PROPERTY VALUES AND OREGON MEASURE 37

Exposing the False Premise of Regulation's Harm to Landowners

Georgetown Environmental Law & Policy Institute
Georgetown University Law Center

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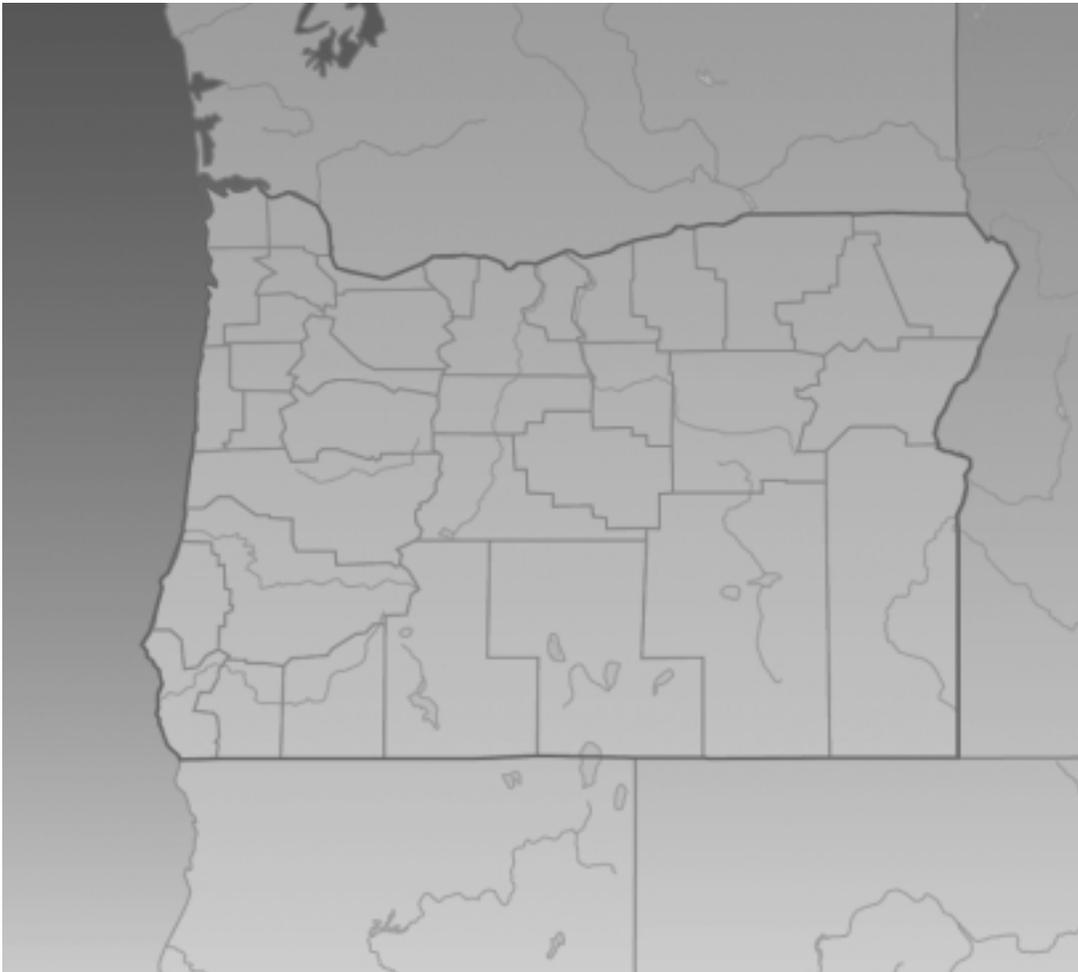
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Executive Summary

This report analyzes how land use regulations – and government programs generally – have affected the value of private real property in Oregon. Its objective is to inform discussion of the issues surrounding the current debate over Measure 37.

Measure 37 was passed in 2004 in response to a claim that Oregon's land use regulations had substantially reduced the value of rural properties across the state. Measure 37 requires government to either "compensate" land owners for the supposed adverse economic effects of regulatory restrictions or waive enforcement of the regulations.

The central premise of Measure 37, that regulatory restrictions on development reduce property values, has not been subjected to rigorous economic and empirical analysis. Economists recognize that regulations can have both positive and negative effects on property values, making it difficult to predict their net effect. If the premise of net negative effects on property values in Oregon is incorrect, Measure 37 is transferring enormous windfalls to owners who may have suffered little or no adverse effect from regulation, or who may have seen their land values rise faster than they would have in the absence of regulation.

Other government actions, such as tax policies favoring agricultural landowners and subsidies for agricultural operators, also affect rural property values. In considering whether government has imposed unfair economic burdens on rural landowners, these government tax and subsidy programs also need to be factored into the equation.

To test the argument that Oregon's land use regulations had serious adverse effects on property values, this project collected and analyzed data on trends in Oregon land values since the adoption of the state's landmark land use program approximately 35 years ago. Our major findings:

● An analysis of trends in land values in several Oregon counties indicates that the establishment of an urban growth boundary, and the adoption of relatively stringent restrictions on development in rural areas, did not have a systematically negative influence on the market values of restricted parcels.

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● A comparison of agricultural land values in several Oregon counties with agricultural land values in several comparable counties in Washington reveals no systematic difference in the rates of property appreciation, despite Oregon's more stringent regulatory regime during most of the period.

● A comparison of statewide agricultural land values in Oregon and neighboring states shows that Oregon experienced a comparable, and generally somewhat higher, rate of appreciation as its neighbors, again despite Oregon's stricter regulation of rural development.

● As much as 14% of current agricultural land values in Oregon represents the capitalized value of the state policy of taxing agricultural lands at a much lower effective rate than other lands. Federal agricultural subsidies also have a positive effect on land values in Oregon, although this effect is difficult to quantify and varies greatly in different parts of the state.

These findings are consistent with many other empirical studies conducted elsewhere in the United States. Most relevant studies conclude that regulatory restrictions on development have little if any adverse effect on property values, especially if the owner is permitted to maintain or construct at least one single family home on the property. Other studies, consistent with these results, have documented the positive effects of state agricultural tax programs and federal subsidies on rural land values.

Prior to the adoption of Measure 37, courts relied upon the established interpretations of the Takings Clauses of the U.S. and Oregon Constitutions to resolve whether landowners subject to regulatory restrictions were entitled to financial compensation. Under the constitutional standard (in contrast to Measure 37), most regulations restricting property use are not regarded as compensable takings. The time-tested constitutional takings standard, as well as the analysis in many leading constitutional takings precedents, better comports with sound economic analysis.

In sum, claims that Oregon's land use program harmed property owners by reducing property values, and that Measure 37 would remedy this alleged unfairness, are

unsupported by economic and empirical evidence. Oregon's land use program has not unfairly burdened property owners. Given this conclusion, Measure 37 is itself deeply flawed as public policy because it confers windfalls on owners eligible to file claims without clear evidence of injury. If economic fairness is an important goal for Oregon's land use program, and we certainly agree that it should be, Measure 37 was a major step backward.

Introduction

Proponents of Oregon's Measure 37 contended that the Oregon land use system had "tremendously negative economic consequences on property owners, especially those in the rural areas."[1] During the debate preceding the 2004 elections, Measure 37 advocate Oregonians in Action asserted that "our planning system lowers the value of private property in Oregon by $5.4 billion a year."[2] Measure 37, adopted by the voters in November 2004, was presented as a remedy to "compensate suffering landowners."[3]

Measure 37 requires state or local governments to pay compensation, or waive the regulation, when land use regulation "restricts the use of private real property . . . and has the effect of reducing the fair market value of the property." The measure requires that compensation be computed based on "the reduction in the fair market value of the affected property interest resulting from enactment or enforcement of the land use regulation as of the date the owner makes written demand for compensation." The measure includes exceptions for regulations (1) restricting "activities commonly and historically recognized as public nuisances under common law," (2) relating to the protection of public health and safety, (3) required to comply with federal law, (4) restricting or prohibiting the use of property for "selling pornography or performing nude dancing," and (5) enacted prior to the date of acquisition of the property by the current owner or an ancestor.

Measure 37 has been interpreted to require payment of compensation – or a waiver – whenever a regulation restricts property development to any degree. The Oregon Attorney General has maintained that "reduction" in property value, and the amount of compensation due, must be determined by estimating how much the current

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[1] David Hunnicut, President of Oregonians in Action, KLCC Radio Eugene, OR (Feb. 25, 2007).

[2] David Hunnicutt, *Measure 37 Brings Balance to Oregon's Land Use System*, LOOKING FORWARD (Oregonians in Action Education Center), Sept.-Oct. 2004, *available at* oia.org/ec.html.

[3] *Talking Points on Measure 37 (Son of 7)*, LOOKING FORWARD (Oregonians in Action Education Center), Sept.-Oct. 2004, *available at* oia.org/ec.html.

market value of the property would increase if a particular regulation were lifted as to the property. To date, the courts have accepted this interpretation.[4] Because any advocate using this approach can make the counterfactual claim that a specific parcel would have a *somewhat* higher value absent a given regulation, virtually every regulatory restriction triggers Measure 37's pay or waive mandate.

In practice, almost every Measure 37 claim has been met not with compensation but by waiving the regulation.[5] The courts have ruled that the state or local governments can waive regulations so long as *some* compensation is due, even if the exact amount has not been calculated.[6] As a result, even though compensation for supposed losses in property values drives the Measure 37 process, thousands of waivers have been issued without any meaningful calculation of what if anything was actually lost.

The purpose of this project is first to examine the premise underlying Measure 37 that Oregon's land use system had a systematic negative effect on private land values, and second to evaluate whether Measure 37 represents an economically sound response to this alleged problem. We conclude that Measure 37 is a flawed and misguided remedy for a problem that did not and does not exist.

The report has four parts. Part I describes the economics of how land use regulations affect private property values, focusing on the positive as well as negative effects. It concludes that it is difficult to predict whether regulations, in conjunction with other government actions, will have a net positive or net negative effect on private property values, and contrasts this view with the theory underlying Measure 37.

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[4] Vanderzanden v. Land Conservation and Development, Case No. 05C19565, Letter Opinion (Or. Cir. Ct. Jan. 8, 2007).

[5] *See* Measure 37 Database, Institute of Portland Metropolitan Studies, Portland State University, *available at* www.pdx.edu/ims/m37database.html.

[6] Vanderzanden v. Land Conservation and Development, Case No. 05C19565, Letter Opinion (Or. Cir. Ct. Jan. 8, 2007).

Part II describes an empirical study of how Oregon land use regulations have affected property values as well as the effects of tax and agricultural policies.[7] This analysis focuses on Oregon's agricultural lands. The centerpiece is an original investigation of land values in Lane, Jackson, and Baker Counties in Oregon, and Lewis and Kittitas Counties in Washington. Data from these counties are used to analyze (1) whether rates of appreciation of land values in Oregon varied with the level of regulation applied to different properties, and (2) whether rates of appreciation of agricultural lands in Oregon counties, where land development has been relatively tightly regulated, varied from rates of appreciation in similar counties in Washington. (The details of this investigation are described in Appendix A to this report.) Department of Agriculture data are used to compare trends in statewide average agricultural land values in Oregon and neighboring states. Finally, estimates are made of the likely effects of the Oregon agricultural tax program and federal farm subsidies on land values.

Part III summarizes the results of other empirical studies conducted around the country examining the effects of land use regulations, agricultural tax programs, and federal agricultural subsidy programs on land values. (A more detailed summary of these studies is presented in Appendix B to this report.) Generally speaking, these studies support the results of our empirical investigation; the majority found that regulatory programs have little if any adverse effect on the value of regulated property and that tax and subsidy programs generally have positive effects on land values.

Finally, Part IV discusses the longstanding constitutional standard for a compensable taking and evaluates that standard in light of the economic principles and empirical evidence presented in this report. We argue that the constitutional takings standard would yield fairer economic results than Measure 37, which is not supported by sound economic analysis or empirical evidence and confers unfair windfalls on particular owners.

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[7] Professors Andrew Plantinga and William Jaeger of Oregon State University collected and took the lead in analyzing the data in this empirical effort. *See* Andrew Plantinga and William Jaeger, *How Have Land Use Regulations Affected Property Values in Oregon?* (Oregon State University 2007).

I.   The Economics of Land Use Regulation and Government "Givings"

Economists recognize that land use regulations have both positive and negative effects on the market value of regulated properties, so that there is no *a priori* reason to believe that the impacts of regulation will be net positive or net negative. A recent assessment of agricultural zoning noted: "Economic theory does not give us a clear answer on whether downzoning should decrease or increase property values."[8] In practice, calculating the actual effects of regulation on land value is a challenging task and the results will depend on the circumstances of each case. Nonetheless, the basic consensus about the effects of various factors on property values can be summarized in straightforward fashion:[9]

Development Effect. Legal restrictions on the permitted uses of land tend to reduce property values by restricting or barring certain development activities that might otherwise be allowed. Netusil and others have called this negative consequence of restrictions the "development effect."[10] If development would produce greater profit (or "rent," in economic jargon) than the land's current use, such as agriculture, a restriction on development should, all else being equal, reduce the property's market value.

Urban economics models indicate that the magnitude of the development effect will vary with the location of the property. As distance from the urban center increases, commuting costs will increase, producing a declining rent gradient.[11] If a property is located far enough away from the urban center, there should be no development effect because returns from agriculture will equal or exceed returns from development. Thus, in

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[8] JEFFREY MICHAEL ET AL., DOWNZONING AND RURAL LAND MARKETS: A REVIEW OF TWO RECENT STUDIES IN MARYLAND AND NEW JERSEY, MCAW Pub. 2006-01 (2006).

[9] *See* Figure 1 for a graphic illustration of the relevant factors and their likely influence on land values.

[10] Noelwah Netusil, *The Effect of Environmental Zoning and Amenities on Property Values: Portland Oregon*, 81 LAND ECON. 227 (2005).

[11] *See* Dennis R. Copozza & Robert W. Helsley, *The Fundamentals of Land Prices and Urban Growth*, 26 J. URB. ECON. 295 (1989).

many rural areas of Oregon, where the market value of land for development purposes does not exceed the value of the land for its agricultural or forestry production, the development effect will be close to zero.

The magnitude of the development effect thus reflects the market value of alternative, non-development uses for the property. Agricultural and forestry production are important determinants of rural land value in Oregon, but other non-development uses may also be important. Some purchasers acquire rural properties in whole or in part for their scenic beauty or the recreational opportunities they provide. In a country of over 300 million people, and a state of 3.6 million whose population more than doubled in the last 40 years, there is a significant market demand for rural land that individuals can privately control and enjoy. As a consequence, the price buyers are willing to pay for certain agricultural and forest lands reflects a premium based on their valuation of private open space and does not necessarily reflect expected returns from agricultural or timber production. The higher a property's private open space value, the less significant the development effect will be.

Over the last several decades, agricultural economists have observed a steady decline in the ratio of land rental rates for agricultural production to agricultural land prices. Stated differently, agricultural land values in the United States are increasingly becoming uncoupled from their value for agricultural production alone. Some economists suggest that this trend reflects the increasing importance of recreation and open space amenities to investors buying rural land.[12]

Willingness to pay a premium based on amenity values will depend in part on whether the owner can maintain or construct a home on the property. Certain economically valuable open space uses, such as hunting, may not directly depend on the presence of a building on the land. However, an investor seeking to purchase land for its scenic, open space or wildlife attributes is likely to look for land on which he or she can have a home.

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[12] Terry L. Kastens & Keven C. Dhuyvetter, *Valuing and Buying U.S. Farm Land, with a Consideration of Non-Ag Features*, a paper prepared for Management, Analysis, and Strategic Thinking (MAST) Program, Ag Profitability Conferences, Kansas State University (Winter 2006-07).

The effect of open space amenities on land values is most pronounced where open space is relatively rare, that is, in urban areas or in close proximity to them. Economist have repeatedly documented that the economic value of the open space amenity, like any economic good, is directly related to its scarcity.[13] Thus, the value of open space amenities may be highest in and near urban areas, where the development effect is most significant. The extent to which open space amenity value may reduce the development effect is an empirical issue that turns on the circumstances of the particular property and community.

Amenity Effect. The development effect may be offset in whole or in part by the amenity effect of regulation, that is, the "positive externalities" (to use economics terms), or "reciprocity of advantage" (to use legal ones), created by regulation.

A comprehensive regulation that restricts what an owner can do with his property also restricts what the owner's neighbors can do with *their* property. For example, a zoning regulation limiting a property owner's ability to construct a quarry on his property may restrict the owner's potential profits and can be viewed as reducing the property's market value. But, the regulation also prevents neighbors from developing a quarry on *their* properties, a land use which could, in turn, reduce surrounding property values. By protecting everyone subject to the restriction from the noise and traffic associated with a quarry, the regulation benefits all owners.

Oregon's regulatory protections for farm and forest lands provide benefits for all Oregonians, including preservation of rural landscapes and protection of important segments of the economy. But rural landowners enjoy special benefits from these regulations that positively affect their property values. Agricultural zoning protects farmers from conflicting neighboring land uses, such as commercial or residential development, which may create traffic congestion or be a source of nuisance

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[13] *See, e.g.*, Paul Cheshire & Stephen. Sheppard, *On the Price of Land and the Value of Amenities*, 62 ECONOMETRICA 247 (1995).

complaints.[14]   Because agriculture requires a critical mass of producers in an area to create economies of scale for input suppliers and processors, measures that maintain a critical mass of agricultural activity help sustain the viability of the agricultural economy and the market value of specific parcels for farm uses.

Legal analysis distinguishes two types of "reciprocity of advantage:" specific and general.[15]   Specific reciprocity refers to the reciprocal benefits that a single regulatory program may confer on those subject to the regulation. For example, all owners within a particular zoning district benefit from the specific reciprocity of advantage created by the zoning ordinance. General reciprocity refers to the broader concept that property owners who are burdened by certain regulations may receive reciprocal benefits from enforcement of other regulations in the community. For example, a landowner burdened by a restriction on flood plain development may be benefited by a law protecting historic landmarks.

As the universe of regulations creating reciprocal benefits expands, it becomes more complicated to determine the net effects of regulatory activity. Even as regulations confer benefits on many members of society, they may burden others. Narrowing the focus to individual regulations makes the cost-benefit calculation easier, but disregarding general reciprocity of advantage and focusing only on the benefits and burdens of specific regulations risks overstating the actual burdens imposed by regulatory activity.

Scarcity Effect. Apart from amenity effects, negative development effects may also be offset by the positive scarcity effect that development restrictions generate. In a given community, comprehensive regulations limit the supply of land that may be developed, increasing the price of preexisting development and future development

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[14]   *See* J. Dixon Essecks & Lela M. Long, *The Political Viability of Agricultural Protection Zoning to Prevent Premature Conversion of Farmland*, PROC. OF CONFERENCE PROTECTING FARMLAND AT THE FRINGE: DO REGULATIONS WORK? (2001).

[15]   Mark Cordes, *Fairness and Farmland Preservation: A Response to Professor Richardson,* 20 J. OF LAND USE & ENVTL. L. 371 (2005).

opportunities.[16] This follows from the elementary economic principle that, given constant demand, a restriction on supply will lead to an increase in price. If a cap is placed on the quantity of land available for development, and demand exceeds the cap at the current price, the price of developable land will rise.

Potential building sites in many areas of Oregon are valuable not only because of Oregon's natural beauty and public efforts to protect the landscape, but also because sites are limited in quantity. Thus, if a property has one or two houses on it, the negative development effect of a regulatory restriction will be offset because the regulation has increased the price of existing houses. Similarly, so long as development restrictions leave an owner some future development opportunities, the negative development effect of restrictions will be offset by the higher value of the owner's remaining development options in the marketplace.

Measure 37 Economics. Measure 37 ignores the many impacts of regulation discussed above, especially amenity and scarcity effects. As noted, Measure 37 reflects the view that virtually every regulatory restriction supports a claim to compensation or a waiver of the restriction. In other words, Measure 37 implicitly accounts only for the negative economic impact of the development effect. By failing to account for positive amenity and scarcity effects, it always triggers an entitlement to compensation – or waiver – even if a regulatory program has produced no net reduction or even increases in private property values.

Stated differently, an award under Measure 37 represents a windfall resulting from a special exemption from the rules and regulations that apply to every other owner in the community.[17] Measure 37 assumes that the claimant is entitled to continue to receive the amenity and scarcity benefits of regulation, but should be relieved of his own obligation to follow the regulation or else be awarded the value of any negative

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[16] Arthur C. Nelson et al., Discussion Paper, *The Link Between Growth Management and Housing Affordability: The Academic Evidence*, Brookings Institution Center on Urban and Metropolitan Policy (2002).

[17] *See* William K. Jaeger, The Effects of Land Use Regulations on Property Values 26 ENVTL LAW 105 (2006).

development effects as compensation, even if the claimant has suffered no net economic loss at all.

As discussed, proponents of Measure 37 claimed that the Oregon land use program "lowers the value of private property in Oregon by $5.4 billion a year," and argued that Measure 37 represented an appropriate way to redress this enormous burden. Where did Measure 37 supporters get this number? How does it relate to the conclusion that Measure 37 actually confers enormous windfalls on land owners?

The $5.4 billion number strains credibility on its face, suggesting that on average the 25 million acres of land in Oregon zoned for agriculture or forestry are reduced in value by $220 per acre per year.[18] Over 25 years, cumulative reductions would total $135 billion, which translates into a cumulative reduction in value of $5500 per acre. This figure exceeds the current average per acre value of agricultural land in each state neighboring Oregon. This suggests that regulations in Oregon have rendered agricultural and forest lands essentially worthless, a conclusion that is plainly contradicted by the robust Oregon land market.

Measure 37 proponents took the $5.4 billion figure from the ballot title prepared by state officials for Measure 7, a property rights measure adopted in November 2000 and subsequently struck down by the Oregon Supreme Court. The ballot title for that measure included an "Estimate of Financial Impact," stating: "Direct costs to the state are estimated to be $1.6 billion per year. Local government direct costs are estimated to be $3.8 billion per year." Measure 37 supporters evidently added these two figures to arrive at $5.4 billion. But this figure was not an estimate of the effect of the land use program on private property values, but of the potential magnitude of the windfall claims that would be generated. Measure 7, like Measure 37, assumed that claimants should be entitled to compensation based on a regulation's development effect, without regard to any offsetting amenity and scarcity effects.[19]

Government Givings. Apart from regulations, many other types of government activities and programs affect property values. One of the contributors to this report

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[18]   *See* Plantinga and Jaeger, supra note 7.

[19]   Unlike Measure 37, Measure 7 did not authorize state or local governments to waive applicable rules and regulations if they were unable or unwilling to pay "compensation."

along with his collaborators concluded that "government action has a pervasive influence on land and property values."[20] They cite, among other things, the effects of federal farm programs, transportation projects, conservation programs, and tax policies on private property values.

For this project, we focused on two programs likely to have a significant influence on rural property values: Oregon's property tax abatement program for agricultural and forest lands and federal agricultural subsidies. As mentioned, Measure 37 proponents argued that the Oregon land use program had "tremendously negative economic consequences on property owners, especially those in the rural areas." Assessing this argument requires consideration, not only of regulatory policies, but of these other government programs as well.

One objection might be that regulation is a discrete government activity with a distinct purpose and that assessing its effect should not be combined with assessing the effects of tax and subsidy programs administered by different agencies (and even levels of government). However, there is a logic to considering the effects of these government programs as a whole. First, property rights advocates argue that landowners should be compensated (or have regulations waived) when land owners bear alleged economic burdens for public benefit, but tax and subsidy programs single out certain property owners to receive publicly financed windfalls. To be consistent, both the costs and the benefits should be counted. Second, tax abatement and subsidy programs can exert a significant positive influence on property values. When a property owner seeks compensation under Measure 37 based on the value the property would have in the absence of the regulation, a portion of the value claimed is actually publicly created. If the government has helped create private property value through tax breaks and subsidies, those "givings" should be taken into account in assessing what if any compensation might be due.

In sum, regulations – and government actions generally – exert a complex mix of positive and negative effects on private property values, making it difficult to determine

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[20] C. Ford Runge et al., Paper, *Government Actions Affecting Land and Property Values: An Empirical Review of Takings and Givings*, Lincoln Institute of Land Policy (1996).

their net effect. Insofar as Measure 37 is based on the premise that regulation invariably reduces property values and that the effects of other government programs should be disregarded, Measure 37 flies in the face of economists' consensus understanding of how regulations and other government actions actually affect land values.

II.   Empirical Results

Data were collected on how the Oregon land use program adopted in the early 1970s and other government actions affected the value of private property. The results are consistent with the expectation that land use regulations will have a mix of positive and negative effects and that even stringent restrictions on development do not necessarily reduce the rate of growth of land values. The evidence provides no support for the premise of Measure 37 that the Oregon land use program systematically reduced property values relative to the values that would have existed in its absence.

The project collected and analyzed Oregon land value data to determine the effect of urban growth boundaries and restrictive zoning on land price levels and trends.[21] First, land value patterns were compared over time in several Oregon counties to determine whether growth in property values for lands with development restrictions differed from that for lands with less stringent restrictions. Second, trends in the value of agricultural lands in several counties in Oregon were compared with those in several comparable counties in Washington to determine whether strict controls on development in Oregon reduced land values compared to Washington, where much more lenient controls applied for most of the study period.

The Effects of Regulations in Lane and Jackson Counties. Data on land values in Oregon's Jackson and Lane Counties were used to evaluate the effects of urban growth boundaries and zoning restrictions. The methodology and results of this analysis are described in greater detail in Appendix A.

Property appreciation rates in Lane and Jackson Counties were tabulated for the 40-year period from immediately prior to the establishment of the land use program to the present. There were 508 observations in Lane County and 164 observations in Jackson County, all involving undeveloped parcels in or around each county's major urban centers. We compared the rate of appreciation of lands inside the current urban growth boundary (UGB) for the City of Eugene in Lane County to that outside, and the rates of appreciation of lands subject to different zoning classifications in both Lane and Jackson Counties.

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[21]   *See* Plantinga and Jaeger, *supra* note 7.

Results indicated that, contrary to the claims of Measure 37 proponents, the adoption of the Oregon land use program did not systematically reduce property values. The value of lands outside the UGB in Lane County actually grew at a slightly faster rate than properties inside the UGB (Appendix A, Figure 2). In addition, there was no association between the adoption of more stringent zoning classifications and lower rates of property appreciation. In Jackson County, the value of relatively restricted Open Space Reserve lands grew faster than the value of lands zoned for rural residential development (Appendix A, Figure 3). In Lane County, lands zoned for exclusive forest use appreciated at a faster rate than lands zoned for intensive residential use (Appendix A, Figure 4).

Overall, lands within the UGB and lands subject to relatively permissive zoning have higher market values today than lands outside the UGB and lands subject to stricter regulations. This is most likely because the former are closer to urban centers than the latter. Lands inside the UGB and those subject to more permissive regulations generally had higher values than other lands *prior* to adoption of the Oregon land use program, strongly suggesting that these higher values are attributable to the lands' locations rather than the regulations. The fact that lands outside the urban growth boundary and lands subject to relatively stringent regulations have consistently had lower values does not alter the fact that they appreciated in value at a faster rate since adoption of the land use program. In Lane County, an investment of $100 in lands outside the urban growth boundary would be worth more than a $100 investment in lands inside the UGB, belying the argument that the Oregon land use program systematically lowered property values.

Oregon/Washington Cross-Border Comparisons. Rates of appreciation of agricultural lands in several Oregon counties were also compared with those of agricultural lands in several comparable counties in Washington. This comparison provided another way of addressing the question of whether the Oregon land use program systematically lowered property values. The methodology and results of this analysis are described in more detail in Appendix A.

Data were collected in five counties, three in Oregon (Lane, Jackson, and Baker) and two in Washington (Lewis and Kittitas). Lane, Jackson, and Lewis Counties are on the west side of the Cascades, and Baker and Kittitas Counties are on the east side,

allowing comparisons over the region's two dominant climactic zones. The counties in Washington were selected on the basis of their similarity to the Oregon counties. The

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The Case of Dorothy English

The conflict between Dorothy English and Multnomah County over the potential development of her property figured prominently in the debate leading up to the adoption of Measure 37. Ms. English was widely perceived as a victim of burdensome regulation. But did Ms. English actually fare so badly?

According to the original real estate contract in the country records, Ms. English and her late husband paid $4,500 for a 40-acre parcel in 1953. Over the years, Ms. English has sold off pieces of the property, for example netting a profit of $27,000 from a sale in 1977, leaving her with approximately twenty acres today. Ignoring the fact that the property has been reduced in size by half, and despite new regulatory restrictions on development, the property is worth much more today than the original purchase price.

The county records indicate that the property has a market value of $462,370 and Ms. English's lawyer claims that the property has a market value of $600,000, even if only one new home could be built. In investment terms (disregarding the profits from selling off half the property), these figures translate into a rate of return of 9.5% and 10.1% per year. By any standard, this represents a healthy return on invested capital, especially since the English family has lived on the land (but also had to pay property taxes each year). In her Measure 37 claim, however, Ms. English contends that the property should be worth $1,750,000, representing a rate of return of 12.4%.

The appreciation in the value of the property is undoubtedly due in part to the amenity and scarcity effects of Oregon's land use program. Where, one wonders, was the unfairness in the Dorothy English case that called for dismantling the Oregon land use program?

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data covered intervals from the mid-1960s or early 1970s (before the implementation of Oregon's land-use planning system) continuing into the early 2000s. The information collected included property value data on over 300 parcels (in different years).

These data revealed that since the early 1970s the rate of property appreciation in Oregon has been similar to the rate of appreciation in comparable counties in Washington. In counties west of the Cascades, where we have the most complete and detailed data, the two Oregon counties studied (Jackson and Lane Counties) have seen increases in land values comparable to, and actually somewhat greater than, the increases experienced in Lewis County, Washington (Appendix A, Figure 5). A similarly congruent pattern was observed for farmland values between Baker County, Oregon, and Kittitas County, Washington, on the east side of the Cascades (Appendix A, Figure 6). Once more, the data do not support the premise of Measure 37 that Oregon's land use program has systematically lowered property values.

Trends in Agricultural Land Values. A data set of agricultural land values in the United States maintained by the Economic Research Service of the U.S. Department of Agriculture provided yet another way to assess whether the relatively strict agricultural zoning in Oregon reduced property values.[22] The rate of appreciation in average per acre agricultural land values in Oregon was compared with that of Washington, Idaho, and California, and the United States as a whole. The data covered the period from 1965, prior to the adoption Oregon's land use program, through 2005. The objective of this comparison was to estimate how, on average, an investment in agricultural land in Oregon would have fared relative to an investment in agricultural land in the other states. The goal was to determine whether these data provide any evidence that adoption and implementation of the Oregon land use program influenced the rate of property appreciation in Oregon. If the Oregon land use program had "tremendously negative economic consequences" for land owners, one would expect that property values in Oregon would have appreciated more slowly than in other states without the same level of land use regulation.

The results of these comparisons are presented in Table 1 and Figures 2 and 3. Table 1 provides the average per acre value (not adjusted for inflation) of agricultural

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[22] The database can be found at www.ers.usda.gov/data.

lands, in five year increments from 1965 to 2005, in Oregon, states neighboring Oregon, several other select states, and the United States as a whole. Figure 2 displays data for Oregon, states neighboring Oregon, and the United States as a whole, over this 40-year period. Figure 3 displays the same information from a common initial starting point. These data show that agricultural land values in Oregon and in neighboring states (California, Idaho, and Washington) appreciated at roughly comparable rates (6.11% to 6.63%) during this period. Agricultural land values in Oregon appreciated at a somewhat faster rate (6.35%) than agricultural land values in the neighboring states of California (6.14%) or Washington (6.11%), or the United States as a whole (6.23%), while the rate of appreciation in Oregon was slightly below the rate of appreciation in Idaho (6.63%). By contrast, during this same period, agricultural property rates in some other states appreciated at a significantly slower rate (e.g., Kansas, 4.85%) or at a significantly faster rate (e.g., Massachusetts, 8.56%).

These data demonstrate that from 1965 to 2005, Oregon agricultural land owners did not suffer uniquely large losses in property values relative to agricultural land owners in surrounding states. An investment of $100 in Oregon farm land in 1965 would have fared as well, and usually better, than a similar investment in farmland in all neighboring states. These data contradict the argument that adoption and implementation of Oregon's distinctive land use program caused a comparative reduction in the rate of increase of agricultural land values.

Government Tax Benefits and Subsidies. Finally, data were analyzed relating to Oregon tax policies for agricultural and forest lands and federal agricultural subsidies. Economic analysis describes land values as a reflection of a discounted stream of economic benefits, whether cost reductions (e.g., lower taxes) or enhanced income (e.g., cash subsidies). These benefits are "capitalized" into the value of the property. An assessment of how government has affected property values is incomplete and arguably misleading if it focuses solely on how regulatory restrictions affect property values without also considering the effects of governmental "givings."[23]

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[23] *See* Runge, *supra* note 20.

Taxes. In the early 1970s the Oregon legislature enacted legislation linking tax reductions for owners of agricultural land with farm zoning restrictions. Richmond and Houchen, writing for the American Land Institute (ALI), concluded that as a result of this program farm and forest land owners received property tax reductions totaling $4.8 billion in today's dollars between 1974 and 2004.[24] Of this, $3.8 billion was received by agricultural land owners and $1.0 billion by forest land owners. While costly to taxpayers, the program enjoys wide public support as a land protection tool and is likely to remain in place for the foreseeable future.

The potential positive effect of Oregon's preferential assessment program on agricultural land values was estimated using data from the American Land Institute study (Table 2). The average annual benefit conferred on agricultural land owners was used to estimate the proportion of current market value attributable to this program. One complexity is introduced into these calculations by the fact that, as a result of the adoption of Measure 50 in the mid 1990s, no category of real property in Oregon is currently assessed at its full market value for tax purposes. Thus, to calculate the potential effect of the tax policy favoring agricultural land owners, it is necessary to estimate the *incremental* reduction in assessed valuation of agricultural lands relative to the reduced valuation of all lands in the state. Fortunately for our purposes, the ALI study provides figures on the current special valuation of agricultural lands and an estimate of the valuation that would be assigned to these lands if they did not receive the special agricultural assessment but remained subject to Measure 50 limitations.

The total specially assessed value of farmland in the state was subtracted from the estimated total value of these lands if they were subject to Measure 50 but not specially assessed as farmland. This was converted to a per acre figure and multiplied by the current rural tax rate, yielding an estimate of the average annual tax benefit per acre of agricultural land. Using a 4% discount rate, the result was compared to an estimate of the current fair market value of agricultural lands to estimate the percentage of current

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[24] Henry R. Richmond & Timothy G. Houchen, Oregon's Public Investment in Conservation, Prosperity and Fairness: Reduced Taxation of Farm Land and Forest Land 1974-2004 at Table 3 (The American Land Institute 2007), *available at* www.oregonpublicinvestment.com.

market value attributable to the preferential assessment program. These calculations show that, on an average statewide basis, the tax program could account for up to 14% of the total market value of specially assessed agricultural lands. As Table 2 shows, the calculated benefits of the special assessment program vary somewhat from county to county.

A lack of detailed data on forest land values makes it impossible to generate a similar estimate of the portion of forest land values in Oregon potentially attributable to favorable tax treatment. However, it is reasonable to conclude that a significant portion of private forest land values is similarly attributable to Oregon's preferential tax policies for rural landowners.

Agricultural Subsidies. Farm subsidies paid to agricultural producers also appear to have positive effects on agricultural land values, although the effects are apparently more modest than those of the special tax assessment for agricultural lands. Economic studies generally conclude that a portion of farm subsidies is capitalized into agricultural land values.[25] In locations where subsidies have historically been substantial, such as parts of the Midwest, economists have found that agricultural subsidies account for up to 50% of land value. By contrast, in places like Oregon where subsidies are less significant, the effect on land values is more modest. A comprehensive study of the share of land values attributable to agricultural subsidies in the United States concluded, based on data from 1994-96, that, depending on location, between 0% and 14% of farmland value in Oregon was attributable to agricultural subsidies.[26]

From 1995 to 2005, commodity subsidies in Oregon totaled $628 million (in 2002 dollars). During this same period, agricultural producers in Oregon received approximately $433 million (in 2002 dollars) in conservation and disaster relief payments from the federal government. Two-thirds of Oregon farm commodity subsidy payments were made in six counties (Umatilla, Morrow, Sherman, Malheur, Wasco, and Gilliam).

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[25] *See, e .g.*, Charles Barnard et al., *Higher Cropland Value from Farm Payments: Who Gains?*, AGRIC. OUTLOOK, Nov. 2001, at 26.

[26] *Id.*

Based on county-level data collected by the U.S. Department of Agriculture, using a discount rate of 4%, the capitalized value of the commodity programs in Oregon varies from 62% in Sherman County to less than 5% in 25 other counties (Table 3). Statewide, the average share of land value attributable to commodity programs is as high as 7%. These are upper limit estimates; subsidies may not be fully capitalized into land values because of uncertainties about future subsidy levels.

In sum, the empirical evidence collected in this project provides no support for the argument that Oregon's land use program systematically reduced property values and the data on Oregon's tax program and federal agricultural subsidies suggest that these programs likely had significant positive effects on rural land values.

III. Other Empirical Studies on How Government Actions Affect Property Values

To test the validity of our economic analysis of the potential effects of land use regulations and other government actions on land values, and of the empirical results outlined above, we conducted an extensive review of prior studies examining how regulations and other government programs affect property values. The studies reviewed examine the economic effects of (1) regulatory programs generally, (2) regulatory programs in Oregon, (3) tax abatement programs designed to preserve agricultural lands, and (4) farm subsidy programs. More detailed summaries of the studies are included in Appendix B. In a nutshell, these studies support the views that (1) regulatory restrictions have a mix of negative and positive effects on the value of regulated lands, such that the net effect on value is frequently neutral or positive, and (2) tax benefit and subsidy programs positively influence the value of property owned by the beneficiaries of these programs.

Effects of Land Use Restrictions. Numerous empirical studies have examined whether legal restrictions on the use of land adversely affect land values. As discussed, economic theory suggests that regulations have a complex set of effects which are often difficult to predict. The majority of studies concluded that land use restrictions have little if any adverse impact on property values.

Several studies examining land regulations designed to preserve open space and other environmental amenities provide evidence that these restrictions can positively affect property values. A study of the effects of the New Jersey Pinelands Protection Act concluded that parcels in even the most strictly regulated areas of the Pinelands region had higher market values than comparable areas outside the region.[27] Consistent with the predicted scarcity effect when development opportunities are limited, previously improved properties within the Pinelands region increased in value significantly following the law's enactment. A study of lakefront property values in northern Wisconsin concluded that stricter limits on the density of development were associated

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[27] W. Patrick Beaton, *The Impact of Regional Land-Use Controls on Property Values: The Case of the New Jersey Pinelands*, 67 LAND ECON. 172 (199).

with higher land values.[28] A study of Maryland's Chesapeake Bay protective legislation found that, during the initial years of the law's implementation, there were no discernible net adverse effects on property values.[29]

Studies of the effects of legal restrictions on development of agricultural lands show mixed results. Agricultural land in Wisconsin subject to agricultural zoning had higher land values in the case of larger parcels at some distance from the urban center, while zoning was associated with lower property values in the case of smaller parcels relatively close to the urban center.[30] Studies of agricultural zoning in rural Maryland counties found that the restrictions had no discernible impact on property values.[31] An older study of agricultural zoning in Brooklyn Park, Minnesota found a strong association between agricultural zoning and lower property values in the near suburbs of Minneapolis.[32]

Two relatively recent studies, one in Maryland and another in New Jersey, reached quite different conclusions about the effects of agricultural zoning on property values, suggesting the difficulty of measuring how a regulation affects land values. The Maryland study concluded that agricultural zoning resulted in either higher values for the properties or no discernible effect. The New Jersey study concluded that agricultural zoning significantly reduced property values. Unlike most other studies of this type, the

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[28] Fiorenza Spalatro & Bill Provencher, *An Analysis of Minimum Frontage Zoning to Preserve Lakefront Amenities*, 77 Land Econ. 469 (2001).

[29] W. Patrick Beaton & Marcus Pollock, *Economic Impact of Growth Management Policies Surrounding the Chesapeake Bay*, 68 LAND ECON. 434 (1992).

[30] David M Henneberry & Richard L. Barrows, *Land Capitalization of Exclusive Agricultural Zoning into Farmland Prices*, 66 LAND ECON. 249(1990).

[31] APPLIED DATA RESOURCES, INC., ON BEHALF OF THE MARYLAND ENVIRONMENTAL TRUST, REPORT TO THE VALLEY'S PLANNING COUNCIL ON THE TRADING VALUE OF RC-2 ZONED LAND COMPARED WITH RC-4 ZONED LAND IN NORTHERN BALTIMORE COUNTY (1996); *see also* ROBERT J. GRAY ET AL., RESOURCE MANAGEMENT CONSULTANTS, INC., THE EFFECTS OF AGRICULTURAL ZONING ON THE VALUE OF FARMLAND (1991).

[32] Michael E. Gleeson, *Effects of an Urban Growth Management System on Land Values*, 55 LAND ECON. 350 (1979).

New Jersey study relied on appraisers' estimates of land values, rather than actual price data based on sales. Its authors cautioned that "the results of this study [should] not be extrapolated to areas outside the State of New Jersey," and that "results of studies from around the United States [should not] be applied to locations within New Jersey." A panel of academic experts produced a report in the summer of 2006 critiquing both studies, concluding that the research methods employed in neither adequately supported their conclusions.[33]

Several recent studies on the effects of conservation easements on the value of agricultural and other undeveloped properties suggest that property values will vary depending on whether the owner has, or can construct, a home on the property. Studies of the effects of conservation easements in Wisconsin and Maryland concluded that easement restrictions had no statistically significant adverse effects on property values.[34] These results might reflect a balance between the negative effect of development restrictions and the positive value investors attach to open space amenities. This appears to be supported by a breakdown of the data showing that easement restrictions barring all development were associated with lower property values but that easement restrictions that allowed for some improvements, such as a home, had no discernible adverse effect.

Oregon Studies. Since the enactment of the Oregon land use program in the early 1970s, several studies have examined the impact of urban growth boundaries (UGBs) on land values. Nelson conducted much of the original work in this area in the 1980s. He hypothesized that an urban containment policy should "increase the demand for urban land, reduce the demand for rural land and segment the urban fringe market into urban and rural submarkets."[35] In other words, a UGB would create a discontinuity in land

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[33] Michael et al., *supra* note 8.

[34] Kathryn Anderson & David Weinhold, *Do Conservation Easements Reduce Land Prices? The Case of South Central Wisconsin*, University of Wisconsin-Madison, Department of Agricultural & Applied Economics, Staff Paper No. 484 (June 2005).

[35] Arthur C. Nelson, *An Empirical Note on How Regional Urban Containment Policy Influences on Interaction Between Green Belt and Exurban Land Markets*, APA J., Spr. 1998, at 178.

values at the boundary, with relatively higher land prices inside the boundary and relatively lower prices outside it.

In a study comparing land prices inside and outside the UGB for Salem, Oregon, Nelson concluded that the relatively higher values inside the UGB were attributable to the establishment of the boundary.[36] A similar study by Knapp, also conducted in the 1980s, examined land prices in Washington and Clackmas Counties, and similarly concluded that differences in land values inside and outside the UGB were statistically significant.[37]

While these studies can be read to support the hypothesis that UGBs cause a differential in land prices, they do not appear to consider the reverse: that the urban growth boundary was drawn in a way that included higher value lands and excluded lower value lands. The data used in these studies come from property sales that occurred shortly (between one and four years) after the establishment of the UGBs. If the UGBs were drawn to include land with high development values and exclude land with low values, one would expect to find the same correspondence between property prices and locations relative to the UGBs. As discussed, our empirical investigation found that land values inside the UGB were higher than land values outside the UGB, but all or most of that difference was attributable to the distance of the different parcels from the urban center.

Even if the UGB caused the price differential as assumed by the authors, these studies do not answer the question of whether the establishment of a UGB caused a reduction in property values outside the UGB, an increase in property values inside the UGB, or some of both. A price differential simply reveals a difference in *relative* prices, not which land prices have gone up or down. In economic terms, the answer to the question whether a UGB caused prices inside the UGB to rise or prices outside the UGB to fall would depend on the shape of the demand curve for the permitted land uses inside and outside the UGB, that is, how rapidly the price of land increases (or decreases) as the

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[36] *Id.*

[37] Gerrit J. Knapp, *The Price Effects of Urban Growth Boundaries in Metropolitan Portland, Oregon*, 61 LAND ECON. 26 (1985).

quantity of land available for a given use is expanded (or contracted) through regulatory policies.[38]

  <u>Tax Abatement Programs</u>. Economists have long recognized as a matter of theory, and confirmed as a matter of fact, that taxation levels affect the market price of real property. In other words, taxation levels are "capitalized" into the value of the land. All else equal, the lower the current and expected future level of taxation, the higher property values will be; conversely, the higher the current and expected future level of taxation, the lower property values will be.

  The handful of existing empirical studies on agricultural tax abatement programs has found that these programs positively affect property values. Not surprisingly, however, given the wide diversity in the design of different state programs, these studies vary widely in their findings. [39] For example, a study of the Michigan program concluded that slightly less than 10% of the total agricultural land value in the state was attributable to the tax abatement program.[40] And a study of the Illinois program concluded that it contributed approximately $1,000 to the capitalized per acre value of the property for agricultural rental.[41] On the other hand, a study in New York found a positive association between participation in the tax abatement program and higher property values, but the relationship was not statistically significant.[42]

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[38] William K. Jaeger, *The Effects of Land Use Regulations on Property Values*, 26 ENVTL. L. 105 (2006).

[39] Arthur C. Nelson, *Farmland Preservation Policies: What Works, What Doesn't and What We Don't Know*, PROC. OF CONFERENCE ON THE PERFORMANCE OF STATE PROGRAMS FOR FARMLAND RETENTION (Sept. 10-11, 1998).

[40] John E. Anderson & Howard C. Bunch, *Agricultural Property Tax Relief: Tax Credits, Tax Rates, and Land Values*, 65 LAND ECON. 13 (1989).

[41] David L Chicone et al., *The Effects of Farm Property Tax Relief Programs on Farm Financial Conditions*, 58 LAND ECON. 516 (1982).

[42] Donald Vitaliano & Constance Hill, *Agricultural Districts and Farmland Prices*, 8 J. REAL EST. FIN. & ECON. 213 (1994).

Agricultural Subsidy Programs. Just as tax abatement programs have increased property values, federal farm programs have had a major positive effect on agricultural land values. Between 1995 and 2005, the federal government paid out $164.7 billion in subsidies to farmers and ranchers across the county.[43] Nearly $130 billion in payments were provided under various commodity programs, with the remainder paid under conservation and disaster assistance programs.

It is generally recognized that this stream of federal financial assistance has had a positive influence on property values. Because federal financial assistance for the agricultural sector has been in place for six decades, investors in farm land have come to expect continuation of the programs in some form, allowing the benefits to be capitalized into land values. These payments have increased at a dramatic rate; the U.S. Department of Agriculture reported that direct government payments to farmers represented 40% of net cash farm income in 2000, up from 4% in 1989.[44]

Numerous empirical studies have documented the significant positive influence of farm payment programs on land values. These studies note that the level of payments varies greatly across the country, and that the effects on land values also vary. The U.S. Department of Agriculture's Economic Research Service concluded that approximately 20% of the total $312 billion in agricultural land value in 2001 was attributable to the capitalized value of farm subsidy programs.[45] An earlier study by USDA economists concluded that up to 50% of agricultural property value in certain areas of the country, including the Corn Belt and select areas in the south, was attributable to subsidy programs.[46] While a number of farmers and ranchers in Oregon receive significant federal subsidies, Oregon is not one of the leading states in terms of agricultural payments. The USDA study concluded that between 8% and 14% of agricultural land

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[43] *See* Environmental Working Group subsidy database, *available at* www.ewg.org.

[44] Barnard et al., *supra* note 25.

[45] *Id.*

[46] Charles H. Barnard et al., *Evidence of Capitalization of Direct Government Payments into U.S. Cropland Values*, 79 AMER. J. AGR. ECON. 1642 (1997).

value was attributable to government payments in parts of the Willamette Valley, in areas in the northeastern corner of the state, and in other scattered parts of Oregon.

In sum, studies conducted across the country support the conclusions that regulatory restrictions do not necessarily reduce property values and that preferential tax programs and federal agricultural subsidies significantly increase property values.

IV. Economic Fairness in Constitutional Jurisprudence

Oregon's Measure 37 adopts a compensation standard radically different from the takings standard developed by the U.S. and the Oregon Supreme Courts under the federal and state constitutions. Measure 37 equates virtually any regulatory restriction with a diminution in current market value, entitling the claimant to financial compensation or a waiver of the regulation. In contrast, both the U.S. and the Oregon Supreme Courts have ruled that a regulation will rarely be deemed a constitutional taking. Unlike Measure 37, which grants landowners relief without requiring a proven harm, the time-tested constitutional takings standard provides fair redress of documented harm to landowners.

Economic fairness has been a central consideration in the development of constitutional takings jurisprudence. The U.S. Supreme Court, in *Armstrong v. United States*,[47] stated that the Takings Clause of the Fifth Amendment is "designed to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole." In attempting to achieve fairness, the courts have embraced many of the important economic principles discussed in this report, and implicitly rejected the misguided economic thinking underlying Measure 37.

Positive and Negative Effects. First, courts have recognized that regulations tend to have both positive and negative effects on land values, making it difficult to predict the net effect of regulatory restrictions. In *Tahoe Sierra Preservation Council, Inc v. Tahoe Regional Planning Agency*,[48] the Court rejected a takings claim based on a temporary moratorium on development in the Lake Tahoe basin, stating: "Land-use regulations are ubiquitous and most of them impact property values in some tangential way – often in completely unanticipated ways." Although the moratorium restricted profitable building, the Court observed that the restriction could well produce a benefit for all property owners subject to the moratorium. Pointing to the moratorium's amenity effect, the Court observed, "an increase [in property values] makes sense in this context because

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[47] 364 U.S. 40, 49 (1960).

[48] 535 U.S. 302, 342 (2002).

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property values throughout the Basin can be expected to reflect the added assurance that Lake Tahoe will remain in its pristine state."

The Oregon Supreme Court made the same point in the case of *Coast Range Conifers, LLC v. State ex rel. Oregon State Board of Forestry*,[49] rejecting a takings challenge to forestry regulations that barred tree harvesting immediately adjacent to an active bald eagle nest. The court reasoned that "regulations may, depending on a myriad of economic and other factors, increase or decrease the affected property's value."[50]

Reciprocity of Advantage. The courts also have recognized that regulations produce a reciprocity of advantage that mitigates the apparent burden imposed by regulatory restrictions. In *Keystone Bituminous Coal Ass'n v. DeBenedictis*,[51] the U.S. Supreme Court declared, "While each of us is burdened somewhat by [land use] restrictions, we, in turn, benefit greatly from the restrictions that are placed on others." In *Agins v. City of Tiburon*,[52] the Court rejected a takings challenge to a zoning regulation, relying heavily on the concept of reciprocity of advantage. In perhaps its clearest articulation of this concept, the Court said,

> There is no indication that the [plaintiffs'] 5-acre tract is the only property affected by the ordinance. [The plaintiffs] therefore will share with other owners the benefits and burdens of the city's exercise of its police power. In assessing the fairness of the zoning ordinances, these benefits must be considered along with any diminution in value that the [plaintiffs] might suffer.[53]

In *Tahoe-Sierra*, the Court also invoked the concept of reciprocity of advantage in rejecting the takings claim based on the development moratorium.[54]

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[49] 117 P.3d 990 (2005).

[50] *Id.* at 997 n.14.

[51] 480 U.S. 470, 491 (1987).

[52] 447 U.S. 255 (1980).

[53] *Id.* at 262.

[54] 535 U.S. at 341.

While the foregoing decisions all involved "specific" reciprocity of advantage, the courts have also embraced the concept of "general" reciprocity. The California Supreme Court invoked it in denying a takings challenge to a municipal regulation designed to preserve low-income housing opportunities, rejecting plaintiff's argument that reciprocal advantage was irrelevant because the owner would not receive a direct benefit from the housing regulation. The court stated:

> [T]he necessary reciprocity of advantage lies not in a precise balance of burdens and benefits accruing to property from a single law, or in an exact equality of burdens among all property owners, but in the interlocking system of benefits, economic and noneconomic, that all the participants in a democratic society may expect to receive, each also being called upon from time to time to sacrifice some advantage, economic or noneconomic, for the common good.[55]

The U.S. Supreme Court endorsed the concept of general reciprocity of advantage in *Kirby Forest Industries v. United States*,[56] ruling that regulatory burdens must be born "as concomitants of 'the advantage of living and doing business in a civilized community.'" In *Keystone Bituminous Coal Ass'n v. DeBenedictis*,[57] the Court also stated:

> The Takings Clause has never been read to require the States or the courts to calculate whether a specific individual has suffered burdens . . . in excess of the benefits received. Not every individual gets a full dollar return in benefits for the taxes he or she pays; yet, no one suggests that an individual has a right to compensation for the difference between taxes paid and the dollar value of benefits received.

The High Threshold for a Taking. The courts have also insisted that a regulatory takings claim can only succeed in "extreme circumstances."[58] The U.S. Supreme Court has said that a claim will succeed only when the loss in value due to a restriction is the

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[55] San Remo Hotel L.P. v. City & County of San Francisco, 27 Cal.4th 643, 675-76 (Cal. 2002).

[56] 467 U.S. 1, 14 (1984) (quoting Andrus v. Allard, 444 U.S. 51, 67 (1979)).

[57] 480 U.S. 470, 492 n.21 (1987).

[58] U.S. v. Riverside Bayview Homes, Inc., 474 U.S. 121,126 (1985).

"functional equivalent" of an outright government seizure of private property.[59]
Similarly, the Oregon Supreme Court stated that a regulatory taking occurs only when it
"den[ies] an owner the ability to put his or her property to any economically viable
use."[60] These demanding tests might be viewed as providing limited constitutional
protection for private property, but in fact they are consistent with sound economic
analysis and produce economically fair results.

Litigants and judges approach a takings claim by calculating the difference
between the value of the claimant's property subject to the regulation and the value the
property would have if the regulation were lifted from that property. Appraisers perform
this with-and-without calculation relatively easily. However, this calculation does not
directly measure the actual burden (if any) imposed by a regulation, because it fails to
capture the amenity and scarcity effects that regulated property owners receive. In other
words, this inherently skewed calculation allows the claimant to continue to receive the
benefits of others' compliance with a regulation while he alone receives an exemption
from the restrictions.

Courts use the with-and-without calculation not because it is accurate but because
it is easy to perform. To calculate the actual effect of a regulation in an economically
rigorous fashion would require estimating the effect not merely of lifting the regulation
from the claimant's property but of eliminating the law altogether. Using this approach,
it would be possible, at least in theory, to factor in both the positive and negative effects
of regulatory restrictions. However, this type of calculation is prohibitively challenging
and, in the context of an individual regulatory takings dispute, completely impractical for
the courts to perform.

Thus, using the traditional with-and-without technique for evaluating alleged
economic losses, absent a very severe *apparent* loss in current value, the courts cannot be
confident that a regulation has imposed *any actual* burden on the claimant. If the courts
were to find constitutional violations based on relatively modest showings of apparent

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[59] Lingle v. Chevron U.S.A. Inc., 544 U.S. 528, 539 (2005).

[60] Coast Range Conifers, LLC v. State, 117 P.3d 990 (2005).

loss in value, they would confer unfair windfalls on undeserving claimants at great public expense. Judge Henry Saad, a prominent Michigan appellate judge, explained this point in a decision overturning a takings award based on state wetlands regulations. The judge stated:

> [W]ere we to uphold the trial court's award we would, in effect, single out plaintiffs to their benefit, because compensating plaintiffs for the loss of value of their property, especially when it has a significant amount of value and development potential remaining, would be tantamount to making the plaintiffs exempt from the regulation . . . to the detriment of others who bear the burden of . . . regulations throughout the state.[61]

In summary, the constitutional takings standard is based on a recognition that regulations have a mix of positive and negative effects on land value, involve specific and general reciprocity of advantage, and require a high threshold to merit compensation. In contrast, Measure 37 is based on the incorrect premise that the effects of regulation are invariably negative, ignores reciprocity of advantage, and has no threshold to trigger compensation or a waiver. The courts have recognized that awarding compensation based on any apparent diminution in value due to regulation would produce unfair windfalls rather than provide compensation for actual losses. In contrast, Measure 37's expansive compensation requirement demands windfall payments, or waivers, weakening the entire regulatory fabric.

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[61] K & K Construction, Inc. v. Department of Environmental Quality, 705 N.W.2d 365, 386 (Mich.Ct.App. 2005).

Conclusion

Proponents of Measure 37 claimed that the Oregon land use program had caused "tremendous" reductions in private property values and that this measure was the appropriate remedy. Relying on original and existing data, and using a variety of different measures, we find no evidence to support this premise. Also, as a result of Oregon's tax policies and federal agricultural subsidy programs, rural landowners in Oregon have been the beneficiaries of significant governmental "givings" that have a positive countervailing influence on land values. These results are consistent with economic analysis of how land use regulations and other government actions affect private property values and empirical research conducted elsewhere in the United States. Measure 37 was based on an inaccurate economic premise and provides a remedy, either in the form of compensation or regulatory relief, that confers a windfall on owners who may have suffered no loss in value or who may even have seen their land values rise due to regulation. This information will hopefully be of assistance to the citizens of Oregon and public officials in defining a sensible path forward on land use policy.

Table 1. Average Agricultural Land Values in Oregon and Selected Other States

(1965-2005) (nominal dollars)

	1965	1970	1975	1980	1985	1990	1995	2000	2005	Average Annual Increase in Value
Oregon	$115	$150	$250	$587	$615	$573	$844	$1,050	$1,350	6.35%
California	$469	$479	$653	$1,424	$1,841	$1,884	$2,220	$3,000	$5,090	6.14%
Idaho	$134	$177	$339	$698	$739	$658	$840	$1,150	$1,750	6.63%
Washington	$154	$224	$350	$736	$943	$821	$1,070	$1,250	$1,650	6.11%
Kansas	$123	$159	$296	$587	$488	$450	$535	$625	$850	4.95%
Massachusetts	$393	$565	$961	$1,608	$2,377	$4,227	$5,060	$6,500	$10,500	8.56%
U.S. Average	$147	$196	$340	$737	$713	$683	$844	$1,090	$1,650	6.23%

Source: Economic Research Service, U.S. Department of Agriculture (www.ers.usda.gov/data)

Table 2. Specially Assessed Farmland Tax Reductions and Their Estimated Effects on Market Land Value

	Taxable Assessed Value of Farmland	Assessed Value Without Special Assessment*	Effective Tax Reduction	Rural Tax Rate	Average Market Value Per Acre	Potential Share of Land Value Due to Tax Reduction**
Baker	$51,225,651	$231,705,980	77.9%	1.08%	$408	13.8%
Benton	$64,585,447	$222,655,051	71.0%	1.28%	$4,386	10.9%
Clackamas	$81,326,672	$923,318,491	91.2%	1.36%	$10,638	20.4%
Clatsop	$3,974,445	$45,375,592	91.2%	1.12%	$4,643	15.3%
Columbia	$9,906,850	$68,063,388	85.4%	1.10%	$3,589	10.1%
Coos	$25,316,902	$62,281,708	59.4%	1.15%	$2,826	5.1%
Crook	$35,516,630	$143,878,647	75.3%	1.27%	$267	16.8%
Curry	$17,370,810	$86,250,600	79.9%	0.77%	$2,941	10.4%
Deschutes	$14,951,192	$165,555,417	91.0%	1.31%	$3,787	7.8%
Douglas	$45,168,354	$271,087,245	83.3%	0.90%	$1,729	9.9%
Gilliam	$65,539,275	$118,830,174	44.8%	1.21%	$181	12.8%
Grant	$23,936,828	$159,492,892	85.0%	1.39%	$276	19.0%
Harney	$58,389,839	$174,607,581	66.6%	1.15%	$228	10.1%
Hood	$44,009,806	$108,768,254	59.5%	1.14%	$9,889	8.0%
Jackson	$24,230,283	$281,873,975	91.4%	1.21%	$3,174	11.8%
Jefferson	$36,749,730	$133,604,637	72.5%	1.56%	$685	12.6%
Josephine	$11,691,280	$89,889,232	87.0%	0.70%	$4,039	14.6%
Klamath	$110,309,145	$289,567,951	61.9%	0.96%	$875	8.3%
Lake	$64,474,066	$244,926,037	73.7%	1.28%	$425	17.9%
Lane	$71,753,384	$214,899,323	66.6%	1.04%	$4,128	5.4%
Lincoln	$3,959,840	$57,667,495	93.1%	1.10%	$3,578	29.2%
Linn	$162,529,282	$607,552,794	73.2%	1.19%	$1,310	28.3%
Malheur	$120,351,330	$415,357,672	71.0%	1.13%	$418	15.2%
Marion	$206,266,590	$1,051,601,738	80.4%	1.17%	$6,791	12.4%
Morrow	$78,981,710	$269,609,272	70.7%	1.46%	$286	24.4%
Multnomah	$85,427,130	$160,993,497	46.9%	1.22%	$10,643	7.5%
Polk	$94,008,233	$363,636,703	74.1%	1.04%	$3,387	11.9%
Sherman	$55,497,160	$115,584,740	52.0%	1.69%	$323	17.3%
Tillamook	$24,108,883	$87,718,078	72.5%	0.98%	$3,792	12.9%
Umatilla	$227,026,715	$627,049,031	63.8%	1.29%	$502	19.3%
Union	$53,201,581	$190,968,626	72.1%	1.01%	$525	13.4%
Wallowa	$32,205,990	$252,779,558	87.3%	1.20%	$451	22.4%
Wasco	$94,021,650	$188,454,408	50.1%	1.41%	$400	10.8%
Washington	$70,859,630	$837,158,870	91.5%	1.46%	$10,649	21.6%
Wheeler	$20,891,193	$81,043,043	74.2%	1.53%	$287	12.3%
Yamhill	$63,043,308	$404,820,442	84.4%	1.26%	$5,474	12.8%
Oregon	$2,252,806,814	$9,766,506,878	76.9%	1.21%	$1,027	14.2%

Source: 2003-2004 tax data reported in Richmond and Houchen (2007).

* Estimate of market value subject to Measure 50 limits on annual growth of property assessed values.

** When annual tax reduction benefits are capitalized into land value at 4 percent real interest rate; uncertainty about the continuation of these programs and other factors may result in smaller effects.

Table 3. Value of Agricultural Subsides as Component of Market Value of Oregon Agricultural Lands

(2002 dollars)

	Average Annual Commodity Subsidy	Acres of Agricultural Land	Subsidy/Acre	Capitalized Value of Subsidy/Acre	Market Value of Agricultural Land/Acre	Potential Share of Land Value Due to Subsidy
Baker	$722,715	869,523	$0.83	$20.78	$546	3.81%
Benton	$523,724	130,203	$4.02	$100.56	$3,854	2.61%
Clackamas	$345,074	215,210	$1.60	$40.09	$9,600	0.42%
Clatsop	$45,329	22,234	$2.04	$50.97	$2,776	1.84%
Columbia	$35,062	62,398	$0.56	$14.05	$3,813	0.37%
Coos	$142,345	144,077	$0.99	$24.70	$3,364	0.73%
Crook	$258,825	937,628	$0.28	$6.90	$531	1.30%
Curry	$92,701	70,459	$1.32	$32.89	$1,949	1.69%
Deschutes	$115,807	138,226	$0.84	$20.95	$5,172	0.40%
Douglas	$277,034	390,140	$0.71	$17.75	$2,060	0.86%
Gilliam	$3,361,838	642,996	$5.23	$130.71	$305	42.86%
Grant	$19,286	892,400	$0.02	$0.54	$306	0.18%
Harney	$142,499	1,575,020	$0.09	$2.26	$289	0.78%
Hood River	$131,985	29,064	$4.54	$113.53	$9,364	1.21%
Jackson	$105,208	252,185	$0.42	$10.43	$2,824	0.37%
Jefferson	$1,508,055	701,440	$2.15	$53.75	$561	9.58%
Josephine	$95,086	32,370	$2.94	$73.44	$4,153	1.77%
Klamath	$1,476,999	702,951	$2.10	$52.53	$1,012	5.19%
Lake	$268,004	747,888	$0.36	$8.96	$487	1.84%
Lane	$483,606	234,807	$2.06	$51.49	$4,572	1.13%
Lincoln	$6,999	32,791	$0.21	$5.34	$2,607	0.20%
Linn	$835,432	385,589	$2.17	$54.17	$2,849	1.90%
Malheur	$4,272,090	1,175,280	$3.63	$90.87	$537	16.92%
Marion	$1,396,120	341,051	$4.09	$102.34	$5,107	2.00%
Morrow	$6,304,178	1,124,593	$5.61	$140.14	$365	38.40%
Multnomah	$51,398	34,329	$1.50	$37.43	$10,876	0.34%
Polk	$1,341,730	168,881	$7.94	$198.62	$4,948	4.01%
Sherman	$4,638,282	507,705	$9.14	$228.39	$368	62.06%
Tillamook	$1,065,395	39,526	$26.95	$673.86	$5,259	12.81%
Umatilla	$15,394,779	1,330,932	$11.57	$289.17	$765	37.80%
Union	$2,916,694	478,411	$6.10	$152.42	$1,044	14.60%
Wallowa	$1,344,086	518,110	$2.59	$64.86	$614	10.56%
Wasco	$3,454,663	1,086,817	$3.18	$79.47	$394	20.17%
Washington	$1,830,150	130,683	$14.00	$350.11	$7,294	4.80%
Wheeler	$46,507	738,207	$0.06	$1.57	$274	0.57%
Yamhill	$2,007,743	196,298	$10.23	$255.70	$6,885	3.71%
Oregon	$57,057,428	17,080,422	$3.34	$83.51	$1,202	6.95%

Sources: Economic Research Service, U.S. Department of Agriculture (www.ers.usda.gov/data)

Environmental Working Group's Farm Subsidy Database (www.ewg.org/farm)

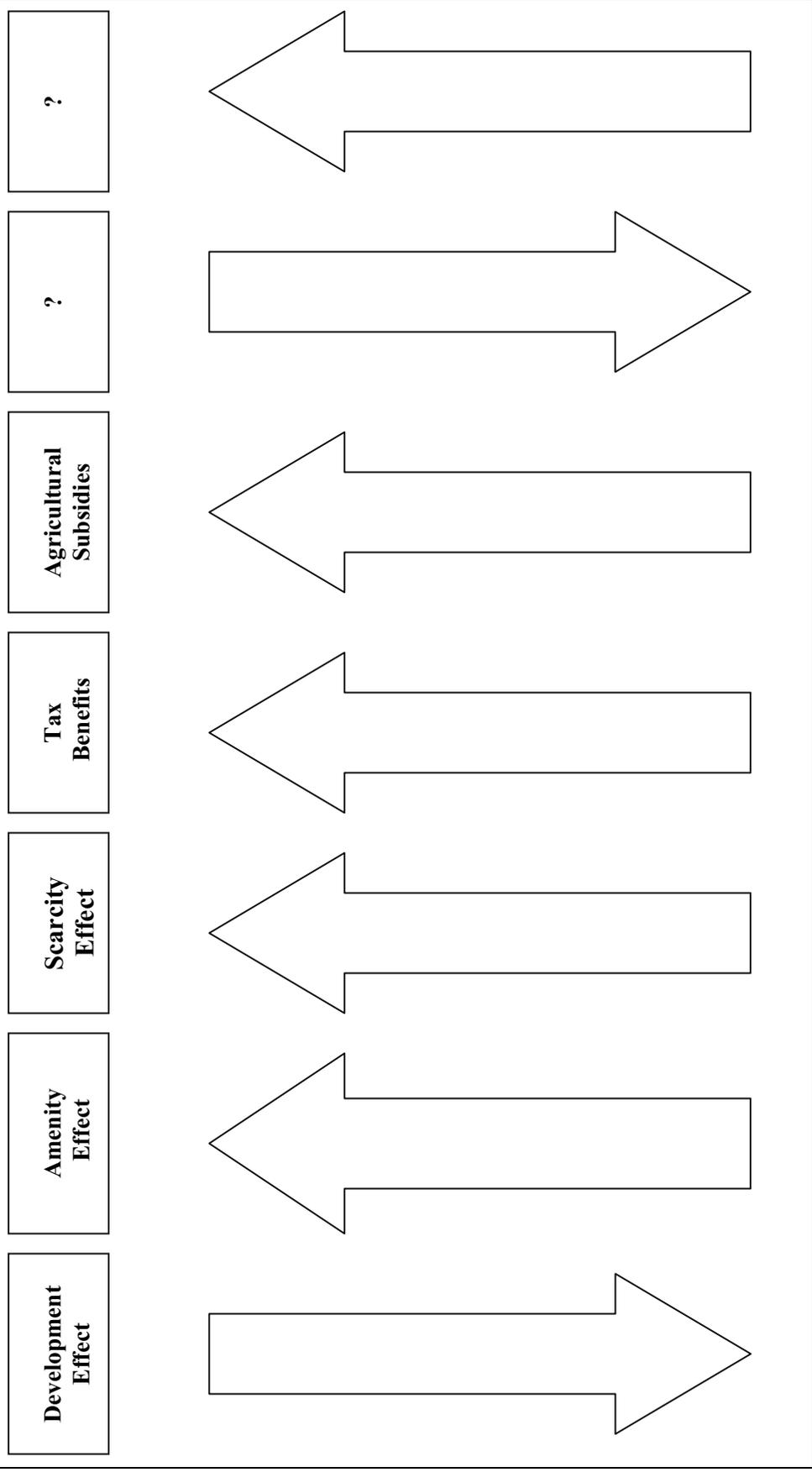**Figure 1. Effects of Different Factors Influencing Private Property Value**

| Development Effect | Amenity Effect | Scarcity Effect | Tax Benefits | Agricultural Subsidies | ? | ? |

Figure 2. Value of Farm Real Estate in Oregon and Neighboring States 1965-2005 (actual)

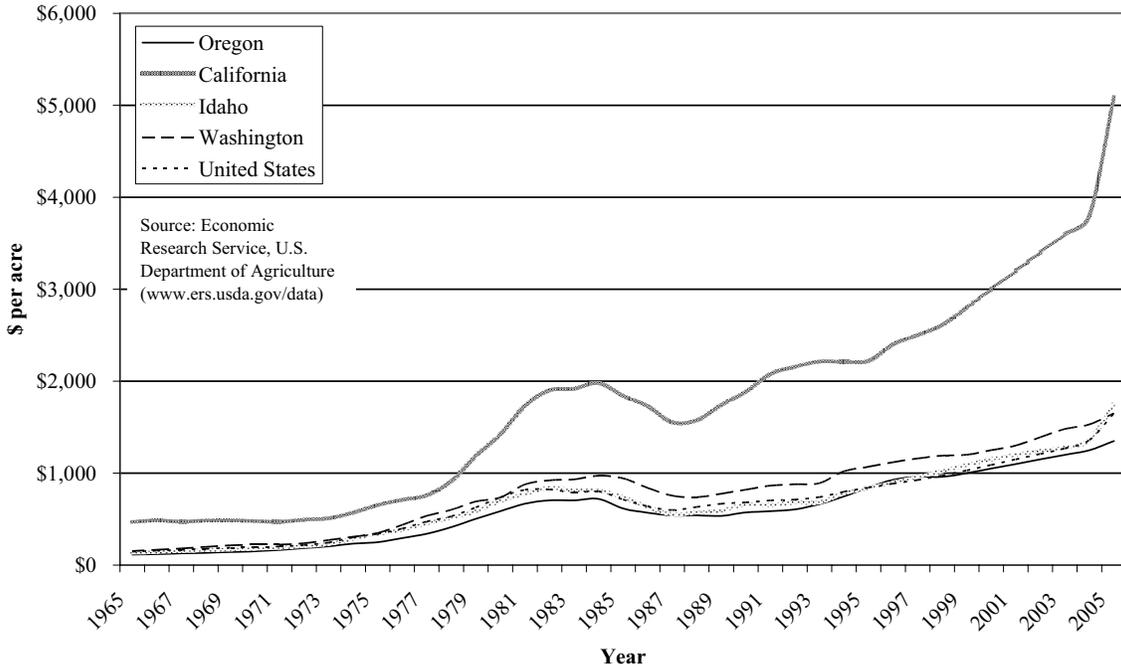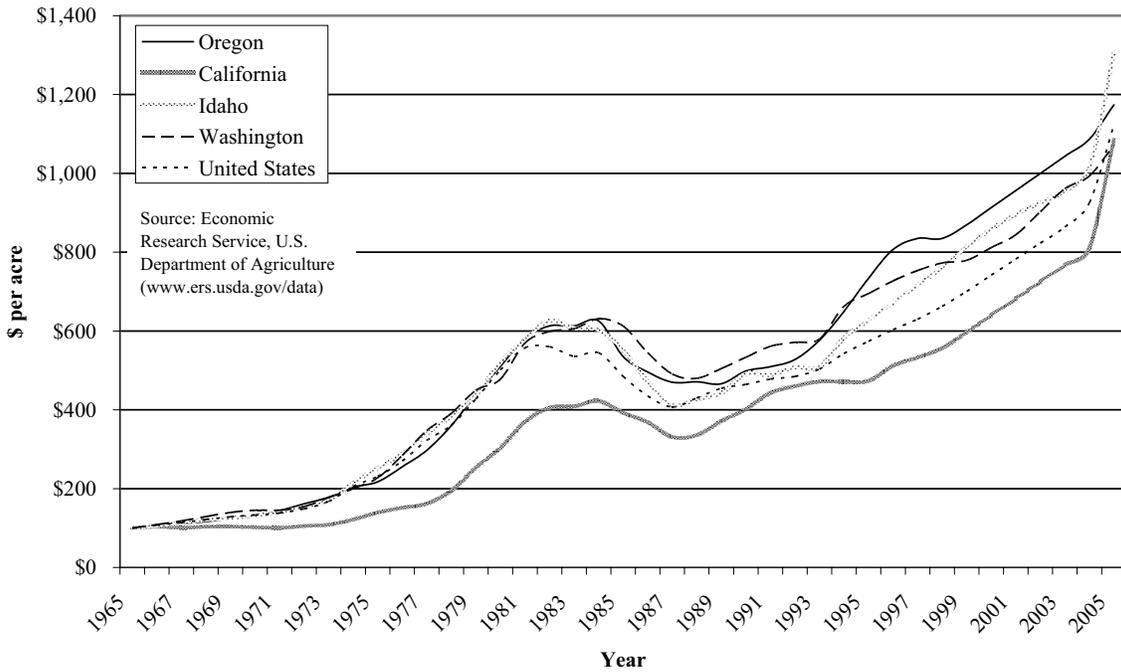Source: Economic Research Service, U.S. Department of Agriculture (www.ers.usda.gov/data)

Figure 3. Property Values of Farm Real Estate in Oregon and Neighboring States 1995-2005: Index (1965 value = 100)

Source: Economic Research Service, U.S. Department of Agriculture (www.ers.usda.gov/data)

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Appendix A

Results of an Empirical Study of the Effects of Different Regulatory Policies on Land Values in Oregon

Professors Andrew Plantinga and William Jaeger of Oregon State University collected and took the lead in analyzing the data presented in this appendix. The results of this empirical investigation are reported in greater detail in Andrew Plantinga and William Jaeger, "How Have Land Use Regulations Affected Property Values in Oregon?" (Oregon State University 2007).

Introduction

This appendix provides a detailed description of the results of an empirical investigation into the effects of land use regulations on private property values in Oregon. The goal of the investigation was to gain insight into whether or not the establishment of Oregon's comprehensive land use program in the early 1970s caused a reduction in the value of regulated properties.

This study approached the issue in two ways. First we analyzed the rates of appreciation of property in several Oregon counties over the approximately 40-year period from immediately prior to establishment of the land use program to the present. In particular, we compared the rates of appreciation of lands that are inside and outside the urban growth boundary (UGB), and lands subject to different zoning classifications. Second, we compared the rates of appreciation of agricultural lands in several Oregon counties, where relatively stringent restrictions apply, with the rates of appreciation of agricultural lands in comparable counties in Washington, where, until very recently, far more permissive regulations applied. The object of both of these analyses is to attempt to determine whether the adoption and implementation of strict regulatory restrictions on development are associated with lower property values.

Data were collected on land values using a sample of parcels in five counties, three in Oregon (Lane, Jackson, and Baker) and two in Washington (Lewis and Kittitas). In most cases parcels were selected in and around the largest city in the county (Eugene in Lane County; Medford in Jackson County, Centralia-Chehalis in Lewis County, and Ellensburg in Kittitas County). The data span intervals between the mid-1960s or early 1970s (before the implementation of Oregon's land-use planning system) and continuing to the early 2000s. We collected property value data on over 300 parcels (in different years).

The results of our investigation indicate the following: First, within Oregon, the rate of appreciation for lands outside the UGB or subject to relatively stringent regulation has been comparable to, or higher than, the rate of appreciation for lands inside the UGB or subject to relatively permissive restrictions. In Lane County, the value of lands outside the UGB grew at a slightly faster rate than properties inside the UGB. In Jackson County, the value of relatively restricted Open Space Reserve lands grew faster than the value of lands zoned for rural residential development; in Lane County, lands zoned for exclusive forest use appreciated at a significantly faster rate than lands zoned for intensive residential use. At the same time, the data reveal that lands within the UGB and subject to relatively permissive zoning have higher market values today than lands outside the UGB and lands subject to relatively strict regulations. But the former lands had higher values than the latter prior to adoption of the Oregon land use program in the 1970s, most likely because lands within the UGB and those subject to permissive regulations are closer to urban centers. The fact that these lands are more valuable today is not inconsistent with the evidence that they appreciated in value at a slower rate than lands that are outside the UGB or those subject to relatively stringent regulation. Taken together, these data do not support the argument that the adoption of the Oregon land use program systematically lowered property values.

Second, since the early 1970s, the rate of appreciation of agricultural lands in Oregon has been similar to the rate of appreciation of comparable agricultural lands in Washington. In counties west of the Cascades, where we have the most complete and detailed data, the two Oregon counties we studied have seen increases in land value slightly greater than the increases experienced in Lewis County, Washington. A congruent pattern was observed for farmland values between Baker County, Oregon and Kittitas County, Washington. Because agricultural lands in Oregon were subject to strict regulation for almost the entire study period, while agricultural lands in Washington were generally subject to less stringent regulation, these data are also inconsistent with the argument that Oregon's land use program has lowered property values.

I.   Investigative Approach.

We examined data on market values for several sets of undeveloped properties. We obtained data for three counties in Oregon (Lane, Jackson, and Baker) and for two counties in Washington (Lewis and Kittatas).   For each county, we compute average per-acre market values at different points in time. For Lane, Jackson, and Kittitas Counties, our data cover the period 1965 to the early 2000s. For Baker County, the observations begin in 1972 and for Lewis County they begin in 1973.

We use the data for Lane and Jackson Counties to investigate the effect of an urban growth boundary and different zoning restrictions on land values in Oregon. The legislation authorizing Oregon's statewide land-use planning was passed in 1973 and implemented over the ensuing decade. Our data for Oregon (covering the period 1965 to the early 2000s) span the period during which major land-use regulations were adopted and implemented. Thus, these data provide a way of assessing whether purchasers who acquired land in Oregon prior to adoption of the current Oregon land-use restrictions experienced a reduction in property values.

To compare rates of appreciation in land values in Oregon and Washington, we performed paired comparisons over time of land values in Lane and Jackson Counties with land values in Lewis County, all on the west side of the Cascades, and in Baker County with Kittitas County, both on the east side of the Cascades. This provided an opportunity to make comparisons between counties in the region's two dominant climactic zones. The counties in Washington were selected on the basis of their similarity to the Oregon counties.[1] Land-use regulations were adopted in Washington following passage of the state's Growth Management Act in 1990, but the administration of the regulations was more decentralized and much less stringent than in Oregon, and in some cases they have been enforced only in the past few years.

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[1] Both Baker and Kittitas counties have a land base dominated by agricultural uses, especially livestock and forage, as well as some other crops such as wheat, sweet corn and vegetables (Kittitas), and potatoes (Baker). The proportions of land in pasture, crops and woodlands are all similar with the exception of Baker County which has a large number of very large grazing operations of more than 1,000 acres each. Net cash income per farm is similar in Kittitas and Baker. Kittitas County has a higher population density and a somewhat smaller share of its land in agriculture overall.

Thus, the data for the comparison sites in Washington cover a period when the regulations in Washington were mostly less stringent than the regulations being enforced in Oregon.[2]

At each point in time, average market values are computed for subsets of parcels. These subsets are defined according to current land use regulations. In Lane, Lewis, and Kittitas Counties, we calculate average market values for parcels inside and outside urban growth boundaries, or the urban growth area (UGA), as it is referred to in Washington. For Lane, Jackson, and Kittitas Counties, we also compute average market values for parcels with different types of zoning (e.g., exclusive farm use, rural residential). The sample for Baker County includes only agricultural parcels, and we use these to make comparisons to similar parcels in Kittitas County.

For each subset of parcels, we report average land values and growth in land values over the entire time period. The growth in land values for each sample or subsample is measured relative to the average land value in the initial year of the time series (e.g., a value of 200 means that the average property value has doubled since the base year). These indexes of relative appreciation are then compared across regulations (e.g., zoning classifications) and sites. Thus, starting with parcels prior to the adoption of current restrictions, we examine whether the regulations imposed subsequently had differential effects on property values. Or, put another way, if an individual purchased a parcel of land prior to 1972, did the rate of appreciation in the value of that asset vary systematically with the types of regulations implemented during the intervening period?

II. County by County Data Collection Procedures.

We began by assembling data for Lane County. This established the procedure that was then applied in Jackson County in Oregon and Lewis and Kittitas Counties in Washington. The data for Baker County were obtained by the American Land Institute[3] and are described separately. We describe the data collection for Lane, Jackson, Lewis and Kittitas Counties in detail below. In each of these counties a sample of vacant parcels was selected based on the following general approach. First, we mapped areas in and surrounding major urban centers. All currently (or recently) vacant parcels within these mapped areas were identified from county assessor databases (by selecting parcels where value of improvements was zero). In order to limit the inclusion of extreme effects for very large or very small parcels, a minimum and maximum parcel size was added as a selection criterion (e.g., between 3 and 20 acres). If this

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[2] According to county officials, the final data point for Lewis County in 2002 precedes the recent move to begin enforcing the county's land use regulations.

[3] HENRY R. RICHMOND & TIMOTHY G. HOUCHEN, OREGON'S PUBLIC INVESTMENT IN CONSERVATION, PROSPERITY AND FAIRNESS: REDUCED TAXATION OF FARM LAND AND FOREST LAND 1974-2004 at Table 3 (The American Land Institute 2007), *available at* www.oregonpublicinvestment.com.

size range did not produce a large enough sample, the upper bound of the size range was raised until an adequate sample size was achieved (e.g., more than 100 parcels in initial sample).

Lane County

Property values for undeveloped land were obtained from the Lane County Assessor's Office in Eugene. We decided to use the County Assessor's estimates of real market value (RMV) instead of individual sales data.[4] Assessment data have the advantage of providing repeated observations for the same set of parcels over time, and several County Assessors confirmed that the assessed values were reasonably accurate measures of market sale prices. To construct the sample, we selected all parcels in Lane County's on-line database available at rlid.org that met the following criteria: 1) between 3 and 20 acres, 2) assessed improvements had a zero value, 3) located in and around the Eugene-Springfield area, 4) had a General Land Code indicating agriculture, vacant, or timber, and 5) did not have characteristics that would likely prevent residential construction: public land, unbuildable, marginal, waterfront, sand and gravel, etc. Parcels larger than 3 acres were chosen to avoid parcels that were likely to have been part of a subdivided property and, thus, unlikely to have the same acreage back to 1965.

The sample of properties was then matched to deed cards in the Lane County Assessor's Office. Deed cards that showed the same acreage between 1965 and 2002 were identified. A large proportion of the properties was eliminated from the data set at this stage, as many parcels had been subdivided or enlarged during this period. The sample was further narrowed to avoid selecting parcels close or adjacent to each other and to eliminate "split-code" parcels. The latter parcels are assessed at different rates and under different accounts, which makes tracking them through time difficult.

For the sample of properties, assessed real market values were obtained for 1995 and 2002 from the RLID database. Real market values for 1965, 1972, 1980, and 1987 were obtained from microfilm cards or tax rolls. A small percentage of the sample was eliminated at this stage because the records were missing or the properties were designated as "non-assessable."

The final sample of 100 parcels was merged with information on current (2006) zoning and location within or outside the current UGB. For the years 1980 and 1987, the assessed values for some properties reflected preferential tax assessment for agricultural and forest lands (special assessed value, SAV) rather than real market value. Accordingly, these observations were omitted from the data set. For more recent years, both RMV and SAV are computed and reported by the County Assessor, so specially assessed lands could be included by reporting their real market value.

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[4] Individual sales data are very time consuming to collect, and there are many obstacles to verifying that the recorded amount of the sale represented a true "arms-length" market transaction, at the time of the recording date.

Jackson County

We started with the Jackson County Assessor data available from smartmap.org. Tax lot data were used to construct a sample of parcels located in and around Medford, the largest city in the county. Similar to Lane County, the criteria used to select the parcels included: 1) zero improvements, 2) with 3 or more acres, and 3) did not have characteristics that would prevent residential construction. A 20-acre maximum was not applied, as in Lane County, because that would have produced too small a sample. Parcels between 3 and 360 acres were included, with an average size of 38 acres.

Selected parcels were then examined using the Jackson County Front Counter Application (web.jacksoncounty.org/fca/). Deed cards were used to eliminate properties with acreage changes over time. Real market values back to 1987 were recorded using online records. Problems were encountered at this stage with missing and incomplete records, as well as parcels that appeared to have received special assessment.

At the Jackson County Assessor's office in Medford, an attempt was made to use tax roll data for years before 1987, but the microfilm was organized in a way that rendered this approach infeasible. Instead, paper records were used to obtain appraisal information for selected years between 1965 and 1980. In some cases, no appraisal was available for the year of interest, in which case an appraisal from the closest year was substituted. As with some of the electronic data, a large number of records was missing or incomplete, and it was not clear if parcels had received special assessment in some years. Unlike in the Lane County case, we were unable to identify which property values reflected a special assessment.

A sample of 88 properties was developed for the years 1965, 1972, 1980, 1987, 1995, and 2005. For 1965 and 2005, the RMV of the properties is clearly reported. Unfortunately, for the other years, it was difficult to differentiate between RMV and SAV. Also, there were multiple cases in which the reported RMVs and ASVs appeared to be transposed. As a result, we focus our analysis only on the 1965 and 2005 values of the properties.

Lewis County

In Lewis County we obtained a tax roll database file from the Lewis Count Assessor's Office. This was used to select a sample of parcels located in and around the Chehalis-Centralia area, the two largest cities in the county. Parcels were eliminated if the building value exceeded zero. Parcels between 1 and 40 acres were retained, with an average size of 9.4 acres. Parcels that had been subdivided or had undergone significant acreage changes over time were eliminated. For each parcel, RMV for 1973, 1980, 1987, 1997, and 2002 were obtained from digital archives at the Lewis County Assessor's Office in Chehalis. Current zoning information was derived from the tax roll database file. The Assessor's office noted that enforcement of land use regulations under Washington's Growth Management Act has only begun recently in Lewis County, so that these zoning codes were not binding as of 2002.

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Kittitas County

Similar to our approach in Lewis County, we obtained tax roll data files from the Kittitas County Assessor's Office. These were used to select parcels located in and around Ellensburg, the largest city in the county. Parcels were eliminated if the building value exceeded zero. Parcels between 3 and 41 acres were retained based on their 2002 size (although one parcel was 63 acres in all periods prior to 2002). The average size was 23 acres. Parcels that had been subdivided over time or that had undergone significant acreage changes were eliminated. For each parcel, real market values for 1965, 1972, 1980, 1987, 1995, and 2002 were recorded from paper records. In cases where real market value data were not available for the targeted year, the next closest year available was used. Current zoning information was derived from GIS layers obtained from the City of Ellensburg and Kittitas County.

Baker County

Data on sales of agricultural land parcels in Baker County were assembled by Richmond and Houchen for the period 1972 to 2002. In the original data set, individual prices were assigned to portions of parcels based on soil class. The average price per acre was provided for the entire parcel (or could be computed). We extracted the latter figures, as they most closely matched the data from other sites. In some cases, the Richmond and Houchen data provide repeated sales observations for the same parcel, but the time intervals are irregular. As a result, we cannot consistently track the same set of parcels. However, we can use the data to gain insight into average agricultural parcel values in given years. For Baker County there are 264 observations, with as many as 25 observations in one year and none in others.

III. Analysis.

The analysis focuses on land parcels that can potentially be developed for residential housing. Thus, we omit parcels that are currently zoned for industrial or commercial use. In Lane, Jackson, and Kittitas Counties, this eliminated 5, 6, and 1 parcel, respectively. To make dollar values in different years comparable, the property values are adjusted for inflation using the national Consumer Price Index (CPI), converting prices to their 2005 dollar equivalents. The CPI reflects price changes for a basket of goods representative of U.S. consumption patterns. This is the appropriate index to use because landowners are presumably interested in the market value of their land (and the willingness of a potential buyer to purchase it) in terms of a broad range of goods and services that might be bought with the proceeds from a sale.

Real (i.e., inflation adjusted) property values are normalized on parcel size to obtain per-acre values. The average per-acre value for each year is then computed. In the case of Baker County, a lack of observations prevents us from obtaining an average per-acre value for each year. Therefore, we compute averages using groups of observations from multiple years. These periods cover 1972-1976, 1977-1981, 1987-1991, 1992-1996, and 1998-2002. We take the midpoint of each period to represent the "year" of the observation (e.g., 1974 for 1972-1976).

Using the per-acre average values, we compute price increases relative to the base year and report this as a percentage of the base year's price. This is done for each county, and within

each county for subsets of parcels defined by land-use regulations. We then make comparisons of the growth in land values across types of regulations and across sites. The focus on changes in land values allows us to investigate relative rates of land appreciation and explore whether the rates vary according to the land-use regulations ultimately adopted. For the Oregon and Washington county pairs, we compare the levels of agricultural property values across sites. If Oregon's land use regulations had large negative effects on property values, this should show up in differences in land values between Oregon and Washington.

Lane County

In Lane County, five hundred eight observations remain after removing parcels with special assessments. In Table 1, we report the average real per-acre property value by year and by different selection criteria. As shown in the first row, the average property value increased substantially during the 1965-1972 and 1972-1980 periods. Property values fell, on average, between 1980 and 1987, most likely as the result of a national recession, which was especially strong and persistent in the Pacific Northwest in the early 1980s. After 1987, average property values recovered, increasing during both the 1987-1995 and 1995-2002 periods. Table 1 also reports average real property values for parcels inside and outside the current UGB and with different current zoning restrictions (of course, these land-use regulations did not apply from 1965 to 1972). These values all follow the same basic pattern, rising in each period up to 1980, falling between 1980 and 1987, and rising after 1987. These values are plotted in Figure 1.

An accurate comparison of the rates of appreciation of properties inside and outside the UGB requires controlling for initial differences in the value of the parcels based on proximity to the county's urban center, the City of Eugene. The average value of parcels inside the current UGB was higher in 1965 than the value of parcels outside the UGB, and this differential has been maintained up to the present, as shown in Figure 1. This presumably reflects the fact that lands inside the current UGB are closer to the urban center than lands outside the UGB; the average distance to the center of Eugene for our sample of parcels outside the UGB is more than twice that for the parcels inside the UGB. One way to control for this initial disparity in value, presumably due to geographical location, is to compare the increase in the value of both samples of parcels relative to some common initial value. In this fashion, we can compare growth rates relative to a common benchmark and see how the growth in land values compares over time depending on whether the land was inside or outside the UGB. Equivalently, one can imagine an individual in 1965 deciding whether to purchase two parcels of land of equal value. One parcel would eventually be inside the current UGB and the other would be outside. In retrospect, how would these investments have fared? If the parcel inside the UGB would have appreciated at a faster rate, this may be evidence that the UGB either depressed property values for parcels outside the boundary or raised property values for parcels inside the boundary (or both).

Figure 2 graphically displays this common benchmark methodology. Using an average of the 1965 and 1972 values to set the starting value, the line depicting property value outside the UGB ends slightly higher than the line depicting property value inside the UGB. These results indicate that, even though lands inside the UGB have significantly higher values in all years than those outside the UGB, the relative values of these two sets of parcels stayed about the same over time. In other words, an investor who purchased property outside the current UGB in 1965

would have fared as well (and even a slight bit better) than if he had purchased land inside the UGB.

Location relative to the UGB is a relatively coarse filter for assessing the effect of regulatory controls on land values. In particular, high-density residential development is not necessarily permitted on parcels within the UGB. For this reason, we conducted a more focused analysis to evaluate the effects of different zoning classes. For the parcels in our sample, the highest residential densities (a maximum of 14 single-family housing units per acre) are permitted on lands zoned R-1. Residential housing development is allowed on parcels zoned rural residential (RR), but at lower densities (in our sample, either 5 or 10 acre minimum lot size). Finally, exclusive farm use (E) and forest lands (F) zoning are very restrictive in terms of housing development. For example, dwellings may be constructed on E zoning land only if they are directly related to the agricultural enterprise. Figure 3 displays the average property values by zoning class and period (Table 1). Land with R-1 zoning has the highest average value in 2002 in large part because of its proximity to the city center. This is followed by land with RR zoning, E zoning, and F zoning.

To make an appropriate comparison, we again compare the growth in land values for each sub-sample relative to a common initial value prior to the implementation of Oregon's land use regulations. We take the 1965-1972 average value as the base value, and then compute the value in each period relative to that base. The results, shown in Figure 4, reveal that the highest rates of appreciation were realized on land with F zoning. The value of this land had grown by 2002 about one-third more than land with the least restrictive zoning (R-1). Likewise, a higher value, similar to F zoning, was obtained for land with RR zoning. The land with the least restrictive zoning (R-1) had the lowest value in 2002 relative to the starting point, meaning that it appreciated in value at a lower rate than parcels in all other categories.

Jackson County

After removing parcels zoned for commercial and industrial uses, 164 observations remain for the Jackson County analysis. Average per-acre property values for 1965 and 2005 and the annual growth rate over this period are reported in Table 2. For the entire sample, the average property value increased from $2,227 per acre in 1965 to $13,219 in 2005, for an average annual growth rate of 4.55%. This increase is considerably lower than the appreciation found in Lane County over the 1965-2002 period.

An analysis of the effects of the Medford UGB is not possible because only one of the parcels in our sample is located within it. However, we can examine effects of different zoning classifications. Parcels in our sample are zoned in one of four ways: exclusive farm use (EFU), open space reserve (OSR), woodland resource (WR), and rural residential (RR). For parcels with EFU, OSR, and WR zoning, strong restrictions are placed on residential housing development, especially in the case of OSR and WR zoning. Residential housing development is allowed on parcels with RR zoning with minimum lot size requirements. For the parcels in our sample, the requirement is either a 2.5- or 5-acre minimum.

Average property values by zoning classifications and year are reported in Table 2 and displayed in Figure 5. The growth in average land values over the 1965-2005 period was greatest for parcels with OSR and WR zoning. Thus, when we set the initial (1965) value to be the same for all zoning classes, we find that properties with OSR and WR zoning appreciated more by 2005 than properties with RR and EFU zoning (Figure 6). The average values of parcels with OSR and WR zoning relative to an assumed 1965 value of 100 were 1169 and 1602 respectively, compared to about 530 for both RR and EFU zoned parcels.

Lewis County

In Lewis County we have 595 observations for 119 parcels at five intervals between 1973 and 2002. Average property values per acre for selected years are reported in Table 3 and displayed in Figure 7. Land values have risen during each time period between 1973 and 2002, increasing to 349% of their initial values. Growth was very slow during 1987-1997, the same period during which property values in Lane County fell at an annual rate of 3 percent. Table 3 also reports average values for parcels inside and outside the Urban Growth Area (UGA). The data indicate fairly similar rates of growth in both zones, with the cumulative increase since 1973 being 349% overall, and with parcels closer to town appreciating somewhat more than those outside the UGA (389% versus 293%).

Washington State's UGA is similar in concept to Oregon's UGB, with two important differences. First, it was not introduced until the early 1990s compared to the mid-1970s for Oregon's UGBs. Second, in the case of Lewis County, officials have only recently begun enforcing the restrictions, after our most recent sample year of 2002. As a result, we can consider this to be a site without binding land use regulations for our purposes, and view the difference in the values of parcels inside and outside the current UGA as simply reflecting the effect of parcel distance to the nearest city (e.g., Centralia or Chehalis).

Comparison of Lane-Jackson Counties and Lewis County.

The growth in land values for our Lewis County (Table 3) sample is lower than for our samples in both Lane and Jackson Counties (Tables 1 and 2). Indeed, for those lands subject to relatively significant land use restrictions (outside the UGB, EFU zoning), property values appreciated faster in these western Oregon counties than in this western Washington county between 1972/73 and 2002. For all parcels, the Lane and Jackson county samples rose to 397% and 416% of their 1972 values, respectively (in the case of Jackson County, we have estimated the 1972 value using the constant growth rate reflected in our data to estimate the 1965-72 growth). This compares to a somewhat lower increase in Lewis County of 349% of its initial 1973 value. But when we consider lands outside the UGB/UGA, we find that lands in Lane and Jackson Counties subject to Oregon's farmland zoning rules appreciated in value at an even higher rate (456% and 533%) than lands in the unrestricted areas of Lewis County (293%).

Given that Oregon had more stringent restrictions on rural land development during most of the relevant period than Washington, one would assume that, if strict land use regulations systematically reduce property values, land values in Oregon would appreciate at a slower rate

than land values in Washington. The fact that we found that land values increased in Oregon faster than in Washington is inconsistent with this assumption.

Kittitas County

We have 462 observations available for Kittitas County after eliminating one parcel zoned for industrial uses. Average property values per acre by selected years are reported in Table 4. Property values rose during the 1965-1972 and 1972-1980 periods, fell during the 1980-1987 period, and rose again during the 1987-1995 and 1995-2002 periods. Table 4 also reports average values for parcels inside and outside the Ellensburg Urban Growth Area and with zoning that permits high and low density development. The same pattern of rising, falling, and rising property values is seen in each case.

The Ellensburg UGA was established in 1997 and expanded in 2005. According to the city's 2006 Comprehensive Plan, the UGA does not appear to constrain the total amount of development.[5] Table 4 and Figure 8 show that the average values of parcels inside and outside the UGA are similar over time, with the exception that they depart by about 35% in 2002. Because the average parcel values inside and outside the UGA are equal in 1965 ($1,045 per acre), the rate of return for holding either type of parcel are simply those portrayed in Figure 8.

The zoning regulations applied in Kittitas County are much less restrictive than those in Oregon with respect to development for residential housing. Among the parcels in our sample, the most (39) have A-20 agricultural zoning, which imposes a minimum lot size of 20 acres for each residential dwelling, in addition to allowing one smaller lot to be split off the parent lot provided certain criteria are met. Twenty-three parcels are zoned for commercial agriculture and one is zoned forest and range. Both types of zoning impose the same restrictions on residential development as A-20 zoning. Five parcels have A-3 agricultural zoning, which requires a minimum lot size of 3 acres. The remaining 9 parcels are zoned for residential and suburban use, which allows relatively higher densities. The parcels with 20-acre minimum lot size requirements are combined to form a low density zoning category. The parcels with A-3, residential, and suburban zoning are combined to form a high density zoning category.

Baker County

The 264 observations for Baker County are used to compute average per acre agricultural land values for six periods (1972-1976, 1977-1981, 1982-1986, 1987-1991, 1992-1997, 1998-2002). Average property values (for all parcels) increase from the first period to the second period, decline for the next two periods, increase in the fourth period, and then fall again in the last period (Table 5).

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[5] For example, the Comprehensive Plan states that, "Much of the land within the UGA but outside the city limits is now either undeveloped or sparsely developed, reflecting the community's interest in converting it from low-intensity use to urban use over time."

Some of the properties in the Richmond and Houchen data have large agricultural acreages. The average parcel sizes are 473 acres in Baker County. To facilitate comparisons with the Kittitas County sample, which included parcels smaller than 64 acres and greater than 10 acres, we compute average property values for parcels in Baker County smaller than 100 acres, and also for parcels smaller than 64 acres but greater than 10. As shown in Table 5, average property values rise as the acreage of the sales falls. In some cases, per-acre values more than double for very small-sized parcels. (The phenomenon of "volume discounts" is ubiquitous in the field of land economics for both land values and housing prices.)

Annual growth rates in property values are computed, assuming the midpoint of the period represents the year of the observation (see the discussion above). Some relatively large percentage changes in land values are found. For example, in Baker County the average value of parcels smaller than 64 acres fell by about 40 percent between 1982 and 1989, but then increased by more than that between 1989 and 1994.

Comparison of Kittitas and Baker Counties

For Baker County, we have information on the value of agricultural land parcels, but not on the zoning applicable to each parcel. Given that land-use regulations in Oregon are applied on a statewide basis with a high degree of consistency, it is likely that the parcels are zoned for exclusive farm use and, therefore, that strict limits on residential construction apply. In contrast, we saw that in Kittitas County land-use regulations concerning residential development are less restrictive. To facilitate a comparison between agricultural land values in Kittitas County and Baker County, we focus on parcels in Kittitas County zoned for commercial agriculture and parcels between 64 and 10 acres in Baker County.

Average land values and annual growth rates for commercial agriculture parcels in Kittitas County are reported in Table 4. Interpolation is used to obtain a set of average land values that matches the years of the Baker County observations. The results are presented in Figures 9 and 10 for the samples' mean values and median values, respectively. Both mean and median values are presented for this comparison because, given the small and varying sample of parcels for Baker county, the trend in mean and median values could offer somewhat differing patterns depending on the spread of land values in any given year.

Average property values in Baker and Kittitas counties are remarkably similar over the period 1974 to 2000. Based on the mean values (Figure 9), the trends are also similar, although the data show a slight difference between the end points with farmland in Kittitas County appearing to have increased slightly in value over the final period compared to Baker County. By contrast the pattern of median values (Figure 10) suggests the trends are nearly identical, with both samples showing no trend up or down from 1974 to 2000.

These results suggest that the more permissive land-use regulations in Kittitas County have not elevated agricultural property values relative to those in more-restrictive Oregon. The finding is strengthened by the fact that Ellensburg has recently experienced higher population growth than the cities in Baker County. Again, these results are inconsistent with the argument that strict land use regulations in Oregon reduced property values.

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IV. Conclusion.

The purpose of this study was to collect evidence regarding how adoption of the Oregon land use program in the 1970s affected private property values. To address this issue, we collected and analyzed data sets on assessed values of undeveloped properties in five locations: in Lane, Jackson, and Baker Counties (in Oregon), and Lewis and Kittitas Counties (in Washington). The data sets cover the period from before the adoption and implementation of statewide land-use regulations in Oregon up to the present. We used these data to make two types of comparisons. First, focusing on Lane and Jackson Counties we attempted to determine whether stricter land use regulation, or location outside an urban growth boundary, was associated with reduced land values. Second, comparing land values in several Oregon counties with counties in Washington, we attempted to determine whether the relatively more restricted lands in Oregon appreciated at a slower rate than lands in Washington. Both sets of analysis revealed that relatively restricted lands in Oregon appreciated at a comparable, even faster, rate than less stringently regulated lands. Accordingly, the evidence presented in this report provides no support for the argument by Measure 37 proponents that the Oregon land use program systematically reduced property values.

Table 1. Average Real Per Acre Land Values, Lane County, OR
(2005 dollars)

	1965	1972	1980	1987	1995	2002
All parcels	550	2767	6202	4889	8340	10975
(No. observations)	(95)	(95)	(73)	(55)	(95)	(95)
Inside UGB	1360	10022	26358	24649	26517	32724
(No. observations)	(12)	(12)	(8)	(12)	(12)	(12)
Outside UGB	433	1718	3721	2007	5712	7830
(No. observations)	(83)	(83)	(65)	(48)	(83)	(83)
R-1 zoning	1266	7909	25515	19240	19875	27224
(No. observations)	(8)	(8)	(4)	(4)	(8)	(8)
RR zoning	389	2812	8711	4448	8753	11118
(No. observations)	(13)	(13)	(13)	(7)	(13)	(13)
E-zoning	504	1511	1948	1250	5038	7311
(No. observations)	(55)	(55)	(55)	(29)	(55)	(55)
F-zoning	210	1532	4051	2414	5551	6884
(No. observations)	(15)	(15)	(13)	(12)	(15)	(15)

Growth in Real Per Acre Land Values Relative to 1965-72, Lane County, OR
(1965-72 average = 100)

	1965	1972	1980	1987	1995	2002
All parcels	33	167	374	295	503	662
Inside UGB	24	176	463	433	466	575
Outside UGB	40	160	346	187	531	728
R-1 zoning	28	172	556	419	433	593
RR zoning	24	176	544	278	547	695
E-zoning	50	150	193	124	500	726
F-zoning	24	176	465	277	637	791

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Table 2. Average Real Per Acre Land Values, Jackson County, OR

| | Year | | 005 Value Relativ | Annual |
	1965	2005	to 1965 Index	Growth Rate
All parcels	2227	13219	594	4.55%
(No. observations)	(82)	(82)		
EFU zoning	2625	13992	533	4.27%
(No. observations)	(54)	(54)		
OSR zoning	1163	13489	1160	6.32%
(No. observations)	(8)	(8)		
WR zoning	385	6170	1602	7.18%
(No. observations)	(13)	(13)		
RR zoning	3796	20036	528	4.25%
(No. observations)	(7)	(7)		

Table 3. Average Real Per Acre Land Values, Lewis County, WA

	1973	1980	1987	1997	2002
All parcels	2337	4516	7158	7266	8152
(No. observations)	(119)	(119)	(119)	(119)	(119)
Inside UGA	2604	5051	8125	9080	10129
(No. observations)	(46)	(46)	(46)	(46)	(46)
Outside UGA	1962	3669	5542	5332	5752
(No. observations)	(73)	(73)	(73)	(73)	(73)
Value relative to 1973 (1973 value = 100)					
All parcels	100	193	306	311	349
Inside UGA	100	194	312	349	389
Outside UGA	100	187	282	272	293

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Table 4. Average Real Per Acre Land Values, Kittitas County, WA

	1965	1972	1980	1987	1995	2002
All parcels	1045	1731	3085	2249	2463	3219
(No. observations)	(77)	(77)	(77)	(77)	(77)	(77)
Inside UGA	1045	1826	2709	2005	2513	4306
(No. observations)	(11)	(11)	(11)	(11)	(11)	(11)
Outside UGA	1045	1715	3147	2289	2454	3038
(No. observations)	(66)	(66)	(66)	(66)	(66)	(66)
Low density zoning	930	1554	2811	2007	2136	2785
(No. observations)	(63)	(63)	(63)	(63)	(63)	(63)
High density zoning	1562	2524	4318	3337	3934	5170
(No. observations)	(14)	(14)	(14)	(14)	(14)	(14)
Commercial agriculture	1302	1877	3629	2466	2497	3177
(No. observations)	(23)	(23)	(23)	(23)	(23)	(23)
Value relative to 1965-72 (1965-1972 average = 100):						
All parcels	75	125	222	162	177	232
Inside UGA	73	127	189	140	175	300
Outside UGA	76	124	228	166	178	220

Table 5. Real Per Acre Land Values and Annual Growth Rates, Baker County, OR

	1972-1976	1977-1981	1982-1986	1987-1991	1992-1996	1998-2002
Average real parcel values per acre (2005 dollars)						
All parcels	1762	2494	1197	956	1956	1864
(no. observations)	(63)	(79)	(34)	(42)	(19)	(17)
Parcels<100 acres	2527	3338	2503	1568	2588	2114
(no. observations)	(28)	(44)	(8)	(16)	(10)	(11)
Parcels<64 acres	3008	3714	2800	1701	3040	2339
(no. observations)	(14)	(27)	(4)	(10)	(5)	(5)
Value relative to 1972-1976 (1972-1976 value = 100):						
All parcels	100	142	68	54	111	106
Parcels<100 acres	100	132	99	62	102	84
Parcels<64 acres	100	123	93	57	101	78

**Figure 1. Property Values for Representative Parcels in
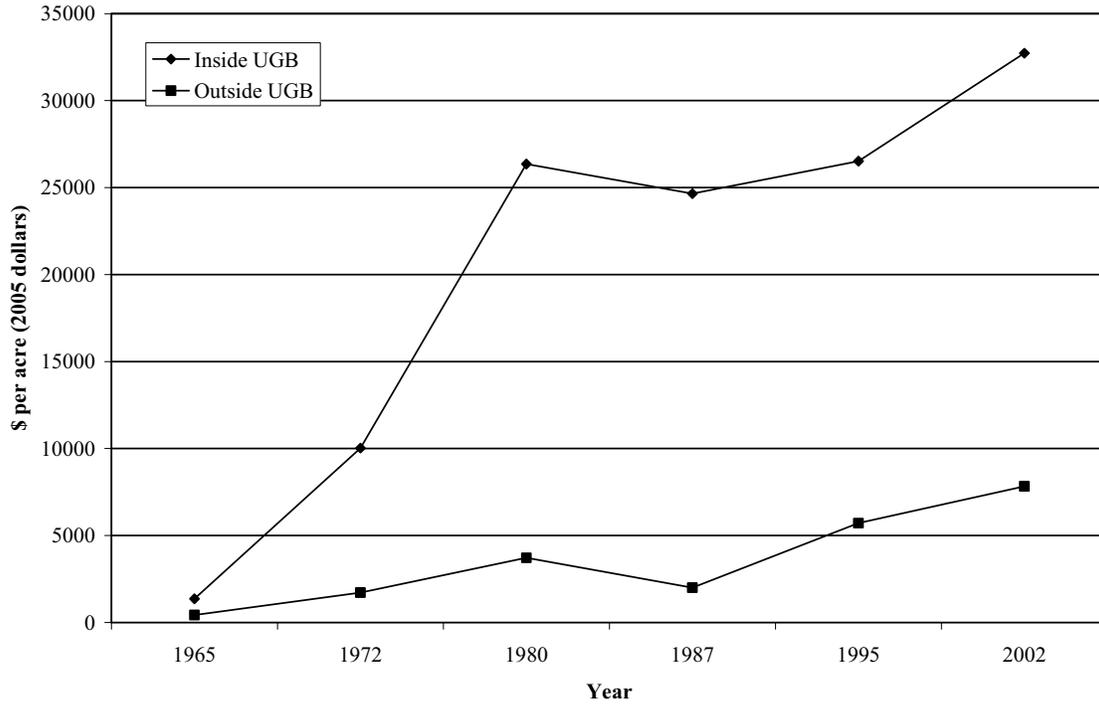Lane County, OR by Location Inside and Outside the UGB**

**Figure 2. Property Values for Representative Parcels in Lane County, OR by
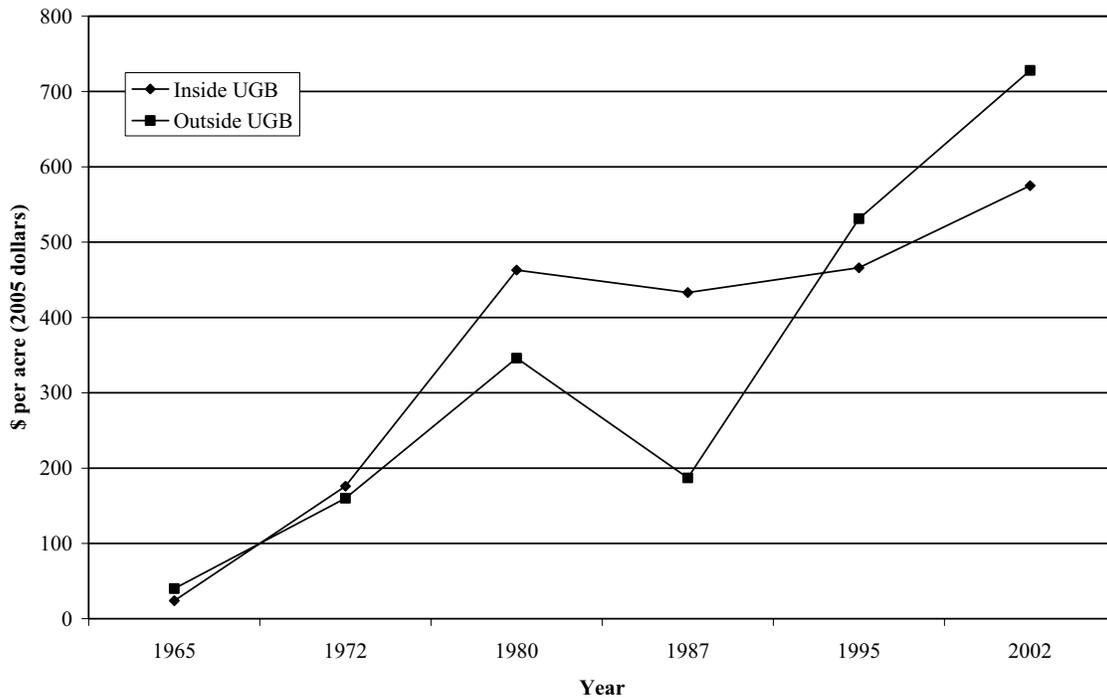Location Inside and Outside the UGB: Index (1965-1972 average = 100)**

**Figure 3. Property Values for Representative Parcels in
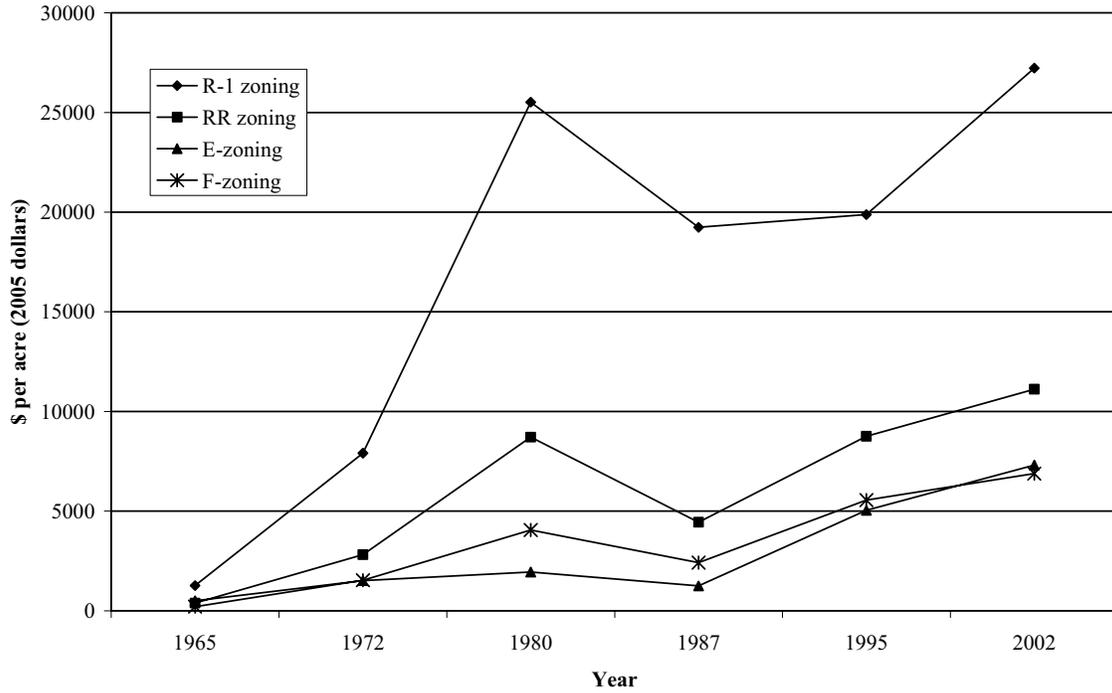Lane County, OR by Zoning Classification**

**Figure 4. Property Values for Representative Parcels in Lane County, OR by
Zoning Classification: Index (1965-1972 average = 100)**

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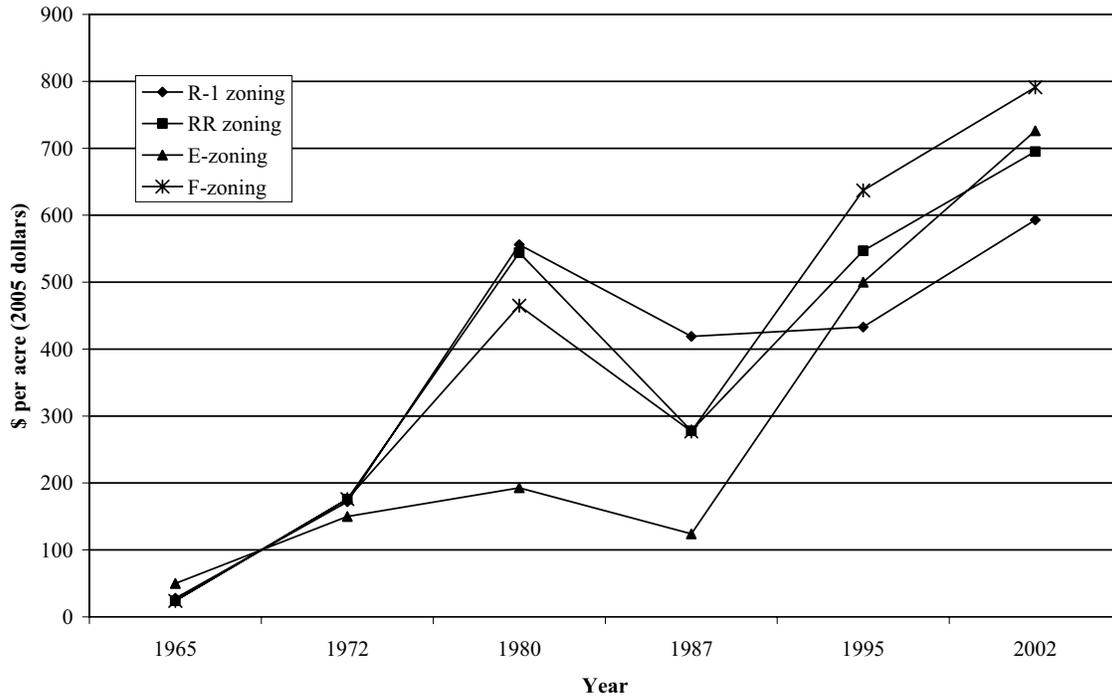
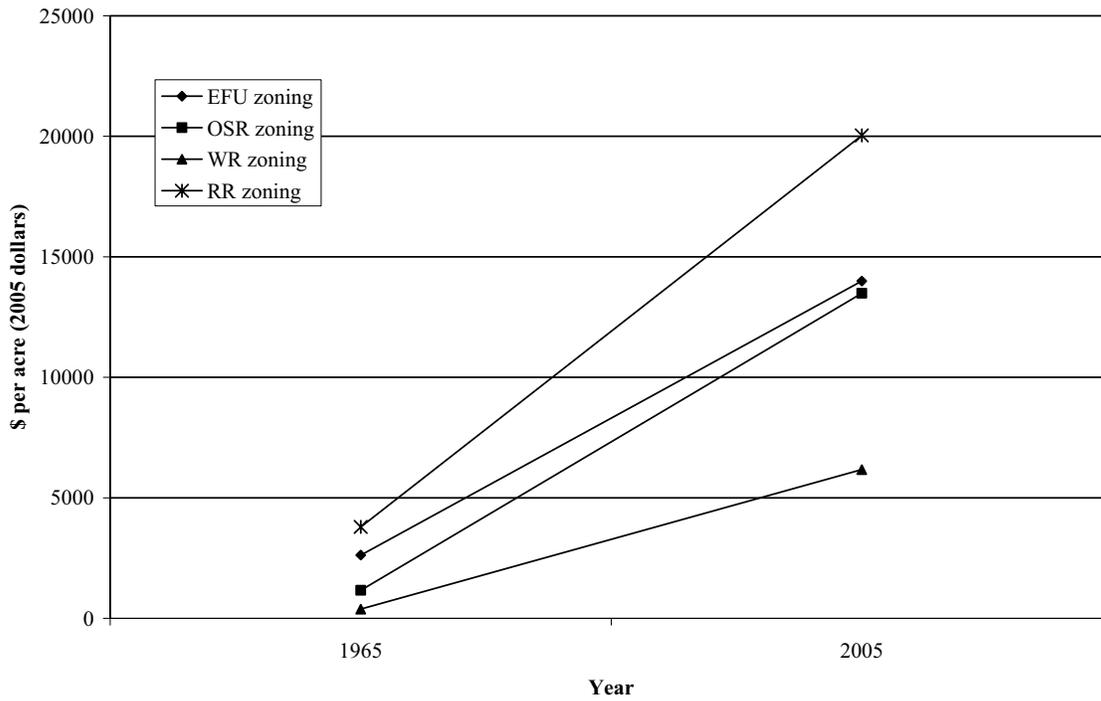**Figure 5. Property Values for Representative Parcels in Jackson County, OR**

Figure 6. Property Values for Representative Parcels in Jackson County, OR: Index (1965 value = 100)
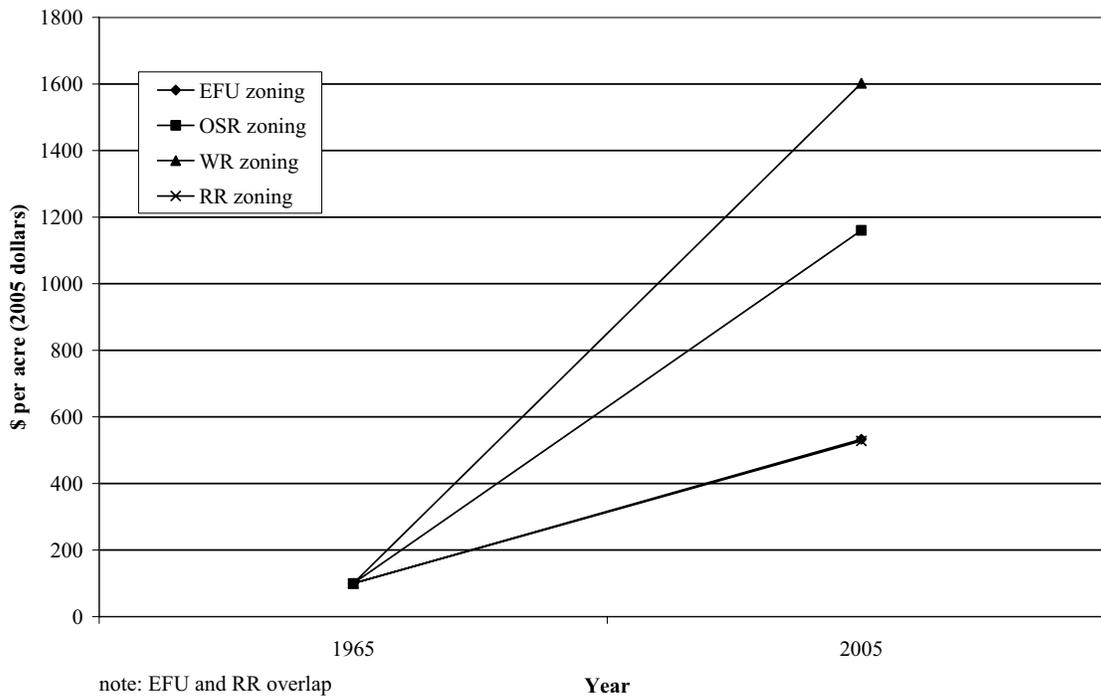

note: EFU and RR overlap

**Figure 7. Property Values for Representative Parcels in
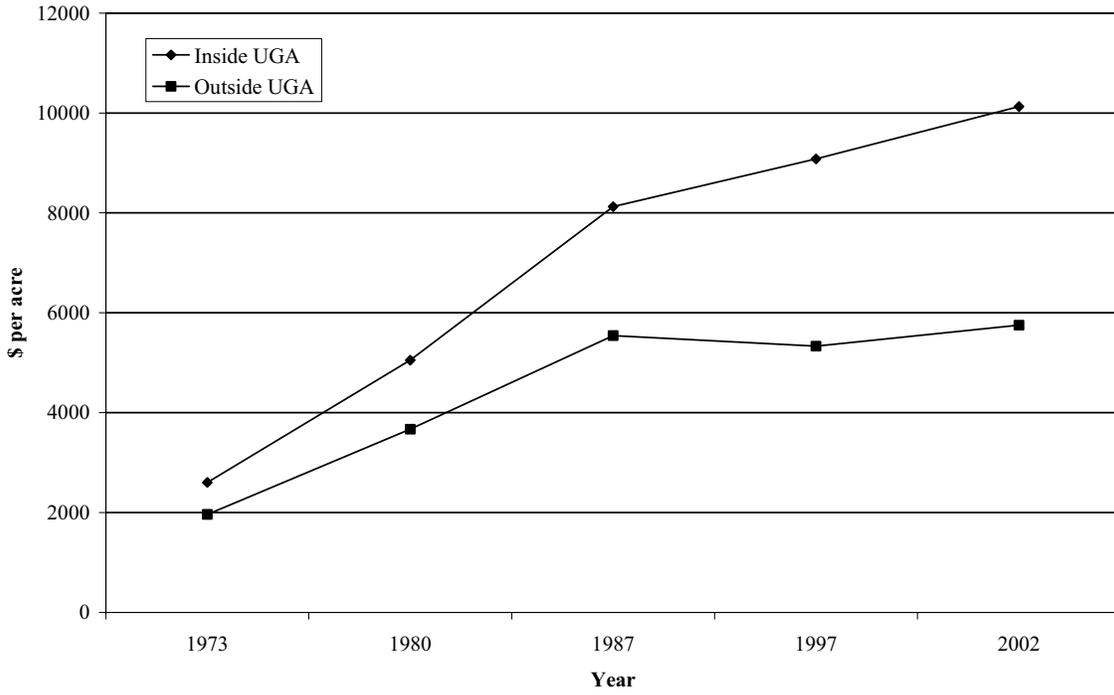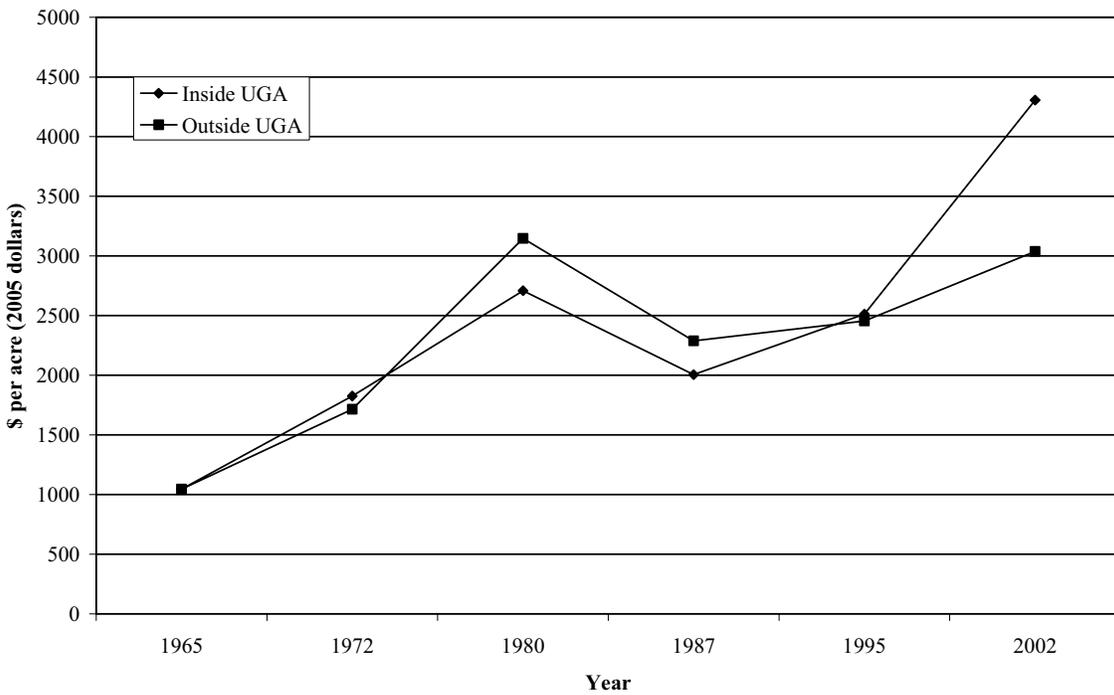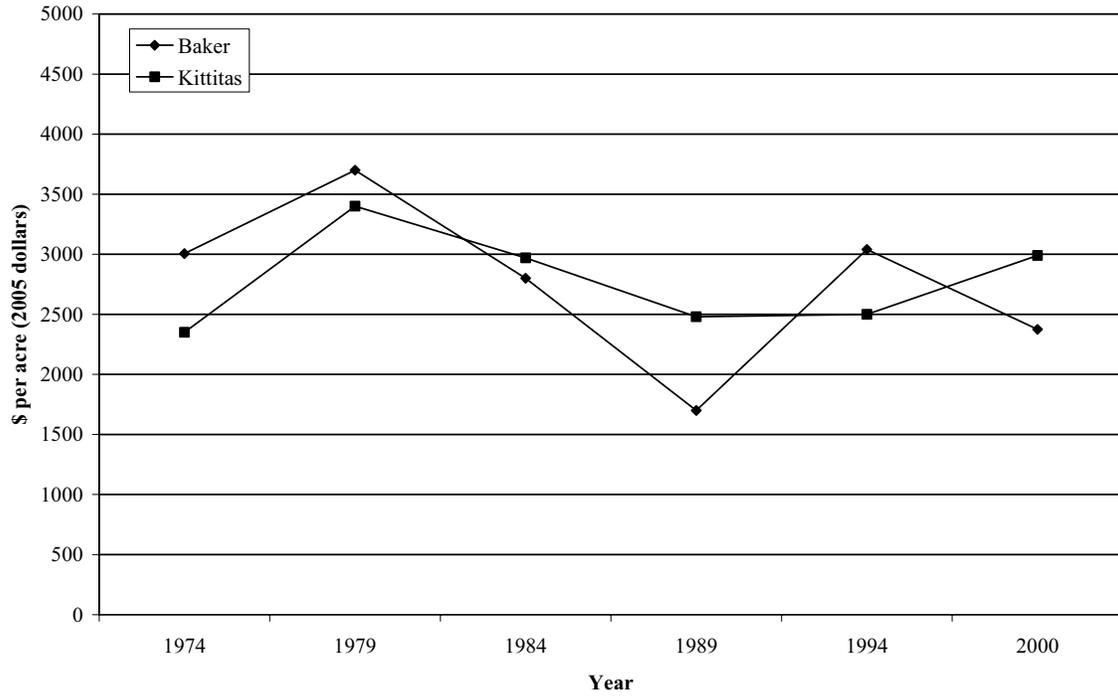Lewis County, WA**

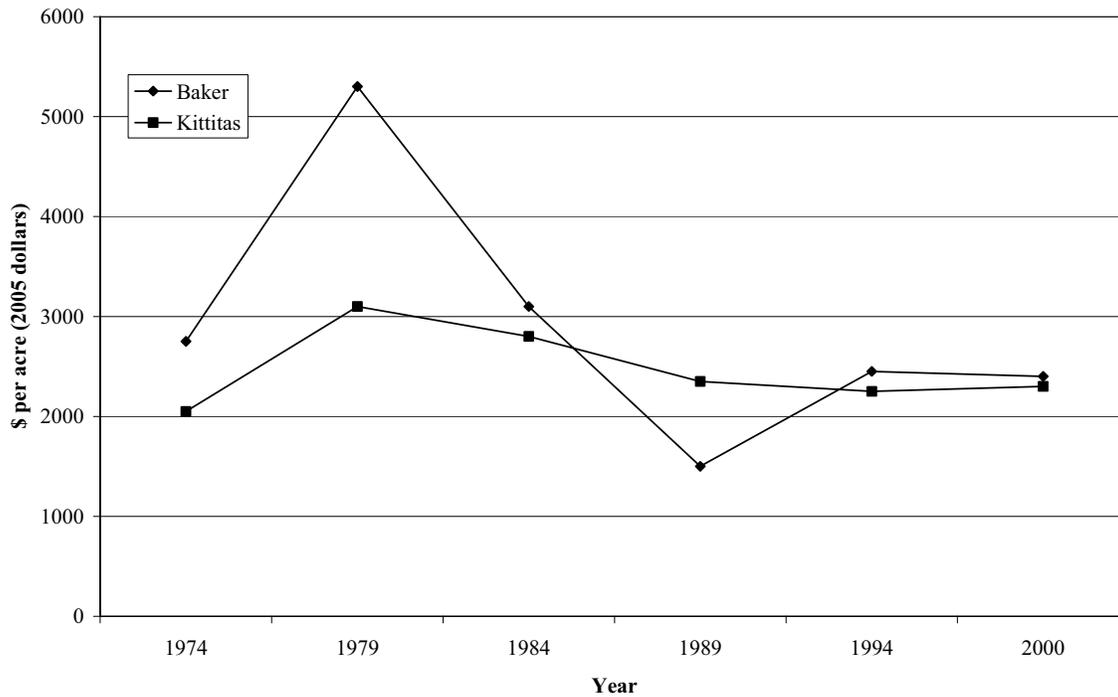**Figure 8. Property Values for Representative Parcels in
Kittitas County, WA**

**Figure 9. Growth in Mean Agricultural Property Values,
Baker County, OR and Kittitas County, WA**

**Figure 10. Growth in Median Agricultural Property Values,
Baker County, OR and Kittitas County, WA**

Appendix B

Summaries of Empirical Studies on the Effects of Regulations and Other
Government Actions on Private Property Values

This appendix contains detailed summaries of prior empirical studies conducted across the country and in Oregon on the effects of land use regulations and other government actions on private property values. The summaries cover four topics: (1) land use regulations generally, (2) land use regulations in Oregon, (3) tax abatement programs for agricultural lands, and (4) federal agricultural subsidy programs. This literature review covers the same topics as the empirical investigations we have conducted based on Oregon land value data, and is intended to provide an independent check on the validity of our empirical results. While these studies do not reach completely uniform conclusions, the findings in most of the studies match our empirical findings.

I. Effects of Land Use Restrictions Generally.

This section contains brief descriptions of empirical studies examining the effects on land values of land use regulations and other types of legal restrictions on land development. The studies are organized in chronological order, starting with the most recent. Most of the studies utilize regression analysis of hedonic price models to identify specific factors associated with changes in land prices. Others rely on more elementary econometric techniques. Many of the studies have been published in peer-reviewed journals, while others have been published by academic institutions or different kinds of advocacy organizations. Consistent with the theoretical understanding that land use restrictions can have an unpredictable mix of positive and negative impacts on land values, the studies report diverse results. However, the majority of the studies conclude that land use regulations have little if any net adverse impact on the value of restricted parcels.

1. A research paper published by the Department of Agricultural & Applied Economics of the University of Wisconsin-Madison concluded that easement restrictions had no statistically significant adverse effect on the value of agricultural lands, although the results varied depending upon whether or not there was a home or other improvement on the encumbered property. The paper reports on a study looking at the sales prices of 150 agricultural properties between 1999 and 2004 in **south central Wisconsin**, near the capital city of Madison (Dane, Jefferson, and Columbia counties). The data fell into two categories: 131 parcels not subject to conservation easements and 19 parcels subject to easements specifying non-development, agricultural preservation, or wetland reserve. The study found that, looking at all of the parcels, the impact of easement restrictions was not significant. But if the researchers restricted the focus to easement parcels with no improvements, they found that easement restrictions had a statistically significant negative effect on property values, with the magnitude of the negative impact increasing with the stringency of the restrictions. The authors suggest that one possible explanation for these results is that prospective purchasers of eased land with a house on it include those seeking property with high open space and scenic amenity values, whereas totally restricted undeveloped land would generally only be marketable to neighboring farmers or to hunters. **Kathryn Anderson & David Weinhold, Do Conservation Easements Reduce Land Prices? The Case of South Central Wisconsin, University of Wisconsin-Madison, Department of Agricultural & Applied Economics, Staff Paper No. 484 (2005),** *available at* **ideas.repec.org/p/wpa/wuwpur/0506001.html.**

2. A study of land sales in **Howard County, Maryland**, found that the prices of properties subject to voluntary conservation easements were higher than the prices of comparable properties not subject to restrictions, although not at a statistically significant level. The study looked at 95 relatively large parcels in the northwestern part of Howard County, midway between Washington D.C. and Baltimore, Maryland, under both residential and agricultural use. Six of the parcels were subject to conservation easements, two of the easements had been acquired through the Maryland Environmental Trust, and the other four through the Maryland Agricultural Land Preservation Foundation. The author concluded that the positive effects of the conservation easements on property values matched and perhaps outweighed the negative effect of limiting development opportunities. He attributed this result to the fact that Howard County represents a relatively affluent area where there is a strong demand for rural residential properties. **Xiaowei Zhang, The Effects of Conservation Easements on Land Values (2004) (unpublished Masters Thesis, Virginia Polytechnic Institute and State University).**

3. In contrast to most other studies, a study prepared by an economic consulting firm for the New Jersey Farm Bureau concluded that agricultural zoning regulations had a dramatic adverse affect on land values in six different municipalities in **New Jersey**. The study produced estimates that ranged from a zero effect to as high as a 76% reduction in property values. Significantly, this study, unlike most other similar studies, did not utilize actual sales price data. Instead, the authors relied on appraisals developed by the New Jersey Agricultural Development Committee to determine the price the state would pay for agricultural easements. In addition, they relied on formulas used by municipal appraisers to determine property assessments for tax purposes, and extrapolations from valuations based on the so-called comparable sales and income approaches. The authors acknowledge that their conclusions diverge from those of other studies and suggest that "the results of this study not be extrapolated to areas outside the State of New Jersey," and that "results of studies from around the United States [should not] be applied to locations within New Jersey." **Clarion/Samuels Associates, The Impact of Downzoning on Agricultural Land Value in New Jersey (2004).**

4. A comprehensive study of the effect of downzoning for the purpose of agricultural land preservation in **Maryland** concluded that "the effect of downzoning was either higher land value for the downzoned counties or little or no appreciable effect on their land value." The study utilized data on the sales prices of agricultural lands over a period of approximately 20 years in seven Maryland counties, four of which had adopted agricultural zoning and three of which had not. The authors evaluated the impact of the adoption of agricultural zoning using the "Before-After: Control-Impact" methodology; the authors controlled for locational effects using a nearest neighbor concept designed to match properties subject to zoning restrictions with comparable properties not subject to zoning. The authors found no statistically significant difference in increases in land values between counties with agricultural zoning and those that did not have agricultural zoning. **Rob Etgen et al, Downzoning: Does it Protect Working Landscapes and Maintain Equity for the Landowner?, a report submitted to the Maryland Center for Agro-Ecology Inc. (2003),** *available at* **www.agroecol.umd.edu/files/sarahdownzoning.pdf.**

5. A study of lakefront zoning restrictions in the **north woods of Wisconsin** concluded that larger minimum lakefront requirements for second-home residential development resulted in a net increase in lakefront property values. The authors posit that lakefront zoning has both an amenity effect (by impeding development around the lakes, the zoning preserves scenic views, open space, and clean water) and a development effect (by impeding development, the zoning restricts the owner's ability to reap profits by developing a particular property). The study examined the sales prices of 893 undeveloped properties sold between 1986 and 1995, some of which were subject to a state 100-foot minimum frontage requirement, and some of which were subject to a more stringent 200-foot minimum frontage requirement adopted by several towns. The study concluded that the average per-foot value of lakefront property under the 200-foot rule was 21.5% greater than the average per-foot value of property subject to the state minimum, suggesting that the positive amenity effect of more stringent zoning outweighed the negative development effect. **Fiorenza Spalatro & Bill Provencher,** *An Analysis of Minimum Frontage Zoning to Preserve Lakefront Amenities***, 77 LAND ECON. 469 (2001).**

6. An analysis of the effect of development restrictions on agricultural land in **three Maryland counties** (Calvert, Carol, and Howard) found no statistically significant evidence that restrictions adversely affected sales values. The State of Maryland and the three counties established the development restrictions through voluntary purchases and transfers of development rights. The study looked at the effects of these programs by examining the sales prices of 224 farmland parcels sold between 1994 and 1997, some of which were enrolled in the programs and some of which were not. Although the authors found a slight correlation between development restrictions and lower land prices, they concluded that "preservation did not appear to significantly reduce sales prices from unpreserved parcels." The authors point to several potential explanations for these results. First, they suggest that investors may believe that the development restrictions might be lifted some time in the future. Second, they suggest that, because the program encourages groups of neighboring owners to place restrictions on their properties, hobby farmers and others interested in owning a home surrounded by protected open space may be willing to pay significantly more for these properties than the value of the capitalized income stream from agricultural production. **Cynthia Nickerson & Lori Lynch,** *The Effect of Farmland Preservation Programs on Farmland Prices***, 83 AM. J. AGRIC. ECON. 341 (2001).**

7. A study of sales prices of undeveloped properties in **Baltimore County, Maryland,** between the City of Baltimore and Pennsylvania, found no difference in the value of land zoned for one house per five acres vs. one house per 50 acres. The study, prepared by Applied Data Resources, Inc., a private consulting firm, for the Maryland Environmental Trust, examined the sales prices of every unimproved parcel of land of five acres in size or greater between 1986 and 1996 in a 90,000-acre area of Baltimore County. The authors found that there was no statistical difference between the per-acre value of 5-acre land and of 50-acre land, and could not even determine whether greater restrictions tended to increase or decrease land values. The authors offered various potential explanations for these results, including that (a) subdivisions yielding 5 acre lots were subject to a more demanding review process, and therefore were more likely to generate greater public opposition than very large-lot subdivisions, and (b) mandated infrastructure costs for large lot subdivisions might be lower than for subdivisions involving

smaller lots. In addition, the authors speculated that, "with the spread of subdivisions over the countryside in the larger metropolitan areas, lands that are protected from subdivision by zoning may sell at a premium." In other words, according to the authors, "buyers may be willing to spend more for protection from development." **Applied Data Resources, Inc., on behalf of the Maryland Environmental Trust, Report to the Valleys Planning Council on the Trading Value of RC-2 Zoned Land Compared with RC-4 Zoned Land in Northern Baltimore County (1996).**

8. A study of property around the **Chesapeake Bay in Maryland** of the Chesapeake Bay Critical Area Law, adopted by the Maryland legislature in 1986, concluded that the law, at least in the initial stages of implementation, had no discernible adverse effects on property values. The law defined the critical area as the tidal portion of the Chesapeake Bay including a 1000-foot landward extension from open water. The law prescribed various levels of development restrictions, to be administered by individual counties subject to oversight by a state board. The study tracked vacant land and residential property values in four counties, over a six-year period, starting four years prior to the law's enactment and ending two years after enactment. During the two year post-enactment period, owners and investors could generally determine whether a property would be included in the critical area, but not necessarily the exact type of development restrictions that would be imposed. The authors concluded that over the study period vacant land values did not decline, while the value of developed residential properties grew significantly. **W. Patrick Beaton & Marcus Pollock, *Economic Impact of Growth Management Policies Surrounding the Chesapeake Bay*, 68 Land Econ. 434 (1992).**

9. A masters thesis submitted to the Department of Agricultural Economics at Washington State University concluded that an extensive purchase of development rights program in **King County, Washington,** resulted in relatively lower land prices for restricted parcels than for unrestricted parcels. At the same time, the study concluded that the restricted parcels had a market value well above the estimated value of the property based on agricultural production. King County implemented a major purchase of development rights program in the mid-1980s involving the acquisition of development rights on more than 12,000 acres in 187 parcels at a cost of $54,000,000. This study was conducted five years after the establishment of the program, and used data on 43 sales transactions involving lands subject to development restrictions. The author concluded that the mean difference in the net per acre market value and the use value assessment was $3,375 per acre, and that the mean difference between the market value of restricted parcels and comparable unrestricted parcels was $1,217 per acre. The author speculated that purchasers may be paying prices well in excess of agricultural use value based on lack of information about the development restrictions or based on a belief that the restrictions would not be permanent. He also suggested that the market prices reflected the value of aesthetic and open space amenities provided by the conserved lands. This hypothesis was supported by data showing that the size of the premium above agricultural production value increased as the size of the parcel decreased, suggesting that the market for agricultural lands was being driven in part by purchasers of rural residential properties. **Mark Blakely, An Economic Analysis of the Effects of Development Rights Purchases on Land Values in King County, Washington (1991) (unpublished Masters Thesis, Washington State University, Department of Agricultural Economics).**

10. A study of property in the **New Jersey Pinelands** of the New Jersey Pinelands Protection Act concluded that the legislation imposed no "wipeouts" on property owners, including owners of undeveloped land in the most restricted areas of the Pinelands. On the other hand, the study concluded that the act conferred considerable "windfalls" on some owners within the Pinelands management area. The authors looked at property sales data from 1966 to 1986, comparing property values in two areas of the Pinelands – one subject to very stringent development controls and another subject to more modest restrictions – with property values in two "control" areas subject to comparable development pressures but not subject to the same level of regulation. The study tracked trends in land values over a twenty year period in which an emphasis on economic development was replaced with an emphasis on environmental protection and ultimately followed by the adoption of stringent land use restrictions in the Pinelands area. The study concluded that the Pinelands Protection Act produced a significant differential in the rate of appreciation of developed versus vacant properties, with developed properties appreciating at a faster rate. However, the study found that the values of the most restricted lands in the Pinelands area increased over the twenty-year period more than the values of properties in the control area. On the other hand, the authors found "strong evidence of windfall gains," with long-time owners of pre-existing residential properties "clearly benefit[ing] from the enactment of the Pinelands legislation." **W. Patrrick Beaton, *The Impact of Regional Land -Use Controls on Property Values: The Case of the New Jersey Pinelands*, 67 Land Econ. 172 (1991)**.

11. A study conducted in the early 1990s of trends in agricultural land values in **Maryland counties** with agricultural zoning restrictions found no evidence that the zoning restrictions reduced property values. A private consulting firm prepared the study for the State of Maryland Planning Office, primarily to address the concern that zoning restrictions might reduce farmers' equity in their lands and limit their ability to borrow money. The study looked at trends in sales prices of agricultural properties over periods of a decade or longer in four counties that had adopted agricultural zoning (Anne Arundel, Baltimore, Carroll, and Montgomery) and in two counties that had not adopted such restrictions (Cecil and Howard). Based on a non-quantitative assessment, the authors concluded that the data revealed no specific trends in land values due to restrictive zoning ordinances and, more specifically, provided no evidence of decreases in land values in counties with agricultural zoning. **Robert J. Gray et al., Resource Management Consultants, Inc., The Effects of Agricultural Zoning on the Value of Farmland (1991).**

12. A study of the effect of exclusive agricultural zoning in **Rock County, Wisconsin** under the Wisconsin Farmland Preservation Law concluded that agricultural zoning had both positive and negative effects and that the effects varied with parcel characteristics and other factors. The authors examined 120 farmland parcels sold in either 1980 or 1981. They concluded that the net effect of zoning depended on the zoning classification, parcel size, and distance from urban centers. According to their results, "agricultural zoning is positively capitalized into land prices for large farmland parcels somewhat removed from urban areas, parcels without much development potential." On the other hand, "[s]maller agricultural parcels relatively close to an urban area sold for a higher price if unzoned, indicating a negative

capitalization effect." **David M Henneberry & Richard L. Barrows,** *Land Capitalization of Exclusive Agricultural Zoning into Farmland Prices*, **66 LAND ECON. 249 (1990)**.

13. An examination of the effects of an agricultural zoning program in the **Carignan/Saint Mathias areas of Quebec, Canada**, concluded that the restrictions had a statistically significant negative influence on property values. The study looked at the effect of The Act to Preserve Agricultural Land, approved by the Quebec National Assembly in 1978. The authors collected price data based on 1,284 land sales between 1975 and 1981. The authors concluded, based on a comparison of the prices of parcels subject to agricultural zoning and parcels not subject to such restrictions, that properties subject to the zoning were worth between 14.7% and 30.5% less than the unzoned properties. **Francois Vaillancourt & Luc Monty,** *The Effect of Agricultural Zoning on Land Prices, Quebec, 1975-1981*, **61 LAND ECON. 36 (1985).**

14. Another time series analysis of land values following the adoption of a growth management system by **Brooklyn Park, Minnesota,** a suburb of Minneapolis, concluded that regulatory restrictions were associated with lower property values. In the mid-1960s the community adopted a series of integrated restrictions on public services and regulatory constraints designed to limit development in the northern, generally agricultural portion of the community, and concentrate development in the southern portion of the community. The study looked at the effect of the growth management policies on both agricultural lands and vacant, non-agricultural lands. The author found that the program was associated with a dramatic divergence in the values of agricultural lands, with agricultural values in the northern section being about one-third of the values in the southern section. The author also found a divergence in the values of vacant, non-farm properties in the two sections, but not at a statistically significant level. Given that Brooklyn Park was only a single community in a larger metropolitan area, the author speculated that a restriction on land supply probably did not cause an increase in the value of developable properties, suggesting that the regulations might instead have depressed the value of regulated lands. **Michael E. Gleeson,** *Effects of an Urban Growth Management System on Land Values*, **55 LAND ECON. 350 (1979).**

II.   Effects of Oregon Land Use Restrictions.

Summarized below are descriptions of studies in Oregon of the effect on land use restrictions on land values.

1. An analysis of the effects of environmental zoning on the value of developed residential properties in **Portland**, revealed that the net economic effect of the restrictions was positive in some locations and negative in others. The authors started from the theoretical premise that the effect of zoning was uncertain:
> While limiting the ability to expand a home's footprint, changing how a lot can be subdivided, or whether vegetation that is blocking a desirable view may be removed may decrease a property's sale price (the "development" effect), . . . proximity to amenities such as wetlands, natural areas, and streams . . . may increase a property's sale price (the "amenity" effect).

The study looked at the effect of two types of environmental zoning: environmental-protection

zoning (p-zoning), which allows current structures to be maintained but prohibits increasing the footprint of a house, adding a deck, or altering the vegetation, and environmental conservation zoning (c-zoning), which permits additional development so long as alternatives have been considered. The study looked at the effect of these restrictions, alone and in combination, by dividing the city into five sections. Focusing solely on statistically significant results , p-zoning had a positive effect in one section of the city and a negative effect in another, c-zoning also had a positive effect in one section and negative effect in another, and the two zoning classifications in combination had positive effect in two sections. **Noelwah R. Netusil, *The Effect of Environmental Zoning and Amenities on Property Values: Portland, Oregon*, 81 LAND ECON. 227 (2005)**.

2. A cross-sectional hedonic study of the relationship between the property values of vacant parcels in the exclusive farm use and the rural residential zones of **Washington County,** west of Portland, found that land prices were higher in the rural residential zone to a statistically significant degree. The study examined sales transactions involving 41 vacant exclusive farming use parcels and 109 vacant rural residential parcels between 1983 and 1986, shortly after the Land Conservation Development Commission approved the local regulatory program. The rural residential zone permitted residential development with minimum lot sizes of 5, 10, and 20 acres, while parcelization and home construction were highly restricted in the exclusive farming use. The author concluded that the mean price per acre of land in the total sample was about $7,300, but the exclusive farmland parcels were about 25%, or $1,800, lower in value in relative terms. **Arthur C. Nelson *An Empirical Note on How Regional Urban containment Policy Influences on Interaction Between Green Belt and Exurban Land Markets*, APA J. Spring 1998, at 178.**

3. Another cross-sectional hedonic study of the influence of the urban growth boundary in **Salem**, found a statistically significant association between the prices of vacant parcels and their locations inside or outside the urban growth boundary. The study looked at a total of 209 sales of vacant land in excess of nine-tenths of an acre and less than 100 acres and situated within and three miles beyond the Salem UGB. Eighty-six of the parcels were located within the UGB and 123 were located beyond the UGB. A regression of land values with location inside or outside the UGB was significant at the 99% confidence level, lending "empirical support," according to the author, "to the assertion that containment programs increase the demand for urban land, reduce the demand for rural land and segment the urban fringe land market into urban and rural submarkets." **Arthur C. Nelson, *Demand, Segmentation, and Timing Effects of an Urban Containment Program on Urban Fringe Land Values*, 22 URB. STUD. 439 (1985).** (A subsequent article by Arthur Nelson describing the same study quantified the gap in land values at the UGB boundary by stating that "a parcel's location inside the boundary increases its value by nearly $3900 per acre." **Arthur C. Nelson, *Using Land Markets to Evaluate Urban Containment Programs*, APA J., Spring 1986, at 156.**

4. Another cross-sectional study of **Washington and Clackamas counties** found a statistically significant difference between land values inside urban growth boundaries and those outside. The data consisted of every vacant single-family home site sold during the year 1980 in the two counties. The study looked at the effect of a traditional UGB, as well as an "Intermediate Growth Boundary," a designation which identified the lands inside the UGB that

were scheduled to be developed first. The study found that the difference in land values at the UGB boundaries was significant at the 99% confidence level. The intermediate boundary was found to be a significant constraint in the case of Washington County, but not in Clackamas County. The author suggests that relatively higher land values inside the urban growth boundary reflect expectations that in the future areas within the UGB will be rezoned for urban use sooner than other areas. **Gerrit J. Knapp, *The Price Effects of Urban Growth Boundaries in Metropolitan Portland, Oregon*, 61 LAND ECON. 26 (1985).**

III. Effects of Tax Abatement Programs.

It is a virtual article of faith among economists that current and expected levels of property taxation are, at least to some degree, "capitalized" into the value of land. Everything else being equal, if taxes go up, land prices will go down; if taxes go down, prices will go up.[1] Thus, virtually from the inception of state tax abatement programs designed to protect farmland, economists have suggested that these programs would result in increases in farmland prices.[2] While there is essential unanimity on this basic point, the extent of the capitalization effect has been a matter of continuing debate, in part because of the difficulty of isolating the effect of taxation polices on land values, and in part because of the wide range of state policies on taxation of agricultural lands.[3] Surprisingly, we were able to locate only a few empirical studies examining whether lower taxation of agricultural lands leads to higher property values, which we summarize below.

1. A study of **New York's** farmland protection program found a positive association between participation in the tax abatement program and higher land values, but not at a statistically significant level. The study was based on hedonic regression analysis using a data set obtained from state tax authorities consisting of information on farmland sales prices between 1981 and 1986. To simplify the analysis, the authors eliminated all parcels with structures, and focused exclusively on transactions involving arable lands and pastures. The authors speculated that the lack of statistically significant results might have been due to the fact that farmers facing significant development pressures did not enroll in the voluntary program, while those farms enrolled in the program probably tended to have a relatively high value based on agricultural production. **Donald Vitaliano & Constance Hill, *Agricultural Districts and farmland Prices*, 8 J. REAL EST. FIN. & ECON. 213 (1994).**

2. A study of the **Michigan** tax abatement program for agricultural lands concluded that the tax credits paid 80-90% of enrolled farmers' property taxes while raising land values by just under 10%. The Michigan "circuit breaker" program has two components. First, agricultural

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[1] *See* E. C. Pasour, Jr. *Real Property Taxes and Farm Real Estate Values: Incidence and Implications* 55 AM. J. AGRIC. ECON. 549- 56 (1973).

[2] *See* Brady J. Deaton & S. Darrell Mundy *Real Property Taxes and Farm Real Estate Values: Incidence and Implications: Comment*, 57 57 AM. J. AGRIC. ECON. 125-26 (1975).

[3] *See* Arthur C. Nelson, *Farmland Preservation Policies: What Works, What Doesn't and What We Don't Know*, PROC. OF CONFERENCE ON THE PERFORMANCE OF STATE PROGRAMS FOR FARMLAND RETENTION. (1998).

land owners are eligible to participate in the general homestead property tax credit on state income taxes, providing a credit of up to $1,200. In addition, farmers who agree to forego development for up to ten years receive an income credit equal to the difference between their property taxes and 7.0% of household income. Under the Michigan program, an increase in land values or tax rates does not offset the tax abatement because farmers' tax liabilities are capped by income level. The authors constructed a data set based on county level information collected from 82 of 83 Michigan counties. The authors used a system of three simultaneous equations to analyze the interaction between land value, tax rates, and tax credits. They found that there was a statistically significant relationship between the tax credits and higher land values, and that on average the credits accounted for 8.33% of total land value. **John E. Anderson & Howard C. Bunch,** *Agricultural Property Tax Relief: Tax Credits, Tax Rates, and Land Values*, 65 Land Econ. 13 (1989).

3. A study of farm economic conditions in **Illinois** concluded that the state use value assessment program resulted in increases in average land prices of approximately $1,000 per acre. The study consisted of a simulation of the economic conditions of a hypothetical 600-acre grain farm in east central Illinois where an owner owned half the acres and leased the remaining half. The simulation assumed financial conditions based on actual commercial data for the area. **David L Chicone et al.,** *The Effects of Farm Property Tax Relief Programs on Farm Financial Conditions*, 58 Land Econ. 516 (1982).

IV. Effects of Federal Agricultural Programs.

Numerous economic studies have examined the effects on agricultural land values of the various federal programs providing financial assistance to farmers. The consistent conclusion from these studies is that federal subsidy programs have had a significantly positive effect on property values. In addition, the studies have documented an enormous diversity in the effects of these programs in different parts of the country. To the extent the studies have focused on Oregon specifically, they suggest that farm programs have had a positive, but relatively modest, effect on land values because Oregonians are not, at least in relative terms, major beneficiaries of farm program payments. Descriptions of a sampling of these studies are provided below.

1. A study of land values in southeastern **Montana** concluded that the government price support program for sugar resulted in noncash income transfers to U.S. sugar beet producers that have been capitalized into the value of the land. The study concluded that irrigated land values in Montana sugar beet-producing counties could decline by as much as 32% in the absence of the sugar beet program. In contrast to more traditional agricultural support programs, the sugar program operates by establishing a quota on sugar imports into the United States and through a government-supported loan program; the net effect of the program is to establish a floor for U.S. sugar prices that is well above world prices. Using a standard hedonic land price regression, the authors concluded that the (subsidized) price of sugar beets has a significant positive effect on the price of sugar-beet producing lands. **Mykel Taylor & Gary W. Brester,** *Noncash Income Transfers and Agricultural Land Values*, 27 Rev. Agric. Econ. 526 (2005).

2. A **national survey** of the effects of agricultural subsidy programs on land values

performed by staff of the U.S. Department of Agriculture's Economic Research Service concluded that approximately 20% of the total $312 billion in agricultural land value in the United States as of January 1, 2001, was attributable to farm subsidy programs. The study utilized hedonic price regressions designed to identify the amount by which average county farm land values increased for each additional dollar of farm commodity program received by farm operators in each county. The so-called Heartland region, encompassing the mid-western Corn Belt, accounted for $43 billion, or approximately two-thirds of the enhanced value. The authors observed that as of 2000, direct government payments to farmers totaled nearly $23 billion, representing about 40% of net cash farm income, up from less than 4% in 1989. **Charles Barnard at al.,** ***Higher Cropland Value from Farm Payments: Who Gains?*****, AGRIC. OUTLOOK, Nov. 2001, at 26**.

3. A **national study** using two econometric techniques concluded that agricultural commodity programs have had a significant positive affect on property values. The authors used a linear regression analysis to relate agricultural land values to the level of government payments and other factors, and they found a statistically significant association between land values and payments in all regions of the country. The authors also used a nonparametric regression technique to attempt to quantify the effect on land prices in different parts of the country. They concluded that up to 50% of the value of agricultural land represented the capitalized value of agricultural payments, with the southern Corn Belt, and parts of North Carolina, Georgia, and Alabama exhibiting the highest fraction of land value attributable to government payment programs. They concluded that in Oregon there was little or no discernible effect on land values in most parts of the state. However, they estimated that between 8 and 14% of land value was attributable to government payments in parts of the Willamette Valley, in areas in the northeastern corner of the state, and in several other scattered areas round the state. **Charles H. Barnard at al.,** ***Evidence of Capitalization of Direct Government Payments into U.S. Cropland Values*****, 79 AM. J. AGRIC. ECON. 1642 (1997).**

4. An effort to model the effects of the 1990 Farm Bill on the value of cotton "base acres" in **Alabama** concluded that the effect varied widely, depending upon the circumstances of the individual farmer, ranging from as little as $8.00 per acre up to $108.00 per acre. The authors used mixed integer programming and dynamic programming models to examine the effect of the economic subsidy provided to cotton farmers on designated base acreage. The economic analysis was complicated by the fact that farmers not enrolled in the program could establish base acres by developing a planting history in cotton. Thus, the authors concluded that the difference in the sales price of agricultural land with base acres as compared to land without base acres was largely determined by the opportunity cost, in terms of lost profits, of building a cotton base. Despite these complexities, the authors concluded that the federal cotton program had a significant positive effect on land values. **Patricia A. Duffy et al.,** ***The Economic Value of Farm Program Base,*** **70 LAND ECON. 318 (1994).**

5. A study of **12 Iowa counties** concluded that landowners who possessed corn "base acres" under the 1990 Farm Bill enjoyed higher land values by approximately $200 per acre. The authors arrived at this result by performing a hedonic analysis seeking to associate the rents operators were willing to pay for agricultural land with the land's enrollment as base acreage,

which conferred the right to receive commodity program payments. They found that the implicit value of base acreage ranged from $14.04 in 1989 to $10.50 in 1990. The discounted stream of returns to base acreage suggested an asset value for base acreage of approximately $200 per acre. Thus, the authors concluded that the corn commodity program increased the value of affected lands by roughly 11% to 14%. **Joseph A. Herriges et al., *The Implied Value of Corn Base Acreage*, 74 AM. J. AGRIC. ECON. 50 (1992)**.

      6. A **nationwide** analysis of the Conservation Reserve Program, under which farmers receive cash payments in exchange for agreeing to idle easily erodible soils, concluded that the program increased the value of lands across the country in the period 1986 to 1987 by as much as half a percent. The author posits that the Conservation Reserve program positively influences land values in two ways: first, by allowing farmers to receive payments for their land in excess of its rental value for agricultural use; and second, more indirectly, by limiting the amount of land in production, restricting the level of production of certain crops, raising crop prices, and ultimately raising the value of land in production. **Robbin Shoemaker, *Agricultural Land Values and Rents Under the Conservation Reserve Program*, 65 LAND ECON. 131 (1989).**

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