited amount of available land and insufficient infrastructure. The government has recognized that the rapid growth poses a challenge to its market authority and at the same time realizes that the growth can be harnessed as a source of potential revenue for the country's cities.

LAND LINES: *What did you learn about the problem of local government finance in China?*

CHIP CASE: Local governments in China own all the land inside their jurisdictions, and they have traditionally raised money by signing long-term leases on that land with joint ventures and other business interests that then use the land for development. The revenue from these leases has enabled local jurisdictions to provide the necessary public goods and infrastructure without ever collecting a tax.

Lately some jurisdictions are running out of new, undeveloped land to lease and thus are losing the source of revenues they need to support local schools, infrastructure, and health services. China has never had a property tax, but a property tax system has been recommended as a solution to falling local revenue. Convincing the local officials to implement a property tax, however, has proven to be a political challenge for many reasons.

LAND LINES: *How does your research relate to the work of the Lincoln Institute?*
CHIP CASE: I have studied land and property tax issues for a long time. I published my doctoral dissertation under the title *Property Taxation: The Need for Reform*. My early interest in the property tax led me to think about the housing market, its inefficiencies and failures. I have written about the efficiency of the property tax and about the distributional effects of land prices and increases.

A significant component of my research deals with measuring land value and assessing how land value affects the location of labor markets and the allocation of resources and public goods. When someone buys a house, that person is buying access to a package of rights that is tied to the piece of land under the house. The value of the package of rights is capitalized into the cost of the house and is taxed as a component of the property's assessed value. The package of rights—what is included and how it varies by location—is a hot issue right now, in no small part because of the current state of the housing market and its resulting impact on the financial stability of the country's economy.

LAND LINES: *Tell us more about your interest in the property tax.*
CHIP CASE: I'm an unabashed fan of the property tax. It has the potential to operate as a clear, transparent means of raising revenue. The fair market value of property is not a bad index of the ability to pay. Compare this to the federal income tax, which has become so complex as to be a bizarre means of allocating the cost of government, with very little intuitive connection to taxpaying ability.

Taxes should be neutral, and ideally not affect economic behavior. When taxpayers change their actions to avoid tax, they are worse off and the government has lost revenue at the same time. The hidden costs of these changes include higher prices and lower wages. The land portion of the property tax is one of the few taxes that does not distort economic activity, and that's an extremely valuable tool for public finance.

The property tax offers support for local jurisdictions, self-government, and direct democracy. Local governments have a hard time imposing independent sales or income taxes if people can find a lower rate in the next city or town. Real estate is immovable property, and that's a good base for a local tax.

The property tax is always under attack because it is highly visible. Almost no one knows how much sales tax they pay in a year, and for many people income taxes are withheld from their wages. But writing a large check for the property tax focuses taxpayer attention. That means controversy, but it also means accountability, and it allows local voters to decide whether their taxes are in line with the public services they receive. That's almost impossible to judge at the state or federal level.

The property tax can always be improved, and that's part of the important mission of the Lincoln Institute. But it needs supporters who can point to its strengths, and I'm always happy to take on that role.

LAND LINES: *What is the subject of your current research?*
CHIP CASE: I am working on a paper with Robert Shiller about the effect of people's expectations on the housing market in 1988 and during the period from 2003 to 2012. Shiller and I collected questionnaires from people who had purchased or sold a house at some point during those calendar years. We used more than 5,000 questionnaires to create a dataset that allows us to better understand the nature of the recent housing bubble and to pinpoint the beginning of shifts in expectations. It gives us a way to quantify and analyze various expectations about the housing market and to determine how those expectations play a role in decision making.

We can see, for example, that in 2005 the goal of owning a house began to fade from the American dream. This type of shift is culturally and economically significant. When it occurs in conjunction with the inertia of people's expectations, we begin to see volatility in the housing market. And if the swing is strong enough, we also see that volatility may affect the national economy.

Since the price of a house includes all rights and resources tied to that piece of land, expectations about the market and access to future rights and resources play a role in determining the market value of the house. The market value in turn affects the amount of tax levied on the property. The relationship between market expectations and the property tax is complex; the research that Shiller and I are doing will provide some insight.

LAND LINES: *What do you anticipate will happen in the U.S. housing market going forward?*
CHIP CASE: I am cautiously optimistic about the future of the housing market. The numbers seem to indicate that the housing sector is stabilizing and showing signs of slow but positive growth. The housing sector composes only about 6 percent of the country's GDP, but it has been enormously important in the past. Its recovery would certainly help the economy come back from the devastating effects of the recession. L

Made for Walking: Density and Neighborhood Form

In this era of high energy prices, economic uncertainty, and demographic change, an increasing number of Americans are showing an interest in urban living as an alternative to the traditional automobile-dependent suburb. Many people are also concerned about reducing their annual vehicle miles traveled (VMT) as a way to lower greenhouse gas emissions affecting climate change. But providing transportation options is complex and demands a shift in land use patterns and the way we locate and shape future development.

Density is often defined in terms of population per square mile, but such a crude measure makes it difficult to understand the relationship between density and city life. We need to think about urban density by including the density of jobs, schools, and services such as retail, transit, and recreational facilities. Fitting more amenities into a neighborhood within a spatial pattern that invites walking will create the type of built environment that offers real transportation options.

Landscape architect and urban designer Julie Campoli challenges our current notions of space and distance and helps us learn to appreciate and cultivate proximity. In this book, developed as a follow-up to *Visualizing Density* (2007, co-authored with aerial photographer Alex S. MacLean), she illustrates urban neighborhoods throughout North America with hundreds of street-level photographs.

Researchers delving into the question of how urban form affects travel behavior identify specific characteristics of place that boost walking and transit use while reducing VMT. In the 1990s some pinpointed diversity (of land uses), density, and design as the key elements of the built environment that, in specific spatial patterns, enable alternative transportation. After a decade of successive studies on the topic, these "three Ds" were joined by two others deemed equally important—distance to transit and destination accessibility—and together they are now known as the "five Ds." Added to the list is another key player: parking.

Made for Walking:
Density and Neighborhood Form
Julie Campoli
2012 / 208 pages / Paper / $50.00
ISBN: 978-1-55844-244-3

Ordering Information
Contact Lincoln Institute at
www.lincolninst.edu

The Ds have evolved into a handy device for defining and measuring compact form and predicting how that form will affect travel and reduce VMT. They share the characteristics of compact development often described as "smart growth." Lowering VMT by any significant measure will require integrating the D attributes at a grand scale.

While thinking big is important, this book visualizes a low-carbon environment in smaller increments by focusing on 12 urban neighborhoods of approximately 125 acres each—a comfortable pedestrian walk zone. Some are in familiar cities with historically dense land use patterns, intertwined uses, and comprehensive transit systems; others have emerged in unexpected locations, where the seeds of sustainable urban form are taking root on a micro level.

LoDo and the Central Platte Valley, Denver, Colorado
Short North, Columbus, Ohio
Kitsilano, Vancouver, British Columbia
Flamingo Park, Miami Beach, Florida
Little Portugal, Toronto, Ontario
Eisenhower East, Alexandria, Virginia
The Pearl District, Portland, Oregon
Downtown and Raynolds Addition, Albuquerque, New Mexico
Greenpoint, Brooklyn, New York
Little Italy, San Diego, California
Central/Technology Square, Cambridge, Massachusetts
Old Pasadena, Pasadena, California

These places were selected because each offers choices: travel options, housing types, and a variety of things to do and places to shop. Their streets are comfortable, attractive, and safe for biking and walking. They all show how compact development can take shape in different regions and climates. Six specific qualities make them walkable: connections, tissue, population and housing density, services, streetscape, and green networks.

Although some of these neighborhoods are the result of recent development, most have shared a similar trajectory: bustling industry and growth followed by decline and depopulation as rail-based transportation was replaced by the highway, dispersing economic energy in more diffuse patterns at the edges of cities. In many of these places, the bad years took their toll, eating away at the intricately connected urban fabric. By the end of the twentieth century, however, the story had changed. Frustration with the negative side effects of low-density sprawl led to a realization that these older, urban neighborhoods had a lot to offer.

First a trickle and soon a steadier stream of investment flowed back toward cities and into downtown neighborhoods. Their "good bones"—human-scale buildings and ready-made networks of small blocks and connected streets that shorten distances and make walking easy—are drawing people back into these neighborhoods.

ABOUT THE AUTHOR

Julie Campoli is principal of Terra Firma Urban Design, based in Burlington, Vermont, and Boston, Massachusetts.
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GRADUATE STUDENT *fellowships*

The Lincoln Institute of Land Policy offers graduate student fellowships through its United States, Latin America, and China Programs. Listed here are fellowships awarded for the 2012–2013 academic year. For more information and application guidelines, visit *http://www.lincolninst.edu/education/fellowships.asp*.

C. Lowell Harriss Dissertation Fellowships

The Lincoln Institute's C. Lowell Harriss Dissertation Fellowship Program assists Ph.D. students, primarily at U.S. universities, whose research complements the Institute's interests in land and tax policy. This program honors Professor Harriss (1912–2009) who taught economics at Columbia University and was a long-time member of the Lincoln Institute of Land Policy Board of Directors.

Administered through the departments of Valuation and Taxation and Planning and Urban Form, the program provides a link between the Institute's educational mission and its research objectives by supporting scholars early in their careers. The Institute hosts a seminar for the fellowship recipients each year so they can present their research and share feedback with other fellows and Institute faculty members. Applications for the next cycle are due by February 1, 2013.

Timothy R. Hodge
Department of Agricultural, Food, and Resource Economics, Michigan State University
Not All Property Taxes Are Created Equal: Tax Base Erosion and Inequities Resulting from Assessment Practices, Assessment Growth Limits, and Tax Abatements

Kirsten L. Kinzer
Department of City and Regional Planning, University of Pennsylvania
The Role of Public Participation in the Implementation of Local Government Sustainability

Nicholas J. Marantz
Department of Urban Studies & Planning, Massachusetts Institute of Technology
Statutory Development Agreements: The Cause and Consequences of a Regulatory Innovation

David J. Munroe
Department of Economics, Columbia University
Essays on Tax Policy in Real Estate Markets

Michael P. Paparesta
Department of Public Administration, Florida International University
Understanding the Impact of the Property Tax Appeal Process on Assessment Uniformity: Procedures, Structures, and Outcomes

Timothy J. Schwuchow
Department of Economics, Duke University
Essays on the Microfoundations of Prices in Housing Markets

Danielle L. Spurlock
Department of City and Regional Planning, University of North Carolina at Chapel Hill
Planning for Water Quality: The Implementation of Watershed Protection Policies

James Z. Wang
Department of Economics, University of Michigan
County Amenities and Tax Rates: Determinants of Industrial Location Choice

International Student Fellowships/Latin America

The Lincoln Institute's Program on Latin America and the Caribbean offers fellowships to masters and doctoral candidates in the region.

Paulo Alas Rossi
Masters candidate, School of Architecture and Urbanism, University of São Paulo, Brazil
The Logic of the "Condominium City"

Luiz Felype Gomes de Almeida
Masters candidate in Architecture and Urbanism, Federal University of Minas Gerais, Brazil
Limitations to Accessing Serviced Land and Land Value Capture in Brazil: A Comprehensive Approach

Mariana Loera Espinoza
Doctoral candidate in Urban Studies, Department of Architecture, Autonomous University of Ciudad Juárez, Mexico
Residential Segregation, Land and Housing Market Practices and Policies in Ciudad Juárez, Chihuahua, 1995–2010

Bernardo Luz Antunes
Masters candidate, Urban and Regional Planning and Research Institute (IPPUR), Federal University of Río de Janeiro, Brazil
The Law and Obstacles to the Effectiveness of Urban Social Interest Land Regularization in Brazil

Daniela Miglierina Ocampos
Masters candidate, School of Urban Economics, Torcuato Di Tella University, Buenos Aires, Argentina
Mobility and Immobility: Daily Resident Transit Patterns in Low-Income Sectors of Different Urban Rings of La Matanza

Sandra Rua
Masters candidate, School of Urban Economics, Torcuato Di Tella University, Buenos Aires, Argentina
Urban Marketing Strategies and Their Impact on Economic Revitalization: The Case of Puerto Madero

Rubens Valério Franco Soffiatti
Masters candidate in Urban Management, Center for Exact Sciences and Technology, Catholic University of Paraná, Brazil
The Betterment Contribution as a Value Capture Instrument: The Case of the "Linha Verde" (Green Line) Urban Arterial Road in Curitiba

Daniel Yuhasz
Masters candidate, School of Architecture and Urbanism, Federal Fluminense University, Rio de Janeiro, Brazil
Proposals for the Integration of *Favelas* (slums) to the Formal City and Its Social Debt Balance: Mapping Perspectives on Laws, Taxes, and Generated Values

International Student Fellowships/China

Through the Peking University–Lincoln Institute Center for Urban Development and Land Policy, the China Program awards fellowships to masters and doctoral students residing in and studying land and tax policy in the People's Republic of China. See the Peking–Lincoln Center website for more information *(http://plc.pku.edu.cn)*.

Chuan Ding
Harbin Institute of Technology, Harbin
Sustainable Development of Urban Rail Transit Stations and TOD Planning: The Example of Shenzhen

Jin Guo
Renmin University, Beijing
China's Regional Economic Growth in the "Resource Curse": Prefecture-Level, City-Based Panel Data Analysis

Guangdong Li
Institute of Geography, Beijing
County Economic Growth Convergence Pattern, Spatial Spillover, and Convergence Mechanism

GRADUATE STUDENT *fellowships*

Chong Liu
Peking University, Beijing
The High-Grade Highway Network and the Urban-Rural Income Gap in China

Tao Liu
Hong Kong University, Hong Kong
Land Finance, Land Use Efficiency, and Regulatory Development

Liping Lu
Zhejiang Technology and Business School, Hangzhou
Social Stratification and Housing Consumption Difference: Empirical Analysis Based on Census Data

Xin Sun
Northwestern University, Evanston, Illinois
Political Incentives, Local Governments, Land Transfers, and Development of Behavior: Analysis of the Prefecture-Level Panel Data

Qingyuen Tang
East China Normal University, Shanghai
Land Development, Industrial Upgrading, and Urban Updates to Enhance the Relationship with Research: The Case of Shanghai

Xin-Rui Wang
Zhejiang University, Hangzhou
Sales Profit Rate of Real Estate Projects and Its Influencing Factors: Empirical Analysis of the Vanke Project Data

Zhanyong Wang
Shanghai Jiaotong University, Shanghai
Time and Space Associated with the Law-Based Measured Data of City CO_2 and Traffic and Weather Parameters

Aizhi Wu
Peking University, Beijing
Regional Economic Disparities in China under the Perspective of Industrial Transfer

Xiaoyong Xu
Yunnan University, Kunming
The Spillover Effects of Inter-Provincial Ecological Services and Impacts on Regional Sustainable Development

Li-Li Yang
Shanghai University of Finance and Economics, Shanghai
Correlation Effects of Energy Dependence and Regional Economic Growth: Theoretical Model and Experience

Yingjie Zhang
Tsinghua University, Beijing
Microscopic Verification of the Urban Villages and Its Governance on the Surrounding Real Estate Prices

PROGRAM *calendar*

The education programs listed here are offered as open enrollment courses 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 these and other programs, visit the Lincoln Institute website at *www.lincolninst.edu/education/courses.asp*. In addition, the website hosts many online courses on land use and taxation policy that are offered in both English and Spanish.

Programs in Latin America

SUNDAY–FRIDAY, NOVEMBER 4–9
Caracas, Venezuela
Large Scale Urban (Re-)Development Projects
Martim Smolka, Lincoln Institute of Land Policy; Eduardo Reese, Conurbano Institute, General Sarmiento National University, Buenos Aires, Argentina; Zulma Bolívar, Metropolitan Institute of Urbanism, Metropolitan District of Caracas, Venezuela
This professional development course examines large-scale projects designed to redefine uses of large land tracts in Latin American cities, including projects that promote the redevelopment, regeneration, or conversion of deteriorated or abandoned urban areas and the rehabilitation of historic centers and city center building stock. The course focuses on the tools and instruments available for alternative land use regulatory regimes and on methodologies to evaluate the impacts of such projects.

SUNDAY–FRIDAY, DECEMBER 2–7
Managua, Nicaragua
Informal Land Markets and Regularization in Latin America
Martim Smolka, Lincoln Institute of Land Policy; Claudio Acioly, United Nations Human Settlements Program, UN-Habitat, Nairobi, Kenya
This course is geared to practitioners involved in implementing land regularization and citywide slum upgrading programs in Latin America. Those involved in housing and land policies will find the course particularly useful. Participants will examine informality and the land tenure regularization processes through the analysis of Latin American and other international cases. Topics include the formal-informal urban land market nexus; land regularization within the framework of housing policies; economic issues associated with land tenure and land markets; property and housing rights; alternative policy instruments and slum prevention strategies; citywide slum upgrading and slum prevention; and new institutional settings for managing large-scale programs.

Lincoln Lecture Series

The annual lecture series highlights the work of scholars and practitioners who are involved in research and education programs sponsored by the Lincoln Institute. The lectures are presented at Lincoln House, 113 Brattle Street, Cambridge, Massachusetts, beginning at 12 p.m. (lunch is provided).

Consult the Lincoln Institute website for information about other dates, speakers, and lecture topics. The programs are free, but pre-registration is required online at *www.lincolninst.edu/news/lectures.asp*.

WEDNESDAY, OCTOBER 17
Alex Marshall
Senior Fellow, Regional Plan Association, New York City
The Design of Market Economies

THURSDAY, NOVEMBER 1
Antonio Azuela
Visiting Fellow, Lincoln Institute of Land Policy
Professor, Social Research Institute, National Autonomous University of Mexico
Judicial Activism and Urban Conflict in Latin America

WEDNESDAY, DECEMBER 5
Benito Arruñada
Professor of Business Organization, Pompeu Fabra University, Barcelona, Spain
Principles for Developing Effective Land Registries

What's New on the Web

WORKING PAPERS

More than 760 working papers are currently available on the Lincoln Institute website for free downloading, including 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 Latin America and China programs are also available in Spanish, Portuguese, or Chinese. Listed below are papers that have been posted recently at *www.lincolninst.edu/pubs*.

Gregory S. Burge
The Capitalization Effects of Development Impact Fees: Commercial and Residential Land Values

Jeffrey P. Cohen and Michael J. Fedele
Where in Connecticut Is the Best Location for a Split Tax? An Analysis of Land Assessment Equity in Several Cities

Brenda Faber, Breece Robertson, and Ellie Knecht
Large Landscape Conservation: Recommendations for Online Data and Tools

Karl Flessa
Research Networks and Large Landscape Conservation and Restoration: The Case of the Colorado River Delta

James R. Follain and Seth H. Giertz
Predicting House Price Bubbles and Busts with Econometric Models

Tracy M. Gordon, Heather M. Rose, and Ilana Fischer
The State of Local Government Pensions: A Preliminary Inquiry

Jim Holway and Alexandra Arboleda
Fostering Public Engagement in Water Choices: Lessons from a Sun Corridor Workshop

Robert J. Lilieholm, Christopher S. Cronan, Michelle L. Johnson, Spencer R. Meyer, and Dave Owen
Alternative Futures Modeling in Maine's Penobscot River Watershed: Forging a Regional Identity for River Restoration

Rachel Meltzer and Ron Cheung
How Are Homeowners Associations Capitalized Into Property Values

Mark Skidmore and Gary Sands
Options for Restructuring Detroit's Property Tax: Preliminary Analysis

Hilary M. Swain and Patricia A. Martin
Saving the Florida Scrub Ecosystem: Science and Serendipity

Gary M. Tabor, Matthew McKinney, and Perry Brown
The University of Montana-Missoula: A Campus with an Ecosystem

Mary Tyrrell, Matthew Fried, Mark Ashton, and Richard Campbell
The Quiet Corner Initiative at the Yale School of Forestry and Environmental Studies

Paul Waldhart and Andrew Reschovsky
Property Tax Delinquency and the Number of Payment Installments

CONFERENCE PAPERS

This new publications category on the website hosts more than 70 research papers that have been presented at selected Lincoln Institute conferences and seminars. Included in this group are the papers from each of the annual Land Policy Conferences from 2006 to 2011 on the following topics: value capture, climate change, municipal revenues, property rights, fiscal decentralization, and land policy outcomes. Papers from other conferences will be posted regularly during the year.

COMING SOON

Lincoln Institute's Mobile Website

The Lincoln Institute is preparing a mobile website for smart phones and tablets, with an expected launch date this fall. The redesigned, streamlined site will appear whenever users call up *www.lincolninst.edu* on their mobile devices. It will feature easy access to News, the At Lincoln House blog, Videos, and the people and experts at the Lincoln Institute, as well as a one-click map and contact information. Direct links will take users to the main website whenever they want additional information.

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OF LAND POLICY

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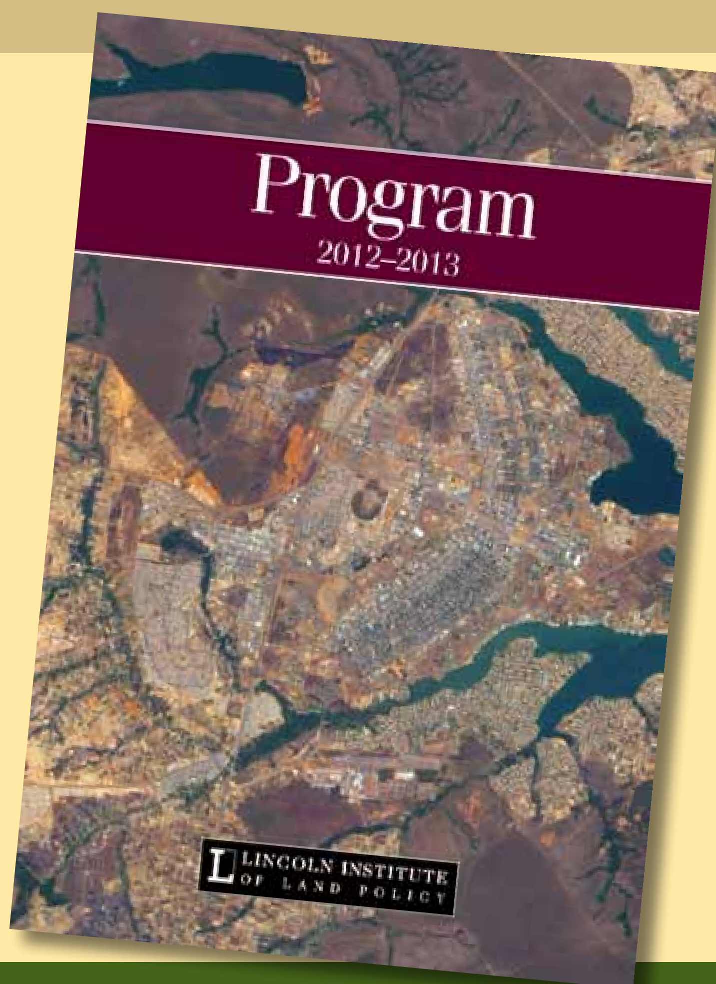
Land Lines
OCTOBER 2012

2012–2013 Program

The Lincoln Institute's annual Program for 2012–2013 presents a comprehensive overview of the Institute's mission and its diverse programs for the new academic year. It includes department descriptions; courses, seminars, conferences, and online education programs; research, demonstration, and evaluation projects; publications and multimedia products; Web-based resources and tools; and lists of fellows and faculty.

The complete Program catalog is posted on the Lincoln Institute website for free downloading. To request a print copy, send your complete mailing address to *help@lincolninst.edu*.



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