

# REDUCING FINANCIAL HAZARD RISK THROUGH PLANNING INTERVENTION

By Arthur C. Nelson,<sup>1</sup> Member, ASCE

**ABSTRACT:** During the early 1980s, many developers used savings-and-loan (S&L) institutions to underwrite their financial risks. The Economic Recovery Act, the centerpiece of President Ronald Reagan's economic recovery plan, exacerbated the situation by increasing the tax benefits of real estate investment no matter how sound they were. The result was hyperspeculation by the development industry, leading to more than \$80 billion dollars in direct taxpayer-subsidized "bailouts" of overextended S&Ls, with a total cost to the economy approaching a half trillion dollars. The S&L bailout is considered the nation's worst taxpayer-financed disaster, including natural disasters. Is there anything planning intervention could have done to prevent or minimize those losses? Natural hazard risk reduction literature is used herein to develop a theory of the role of environmental impact assessment and growth management planning regimes that include needs-assessment components in minimizing losses of financial institutions through overbuilding. An empirical model demonstrates a significant statistical relationship between such regimes and S&L losses among states. Policy implications are offered.

## INTRODUCTION

The real estate development market is composed of developers who acquire land and build products to meet market needs and make a profit. Developers are "community builders," because they shape entire urban areas for generations to come (Weiss 1987), but they do not act alone. Developers typically join forces with allied interest groups and public officials to become an element of the "growth machine" (Logan and Molotch 1987).

So long as the public at large perceives that benefits of the growth machine exceed costs, its operation will continue unabated. The growth machine is not without challenge, however. Since the close of the first decade after the second World War, an era which spawned "suburban sprawl" (Whyte 1956, Mumford 1964), public opinion has become increasingly dissatisfied with the environmental, fiscal, and social costs of growth (Frank and Downing 1988; Frank 1989).

Consider the potential effect of "overbuilding." As its name implies, overbuilding means that local markets become saturated with more product than is warranted by the market demand. Typical results include higher vacancy rates, lower sales prices and rents, and, for some investors and their financial underwriters, bankruptcy. In a market not distorted by public policy that rewards speculation, this may be desirable. But what if public policy induces speculation leading to the collapse of financial institutions? And what if the public policy response is a taxpayer-financed bailout? Is this a socially desirable outcome? Perhaps not.

The situation is not unlike development in hazardous landscapes. In the absence of discipline, the growth machine puts development in harm's way when it is located in floodplains, unstable soils, areas subject to high winds,

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<sup>1</sup>Prof. of City Plng., Public Policy, and Int. Affairs, Georgia Inst. of Technol., Atlanta, GA 30332-0155.

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and areas prone to earthquakes. Billions of dollars are spent annually, for example, subsidizing redevelopment in areas that perhaps should have never been developed.

Over the past few decades, the federal government and several states have attempted to reduce the risks of natural hazards through planning interventions that attempt to steer development from harm's way. Recent literature suggests that such interventions can be effective in reducing losses. Can planning interventions also reduce the exposure of taxpayers to losses attributable to overdevelopment of local markets that may lead to bankruptcy of financial institutions? The simple answer is "yes," and this paper provides some evidence to support this assertion.

The major forms of planning intervention regimes are reviewed first. The nature of the United States' largest taxpayer-subsidized financial disaster, the savings-and-load (S&L) bailout, is presented as a disaster that could have been reduced had planning intervention regimes been in place in all states. A model is then devised and applied to estimate the association between the presence of planning intervention regimes and S&L bailout costs. Policy implications conclude the article.

## **PLANNING INTERVENTION REGIMES**

Planners have long attempted, perhaps with little success, to influence the development process in a manner that accommodates anticipated needs (Chapin and Weiss 1964; Kent 1964); consistent with visions or ideas of what constitutes a "good" built environment (Jacobs 1978; Lynch 1981; Calthorpe 1989; Beauregard 1990; Kaiser et al. 1995) at minimum environmental, economic, and fiscal cost (Lee 1981). In general, planning involves projecting development needs, identifying land available for development, determining how such land should be used, programming the infrastructure needed to facilitate development, financing those facilities (usually through a combination of public and private resources), and crafting the criteria by which development proposals are to be reviewed (Kaiser et al. 1995). Planning becomes increasingly complex with size, growth rates, natural constraints, and the number of jurisdictions competing in the same markets (Innes 1992; Bollens 1993).

It has been demonstrated reasonably well in the literature that, in the absence of some form of planning regime that covers regions, if not states, local governments are usually ineffective in achieving such overarching public interest goals as preserving natural resources, containing urban sprawl, and mitigating losses from hazardous events (DeGrove 1984, 1992; Knaap and Nelson 1992; Burby and Dalton 1995; Nelson and Duncan 1995). The reason is basic to decision making: individuals, developers, and local governments will act in their own self-interest. Unless all competitors react to the same set of restrictions, there is no incentive to change behavior. Market intervention regimes can be viewed as leveling devices to assure that all decisions everywhere are uniform and influenced by the same constraints (Fisher 1995).

There are two major forms of market intervention regimes: planning mandates and environmental impact assessment (EIA) processes. Each is composed of two subsets: planning mandates with or without oversight, and EIA processes with or without a needs-assessment component. Planning mandates without oversight are those that state laws may require of all communities statewide, or in specific regions, but for which there is little or no state-level oversight. Planning mandates with oversight involve state or regional agencies' certification that locally prepared plans are consistent with statewide or

regional goals and objectives, including assuring that the development capacity of local plans does not exceed market needs. There must also be some jeopardy for failure to gain approval from the oversight agency. For reasons discussed below, states using oversight mechanisms to assure consistency of local plans with planning mandates are called growth management states.

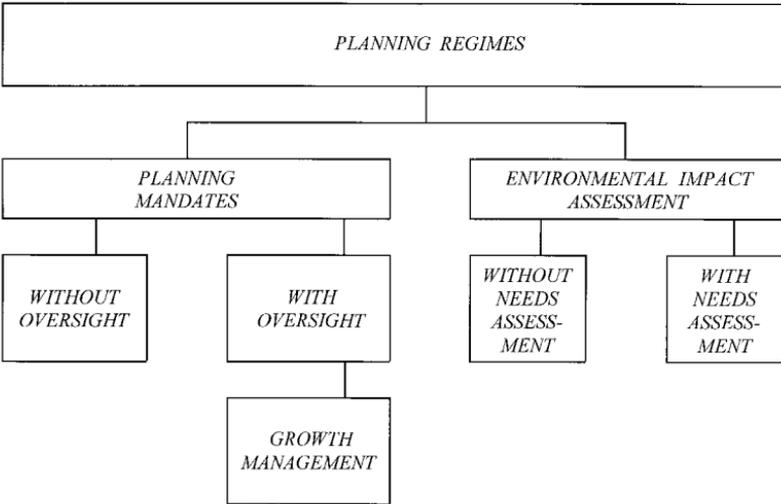
States with EIA processes without needs-assessment components require only limited assessment of a proposed development's impact on the air, water, and land. In contrast, states that have a needs-assessment component in EIA processes are more deliberate in judging whether a particular proposal meets market needs, or is speculative in nature. The criteria used in those states allows review by courts, which therefore provides a form of extrajudicial oversight. Each regime is now described further.

**Planning Mandates**

By the 1950s, the model planning and zoning enabling acts prepared by the Department of Commerce in the 1920s had been adopted in some form by most states (Juergensmeyer and Roberts 1998). Those acts usually do not mandate planning. The mandating of plans is much more recent, dating from the 1960s for parts of states such as New York State's Adirondack Mountain planning region or entire states such as Hawaii. By 1996, 29 states had mandated the preparation of local comprehensive plans (Bollens 1992; Nelson and Duncan 1995). There are two kinds of state planning mandates: those with oversight and those without (Fig. 1).

*Planning Mandates without Oversight*

Literature indicates that without oversight, usually provided through a state-level agency, planning mandates are weak, because the quality of locally prepared plans can vary widely and implementation is not assured. For example, every California city and county is required to prepare a general plan consistent with state general plan requirements. Since 1971, those jurisdictions have been required to include seismic elements. However, only general inventories of areas subject to earthquake hazards are required to be mapped,



**FIG. 1. Planning Regime Diagram**

and communities are free to craft their own mitigation strategies. Since there are no objective criteria in California mandates to use local general plans to prohibit or restrict development within earthquake hazard areas, and because there are no state sanctions for failing to have effective seismic elements, communities have little incentive to do so. Thus, communities with large supplies of land located in earthquake prone areas may consider development limitations inappropriate if the result is rapid escalation of land and housing prices. In other communities, where economic costs of limiting development are high, opposition to such proposals may be stiff. The conclusion drawn is that planning mandates per se have little influence in reducing risks associated with hazards or, as will be contended here, financial disasters, unless oversight mechanisms are involved (Alesch and Petak 1986; Godschalk et al. 1989; Burby 1991; French and Nelson 1996; Burby et al. 1998).

### *Planning Mandates with Oversight*

Planning mandates with oversight means, simply, that an agency at a higher level of government, usually a state agency, has the authority to determine whether locally prepared plans meet statewide planning policies and, if not, what is needed to do so. For example, in Florida and Oregon, state agencies craft criteria for local plan making and then review those plans for consistency with them (e.g., Knaap and Nelson 1992). These agencies also have the authority to impose sanctions, thereby giving communities the incentive to play by the state's rules. In Oregon, these sanctions involve building permit moratoria; in Florida, they involve withholding of some revenue-sharing funds. Planning mandates can include steering development away from hazardous landscapes, protecting natural resources from incompatible development, and accommodating realistic development needs based on projections of need (Nelson and Duncan 1995). Indeed, all states with state or regional oversight in the preparation and implementation of planning mandates have one thing in common: that plans match the supply of buildable land with projected development needs. Land not needed for development is designated for open space uses (farming, forestry) or left in reserve until such time as needed to satisfy development. Literature calls these growth management states; they include Florida, Hawaii, Oregon, Minnesota (for the Twin Cities Metropolitan Council jurisdiction), and Vermont (through its system of regional planning bodies). [Colorado's growth management efforts were abandoned in the late 1970s but planning mandates remain in effect. Georgia's planning mandates are administered by a state agency but are not considered rigorous enough to be characterized as managing growth (Nelson 1990).]

The first wave of growth management states included Hawaii (1961), Vermont (1970), Florida (1972), Oregon (1973), and Colorado (1974), which later abandoned its legislation (DeGrove 1984; Bollens 1992). At the time of adoption, those states faced rapid growth and high levels of stress on natural systems (De Grove 1984, 1992; Nelson and Duncan 1995). The 1980s saw a second wave of state growth management efforts, principally to rationalize public facility and economic development resources; these included Florida (1984-86), New Jersey (1986), Vermont (1988), Maine (1988) (which subsequently abandoned its efforts because of cost), Rhode Island (1988), Georgia (1989), Washington (1990-91), and Maryland (1992) (Bollens 1992; Nelson and Duncan 1995). However, only Florida and Vermont involve oversight by state agencies.

Planners in growth management states must prepare and implement plans consistent with state guidelines. Bollens (1992), DeGrove (1992), Knaap and Nelson (1992), Kaiser et al. (1995), and Nelson and Duncan (1995) observe

that growth management plans must: (1) contain specific elements such as housing, environmental protection, and public facilities provision; (2) provide for infrastructure concurrent with development; (3) coordinate plans between adjacent and nearby jurisdictions and with state agencies; (4) contain urban development and preserve rural land for nonurban or resource uses; (5) protect natural resources; and (6) be consistent with state and/or regional growth management goals and objectives.

The overarching objective of planning in growth management states is to prevent urban development in excess of projected market needs (DeGrove 1989; Audirac et al. 1990). According to Kaiser et al. (1995), this means that local land use plans must not allow for more land to be developed than is needed during the planning horizon. With pioneering insight into modern growth management planning, Marion Clawson, in 1962, observed that:

If planning . . . were firm—enforceable and enforced—then the area available at any one time for each kind of use would bear some relationship to the need for land for this use. That is, area classified for different purposes could be consciously manipulated or determined in relation to market need. Sufficient area for each purpose, including enough area to provide some competition among sellers and some choice among buyers, should be zoned or classified for development, *but no more.* (Clawson 1962; p. 109; emphasis in original)

### **Environmental Impact Assessment (EIA) Processes**

In 1970, President Richard Nixon signed into federal law the National Environmental Policy Act. During the next dozen years, 27 states adopted state environmental policy acts (Robinson 1982), with Florida being added based on its enactment of EIA requirements for developments of regional impact. State EPAs, sometimes called “mini-EPAs” or more simply “SE-PAs,” fall into two general categories: those that have a needs-assessment component and those that do not.

#### *EIAs without Needs-Assessment Review*

Ten states [Arizona, Delaware, Georgia, Kentucky, Mississippi, Nebraska, Nevada, Rhode Island, Texas, and Utah (Robinson 1982)] apply only limited environmental assessment to projects exceeding certain development thresholds and none explicitly require a demonstrate that, in the absence of the project, local market needs will not be met. Thus, provided that the project meets basic environmental considerations, the state or regional oversight agency will approve it. For example, in Georgia, regional planning agencies evaluate all “developments of regional impact” (DRI) based on air and water pollution, traffic generation, water, wastewater, and solid waste impacts, but their recommendation is merely advisory, with the result that many projects are approved by the sponsoring local government despite objections. In Georgia’s case, as in other similar states, there is no requirement to justify the project based on meeting market needs.

#### *EIAs with needs-assessment review*

In contrast, 16 states [California, Connecticut, Florida for developments of regional impact, Hawaii, Indiana, Maryland, Massachusetts, Michigan, Montana, New Jersey, New York, North Carolina, Virginia, Washington, and Wisconsin (Robinson 1982, with Florida added for its separate DRI process)] include some level of needs-assessment in their EIA processes. California’s

Environmental Quality Act (CEQA) is instructive. CEQA requires that local governments: (1) determine significant environmental, fiscal, economic, and social impacts of proposed activities such as large developments or major changes to general plans; (2) identify impact ways to prevent damage or mitigate expected damage; (3) disclose to the public reasons for allowing activities that will damage the environment; and (4) facilitate intergovernmental coordination and public debate (Bass and Herson 1992).

At its heart, CEQA and its sister SEPA in other states evaluate impacts of development projects exceeding certain thresholds on a case-by-case basis. A process is established to identify research questions and potential development alternatives (scenarios), consultants are usually retained to address those questions as they apply to the alternatives, and a deliberative decision-making process is commenced. Years of time and millions in dollars may be expended for the largest and most controversial proposals (Rona 1988).

The central questions posed by CEQA and other SEPA processes render to: Is this the appropriate project at this scale, at this location, and at this time? The simplicity of the question belies the complexity of the research needed to address it. Ultimately, the proponents of the project must demonstrate that it is *needed*—that is, necessary for the well-being of society in some manner—and that its total *benefits* exceed its total *costs* across environmental, economic (including fiscal), and social dimensions after accounting for mitigation. The CEQA and sister SEPA processes have a dampening effect on development by slowing its pace and forcing it to justify its appropriateness relative to existing market trends and considering other approved projects.

For evaluation purposes, the two subsets of the planning intervention regimes are called the four planning intervention regimes.

## **THEORY OF FINANCIAL RISK REDUCTION**

The natural hazard risk reduction literature characterizes as successful those local land use plans that steer development from harm's way. The difficulty is that plan effectiveness can only be measured when disaster strikes. In the case of flood hazard, where local plans may address the 100-year event, plan effectiveness may not be measured until decades after plan adoption. Recent work by French and Nelson (1996), Burby et al. (1998), and Nelson and French (1998) closed part of this measurement gap in their cross-section analysis of damage associated with the 1994 Northridge (California) earthquake. Although all communities in this southern California region are required by state law to have seismic elements, the lack of state-level oversight means that plans vary considerably in their quality, with the result that damage also varied by the quality of community plans. The evidence suggests that mandated planning per se is not effective in reducing the risks associated with natural hazards where there is no oversight function at a higher level of government, such as a state agency.

What kinds of planning regimes could steer development away from financial disaster? The literature indicates that, in the absence of oversight, any planning regime will be ineffective. EIA processes are immediate and require case-by-case analysis. Growth management is longer range in its attempt to accommodate projected development at times and in places determined well in advance to be appropriate. Thus, while Florida and Oregon rely on growth management plans to guide development decision making (Florida has a scaled-down EIA process limited to developments-of-regional impact), California relies on EIA processes almost exclusively. Nonetheless, because both

incorporate an assessment of market demand, both limit development to that which is needed to accommodate market needs. States using either or both of those planning regimes that include a needs-assessment component should be more effective in reducing risks associated with financial disasters than those that do not.

The difficulty facing analysts is that there are few opportunities to evaluate this theory. For one thing, it requires that a sufficient number of states be impacted by the same event so that variations in outcomes can be attributed or not to the presence of market intervention regimes. There is, however, one event that affected all states: the savings-and-loan bailout.

## **SAVINGS-AND-LOAN BAILOUT**

At nearly \$100 billion, the savings-and-loan (S&L) bailout was the United States' largest taxpayer-financed disaster. (At \$32 billion, Hurricane Andrew in 1993 was the nation's largest natural disaster.) The Congressional Budget Office (CBO) estimates that taxpayer-financed costs to bail out failed S&Ls exceeded \$100 billion (1990 dollars) and federal debt service payments rose several billion annually (CBO 1992) (1990 dollars). The total cost to the gross national product was estimated to run as much as a half trillion dollars (CBO 1992). By any standard, it is the nation's largest taxpayer-financed catastrophe (Table 1). How did it happen? How could planning have reduced it?

Since the 1930s, federal deposit insurance has been used to buffer privately held banks and S&Ls from economic downturns. The system worked well until the 1980s, when many S&Ls overinvested in real estate development and became insolvent. The CBO identifies six reasons for the magnitude of S&L losses. First, with deposit insurance, S&L managers had little incentive to avoid risky loans. This is called the "moral hazard" problem (CBO 1992).

Second, real estate development tax incentives initiated by the Economic Recovery Act (ERA) of 1981, such as accelerated depreciation and reduced taxes on capital gains, induced more speculative real estate deals than would otherwise have been made (CBO 1992). This led to, third, the need for more money to sustain real estate investment. To attract money, many S&Ls gave higher rates of return for depositors than competing and more strictly regulated banks. This reduced the margin between interest being paid and interest being received (CBO 1992).

Fourth, oil prices declined precipitously and coincidentally with the widespread softening of real estate values because of market saturation (CBO 1992). This led to, fifth, what is called imprudent "forbearance," wherein federal deposit insurance funds were not used to help troubled S&Ls through the period of low real estate values (CBO 1992). This led further in turn to, sixth, what is called "moral hazard temptation," as for many failing S&Ls there was every incentive to make risky loans hoping that the market would rebound before the S&Ls would become insolvent (CBO 1992).

The CBO observes that the 1981 ERA, which induced real estate development, and the Tax Reform Act of 1986, which undid many of the 1981 policies and made those changes retroactive, caused many S&Ls to fail (CBO 1992). But this begs the question: Was overbuilding driven by tax policy or legitimate market demand? If development was commensurate with demand, the bailout would have been unnecessary. In fact, more real estate was built than needed (Dowall 1986), but only in some areas. Based on the theory presented earlier, states that employ planning intervention regimes to manage

TABLE 1. Selected Data for States

State (1)	S&L cost <sup>a</sup> (2)	Population 990 <sup>b</sup> (3)	Growth 1980-90 <sup>c</sup> (4)	Oil 1990 (BBL) <sup>d</sup> (5)	Growth management <sup>e</sup> (6)	Basic EIA <sup>f</sup> (7)	Needs assessment <sup>g</sup> (8)
AL	\$370,000,000	4,041,000	147,000	18	0	0	0
AK	\$210,000,000	550,000	148,000	658	0	0	0
AZ	\$6,220,000,000	3,665,000	947,000	0	0	1	0
AR	\$2,190,000,000	2,351,000	64,000	10	0	0	0
CA	\$11,090,000,000	29,760,000	6,092,000	322	0	0	1
CO	\$1,870,000,000	3,294,000	404,000	31	0	0	0
CN	\$150,000,000	3,287,000	180,000	0	0	0	1
DE	\$0	666,000	72,000	0	0	1	1
FL	\$6,430,000,000	12,938,000	3,192,000	6	1	0	0
GA	\$600,000,000	6,478,000	1,015,000	0	0	1	0
HA	\$0	1,108,000	144,000	0	1	0	1
ID	\$0	1,007,000	63,000	0	0	0	0
IL	\$1,400,000,000	11,431,000	4,000	20	0	0	0
IN	\$50,000,000	5,544,000	54,000	3	0	0	1
IA	\$180,000,000	2,777,000	(137,000)	0	0	0	0
KS	\$1,540,000,000	2,478,000	114,000	59	0	0	0
KY	\$50,000,000	3,685,000	25,000	5	0	1	0
LA	\$2,330,000,000	4,220,000	14,000	148	0	0	0
ME	\$10,000,000	1,228,000	103,000	0	0	0	0
MD	\$770,000,000	4,781,000	564,000	0	0	0	1
MA	\$1,150,000,000	6,016,000	279,000	0	0	0	1
MI	\$50,000,000	9,295,000	33,000	20	0	0	1
MN	\$1,080,000,000	4,375,000	299,000	0	1	0	1
MS	\$630,000,000	2,573,000	53,000	30	0	1	0
MO	\$1,590,000,000	5,117,000	200,000	0	0	0	0
MT	\$0	799,000	12,000	20	0	0	1
NE	\$540,000,000	1,578,000	9,000	5	0	1	0

NV	\$20,000,000	1,202,000	401,000	0	0	1	0
NH	\$20,000,000	1,109,000	189,000	0	0	0	0
NJ	\$30,000,000	7,730,000	365,000	0	0	0	1
NM	\$2,090,000,000	1,515,000	212,000	66	0	0	0
NY	\$3,080,000,000	17,990,000	432,000	0	0	0	1
NC	\$40,000,000	6,629,000	747,000	0	0	0	1
ND	\$170,000,000	639,000	(14,000)	39	0	0	0
OH	\$630,000,000	10,847,000	49,000	8	0	0	0
OK	\$830,000,000	3,146,000	120,000	117	0	0	0
OR	\$190,000,000	2,842,000	209,000	0	1	0	0
PA	\$3,250,000,000	11,882,000	18,000	2	0	0	0
RI	\$10,000,000	1,003,000	56,000	0	0	1	0
SC	\$140,000,000	3,487,000	365,000	0	0	0	0
SD	\$50,000,000	696,000	5,000	0	0	0	1
TN	\$340,000,000	4,877,000	286,000	0	0	0	0
TX	\$25,860,000,000	16,987,000	2,757,000	674	0	1	0
UT	\$620,000,000	1,723,000	262,000	23	0	1	0
VT	\$0	563,000	51,000	0	1	0	0
VA	\$2,360,000,000	6,187,000	841,000	0	0	0	1
WA	\$370,000,000	4,867,000	735,000	0	0	0	1
WV	\$10,000,000	1,793,000	(156,000)	2	0	0	0
WS	\$90,000,000	4,892,000	186,000	0	0	0	1
WY	\$40,000,000	454,000	(16,000)	103	0	0	0
Total	\$80,740,000,000	248,102,000	22,194,000	2,389	5	10	16

<sup>a</sup>Resolution Trust Corporation, 1993, 1995, *Summary of resolution finance data, by state, as of January 27, 1993*. Facsimile transmission received by writer.

<sup>b</sup>U.S. Bureau of the Census, *1980 census of population, U.S. Summary*.

<sup>c</sup>U.S. Bureau of the Census, *1980 census of population, U.S. summary and 1990 census of population, U.S. summary*.

<sup>d</sup>*Statistical abstract of the United States, 1992*, table 1185; figures in millions of barrels.

<sup>e</sup>Adapted from Bollens (1992) by the writer.

<sup>f</sup>Adapted from Duerksen (1983) by the writer.

<sup>g</sup>Adapted from Duerksen (1983) by the writer.

development should have seen fewer S&L bailout costs relative to “growth-permissive” states.

## EMPIRICAL MODEL AND DATA

Estimation of the extent to which S&L losses vary by type of planning intervention regime can be done through ordinary least squares regression. The following empirical model guides this estimation ( $b_0$  is the constant, while  $b_1$ ,  $b_2$ , and  $b_3$  are the coefficients):

$$\text{S\&L-LOSSES}_i = b_0 + b_1\text{ECONOMIC-CONTROLS}_i + b_2\text{REGIONS}_i + b_3\text{PLANNING-INTERVENTION-REGIMES}_i$$

where  $\text{S\&L-LOSSES}_i$  = total of bailout costs attributable by the RTC to state  $i$ ;  $\text{ECONOMIC-CONTROLS}_i$  = set of variables characterizing key features of the economy of each state  $i$  that may influence losses;  $\text{REGIONS}_i$  = controls for the region in which state  $i$  is located (this helps account for inherent differences between regions); and  $\text{PLANNING-INTERVENTION-REGIMES}_i$  = set of variables characterizing the kinds of market intervention regimes used by each state  $i$ . Discussion of the dependent variable and the three sets of independent variables follows.

### Dependent Variable

Data for the dependent variable, S&L-LOSSES, come from the RTC. In 1993 and again in 1995, the RTC provided the author with data on the distribution of S&L bailout costs by state. These are the only data available in the public domain. One problem with the data is that RTC tallies losses only by the state in which an S&L is headquartered, not the states within which individual investments become insolvent. This means that when Minnesota's two largest S&L's became insolvent because of their investments in the southwest, the losses are attributed to Minnesota, which uses growth management in its major metropolitan area, and not southwestern states such as Arizona, New Mexico, and Texas, which have no planning intervention regimes. The problem is obviated somewhat by the fact that most S&Ls operate primarily in the states within which they are chartered (CBO 1992). The situation means only that the magnitude of losses attributed to variation in market intervention by state will be dampened. [For example, the nation's largest S&L loss, the Lincoln Savings and Loan, headquartered in Los Angeles, California (a state with a needs-assessment EIA planning regime), is attributable to bad loans in Arizona (a state without a needs-assessment planning regime), but all its losses are assigned to California.]

The mean loss per state is \$1.615 billion. The dependent variable is logged (log-10) while the independent variables (discussed below) are linear; this allows for estimation of percentage differences in damage associated with market intervention regimes.

### Economic Control Variables

Economic control variables recognize the potential effect of population size, growth rate, and oil production on the magnitude of S&L losses. The larger the population at a base year, in this case 1980, the greater the exposure of S&Ls to losses simply because the chances of failure are magnified; this variable is labeled POPULATION-1980 and should be associated positively with S&L losses. (To control for differences in orders of magnitude between

states, such as California's 29.8 million people to Connecticut's 3.3 million to Wyoming's 0.5 million people, population is base-10-logged). However, the higher the growth between 1980 and 1990, the more able a state is to absorb supply even if it is highly speculative; thus, the variable labeled GROWTH (1990 population less 1980 population) is used; a negative association is expected with respect to the dependent variable. Finally, because the CBO (1992) suggests that states with high levels of oil production were those most prone to development speculation, the variable OIL-PRODUCTION (millions of barrels or "bbl's") is used, and a positive association is expected with respect to the dependent variable.

### **Regional Control Variables**

Regional control variables recognize that growing regions per se may have greater exposure to risk than declining regions. Two regions are used in this analysis; SOUTH (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia) and WEST (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming). All other states compose the statistical referent group.

### **Planning Intervention Regime Variables**

The four planning intervention regime variables (with the referent being no market intervention) are the centerpiece of this analysis. These variables are given a maximum weight of one to assure comparable statistical weights between them. (The function of binary variables in such situations helps to control for the possibility that some intervention measures are more effective than others. If the variable contribution to damage mitigation could be measured along a continuum, each state could be assigned a continuous number based on the sum of each intervention's relative contribution. Because this is not possible either theoretically or empirically given current knowledge, binary variables are used.) PLANNING-MANDATES, which represents those states mandating planning without a needs-assessment component, is based on Netter (1981) and Duerksen (1983), where no points are awarded to states with no mandates, one-quarter point each is awarded for states with optional or limited comprehensive planning mandate or limited consistency required, and one-quarter point each is awarded for mandated comprehensive planning or required consistency requirement for a maximum of one point. Because all other planning regime variables are binary (0, 1), this procedure assures comparable weighting.

Those states with an oversight mechanism that also include a needs-assessment component as part of mandated planning are noted as GROWTH-MANAGEMENT, which applies only to those states with such mechanisms in place by 1980: Florida, Hawaii, Minnesota (because of its Twin Cities legislation), Oregon, and Vermont. This excludes all other growth management states identified above (see Gail 1992 and Bollens 1992) because they adopted their laws after the S&L crisis began. Most of those states, however, have needs-based EIA requirements.

The EIA process states are divided as discussed earlier into EIA-BASIC and EIA-NEEDS-ASSESSMENT groups.

## **RESULTS AND INTERPRETATIONS**

Table 2 reports ordinary least squares regression results (coefficients represent loss in dollars). The coefficient of determination ( $R^2$ ) is a modest fit

**TABLE 2. Results of Regression: S&L Bailout Losses per New Resident with Respect to Planning Intervention Regime**

Variable (1)	Coefficients (2)
(a) Economic Control Variables	
POPULATION-1980 (log)	4.739 (1.197) <sup>a</sup>
GROWTH	-1.007 <sup>-06</sup> (1.197) <sup>-06</sup>
OIL-PRODUCTION	0.005 (0.006)
(b) Regional Control Variables	
SOUTH	1.120 (2.007)
WEST	2.225 (2.192)
(c) Planning Intervention Variables	
PLANNING-MANDATES	2.327 (3.572)
EIA-BASIC	-0.282 (2.214)
EIA-NEEDS-ASSESSMENT	-3.006 (1.945) <sup>a</sup>
GROWTH-MANAGEMENT	-4.721 (2.912) <sup>a</sup>
CONSTANT	-52.679
(d) Statistical Performance	
$R^2$	0.494
Standard error	5.120
$F$ -score	3.910
Significance of $F$	0.001
Durbin-Watson	2.028
<p>Note: Coefficients in dollars. Standard errors of coefficient estimates in parentheses.  <sup>a</sup><math>p &lt; 0.10</math> one-tailed <math>t</math>-test.</p>	

at 0.49. Refinement of S&L loss data to reflect losses attributable to states rather than headquarter states would probably improve  $R^2$ . The nature of losses, such as from commercial, industrial, primary residential, and resort residential development, may also help. The RTC does not tabulate loss data in those ways. In any event, the  $R^2$  is of reasonable magnitude for studies that associate economic change with respect to experimental variables (see, for example, Blackley 1984; Clark and Murphy 1996). All economic control variables are significant ( $p < 0.10$  of the one-tailed  $t$ -test because directions of association are predicted) and possess the correct signs.

Of primary interest is that EIA-NEEDS-ASSESSMENT and GROWTH-MANAGEMENT variables have the predicted signs and are significant, while the coefficients of PLANNING-MANDATES and EIA-BASIC are not. The coefficient for EIA-NEEDS-ASSESSMENT, -3.006, indicates that the presence of this market intervention regime reduces mean S&L losses by slightly more than 3%. Given that the mean loss per state is \$1.615 billion, this equates to just under \$50 million in fewer S&L losses on average for states with EIA-NEEDS-ASSESSMENT relative to states without. The coefficient for growth management is larger, -4.721, which equates to just over \$75 million in fewer S&L losses on average among growth-management states relative to other states.

The results indicate that states doing a good job of managing development subsidize states that do not. Consider California and Texas. With EIA-NEEDS-ASSESSMENT, California's S&L losses are in the order of magnitude of \$340 million lower than expected without this regime {calculated as expected losses, [S&L losses times (1-0.0306)], less observed S&L losses}.

In contrast, without market intervention regimes, Texas' losses are in the order of magnitude of \$775 million (based on the EIA-needs-assessment coefficient) to \$1.22 billion (based on the growth management coefficient). Because the S&L bailout involved funds provided by all federal taxpayers, and especially considering that California is the nation's largest state in population and economic productivity, it seems logical to conclude that California taxpayers subsidized Texas' losses even though California did a better job of reducing risk (see also Nelson 1995).

## **POLICY CHALLENGE**

At more than \$80 billion, the S&L bailout is the largest disaster financed by American taxpayers. Its magnitude swamps the largest losses ever incurred by taxpayers associated with natural disasters; for example, Hurricane Andrew cost \$30 billion and the Northridge earthquake \$20 billion. Yet losses from financial institutions are different from those of natural disasters. Reducing risk from each requires different solutions. Reducing risk from natural hazards requires locating development away from hazardous landscapes, using construction techniques that can withstand natural events, or both. As this study suggests, reducing financial risk may be accomplished through environmental impact assessment and growth management policies that do a better job of matching development to market need than the status quo.

If the S&L crisis is the only event to be concerned about in the financial world, perhaps there is no need to prepare for the "next" disaster, since there would be no "next" time. This may be a disingenuous argument to avoid meddling with markets. Other forms of losses from financial institutions are more subtle but no less insignificant. During any downturn in the economy, the federal Department of Housing and Urban Development repossesses thousands of homes and floods an already weakened market with foreclosure auctions. One avenue of future research is to extend the analysis reported here to the distribution of HUD foreclosures; if foreclosures vary by the presence of planning intervention regimes, more evidence will be provided on the value of such policies.

An even more subtle but by far larger risk may be the secondary mortgage market and, in particular, the multi-trillion dollar mortgage portfolio of the Federal National Mortgage Association (Fannie Mae). Here, again, analysis of the distribution of foreclosures to determine the extent to which they vary by planning intervention regimes could shed important light on ways in which to reduce risk.

The problem is that, at present, there is no financial incentive for states to unilaterally engage in planning interventions to reduce the risk of financial institution losses; indeed, speculators have great incentive, since they often do not bear the all the losses associated with overbuilding. The federal government could require planning intervention measures designed to protect portfolio values from overbuilding, but this seem unlikely. Perhaps more likely would be financial institutions themselves recognizing that their losses may vary by planning intervention regimes; thus to control losses, premiums, interest rates, or other pricing mechanisms may be tailored by state to reflect the nature of financial risk within each state. This could also be accomplished through the court system by stockholders and bondholders who recognize that financial institutions have a fiduciary responsibility to protect the value of securities through use of pricing mechanisms. If pricing mechanisms are differentiated by states based on planning intervention regimes, states may employ such regimes to regain competitiveness.

In the meantime, with few incentives to protect portfolio values of institutions and every incentive to overbuild, the creed of "beggar-thy-neighbor" among states will surely continue.

## APPENDIX. REFERENCES

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