THE HAMILTON PROJECT

Advancing Opportunity, Prosperity and Growth

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Stabilizing State and Local Budgets:

A Proposal for Tax-Base Insurance

THE BROOKINGS INSTITUTION

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Stabilizing State and Local Budgets:

A Proposal for Tax-Base Insurance

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NOTE: This discussion paper is a proposal from the authors. As emphasized in The Hamilton Project's original strategy paper, the Project was designed in part to provide a forum for leading thinkers across the nation to put forward innovative and potentially important economic policy ideas that share the Project's broad goals of promoting economic growth, broad-based participation in growth, and economic security. The authors are invited to express their own ideas in discussion papers, whether or not the Project's staff or advisory council agrees with the specific proposals. This discussion paper is offered in that spirit.

THE BROOKINGS INSTITUTION
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Abstract

Local governments that are constrained to balance their budgets have been forced to deal with short-term revenue shocks by cutting spending or increasing taxes. These actions exacerbate rather than alleviate the effects of the shocks, posing a risk of long-term problems. Federal government policies to help local governments deal with such problems have been unreliable and poorly targeted. This study proposes an affordable federal instrument that could mitigate the adverse impact of tax-revenue shocks on communities by allowing them to buy tax-base insurance. With annual premiums of less than 1 percent of their tax revenues, local communities could use insurance to mitigate revenue shocks by taking advantage of risk-sharing opportunities. The strength of a tax-base insurance program is that it would predetermine eligibility, causes, and the value of compensation. It would also be dependable because it would establish a property right that communities would have already paid for.

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1. Introduction

> About half of the state legislatures nationwide are scrambling to plug gaps in their budgets, shot through by rapid declines in corporate and sales tax revenue. . . . Many of the states this year owe their problems to stark declines in tax revenues after an implosion in housing markets. . . . Kentucky has its largest budget crisis in state history, sparked by the movement of manufacturing jobs overseas. . . . New York's budget has felt the wounds delivered by its mercurial friend Wall Street.
>
> In most cases, states have moved to cut state spending, particularly in education . . . nine are now trimming their Medicaid programs. . . . Other states are biting deeply into social service programs. . . . Many states are cutting government employees. . . . While most states are looking to address their budget anguish through cuts, tax increases are occasionally broached.
>
> But not all is bleak. States that produce oil are having a better time, as are states with strong agricultural economies, like Kansas, where revenues for the next fiscal year will increase 2.7 percent and financing for schools is going to be increased. . . . North Dakota, seven months into the fiscal year, is $90 million ahead of official projections . . . or 13 percent ahead of forecast [revenue].
>
> Jennifer Steinhauer, "As the Economy Falters, So Do State Budgets," *New York Times*, March 17, 2008

The polls tell us that Americans are increasingly anxious about economic change.[1] Indeed, there are numerous federal programs designed to help individuals who fall on tough times. These include unemployment and disability insurance, welfare, trade adjustment assistance, and Medicaid. Nevertheless, there is inadequate recognition that many people experience the pain of economic change not because they are directly affected, but because they are members of affected communities. This suggests that policies dealing with economic change should have a collective component. Currently, however, local governments are left to fend for themselves. Responses from the federal government have been inadequate, in part because the potential for risk sharing among communities has not been recognized or exploited, and in part because the federal government has been an unreliable source of support.

The objective of this study is to help remedy this lacuna by proposing an affordable federal instrument that can mitigate the adverse impact of tax-revenue shocks on communities by allowing them to buy tax-base insurance. Our aim is to help stabilize local communities when hit with shocks, as well as to prevent temporary misfortune from inducing long-term decline. We do not wish to provide permanent support, though, since communities will have to come to terms eventually with fundamental economic trends.

While it is generally accepted that the fiscal and monetary policies of the federal government have a role to play in stabilizing the economy, state and local governments are expected to maintain balanced budgets.[2] In principle, the arrangement could work smoothly under two conditions: (1) if macroeconomic policy effectively offset shocks that

1. In March 2008, Gallup reported a large increase in anxiety about the economy (Gallup 2008). See also Fortune's (2008) poll on the economy.
2. Actually, states typically balance only their so-called "general funds," which are usually financed by tax and fee collections and interest income. Typically, federal funds and motor fuel tax collections are kept in separate funds. There are also often separate capital funds and budgets, which means that state spending on roads, bridges, and school construction can be financed by the issuing bonds (Snell n.d.).

could destabilize the economy, or (2) if these shocks were highly correlated across the nation. In practice, though, neither condition is met. The national business cycle is subject to the imperfect nature of macroeconomic stabilization policies, and local economies are subject to many unique shocks such as crop failures, plant closures, natural disasters, and slumps in the property market.

To meet the statutory requirements to maintain balanced budgets, revenue shocks require state and local governments to undertake large budgetary adjustments within a short period, in many cases within one year.[3] A cut in essential public spending that ought to be the mainstay for stabilization during an economic downturn is often one of the two painful options to achieve that stabilization. The other such option is quick and sharp tax increases, imposed at a time when the fragile local economy might be least able to withstand them. Even where the issuance of debt to raise additional revenues is possible, accessing capital markets when the local economy is impaired results in higher costs and unfavorable terms. The result is the possibility of falling into a downward spiral that can have permanent impacts.

Part 2 of this paper describes in greater detail the impact of national and local shocks on local government finances, and how local governments have been forced to accommodate them with painful adjustments that could lead to long-run decline.

Part 3 analyzes the reasons underlying the inadequacy of past attempts and current options to deal with shocks, including various programs for providing federal government assistance, accumulating rainy-day funds, and trying to depend on more-stable revenue sources. This paper exposes several fundamental weaknesses in these approaches. On the one hand, federal assistance has been unreliable, because it is highly politicized and because the diversity of local governments makes it difficult to target money to local needs. On the other hand, local self-help is inefficient because it fails to take advantage of risk-pooling opportunities.

Part 4 of this paper makes the case for a more reliable risk-pooling approach that would not have these flaws. It proposes a simple version of a tax-base insurance mechanism that can provide temporary relief as communities recover from the impact of adverse shocks. It examines its applicability and affordability under different parameters and demonstrates how—with annual premiums of even less than 1 percent of their tax revenues—local communities could use insurance to mitigate or even eliminate revenue shortfalls.

Finally, Part 5 discusses refinements and extensions of the design, and explores some details of implementation.

Before proceeding, a prefatory comment on what we mean by local government is in order. The United States has an astoundingly complex and varied set of local government institutions. The 2002 census identified more than eighty-seven thousand such entities. These include states, counties, municipalities, townships, towns, schools, and special districts that deal with matters such as natural resources, fire protection, housing, and community development. When we refer to local governments in this study we mean "general-purpose governments." Under the definition prescribed by the Census Bureau, this requires the provision of a minimum of three different types of services to the government's residents. Approximately thirty-nine thousand county, municipal, township, and town governments in the United States meet this test (Table 1). Total expenditure by state and local entities amounted to more than $2.3 trillion in 2004, which was 19 percent of GDP.

We have in mind a single federal program that would apply to all local governments, but a comprehensive

3. Vermont is the only state that does not have some form of balanced budget requirement.

analysis using data from all of them is beyond the scope of this study. By using select data samples, we will demonstrate both the potential for risk sharing and the feasibility of self-financing insurance programs for all U.S. states, and for counties and municipalities within single states. While these results are convincing, because they are partial they underestimate the gains from a more inclusive program in which all local governments would be eligible.

TABLE 1.

State and Local Government Units, 2002

Total	87,576
State	50
Local	87,525
County	3,034
Municipal	19,429
Township and town	16,504
School district	13,506
Special district	35,052

Source: U.S. Census Bureau 2008.

2. The Adverse Real Impact of Regional Tax-base Volatility

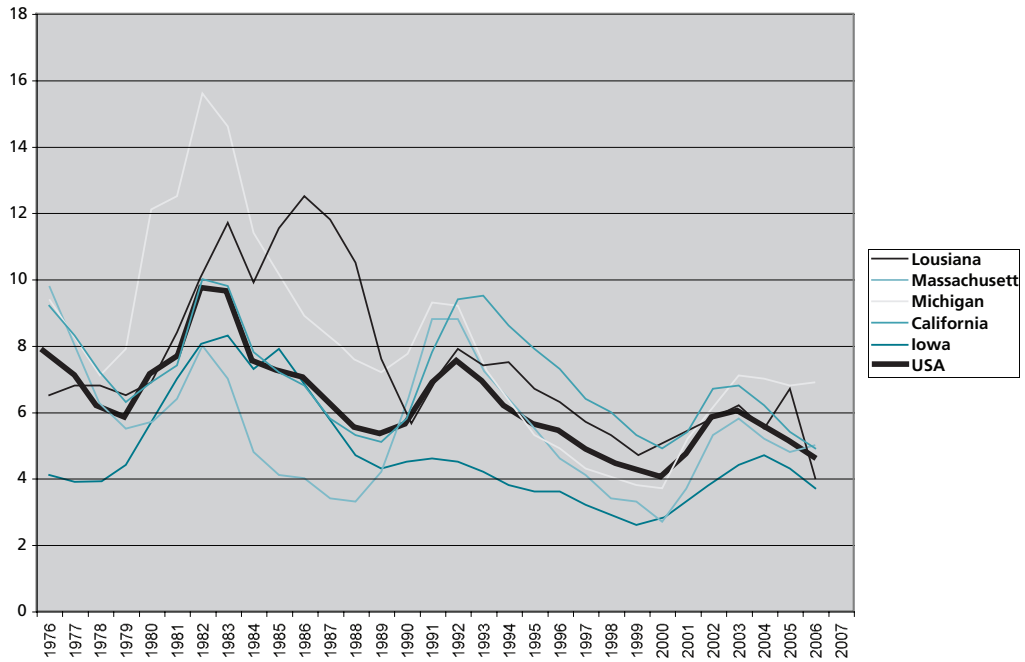
> It seems outrageous for the world's wealthiest country to rely on a system of state finance that exacerbates cyclical swings in the economy and cuts services for low-income families when their need is greatest. (Rivlin 2002, 4)

The volatility of state incomes over the past quarter century is clear from Figure 1, which contrasts unemployment rates in five states with the national average. As captured here by Michigan where the unemployment rate peaked at 15.6 percent in 1982, the rust-belt states were hit hard by the 1982 recession. While much of the United States had recovered by the mid-1980s, the oil patch–states (see Louisiana, Figure 1) and farm-belt states (Iowa) fell on tough times as commodity prices slumped and the dollar strengthened.

By 1988, circumstances improved for most regions; the Northeast was particularly prosperous. In what was called the "Massachusetts Miracle," the unemployment rate there fell to just 3.3 percent by 1988. In the late 1980s and early 1990s, though, plummeting housing prices and problems in the financial sector set off a recession in the Northeast that was deeper and more protracted than in many other regions.

While the national economy had recovered from the 1991 recession, in 1993 and 1994 California was still struggling with large defense cutbacks caused by the end of the Cold War. After a period of strong growth in the late 1990s, California recovered. Energy setbacks and the bursting of the dot-com bubble in 2001 again resulted in revenue declines that were greater than in other parts of the country

FIGURE 1. State Unemployment Rates, 1976–2006



Source: Bureau of Labor Statistics.

Box 1. Examples of Local Fiscal Crises

Farm Prices (1987)

America's farmers are facing difficult financial times, and their problems are spilling over to rural local governments. Declining farm incomes and farm property values erode the local tax base. At the same time, demand for publicly provided services may increase, creating a squeeze between falling revenues and higher costs . . . higher taxes and lower service levels may permanently change the quality of life in rural America. (Stinson 1987, 175)

Property Values in New Jersey (1991)

After a 10-year boom in construction and property values, the taxable worth of real estate is dropping in Morris County, all but guaranteeing higher property taxes for homeowners....

Worried elected officials, in turn, have countered with the county's biggest recent number of layoffs in hopes of minimizing the tax increase….

If the decline in the tax base deepens in coming months… officials fear stormy years ahead for county, school and municipal budgets, with rising taxes on homeowners and steadily shrinking school, local and county services. (Robert Hanley, "Morris County Sees Taxes Rise As Values Fall" *New York Times*, January 7, 1991)

Natural Disaster in North Carolina (1996)

Long after Hurricane Fran is committed to history, Pender County expects it will still be paying for the devastating storm.

Officials continue to assess the damage from the hurricane and the flooding it produced along the Northeast Cape Fear River. The county estimates that it stands to lose about $150 million of its property tax base, depending on who rebuilds…. At the current property tax rate of 61 cents per $100 worth of property, that would mean a $915,000 loss in revenue. It would take a 4.7-cent tax rate increase to make up for that loss, based on the tax base before the storm. Pricey oceanfront homes that provided a good portion of the tax base have been destroyed and sales tax dollars lost from a devastated beach season. Inland, at least a hundred homes were flooded out.

"By Destroying Property, Fran Wrecked Coastal Area's Tax Base Pender County Will Lose Revenue Without Pricey Homes And Tourism," (*Greensboro News & Record*, September 29, 1996)

Plant closing in Texas (1998)

Texas Instruments' pending closure not only leaves a void in Lubbock's business community, but area taxing entities will also feel a loss. Based on this year's assessed valuation, the company will pay a total $2.4 million in property taxes, including $1.5 million to the Lubbock Independent School District.

"We'll have to look at what we can do without and look at what we can do to make up the revenue," Lubbock School District Supt. Curtis Culwell said. (John Fuquay, "City to Feel Loss of TI Tax Money," *Avalanche-Journal*, June 19, 1998)

National Housing Market Slump (2008)

Declining house prices are likely to wreak havoc on state budgets, especially in those states that rely heavily on property taxes for financing.… Since the amount of property tax paid generally varies with the value of the property, declines in house prices will erode the property tax base and reduce revenue to state and local governments. Without increases in the tax rate, the amount of revenue received will then decline. Most states have some form of balanced budget requirement, so the declining revenues turn into reduced spending in fairly shorter order. Reduced state and local government spending, whether it is on salaries, purchases, or infrastructure investment, then pulls down GDP hurting the overall economy, but causing greater pain in those states. (Goldman Sachs 2008)

(Sheffrin 2004). Although the recession in 2001–2 was about as deep as that in the early 1990s, many states experienced much greater revenue declines and took a long time to recover. Indeed, California and many others continued to face fiscal crises even before the slowdown in 2007–8.

Overall, growth rates in the per capita incomes of the states are correlated with the national average (correlation = 0.62), but there is also a considerable amount of idiosyncratic fluctuation. Between 1980 and 2006, for example, about 62 percent of the variance in per capita state incomes was *not* accounted for by national fluctuations.[4] The correlations are typically highest for the larger states in the industrial heartland: the top ten ranges from Illinois (correlation = 0.91) to Florida, Indiana, Minnesota, North Carolina, Ohio, Pennsylvania, South Carolina, and Wisconsin (0.80). The least correlated are smaller states that are more dependent on a few industries. The lowest decile ranges from North Dakota (correlation = 0.05), to New Mexico (0.06), Alaska (0.07), Wyoming (0.08), Oklahoma (0.20), Louisiana and Hawaii (0.25), South Dakota (0.26), and Texas (0.44).

Given that income fluctuations in individual states offset one another, it should be no surprise that the typical state economy is much less stable than the national economy. For example, between 1980 and 2006, as indicated by the standard deviations in per capita income growth, only two states (Kansas and Alabama) actually had more stable per capita income growth than the U.S. average. Whereas per capita GDP growth for the national economy had a standard deviation of 1.9 percent, the average state had a standard deviation of 3.0 percent—50 percent higher than the national standard deviation.

It should also be no surprise, given this behavior, that the volatility of tax revenues collected by states and local bodies can be large. Over the past thirteen years, more than half of all U.S. states have experienced annual tax revenue shortfalls exceeding 5 percent from the prior year. Similarly, over the past five years more than a quarter of the counties in California have experienced shortfalls of similar magnitude in one or more years.

Much of the observed volatility is not highly correlated cross-sectionally: the average correlation in year-on-year tax revenue fluctuations across states is only 0.39. (The only recent exception was the year 2002, when many states and local bodies experienced a significant decline in tax revenues in the aftermath of the 2000–1 stock market downturn and the subsequent recession.) This again suggests that over this period episodes of tax revenue contraction have been driven more by idiosyncratic, region-specific factors than by broad macroeconomic ones. This volatility has a serious impact on local communities (Box 1). In all the cases described in the box, it was not only those who worked in the sectors that were affected, but also others in the communities who fell on hard times. This is to be expected. When people are thrown out of work or suffer substantial declines in income, those who sell them goods and services lose customers; they, in turn, must lay off employees. For example, an evaluation of the economic impact of the closure of a Tyson Foods, Inc. poultry processing facility in Jacksonville, Florida, found that the indirect and induced effects would be much higher than the direct impact (Table 2). It was estimated that 1,656 jobs in the region would disappear, which is 2.64 times more than the 627 employee jobs lost directly from the closure. Total output would decline by 2.2 times the output of the plant itself. Indirect taxes lost were six time higher than that paid by the poultry processing facility (Stevens, Hodges, and Mulkey 2003).

As the adverse impact on the broader regional economy accumulates, people begin defaulting on mortgages and declaring bankruptcy, and property values fall. Slowing economic activity and declin-

4. It is coincidental that both these numbers are 62 percent. The average correlation between each state and the national average is 0.62. This means in regressions between income growth in each state and the national average the coefficients would average 0.62 and the r-squared (common variance) that would be explained would be 0.62 × 0.62 = 0.38. This implies that 0.62 would not be explained.

TABLE 2.

Annual Economic Impacts of Tyson Foods' Plant Closure to Jacksonville, Florida, economic area, 2002

Annual impact	Direct	Indirect	Induced	Total
Output (millions $)	77.59	71.40	21.92	170.91
Value-added (millions $)	14.87	23.85	13.55	52.26
Labor income (millions $)	12.19	17.90	7.93	38.03
Indirect business tax (millions $)	0.47	1.13	1.36	2.95
Employment (number of jobs)	627	680	349	1,656

Source: Stevens, Hodges, and Mulkey 2003.
Note: Direct impacts are directly attributable to the revenues generated by the sale of processed poultry products by Tyson Foods. Indirect impacts count expenditures that the plant makes for inputs it needs, such as payment to area poultry farmers for live broilers, and the increased output and purchases of its suppliers. Induced effects include the impacts from the spending of earnings by employees and owners in the local economy. The total economic impact is the sum of the direct, indirect, and induced effects.

ing property values lead to a slump in tax revenues. There are likely to be cutbacks in basic community services at precisely the time they are most needed. As local services decline, quality of life deteriorates, and those who are mobile and best able to adapt to change may decide to leave. This further contributes to tax losses. Even if they can borrow, local governments find their financing costs rise as the market assigns their debt higher risk premiums. This inability to respond increases the risk that a short-term shock could develop into long-term decline. If some lose faith in a community's future, there is a danger that their actions could turn into a self-fulfilling prophesy.

The response to revenue reductions is likely to be a cut in state spending and thus a decline in services and an increase in taxes. According to James Poterba (1994), for every dollar of deficit states cut expenditure by 41 cents on average, alongside instituting tax increases of almost 90 cents. Spending cuts can be very painful because it is often only feasible to apply them to a subset of expenditures, while other items cannot be touched. Local governments are obliged to maintain debt service, pensions, long-term contracts, and formula grants to local governments. The result is that only a portion of spending is actually available for cutting, which makes the available cuts extremely deep (see National Association of State Budget Officers [NASBO] 2004, 11). For both legal and political reasons, services most likely to be cut are those that benefit low-income people. Alice Rivlin notes, "In their efforts to close budget gaps . . . states have cut Medicaid, child care, after-school programs, job training, housing subsidies, and other services for low-income people" (2002, 4). Moreover, given the common revenue-sharing practices of states, they are most likely to try to pass the burden on to their local governments.

3. Policies to Deal with Tough Times

Since John Maynard Keynes wrote his General Theory in the 1930s there has been widespread recognition that the government can play a major role in macroeconomic stabilization and that attempts to balance budgets in the face of downturns can make downturns even deeper. While there are debates about the feasibility of using the national fiscal policy lever in a timely fashion—as the passage of an economic stabilization package in 2008 indicates—there is widespread acceptance of the need for countercyclical policies. When it comes to state and local governments, many of which are far larger than many national economies in other parts of the world, short-run balanced budgets are the norm.

This part of the paper describes the evolution of federal assistance to state and local governments in the face of these balanced budget constraints. A review of past policies makes it clear that the need for assistance that is targeted to stabilize specific regions has been felt for a long time. Nonetheless, it is not a success story because assistance has been unreliable and highly politicized. Thus the historical experience points toward the design features that any stabilizing mechanism must possess if it is to be both economically effective and politically sustainable.

Balanced Budgets

Balanced budgets were originally established as a reaction to the great financial Panic of 1837.[5] One of the excesses that led to the crisis was the profligate spending by states on canals and railroads. This led virtually all of the states to rewrite their constitutions in the 1840s to impose balanced budget requirements on themselves. These provisions might also make economic sense if the capital markets reward states with such commitments by reducing their borrowing costs. More basically, however, such provisions, like other rigid rules (for example, Nancy Reagan's approach to drug abuse—"Just say no") are commitment devices for dealing with problems of self-control. They are generally used when there is a proclivity to give disproportionate weight to avoiding current pain even when there are considerable payoffs in the future. The danger in not having these rules is that states might too easily spend beyond their means.

The National Association of State Budget Officers (NASBO) has produced a primer on "Budgeting Amid Fiscal Uncertainty" (NASBO 2004). It issues a stern warning against responding to crises by borrowing. According to NASBO, "Most state officials agree that borrowing to meet operating costs is a bad habit that might be turned to too often when budgets soften. As a result most states have constitutional prohibitions against borrowing to meet short-term expenses" (15). The result is that rather than cushion the blow of a temporary shock to revenues, local governments are likely to exacerbate them.

There are merits in the arguments favoring local balanced budgets, but that leaves the challenge of dealing with local revenue instability. One option is to seek help from the federal government. Alice Rivlin, for example, has advocated a program of countercyclical assistance that would provide funds on the basis of federal and state indicators (Rivlin 2002, 6). As a means of dealing with the fiscal pressures associated with the national business cycle, her proposal has considerable merit in principle. But even assuming a set of appropriate indicators that accurately reflected the plight of local government could be developed—a formidable

5. For a useful summary of the evidence that budget rules affect state fiscal policy, see Poterba (1996).

task—could states really depend on it? In particular, would Congress appropriate the funds during times of need? Would such assistance be provided in adequate amounts and in a timely manner? (Lav and Hudgins 2008). The historical experience with such programs has been disappointing. In the past, federal government assistance to state and local governments has been both poorly targeted and highly unreliable, because it has been vulnerable to political pressures. It can also have perverse incentives.

Federal Revenue Sharing Program

In the 1960s, the federal government initiated sizable grants to states and cities through programs aimed at problems such as health, nutrition, housing, and jobs. Funds were earmarked for specific purposes, and the money could only be obtained by meeting standards set by Washington. In 1972, President Nixon implemented his "New Federalism" through a more generic Federal Revenue Sharing program to reduce the relative power of Washington and to give local governments with weak tax bases the ability to provide services comparable to richer communities. The policy granted untied federal funds to local governments to use in whatever way they wished. Supporters argued this would avoid the administrative costs associated with complex bureaucratic oversight and allow the money to be spent where the beneficiaries themselves, rather than Washington, felt it was needed. Congress allocated a share of federal tax revenue to almost thirty-nine thousand different entities (states, cities, counties, and townships) using a formula approach based mainly on population.[6] Although it had a redistributive element, the program was vulnerable to criticism, given its goal of leveling the playing field among local governments, because (1) it was not confined to poor communities, and (2) since the money was untied, there were inevitably examples of states spending the money in ways others might find frivolous—e.g., building golf courses.[7]

The Federal Revenue Sharing Program lasted fourteen years; it was renewed in 1976, 1980, and 1983. By the mid 1980s, though, the federal budget had shifted into a large deficit, while many local governments were in much healthier fiscal positions (Ferrera 1985). In response, the Reagan administration succeeded in terminating the program—a radical measure that caused considerable damage to many local governments that had become dependent on the money, as Lindsey Gruson noted in an article ("End of Federal Revenue Sharing Creating Financial Crises in Many Cities") in the *New York Times* on January 31, 1987 (see also Wallin 1998). In eliminating the program, the administration made effective use of the fact that federal money was going to wealthy communities such as Beverley Hills at a time when the federal budget was in deficit.[8]

Federal assistance has also been provided more recently. For example, the federal government provided $20 billion in assistance to states in 2003 in the form of an increase in the Medicare payments and general grants based on population. However, not only was this assistance poorly targeted, but, according to McNichol and Lav (2008), "[I]t was enacted many months after the beginning of the recession, so it was less effective than it could have been in preventing state actions that deepened the economic downturn" (5).

6. A statutorily set formula divided the total revenue sharing funds appropriated by Congress. The formula reflected population, but extra funds were awarded if a locality's per capita income was low and if its tax revenues were high relative to local income (tax effort).
7. "In the political struggle over the funds, nearly every city got a piece. A compromise formula based on population, tax base and per capita income led to a thin, scattershot dispersal of money. The recipients included not only down-at-the-heels municipalities but also gilded places like Palm Springs, Calif., Vail, Colo., and Greenwich, Conn. Critics point out that 25% of grants in 1983 went to cities in the ten wealthiest states" (Magnuson 1985, 2).
8. "'In a very tight budget, it's hard to defend money going to places like Beverly Hills,' said Robert W. Rafuse Jr., Deputy Assistant Secretary of the Treasury for state and local finances. 'It's a welfare program with a 50 percent error rate. Sure, Beverly Hills gets much less money per capita than, say, Oakland. But the point is Beverly Hills shouldn't get a nickel. The only question is, should you throw the baby out with the bathwater?'" (Gruson, *New York Times*, January 31, 1987).

Economic Disaster Assistance?

An alternative to a generic long-run program assisting local governments or general cyclical assistance would be a program that only provided help on situations of great financial stress. Perhaps the current federal program for natural disasters could serve as the model for situations of financial stress. Under the 1988 Stafford Act, for example, the president can respond to applications from the governor of a state to declare a federal disaster. These can involve "natural catastrophe…or regardless of cause, fire, flood or explosion."[9] If the president approves the request, the state becomes eligible for funds that can be used for reconstructive efforts. The state also becomes eligible for various forms of assistance to individuals, businesses, and state and nongovernmental organizations. The purpose of these funds is to help individuals deal with the crisis and communities undertake reconstruction. Just as the president declares certain locations eligible for disaster assistance, perhaps a federal program could provide grants when local governments experienced financial disasters of a certain magnitude.[10]

But there would be problems with such a program: the first involves determining the criteria for qualification. [11] In the case of natural disasters, eligibility requires the president to make a judgment call that is inevitably subjective and political.[12] What would be the precise criteria in the case of economic disasters for communities? In particular, an important issue is distinguishing between temporary shocks and permanent structural features—for example, tying grants to unemployment rate levels when these have structural components.[13] In addition, a greater measure of certainty could be introduced by using predetermined formulas to trigger spending that could be set in advance. But there is always the possibility that these could be changed.

A second problem is that such programs give rise to moral hazard. The provision of aid (or even insurance that is too cheap to accurately reflect risks) in the event of floods, for example, could encourage people to live too close to bodies of water. Similarly, provision of assistance in the event of financial emergencies could weaken the incentives for local governments to build up their own precautionary funds, or restrain their own expenditures and live within their means. Ideally, individuals undertaking risky behavior should be given the right incentives and deterrents to not do so.

A third problem is the political challenge of confining assistance to cases of genuine need. As the experiences with Federal Revenue Sharing and Homeland Security indicate, in order to obtain political support in the Congress, disbursement criteria might be so weakened that the program could be poorly targeted. It is not a coincidence, for example, that the 2003 federal program disbursed money on the basis of population rather than of need.[14]

And finally, there is the problem of deciding on the particular form assistance would take and actually

9. 42 U.S.C. 5122(2).
10. The Carter Administration provided countercyclical public works assistance to state and local governments in 1976. Gramlich (1979) finds that grants to local governments for stabilization purposes are not always spent. Instead, they often take the form of tax reductions.
11. "Federal aid is a powerful disincentive. Put in its simplest terms, people don't want to be chumps. They see the federal government helping people rebuild after every major disaster, even as the insured fight with their companies to get claims paid. Why, folks wonder, should they pay premiums for insurance they might never need or get when the government is there to bail them out?" (Liz Pulliam Weston, MSN Money, May 20, 2007).
12. There is convincing evidence that presidents have put these programs to political use (see Garrett and Sobel 2003).
13. Teeters (1971, 644) discusses efforts to make these adjustments.
14. An example is federal government programs to combat terrorism in which grants do not reflect the strategic likelihood that a location will be targeted but instead reflect political criteria. In the United States, the formulas for how much money states receive favor small states. Most grant programs have a minimum amount per state—usually 0.50 or 0.75 percent. For instance, in 2004, under the State Homeland Security Grant Programs and Critical Infrastructure Protection Grants, the least-populous state (Wyoming) was guaranteed to receive a minimum of $15 million, whereas the most-populous state (California), was guaranteed a minimum of $133 million. Wyoming receives $35.3 per person; California receives $4.7 per person.

delivering it. The Federal Emergency Management Agency's (FEMA's) incompetent response to Hurricane Katrina could reoccur if the federal government was required to provide tailored packages of assistance to communities in financial distress.

Countercyclical Revenue Sharing

Although in principle Federal Revenue Sharing was a long-run program and was not designed to deal with business cycle fluctuations, in early 1977 the newly elected Carter administration took advantage of its existence and used the distribution formula to implement a countercyclical revenue-sharing stimulus package.[15] The program was justified as a measure that would induce local governments not to tighten their budgets, which would offset the federal government's stimulus package.[16] Local governments were allowed to use the countercyclical revenue-sharing funds for any purpose—including rebuilding their financial net worth.[17] Edward Gramlich (1979) studied this program; although he was skeptical about its efficacy as national stabilization policy, he expressed support for such grants as a form of disaster insurance for state and local governments. Nevertheless, he too cautioned that there were both moral hazard and political problems. "Whether this argument is convincing," he noted, "depends on whether various state and local governments do save for cyclical exigencies, whether this saving will be reduced by a federal cushion and whether the politics of CRS [countercyclical revenue sharing] enables cyclical funds to go where they are most needed" (Gramlich, 183).

The Empirical Evidence

There is recent troubling evidence that, rather than mitigating the problems of local governments, both federal and state governments worsen them. In Figure 2 we plot changes in transfers against changes in tax revenues in four quadrants for forty-nine U.S. states between 1993 and 2005 in real terms. If the transfers were stabilizing and helping to offset weak revenues, we would find a negative correlation and the observations would lie in the North West and South East Quadrants—but very few do. Indeed the opposite seems to be the case, with the plots indicating a positive correlation that shows how shifts in federal transfers add insult to injury and actually fall at the same time as revenues. In part this could be because some federal programs supplement state outlays. This means that when states cut back on their spending, they lose federal money. In addition, states may base their taxes on federal taxes. As a result, federal tax cuts during recessions could reduce state revenues.

There is an old joke that says one of the most worrying statements you can hear is, "We're from the government and we're here to help you." This discussion suggests that, absent a radically new approach, it would be unwise for local governments to depend on assistance from the federal (or state) governments during financial crises.

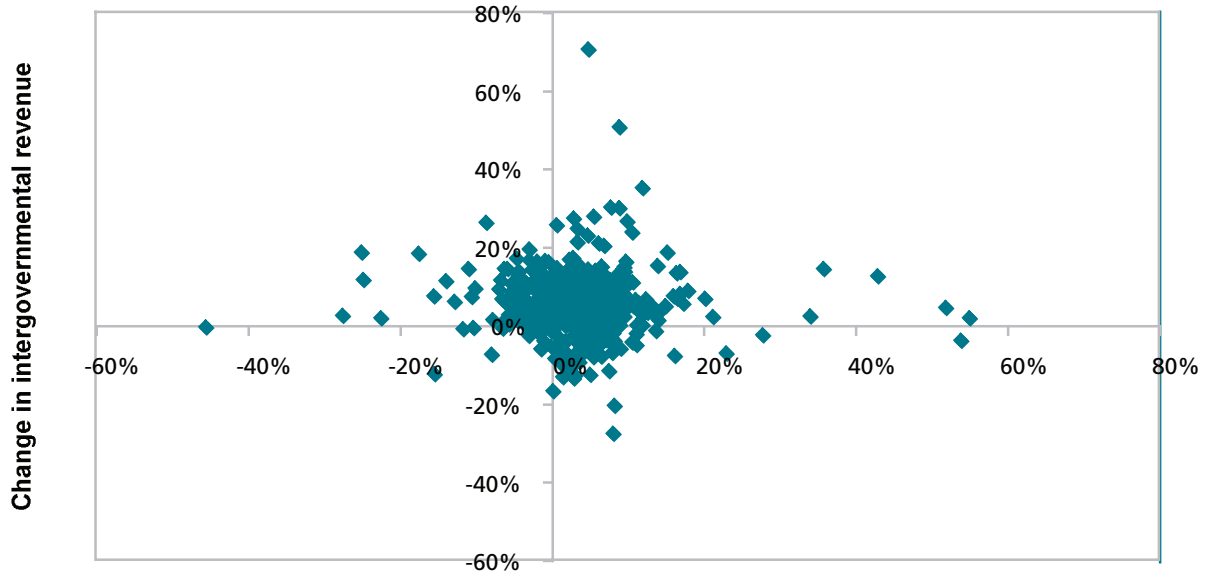
Rainy-Day Funds

Given these difficulties, local governments need their own funds on hand for emergencies. In fact, forty-eight U.S. states have some sort of stabilization or rainy-day fund available for meeting fiscal downturns.[18] There is some evidence that these funds have been helpful (Sobel and Holcombe 1996). Indeed, without them, spending cuts in the most recent recession could have been extremely

15. According to Gramlich (1979), the program would only operate as long as the national unemployment rate was above 6 percent and funds were only distributed to governments where the unemployment rate exceeded 4.5 percent. For a discussion of criteria for allocating countercyclical funds, see Teeters (1971).
16. Counter-cyclical revenue sharing was proposed by Pechman (1971). The Carter program was also studied by Vogel and Trost (1979).
17. This gave rise to a concern that the States might not spend the money, and thus weaken the counter-cyclical stimulatory intent of these policies. Indeed, Gramlich (1979) found that as feared the national counter-cyclical impact was weak and argued that "plain old permanent Federal income tax cuts retain their superiority as a fiscal stabilization device" (180).
18. According to NASBO "many budget observers consider balances of 5 percent of expenditures to be a prudent level" (NASBO 2004, 17). NASBO estimates that between 1979 and 2003 rainy-day balances actually averaged 5.2 percent of expenditures.

FIGURE 2.

U.S. States: Change in Tax and Intergovernmental Revenue



Source: Authors' calculations from U.S. Census Bureau 2008.

deep. But these funds are not panaceas. The size of funds required to meet the large volatility in the tax base, as well as the political consensus required to deploy them, makes rainy-day funds limited as a stabilization mechanism for states and local bodies.

First, they are generally too small. According to Dye and Merriman (2004), "With existing revenue systems in many states it probably is not politically feasible to accumulate rainy day funds to weather severe economic downturns" (1).[19] At the start of the 2001 recession, for example, even though the combined balances in states' general funds and rainy-day funds were generally larger than they had been previously—according to Maag and Merriman (2007) they averaged between 10.4 and 12 percent of expenditures—many states found the funds depleted fairly quickly. Whereas thirty-one states had rainy-day funds exceeding 5 percent of the state budget in 2001, only ten exceeded this threshold just two years later, while twenty-two had balances below 2 percent (Rueben, McGuire, and Kellam 2007).

Second, managing these funds is not easy. Rainy day funds require considerable political skills to ensure that they are disbursed wisely. In some states, withdrawal of rainy-day funds requires a supermajority vote of two-thirds to three quarters (Maag and Merriman 2007).

Finally, and most importantly for our purposes, rainy-day funds are a form of self-insurance, but in many cases, it is less expensive to use insurance to pool risks.

All in all, past attempts at supporting local communities have not survived and current measures appear largely ineffective. Assistance has been un-

19. They conclude, "The all-state median revenue cycle for total tax revenues is five years above trend and two years below with a peak amplitude of 7% and a trough amplitude of 6%. . . . It would take extremely large rainy day fund balances to fully smooth the effect of revenue fluctuations of this magnitude on expenditures" (Dye and Merriman 2004, 9).

reliable and highly politicized. But the historical experience does point toward the design features that any stabilizing mechanism must possess if it is to be both economically effective and politically sustainable.

1. Any external fiscal assistance should be temporary, to facilitate a "soft landing," and should not be one that supports an economically unviable community for an indefinite period.

2. Programs that are targeted toward economically weak communities will be seen as redistributive and not sustainable in the long run because they will lack support from richer communities.

3. The program should be fiscally self-sufficient, and should provide help only when and where it is needed.

4. Assistance, whether from federal sources or state and local funds, should be triggered based on predetermined criteria free of political discretion.

5. Stabilizing the state and local tax base may be preferable to providing restricted or block grants that deal only with specific problems.

6. Moral hazard, though inevitable, should be contained in the long run.

The tax-base insurance mechanism that we propose in Part 4 incorporates many of these features.

4. Tax-base Insurance

> The purpose of insurance is to protect risk-averse individuals from suffering the full consequences of those actions on the part of nature which affect them unfavorably. The parties to an insurance contract agree that when the actions of nature become known, those most favorably affected will transfer resources to those who turn out to be less fortunate. If the contract is to provide protection in this way, it is essential that there be (at least substantial) independence in the actions nature takes with respect to different insured individuals. (Spence and Zeckhauser 1971, 380)

Communities are constrained by their legal commitments to balanced budgets in terms of the amounts that they can borrow when hit with adverse shocks. These shocks can be large, and are partly uncorrelated with those in other communities. This suggests that there is merit in pooling the risks associated with them rather than having each community try to accumulate precautionary balances on its own.

In principle, the federal government could achieve the same outcomes as an insurance program by dispersing aid to communities in distress and, if need be, financing such assistance through federal borrowing. In practice, though, we have seen that federal discretionary financing of this type has been heavily politicized and unreliable. *By contrast, an insurance program would establish a contractual arrangement that predetermines eligibility and prefunds financing on the basis of premiums purchased in advance.* It would also specify in advance the circumstances that would give rise to payments and the amount that could be expected. Local governments would no longer be "dependent on the kindness of strangers," but rather would be helped more easily to prefinance funds they might require in times of need.

However, several questions need to be answered. First, are the risks among local governments sufficiently common so that many would participate voluntarily in such a program? Second, are the risks sufficiently uncorrelated so that only some would warrant payouts at any point in time? Third, what form should payments take? Finally, would such a program be affordable?

To explore these questions, ideally we would use a database that reflects revenues in all thirty-nine thousand local governments, but this is not feasible. Instead, we will focus on states, and then consider local units. We first examine states' tax receipts data obtained from the Census Bureau over the period 1992 to 2005 and simulate how the proposed tax-base insurance scheme would have worked over this period if it had been operated as a program for which the states were eligible. This time span includes two periods of a national recession as well as various episodes of fiscal strain felt in one or more states.

Aggregated across all states, tax revenue accounted for 52 percent of the general revenue that states received.[20] The proportion was higher for some states (California 58 percent, Connecticut 61 percent, Minnesota 62 percent, and Nevada 67 percent), and significantly lower for Alaska (23 percent), due to its substantial reliance on oil revenues.

State tax revenue includes revenue from general and selective sales taxes, individual and corporate income taxes, license taxes, and all other taxes. Of these, the two largest contributors are personal income taxes and sales taxes, together accounting for more than 70 percent of the tax revenue earned by forty-five of the fifty states over the sample period, and more than 50 percent for all but two states.[21] There is one significant outlier: only 9 percent of

20. Intergovernmental transfers are the next largest component, and account for about 30 percent of general revenue.

Alaska's tax revenues were collected through state and income taxes. To maintain our focus on states where tax revenue constitutes a significant proportion (formally, at least one-third) of general revenues, and is affected largely by fluctuations in the tax base, we exclude Alaska from the rest of our analysis.

In tough times, states typically raise taxes. This means that the actual tax revenue collected by states is determined not only by the size and fluctuations in the tax base, but also by changes in tax policy. In other words, actual tax revenue also incorporates the impact of state tax policy measures which are themselves designed as a response to tax revenue fluctuations.

In contrast, the objective of tax-base insurance is to ameliorate the pressure to make immediate tax policy changes in response to actual or anticipated tax revenue fluctuations. Furthermore, an insurance scheme should be set up based purely on exogenous changes in tax revenue; a state should not be able to receive benefits from lower tax collections triggered by a deliberate cut in the tax rate, just as it should not be excluded from benefits if it is able to undertake voluntary measures to soften the immediate impact of a decline in tax revenue.

To arrive at tax revenue data that would have obtained in the absence of any concurrent tax policy changes, we adjust the actual revenues for the impact of tax code changes that have been enacted that year. The dollar impact of every enacted change in major state taxes on the current fiscal year's tax revenues is estimated annually by the National Governors Association and NASBO, and is reported every year in the fall issue of the *Fiscal Survey of States* (1992-2005).[22] By subtracting the dollar impact of tax increases and adding back the impact of tax cuts to the actual tax revenue collected, we obtain tax revenues that would have accrued to the state had there not been any tax policy changes. We label this "policy-neutral revenue": policy-neutral revenue = actual revenue – dollar impact of tax increases + dollar impact of tax cuts.

The volatility of the states' tax base has been large. While policy-neutral revenue has grown, on average, by 5.4 percent compared to the prior year's actual tax revenue across all states over the sample period, its standard deviation has been almost as high at 5.3 percent. Figure 3 shows states that have experienced large fluctuations—those whose policy-neutral revenues have risen by more than 10 percent or shrunk in nominal terms compared to the prior year's actual revenues. The figure shows that even during the mid-1990s, when the national economy was growing at a healthy pace, tax revenue in many states rose significantly even as a few experienced sharp declines. Overall, forty-four of the forty-nine states in our sample have experienced a decline in policy-neutral revenue at least once over this sample period, while forty-one have experienced a rise of more than 10 percent. The average correlation of annual changes in tax revenue across states is only 0.41, although there have been some years when states have had similar performances: thirty-seven states experienced policy-neutral tax revenue declines in 2002 due to the 2001–2 recession, and nineteen states enjoyed increases exceeding 10 percent in 2005.

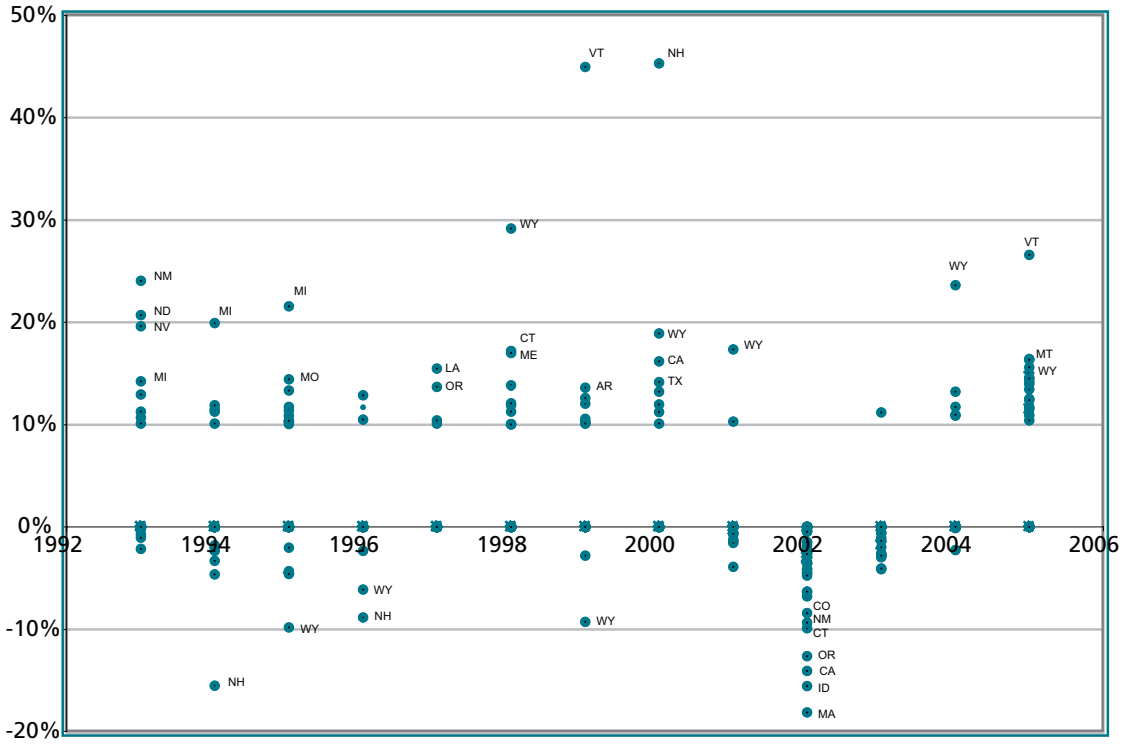
Using these data, we simulate what the impact of tax-base insurance would have been. We first need to define three parameters for a simple version of the insurance scheme.

- Premium. The premium is the contribution each state would make every year to be eligible for coverage. The simplest design would be one where the premium is imposed at a flat rate on actual taxes collected in the prior year.

21. Across all states, corporate income taxes account on average for only 6 percent of total tax revenue collected by states. The decline in state corporate income tax revenue has been attributed to the dramatic rise in state tax credits for investment and research and development, the non-uniformity in apportionment formulas across states, and the use of passive investment companies (Wilson 2006).
22. NASBO's calculations assume that the full impact of the change will be felt in the same year and there will be no impact thereafter.

FIGURE 3.

State Tax Revenue Year-on-Year Fluctuations



Source: Authors' calculations from U.S. Census Bureau 2008.
Note: This figure shows only those states whose policy-neutral revenues have risen by more than 10 percent or shrunk in nominal terms compared to the prior year's actual revenues.

- Threshold. Payment to the states would be triggered when policy-neutral revenue in a particular year falls by more than a predetermined threshold that is based on actual revenue collected in the prior year.

- Coverage. The amount paid would compensate a predetermined fraction of the shortfall in excess of the threshold described above.

For example, suppose the premium is set at 0.5 percent, the threshold at 2 percent, and the coverage at 80 percent. Each state would pay 0.5 percent of actual taxes collected in the prior year into the insurance fund. If the policy-neutral revenue during the current year turns out to be lower than the actual revenues collected in the previous year by more than 2 percent, then the insurance scheme would compensate 80 percent of this shortfall. In insurance parlance, the threshold of 2 percent would be called the *deductible*, since states would have to absorb shortfalls of up to 2 percent themselves. The fact that states would also bear 20 percent of the shortfall beyond the 2 percent threshold is the *coinsurance* feature of the mechanism.

To simulate the impact of tax-base insurance for our sample, we select the following parameters values:

- Premium: 0.75 percent of tax revenues collected in the prior year

- Threshold: 0 percent (i.e., any nominal decline in taxes would trigger payment)

- Coverage: 100 percent (i.e., payment would cover the entire amount of the decline)

Admittedly, these are generous terms, although with average inflation over the sample period of 2.7 percent even a 0 percent nominal threshold represents a *negative* 2.7 percent threshold in real terms. Of course the nominal threshold can be higher than zero, but we will soon show that even with these parameters the insurance scheme is easily affordable. We will examine the impact of other parameter values, our preference for a nominal threshold, and variants of the design a little later in the paper.

Let us take a closer look at how the mechanism would work by examining three states over two intermediate years. The discussion also illustrates how the mechanism contains incentives that could arise out of moral hazard *without* constraining any fiscal policy measures that states might undertake on their own to deal with an economic downturn. The relevant data are shown in Table 3.

During fiscal 1995, Montana collected $1,214 million in tax revenues, New Hampshire $918 million, and South Dakota $694 million. To insure their taxes for 1996 *at their respective 1995 levels assuming no changes in tax policy*, each would pay a premium of 0.75 percent of the total taxes collected: thus, Montana would pay $9.1 million, New Hampshire $6.9 million, and South Dakota $5.2 million.

The following year, New Hampshire collected only $837 million in taxes, which represented a nominal shortfall of $81 million relative to the prior year. Since the state made no tax policy changes in 1996, the entire decline can be attributed to shrinkage of the tax base. Under the parameters described above (i.e., 0 percent threshold, 100 percent coverage), the tax-base insurance fund would pay New Hampshire $81 million in 1996.

The same year, Montana collected $1211 million in tax revenue, also marginally lower than its actual revenues in 1995. However, the state also made changes to the tax code that were estimated to lower its tax revenues by $36 million in 1996. In other words, if Montana had not instituted these tax cuts, it would have been expected to collect $36 million more that year, making its policy-neutral revenue $1,247 million, an amount that would be higher than its actual revenues in 1995. Thus, even though the actual tax revenue that Montana collected in 1996 declined relative to 1995, it would not be eligible for payment under tax-base insurance because the decline was caused by a change in tax policy and was *not* due to a shrinkage in the tax base.

Finally, consider South Dakota, whose taxes were insured at the 1995 level of $694 million. In 1996, the state collected $730 million in tax revenues,

TABLE 3.
Illustration of the Mechanics of Tax-base Insurance

(millions $)

	New Hampshire	Montana	South Dakota
1995			
Actual revenue	918	1,214	694
1996			
Actual revenue	837	1,211	730
Tax policy changes	0	–36	+ 52
Policy-neutral revenue	837	1,247	678
Tax-base insurance payment	81	0	16

Source: Authors' calculations from U.S. Census Bureau 2008.

which was more than in 1995. However, it also made changes to the tax code that brought in an additional $52 million in revenues. If these tax increases had not been introduced in 1996, South Dakota would have collected only $678 million, $16 million less than the insured level of $694 million. Thus South Dakota did suffer a contraction in its tax base, with a resultant tax revenue loss of $16 million. The tax-base insurance fund would pay the state $16 million to cover this loss. The fact that the state instituted prompt tax hikes to weather this anticipated decline, and avoided a nominal decline in actual revenues, would not affect its eligibility to receive tax-base insurance payments that year.

For the forty-nine states over the thirteen-year sample period, the benefit of such a mechanism would have been felt broadly and across many years: forty-five states would have received payments at least once, twenty-three would have received payments twice, and two states (New Mexico and Wyoming) would have dipped into the fund four times. Furthermore, the benefits would not be felt only during national recessions: under the proposed scheme, payment to one or more states would have been made during ten of the thirteen years considered. Finally, even rich states experience revenue shortfalls. Thus, because it is focused on changes rather than on levels, the program benefits rich and poor states alike. Ranked by 2005 per capital income, the five poorest states together receive relief payments eleven times in our sample, but the five richest states also receive support—seven times.

While it would disburse funds speedily, the tax-base insurance program is not meant to provide continuous sustenance to a state whose fiscal policy is untenable. Insuring policy-neutral revenue at the level of the prior year's actual revenues ensures that a decline is compensated only once (although it would be easy to adopt this approach and provide assistance for two years). If revenues remain at the same low level the following year, they do not trigger additional payments. Thus, if what at first seemed to be a temporary economic decline persists and looks more like a permanent malaise, the insurance fund would not be saddled with a long-term stream of insurance payments.

The scheme is also not a panacea. State governments would still feel the pressure of a decline in taxes—as early as the same year if the coverage is less than 100 percent or the deductible is nonzero, and certainly the following year unless tax revenues rebound quickly to earlier levels. Therefore, states ought not to abandon efforts to address a contraction in the tax base through well-thought-out policy changes. The design of the scheme ensures that the incentive to institute such changes is preserved.

The salutary impact of tax-base insurance should be seen not as a substitute for necessary tax policy changes, but rather as a mechanism to allow more time and thus facilitate a softer landing for modifications in fiscal policy.

It is interesting to note that average volatility of the stream of policy-neutral tax revenues supplemented with tax-base insurance payments is the same as the volatility of actual tax revenues that incorporate the short-term impact of same-year tax policy changes. This suggests that the proposed insurance mechanism is as effective as immediate tax policy changes in lowering the adverse impact of tax-base fluctuations.

Cost and Opportunity Cost

It is necessary to examine what the cost of such a mechanism would be. Over the entire sample period, 1993 to 2005, the total amount paid out under the proposed parameters—100 percent coverage that is triggered by *any* drop in nominal tax revenue—would be about $36 billion in constant 2000 dollars. Financing such a support mechanism would therefore require 0.57 percent of total tax revenue collected over this period by all states (in constant 2000 dollars). Relative to all the expenditure that states made over this period, even this generous version of tax-base insurance would cost only 0.24 percent—*less than 25 cents for every $100 spent*.

Table 4 shows the cost of the scheme for a range of different values for the deductible and coinsurance parameters. A slightly less-generous version of the scheme, which would make payments only when nominal tax revenues decline by more than 2 percent and which covers 80 percent of the decline, would cost about half as much.

The evolution of costs of such a program in comparison to existing mechanisms further reveals its affordability. Suppose each state contributed 0.75 percent of its tax revenues into the fund whose balances were invested at the Treasury bill rate, and insurance payments were made to states whose tax revenues suffered any nominal decline and covered 100 percent of the decline. Figure 4 shows how contributions, payouts, and fund balances would have evolved over this time. It is instructive to compare such a fund to the total balance maintained in the rainy-day fund, as well as to general accounts of the forty-nine states in our simulation. It is clear that the annual contributions that states make to their respective rainy-day funds are much higher than would be required for the insurance fund. While rainy-day funds may offer unconditional and potentially more generous support based on the discretion of the state administration, the power of pooling makes it clear that for the same level of expected benefits a smaller pooled fund would suffice, allowing states to hold a smaller combined reserve in their rainy-day fund and general account balance to achieve any given level of stabilization.

TABLE 4.

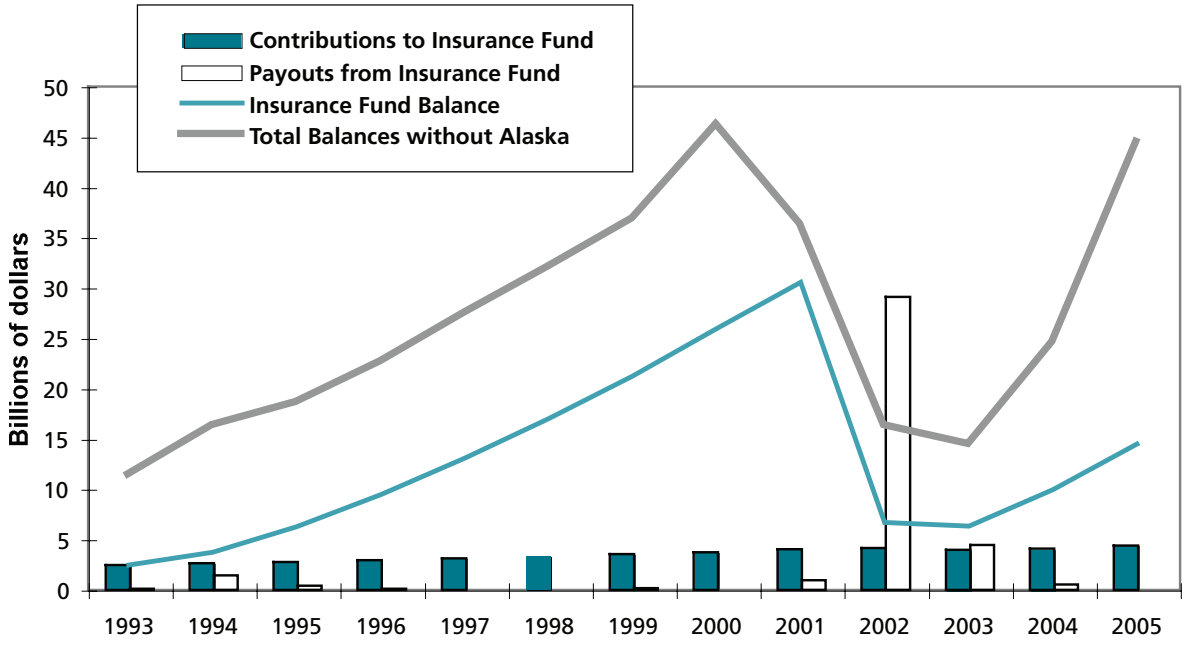
The Cost of Providing Tax-base Insurance for Forty-nine states, 1993–2005

Cost as percentage of total tax revenue						
Coverage threshold (%)	50	60	70	80	90	100
0	0.28	0.34	0.40	0.45	0.51	0.57
–1	0.22	0.27	0.31	0.36	0.40	0.45
–2	0.17	0.21	0.24	0.28	0.28	0.35
–3	0.14	0.24	0.19	0.22	0.24	0.27
–4	0.11	0.13	0.16	0.18	0.20	0.22
–5	0.10	0.12	0.13	0.15	0.17	0.19
Billions of 2000 dollars						
Coverage threshold (%)	50	60	70	80	90	100
0	18.03	21.63	25.24	28.84	32.45	36.05
–1	14.32	17.18	20.04	22.91	25.77	28.63
–2	11.06	13.27	15.49	17.7	19.91	22.12
–3	8.65	10.38	12.11	13.84	15.57	17.31
–4	7.09	8.5	9.92	11.34	12.75	14.17
–5	6.12	7.35	8.57	9.8	11.02	12.25

Source: Authors' calculations from U.S. Census Bureau 2008.

FIGURE 4.

Contributions and Payouts from Tax-base Insurance Fund for Forty-nine States



Source: Authors' calculations; "Total balance" from National Governors Association and National Association of State Budget Officers (various issues).

The simulation presented in this section is simple but insightful. It illustrates that many states face risks of a substantial shortfall in tax revenue and would benefit from a mechanism that softens the blow of such shortfalls. While the risks are common, their incidence is in good measure idiosyncratic, making insurance the preferred mechanism. The suggested payment structure provides temporary relief, diminishing the need for hasty and abrupt shifts in tax and expenditure policy, but preserving incentives and allowing time for structural adjustments where necessary. Finally, while the benefits are substantial and widespread, the mechanism appears affordable and self-financing.

Tax-base Insurance for Local Government Units

The tax base of local government units—counties and municipalities—is even more narrow and undiversified, while their reliance on the tax base to meet expenditures is tighter than it is for state governments. The smaller size of these local government units also makes them less able to withstand tax-revenue shocks. All of these features make the provision of tax-base insurance attractive for local government units. The large number of such units across the country also makes an insurance scheme appealing, due to enhanced opportunities for diversification.

To illustrate the need and applicability of such a mechanism at the local level, we simulate the impact of tax-base insurance using data from fifty-seven California counties (excepting only the City and County of San Francisco), the 351 municipalities of Massachusetts, and the seventy-two counties of Wisconsin. For this analysis, we use tax-revenue data for six years: from 1999 to 2005 for California and Wisconsin, and from 2000 to 2006 for Massachusetts, as reported by the local units to the states.

Taxes—typically property taxes—are the largest rev-

enue source for most local government units. Using the last year of data available in each case, tax revenues accounted for 63 percent of total revenue earned by municipalities in Massachusetts, 37 percent for the counties of Wisconsin, and 22 percent for the counties of California. The largest source of revenue for California's counties is fiscal transfers from the state and federal (through the state) governments. However, just as we have already seen for federal transfers to state governments, Figure 5 shows that federal and state transfers to counties do not appear to play any meaningful stabilization role in their finances.

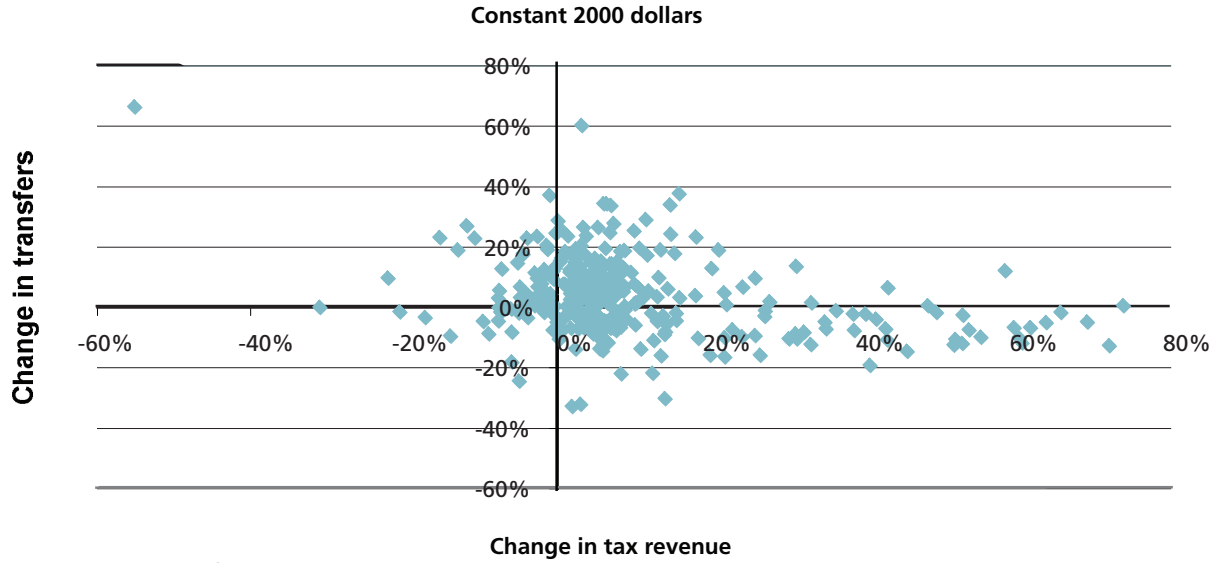
The dependence of the tax base on property values is uniformly high across all three states: 82 percent for California, 75 percent for Massachusetts, and 83 percent for Wisconsin. Thus tax receipts for the local units in these states are almost entirely a function of property values and the property tax rate. As was illustrated in the previous section for the states, actual tax revenue should be adjusted to arrive at exogenous policy-neutral revenue. For simplicity, however, we have used actual tax revenue for the simulations in this section.

The volatility of tax revenues for the local units in Massachusetts and Wisconsin is comparable to that of the states, but the volatility of revenues in California's counties is significantly higher than that of the states.[23] The average correlation of annual changes in tax revenue across the local units within each state is 0.69 for California counties, 0.11 for Wisconsin counties, and 0.03 for Massachusetts municipalities. In each case, the potential stabilizing role of mitigating risk by pooling is evident.

The impact of tax-base insurance with 100 percent coverage and zero nominal threshold is reported in Table 5. About one-third of Massachusetts' municipalities, one-fourth of Wisconsin's counties, and more than half the counties in California would benefit from the scheme at least once even over the six-year sample period. Cost estimates in this case

FIGURE 5.

California Counties Revenue and Transfers from the State



Source: Authors' calculations from U.S. Census Bureau 2008.

23. The higher volatility might be due to changes in the revenue sharing arrangement between the state of California and its counties that went into effect during the sample period.

should be interpreted with caution due to the relatively short sample period, but overall the scheme looks as affordable. Clearly, the high volatility in California makes the scheme more useful but also more expensive. The municipalities of Massachusetts and the counties of Wisconsin enjoy lower costs not only because of relatively lower volatility, but also—and most importantly for a pooled self-financed insurance system—due to low correlation of tax revenue fluctuations across different local units. In general, tax revenue fluctuations *within* a state would be more highly correlated than *across* states. This suggests that if local units dispersed across states would participate jointly in tax-base insurance, the diversification benefits could be even stronger. Indeed, the proposed tax-base insurance mechanism need not be restricted to *either* local units or states, but might combine both. If we pooled all the forty-nine states, the counties of California and Wisconsin, and the municipalities of Massachusetts, the average cross-correlation of fluctuations in tax revenues computed over the period 2000 to 2005 would be below 1 percent. It is clear that the disparate tax bases that these different units of government rely on provide an even richer opportunity for pooling and diversification.

TABLE 5.

The Impact and Tax-base Insurance for Local Units in California, Massachusetts, and Wisconsin

State	Volatility of actual tax revenue (%)	Cost of tax-base insurance program		Number of local units	
		Millions of 2000 dollars	Fraction of revenue (%)	Participating	Eligible for payment at least once
California	17.9	232	0.64	57	30
Massachusetts	6.7	74	0.14	351	110
Wisconsin	4.9	9.2	0.09	72	19

Source: Authors' calculations from U.S. Census Bureau 2008.

5. Issues and Extensions

Adverse Selection

If the program is to be self-financing and sustained it needs to attract a diverse pool of participants. In particular, it must avoid adverse selection, in which only those most likely to experience shocks participate. One way of obtaining a sufficiently diverse pool would be to make participation mandatory. The precedent of the Federal Revenue Sharing Program, which included all thirty-nine thousand local government units, suggests that this would be feasible. To be sure, mandating participation would only be necessary if the program is not sufficiently attractive in terms of the cost of participation and the pay-off in the event of need. The case for mandatory insurance is strongest where the federal government has to assume responsibility in the event of loss anyway. This applies to natural disasters when the plight of the victims cannot be ignored; a similar case could be made for local government financial crises. Nonetheless, a voluntary program could also be explored because making payouts a function of revenue shortfalls means that it would be attractive to wealthy communities as well.

Moral Hazard

Some of the concerns that might be raised with respect to the proposed tax-base insurance—and indeed that arise in the provision of any insurance scheme—relate to the fiscal policy constraints that it might create, as well as the adverse incentives that it might give rise to. First, by alleviating the immediate impact of a negative shock to the tax base, the provision could hinder the impetus to make policy changes that might be inevitable in the long run. Our objective is to offer temporary relief from a contraction in tax revenues that might necessitate quick, suboptimal fiscal changes, but we do not want to dull the incentive to make required structural adjustments for the long run. Second, state and local governments are vested with substantial fiscal flexibility and make important tax and spending decisions. A well-designed insurance scheme should not curtail those freedoms, either directly or through perverse incentives. For example, benefits should not be denied to fiscally nimble communities that are able to enact changes quickly compared to procrastinating communities. On the other hand, the temptation to institute deliberate tax cuts simply to accrue insurance benefits must be curbed.

To make the insurance design robust to these concerns, we have based the insurance mechanism on policy-neutral tax revenue, i.e., tax revenue that would be collected in the absence of any concurrent tax policy changes. However, estimates of the revenue impact of tax code changes apply only to the year in which the tax policy is enacted, and the methodology used to arrive at these estimates, although widely accepted, is subjective. In addition, tax collections could depend on the effort put in by the government to ensure compliance, and property tax revenues could be affected by the speed at which values are assessed. The problem becomes even more complicated because tax-base insurance encompasses several tax sources that could interact with each other. For example, an increase in the income tax could reduce sales tax revenues.

Another issue would be the substitution of tax bases in a manner that could increase revenue volatility. The most stable source used heavily for local government finance is property taxes. Sales taxes, the largest source of aggregate state tax revenues are more stable than income taxes, which in turn are more stable than revenues from capital gains taxes. But the quest for stability can also lead to a tax system that is too regressive. Greater reliance on corporate and income taxes would make the revenue streams more volatile.

In the current design, insurance premiums are charged at a flat rate based on total tax revenue.

A risk-based premium—for example, one in which states pay a higher marginal rate when they experience large tax revenue increases—would encourage the adoption of a less-volatile tax base and prevent moral hazard.

An alternative design might be based on one or more exogenous economic variables that move closely with fluctuations in the economic tax base but that cannot be affected directly by tax policy changes—e.g., state GDP, aggregate personal income, corporate income, sales turnover, and aggregate value of property.

But these problems are not insurmountable. There are two traditional responses to moral hazard: (1) incomplete insurance, and (2) scrutiny of behavior (i.e., observation of the care taken to prevent loss). In this case, the key parameter is the share of revenue losses covered by the program. As long as the program does not fully cover tax losses indefinitely, states would have less reason to adopt these responses.

Cyclical vs. Idiosyncratic Risks

From the perspective of beneficiaries, it would be most helpful if all tax revenue shortfalls, whether unique to the community or shared nationwide, were insured. Conversely, insurance schemes work better for risk of idiosyncratic incidence than those that have wide and concurrent impacts. A variant of the scheme might define the deductible relative to some national (or state) average: to qualify for payment, tax revenue collected by the state (or county) would have to fall by, say, 3 percent more than the national decline. The choice of insuring only idiosyncratic shocks would certainly make the self-financing design more sustainable, but it would also raise problems of identifying the reasons for revenue loss.

The experience with countercyclical revenue-sharing programs (Gramlich 1979) suggests that, in a national recession, federal tax-rate cuts may provide more effective fiscal stimulation than grants to state and local communities. However, the objective of our mechanism is primarily to provide local relief, and our concern is to offer local governments protection from shocks of all types. Our program certainly does not preclude the federal government from providing additional assistance in the event of a persistent national recession. In fact, it would be an ideal supplement to such an approach. In the first year of the recession that caused revenue shortfalls, many states would speedily receive support. Because the insurance would not pay if their revenues failed to recover in subsequent years, however, the federal government could and should step in with support. Indeed, the analogy is with federal unemployment insurance, which is usually provided for six months but which is typically extended during recessions.

Our proposed design, by denominating the insurance scheme in nominal rather than real terms, may be viewed as an intermediate choice. Inflationary shocks are one source of risk to the tax base of communities that are by and large not idiosyncratic. By insuring only against nominal declines in the tax base, the mechanism leaves the impact of this risk to be addressed through a nationwide fiscal policy initiative or to be borne by communities themselves. The base could also be specified on a per capita basis, to accommodate states with population growth or declines.

Revenues vs. Specific Risks

We believe that it would be most advantageous to insure the revenue base as a whole, since this has the advantage of avoiding the need for prespecifying the risks. The virtue of the plan is precisely that it provides a comprehensive coverage, although it is possible to envisage other mechanisms. One would be to only insure losses from particular specific tax sources. Another would be policies that are tied to specific outcomes such as crop failures, plant closures, or increases in unemployment of a particular magnitude.

Private-Public Partnerships?

Could private sector insurers participate in this type of program? There are precedents for them to do

so. The argument is strongest if the program is not subsidized because, generally, the private participants only take on the components that are self-financing and likely to be profitable, leaving the government to pick up the pieces that require subsidies.

There are some examples where the private market has provided "tax interruption insurance" to towns, school districts, and other municipalities. Such coverage responds to the financial losses suffered when sales, property, occupancy, or other scheduled tax (but not income tax) revenue streams are disrupted as a result of physical loss or damage to a commercial location. Private provision is easier when the tax base is clearly identifiable and the influence of changes in tax policy readily discernible. However, the nature of tax-base insurance is more broad based and its linkages to endogenous changes in tax policy more complex. Therefore, while private participation is conceivable, the coordination and monitoring capabilities of government agencies is essential for the program. [24]

Which Agency?

Who should run this program? The answer, probably, is an independent federal government agency. In determining the preferred provider and administrator of such a scheme, the choice is flexible as long as the scheme is self-financing. But it should certainly be independent, because the program's benefits would be felt in significant part because of the predetermined trigger for payment of funds rather than of the outcome of a contentious and sometimes fickle political process. Any administrative design must not dilute these two attractive features of the program, but should incorporate a governance board that includes representation from local, state, and federal governments.

Payment Mechanism

To be effective, the proposed mechanism must provide quick relief from shrinkage of communities' tax base. Earlier attempts at providing countercyclical relief have had only limited impact because of delays of a year or longer, which have not absolved communities from having to make short-term adjustments within the budgetary cycle. To achieve this, the payment might be based on a quarterly cycle with an annual tally to accommodate fluctuations across quarters. Furthermore, our simulation has considered a design where payments are made only for one year. Alternatives where this is extended over two years could also be explored.

Adequacy of Funds

It is possible that large quantum of payments over a short period might deplete the fund, requiring an injection of funds from external sources. We do not see this as problematic because the fund can borrow against future premium payments that would be made by the communities. The high credit quality of states and counties, individually and (even more so) collectively, makes any such borrowing a contingent contract that will not require a large premium over current borrowing rates.

It is also possible to expand the scope of such a fund, and make it part of a larger fund that might be used as a conduit by the federal government for the exercise of fiscal policy initiatives. Indeed if a community component were to be included as one of the targets that fiscal policy should try to reach, such a fund could serve as the natural vehicle for it. While such an expansion should not erode the self-financing and apolitical deployment provisions of the tax-base insurance mechanism itself, it would provide political backing from the federal government encouraging participation by communities (in case it is not already mandatory), and would also provide instruments and indicators for focused use of fiscal stimulation. Given the public apparatus already put in place by the federal government to monitor the fiscal position of states and local bodies, an enabling role for the federal government would help such a mechanism take off easily, alleviating the needs for much institutional machinery.

24. The U.S. government has, for example, launched the Multi-Peril Crop Insurance program, which is provided together with private insurers and re-insurers.

6. Conclusion

The proposed tax-base insurance provision appears affordable and fiscally attractive to both states and local bodies. Indeed, by alleviating the immediate impact of a fiscal shock, thereby allowing communities greater flexibility in determining when they approach capital markets, it might even pay for itself in the form of saved borrowing costs. It is important to note that such a provision is meant to allow communities more time to recover from fiscal shocks, and not to indefinitely sustain those that are economically unviable. Through its threshold and coinsurance features, the design seeks to contain moral hazard, but ought to be applied across a large cross-section of units to prevent problems due to adverse selection.

Earlier attempts to provide fiscal relief and assistance have floundered or had limited impact, in large part because they have been poorly targeted and slow in deployment, lacking widespread political support and impact when most needed. The great strength of a tax-base insurance program is that it predetermines eligibility, causes, and the value of compensation. It is a contingent contract that is self-financing. It is dependable and sustainable because it makes optimal use of a property right for which communities have already paid.

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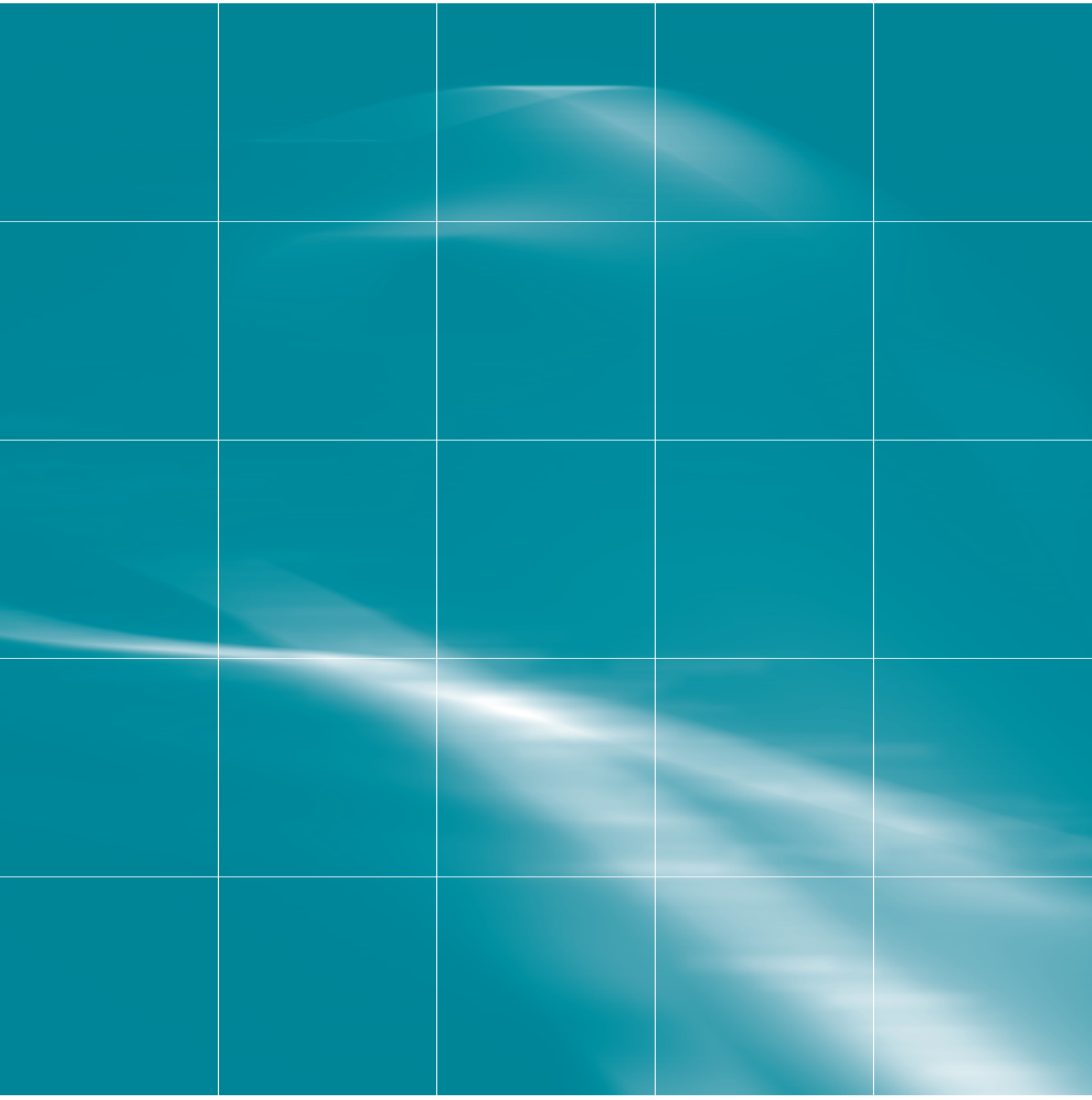

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