

# THE EFFECTS OF LAND-USE REGULATIONS ON PROPERTY VALUES

BY  
WILLIAM K. JAEGER\*

*Land-use regulations can affect property values in a variety of complex ways. In the context of laws like Oregon's Measure 37, requiring that landowners be compensated if regulations reduce property values, the economic effects of land use regulations on property values have been widely misinterpreted because two very different economic concepts are being confused and used interchangeably. The first concept is "the effect of a land use regulation on property values" which measures the change in value when a regulation is added to many parcels. The second concept is "the effect of an individual exemption, or variance, to an existing land use regulation," which measures the change in value when a regulation is removed from only one parcel.*

*The effect of a land-use regulation on property values can be positive or negative, whereas removing a land-use regulation from one property can be expected to have a positive effect. Indeed, many land-use regulations actually increase property values by creating positive "amenity effects" and "scarcity effects." As a result of these differences, a positive estimate for removing a land-use regulation cannot be interpreted as proof that the other concept was negative. Despite this, a positive value for an individual exemption to a land-use regulation continues to be interpreted as proof that compensation is due under Oregon's Measure 37. Indeed, this mistaken interpretation may be partly responsible for public sentiment that land-use regulations tend to reduce property values.*

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\* © William K. Jaeger, 2006. Associate Professor of Agricultural and Resource Economics, Oregon State University, Corvallis, Oregon. Comments on an earlier draft from Emery Castle, Greg Perry, Andrew Plantinga, and Rob Zako are gratefully acknowledged. However, the author alone is responsible for the paper's contents.

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## I. INTRODUCTION

Land-use regulations can affect the market value of property in a variety of ways. Although some of the effects may be straightforward, in most cases they are complex and can easily be misunderstood or misinterpreted. In particular, it has been assumed that land-use regulations invariably reduce property values when, in fact, they often have positive effects.

The positive effect of a land-use regulation on property values can occur two ways. One way is an “amenity effect”—when land-use regulations protect, enhance, or create amenities or services that benefit property owners. Perhaps the most transparent example of this is the property tax: many communities use property taxes to finance public services like police and fire protection, public schools, and infrastructure such as roads and utilities. These public services help these communities prosper, and make them an attractive place to live, which in turn raises property values.<sup>1</sup>

Similar kinds of positive amenity effects arise with other kinds of land-use regulations such as regulations to protect environmental amenities, open space and farmland, or to control objectionable conditions such as noise, congestion, and pollution.<sup>2</sup> Like a property tax, these land-use regulations impose costs or restrictions on landowners’ actions, but they also generate beneficial effects. Indeed, the motivation behind most land-use regulations is to protect or enhance amenities that contribute to a community’s health, safety, and welfare.

The other way that land-use regulations can increase land values is through their “scarcity effects.”<sup>3</sup> By increasing the scarcity of land available for a particular use in a particular location, the prices for those lands are bid up in the market. For example, a limit on the land available for development in one location is likely to increase the price of developed and developable lands. These effects can be very large, and they can have spillover effects on land prices in other locations.

Since the cause-and-effect connection between a land-use regulation in one location and heightened demand for lands in other locations is indirect, it is unlikely to be apparent to most landowners. What landowners will

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<sup>1</sup> See GORDON C. BJORK, *LIFE, LIBERTY AND PROPERTY* 85–86 (1990) (discussing the argument that services provided by property taxes increase the value of the real estate to which they are applied).

<sup>2</sup> See *Village of Euclid, Ohio v. Ambler Realty Co.*, 272 U.S. 365, 388 (1926) (justifying the classic use of zoning police power by stating, “[t]here is no serious difference of opinion in respect of the validity of laws and regulations fixing the height of buildings within reasonable limits, the character of materials and methods of construction, and the adjoining area which must be left open, in order to minimize the danger of fire or collapse, the evils of over-crowding, and the like, and excluding from residential sections offensive trades, industries and structures likely to create nuisances”).

<sup>3</sup> See BJORK, *supra* note 1, at 92–93 (discussing the effect of large-lot residential zoning on housing scarcity and housing costs).

recognize, however, is *the value of an individual exemption*. The value of an individual exemption is defined here as the increase in value for an individual property, currently subject to a binding land-use regulation that would occur if it were given an exemption or waiver to the regulation. If a land-use regulation constrains landowners from actions or uses that would increase their land's value, then it follows that an exemption to that regulation will increase the property's value. Evidence that an individual exemption would increase a property's value has been widely interpreted as evidence—or even proof—that the land-use regulation had reduced the property's value in the first place. This is erroneous, however. Indeed, an exemption to a binding land-use regulation can be expected to increase a property's value even in cases where the regulation has raised property values.

The purpose of this paper is to examine the direct and indirect ways that land-use regulations can, and do, increase property values as a result of their amenity and scarcity effects. A second purpose of the paper is to clearly distinguish between two very different economic concepts: *the effect of a land-use regulation on property values*, and *the value of an individual exemption to a land-use regulation*. It will be shown that the latter concept can be expected to be positive whether the former concept is positive or negative.

These issues are important in the legal debates at the national level involving takings cases, and they are highly relevant to Oregon's Measure 37, passed by voters in November 2004.<sup>4</sup> Measure 37 requires that when a land-use regulation “has the effect of reducing the fair market value of the property,” then either a payment must be made to landowners equal to the reduction in the fair market value, or a waiver must be granted from the regulation.<sup>5</sup> Determining whether land-use regulations have had positive or negative effects on land values is, of course, a central question in this context. These same issues have arisen in the context of many federal regulatory takings cases.<sup>6</sup> And, while U.S. courts have long recognized that landowners frequently benefit from land-use regulations because of their “mutual reciprocity of advantage,”<sup>7</sup> other assessments, such as a 1999 Congressional Budget Office report, have failed to recognize or acknowledge the potential positive amenity and scarcity effects.<sup>8</sup>

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<sup>4</sup> Ballot Measure 37 (Or. 2004), *available at* [http://www.sos.state.or.us/elections/nov22004/guide/meas/m37\\_text.html](http://www.sos.state.or.us/elections/nov22004/guide/meas/m37_text.html).

<sup>5</sup> *Id.* § (1)–(2), (8).

<sup>6</sup> See GEORGE SKOURAS, *TAKINGS LAW AND THE SUPREME COURT: JUDICIAL OVERSIGHT OF THE REGULATORY STATE'S ACQUISITION, USE, AND CONTROL OF PRIVATE PROPERTY* 35 (1998) (noting that, in the seminal Supreme Court case *Village of Euclid, Ohio v. Ambler Realty Co.*, 272 U.S. 365 (1926), land values were reduced from \$10,000 per acre to \$2,500 per acre as result of the Village of Euclid using its residential zoning district to preclude Ambler's desire to develop the land for industrial purposes).

<sup>7</sup> See, e.g., *Euclid*, 272 U.S. at 394–95 (giving an example where apartment houses should be excluded from a single-family residential district so as to not “utterly destroy[]” the desirability of that district).

<sup>8</sup> CONGRESSIONAL BUDGET OFFICE, *REGULATORY TAKINGS AND PROPOSALS FOR CHANGE* (Dec. 1998), *available at* <http://www.cbo.gov/ftpdocs/10xx/doc1051/takings.pdf>. For a criticism of the CBO paper, see C. Ford Runge, *The Congressional Budget Office's Regulatory Takings and*

As Oregon's state and local governments respond to claims under Measure 37, the way they interpret these relationships could have a profound effect on how governments respond to claims, and how costly those responses are to the public.<sup>9</sup> In Oregon's case, the second concept, *the value of an individual exemption*, has commonly been interpreted as being identical to, or a proxy for, the first concept.

In the next two sections of the paper, the two ways in which land-use regulations may affect property values are discussed, starting with the scarcity effects in Part II, followed by the amenity effects in Part III. Part IV presents empirical evidence that land-use regulations often raise property values. The distinction between *the value of an individual exemption* and *the effect of land-use regulations on property values* is elaborated upon in Part V. Part VI discusses the dynamic and interconnected interactions between land-use regulations and other private and public actions. Part VII describes the kinds of circumstances in which land-use regulations can lower property values. Concluding comments are presented in part VIII.

## II. SCARCITY EFFECTS OF LAND-USE REGULATIONS

The purpose of this section is to describe the scarcity effects of land-use regulations by presenting a simple framework for thinking about how land markets adjust to land-use regulations—a framework that can be applied to different kinds of regulations for a range of market conditions. A standard approach in economics for evaluating the effect on market prices of a policy change is to consider the market outcome with the change, and to compare it to the hypothetical alternative: what would have happened without the policy change. This “with versus without” method considers the changes in supply and demand, and evaluates how those changes affect prices in one or several markets.

In the case of land-use regulations, the “with versus without” approach will require an analysis beyond the standard methods of property appraisal because appraisal methods are not designed or intended to estimate the scarcity effects caused by these kinds of market shifts. Appraisers rely on observed market transactions involving similar or “comparable” properties, making adjustments for characteristics of the property that have been observed to increase or decrease the value of a property compared to average characteristics in the area (e.g., larger acreage, smaller house, view, etc.). But these methods implicitly assume that a property identical to other properties that sold for a price  $X$ , will also be worth  $X$ , no matter how many such properties were to be put on the market.

To clearly see how land-use regulations may affect market prices, consider a situation where a land-use regulation limits the kind of use allowed on specified lands. As a result of this, the supply of land available for the “allowed use” is likely to remain higher than it otherwise would have

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*Proposals for Change: One-Sided and Uninformed*, ENVTL. L. AND PRAC., Fall 1999, at 5.

<sup>9</sup> For additional discussion of the way compensation is defined in Measure 37, see ANDREW PLANTINGA, MEASURING COMPENSATION UNDER MEASURE 37: AN ECONOMIST'S PERSPECTIVE (Dec. 9, 2004), available at <http://arec.oregonstate.edu/faculty2/measure37.pdf>.

been without the regulation, and the supply of land available for the “disallowed use” is likely to be lower than it otherwise would have been without the regulation. With these supply shifts, land prices for one land use may rise following the enactment of the regulation, and land prices for alternative land uses may decline following the regulation’s introduction.

These market adjustments will give rise to a price differential, or wedge, between the land prices in the two land markets—one that will equal the negative price adjustment in one market plus the positive change in the other market. An example of these kinds of changes in land prices that might occur over time is illustrated in Figure 1. The effect of the land-use regulation on regulated lands is the decline in the solid line after the regulation takes effect; the differential, or wedge, between the prices for the regulated and unregulated lands is much larger than the reduction in price for the regulated lands (in this particular example), so that looking only at this wedge, or differential, could easily be misinterpreted (see appendix for a more detailed analysis of the market shifts involved).

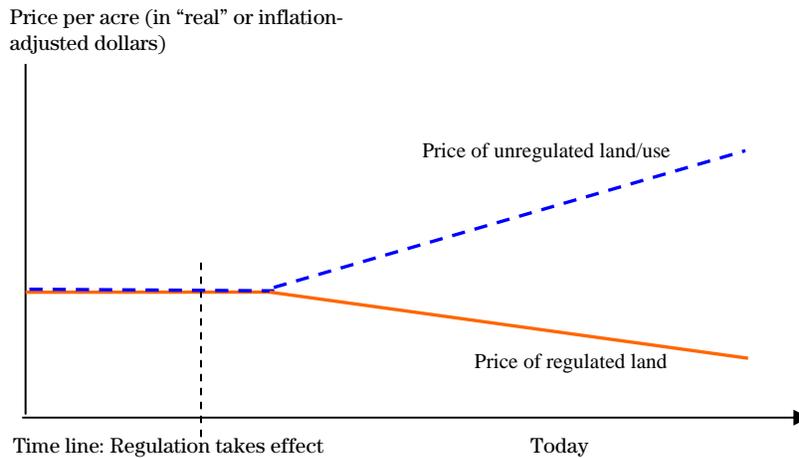


Figure 1. Illustrating price changes with land-use regulations.

Given the possibility of a price effect for both regulated and unregulated land due to the land-use regulation, it would be presumptuous to attribute the entire price differential between the two markets to a reduction in property values for the regulated lands. To use an analogy, if you tie your boat to a coastal pier and then, after a period of hours, notice that the level of the boat is now below the level of the pier, you are unlikely to ask: Did the pier move up or did the boat move down? You will immediately understand that piers don’t move up, but that an outgoing tide could have easily caused the boat to fall.

By contrast, in the case of a price difference between two different land markets, the answer to the analogous question is not obvious at all, even though we may instinctively jump to one conclusion. Does the observed

price differential measure the price increase for the one land use, or does it measure the price decrease for the other land use? In order to answer this question, we need a way to measure and separate the effect of the regulation on land prices in at least one of these markets in order to distinguish it from the total price difference or the price effect in the other land market. Depending on the specific market conditions, the total price differential between the two markets may be mostly, or entirely, attributable to price adjustments in one of the two markets, or it may be divided between the two. Alternatively, of course, we can look only at the changes in the price of the affected land from before and after the introduction of the land-use regulation. This approach would avoid some of the ambiguity created when looking at the value of lands not subject to the land-use regulation, but it may not avoid the problem of other factors, related or unrelated to the land-use regulation, that may affect land values over a given period of time.

Indeed, the effect of a land-use regulation on property values will extend beyond a given, narrowly-defined location or vicinity where equivalent parcels are “perfect substitutes.” When the supply of land in one market is reduced relative to demand, the scarcity effects not only drive up prices in that market, but they also cause potential buyers to look at “imperfect substitutes” (for example, lots in other locations). The pent-up demand resulting from the land-use regulation will shift demand from one market or location to another market or location, which in turn may drive up prices in those markets. If these secondary markets are not subject to the same land-use regulation, then prices will rise in them. If the secondary market is subject to the land-use regulation, then landowners will view this pent-up demand as an opportunity for financial gain that is being blocked by the land-use regulation.

Consider a city surrounded on all sides by farmlands, and where land-use regulations such as exclusive farm use (EFU) or urban growth boundary-type (UGB) restrictions have prohibited development of properties outside the boundary as depicted in Figure 2. Suppose that in the absence of the regulation, residential development would have spread only in areas labeled A, B, C, and D (lying to the north and east of the city center), but not to the south, west, or more distant zones (parcels in areas labeled E through L).

With the land-use regulation in effect, however, there is pent-up demand for developable lots, since development in areas A–D is not permitted. This unmet demand will extend beyond areas A–D, and may manifest itself in offers for lots in any or all of the other labeled areas. In the absence of available parcels to the north and east of the city, developers’ pent-up demand spills over into areas that they would not have been interested in were it not for the scarcity effects of the land-use regulation. As a result, farmers with lands in locations to the south and west of the city center will be aware that if their land *could* be developed, they could sell it for a price much higher than its value as farmland. The effect of the land-use regulation has been to raise their (potential) property’s value.

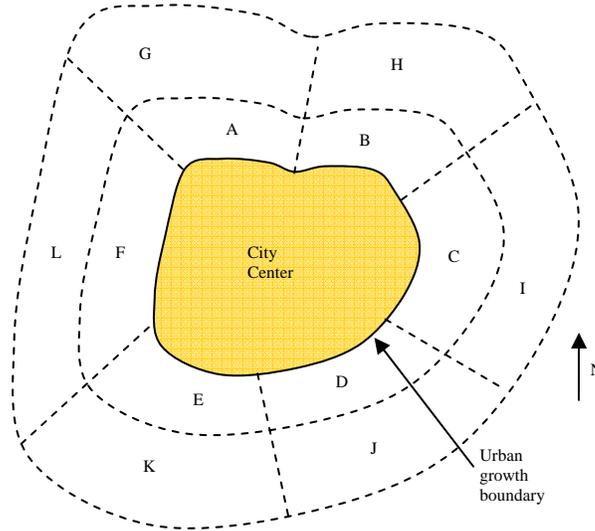


Figure 2. Potential shift in location of demand for developable lands with growth limits.

Ironically, those landowners in areas subject to the land-use regulation may not realize that the developer's interest in buying their land at a high price is a direct *result of* the very same land-use regulation that prohibits them from developing the land (or lands in any of the areas outside the UGB). In that sense it would be illusory to believe that if the land-use regulation were removed from *all* lands the same price premium would be offered to this particular farmer. This hypothetical example illustrates the fallacy of confusing *the value of an individual exemption* with *the reduction in value due to the land-use regulation*. Indeed, the pattern of property values in this hypothetical case may be more like those represented in Figure 3, where the regulated lands experience no reduction in value, even though lands not subject to the regulation see an increase in value owing to the scarcity effects of the regulation.

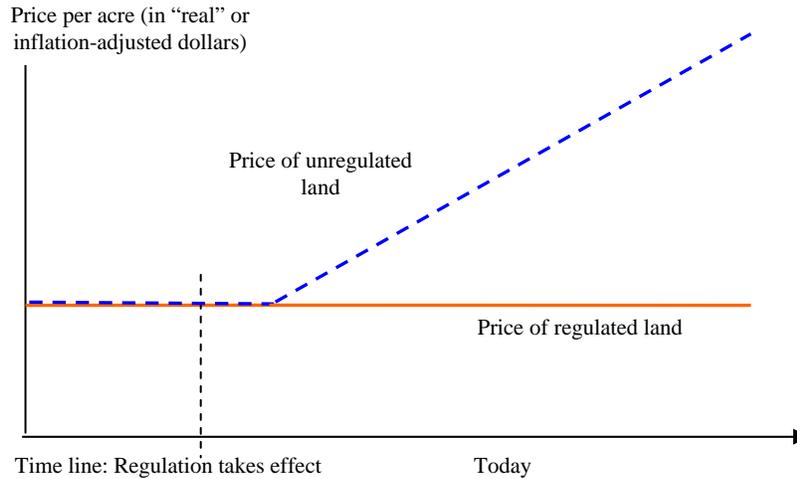


Figure 3. A case where land-use regulations do not affect prices of regulated properties.

The increase in value for unregulated lands (where development is not constrained or prohibited) may be large depending on the scale, or area, over which the land-use regulation is limiting. The more locations affected by the land-use regulation, the more the resulting pent-up demand will be reflected in the value of an individual exemption.

### III. AMENITY EFFECTS OF LAND-USE REGULATIONS

Amenity effects are the second of the two ways that land-use regulations can have positive effects on land values. The most transparent example of amenity effects arises when landowners are required to pay a property tax, with the resulting revenues used to provide public services such as police and fire protection, public schools, roads, and other utilities.<sup>10</sup> Although property taxes are not usually thought of as land-use regulations, they fit the general profile—government actions that impose a cost on individual landowners, but at the same time give rise to shared benefits in the form of amenities and public services.<sup>11</sup>

Less transparent but equally valid examples of amenity effects include land-use regulations to protect environmental quality, open space, groundwater availability and quality, or to reduce noise, congestion, or pollution, as well as agricultural lands and lands with historical significance.<sup>12</sup> Regulations of this kind may require actions having positive

<sup>10</sup> BJORK, *supra* note 1, at 85–86.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.* at 62 (“Zoning is the land-use control device in general use that extends, limits, and defines land use, that secures the conferral of valuable environmental amenities, and that prevents the imposition of undesirable neighborhood effects.”).

effects, or limit actions having negative effects.<sup>13</sup> Regulations of this kind in residential areas include building restrictions, environmental zoning, restrictions on paint color for houses, and even lawn mowing rules that are enforced in some communities.<sup>14</sup> Like property taxes, these kinds of regulations impose costs on individuals because they limit options, but they also confer shared benefits that may result in increased property values.<sup>15</sup>

Land-use regulations that confer amenity benefits are likely to give rise to higher property values like those depicted in Figure 4. So long as the costs of compliance are small relative to the collective benefits from the amenities, the net effect should be an increase in property values.<sup>16</sup> This can occur with regulations such as environmental zoning in residential areas which limits the “footprint” of houses and other improvements to protect neighborhood aesthetics and environmental amenities.<sup>17</sup>

This characterization of amenity benefits in economic terminology is similar to the legal concept of “average reciprocity of advantage” that has been noted in federal takings cases. Reciprocity of advantage was identified by Justice Holmes in *Pennsylvania Coal Co. v. Mahon* as a justification for denying compensation for takings.<sup>18</sup> More recently the same concept has been explained as follows: “While each of us is burdened somewhat by such restrictions [on the uses individuals can make of their property], we, in turn, benefit greatly from the restrictions that are placed on others.”<sup>19</sup> U.S. courts appear, in general, to bar compensation for takings claims when there exists some level of mutual benefits accruing to landowners.<sup>20</sup> These rulings do not appear to consider whether these reciprocal benefits are large enough to equal or outweigh the costs of the regulations imposed on landowners.<sup>21</sup>

<sup>13</sup> See Laurence Katz & Kenneth T. Rosen, *The Interjurisdictional Effects of Growth Controls on Housing Prices*, 30 J.L. & ECON. 149, 150 (1987) (discussing regulations concerning restrictions and regulations requiring improvements).

<sup>14</sup> See, e.g., Portland Dev. Code § 29 (2005), available at <http://www.portlandonline.com/auditor/index.cfm?c=28193> (property maintenance regulations); Portland Dev. Code § 33.430, available at <http://www.portlandonline.com/shared/cfm/image.cfm?id=53343> (environmental overlay zones).

<sup>15</sup> See SKOURAS, *supra* note 6, at 32 (discussing the average reciprocity of advantage analysis used by the Supreme Court where the fact that a regulation might also provide benefits to the burdened party is a factor in takings cases).

<sup>16</sup> See Richard K. Green, *Land Use Regulation and the Price of Housing in a Suburban Wisconsin County*, 8 J. HOUSING ECON. 144, 144 (1999) (starting with premise that regulations increase price of housing).

<sup>17</sup> See, e.g., Metro (Portland) Title 3 Model Ordinance, at 24, available at [http://www.metro-region.org/library\\_docs/land\\_use/modelord.pdf](http://www.metro-region.org/library_docs/land_use/modelord.pdf) (setting a maximum footprint of 5,000 square feet of disturbed area for granting of a variance to allow building in a water quality resource area, defined as a vegetated corridor around a water resource protected to improve water quality and provide related environmental benefits).

<sup>18</sup> 260 U.S. 393, 415 (1922).

<sup>19</sup> *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470, 491 (1987). I am grateful to Michael Rubin, Chief of the Rhode Island Attorney General's Environmental Unit, for drawing my attention to “reciprocity of advantage.”

<sup>20</sup> See RICHARD A. EPSTEIN, *TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN* 103 (1985) (claiming courts tend to give lawmakers “free rein”).

<sup>21</sup> *Id.*

In these cases, however, an individual exemption from the land-use regulation allows one property owner to both avoid the compliance costs and benefit from the amenities. The result will likely be an (additional) increase in the value of the exempted property even though the land-use regulation had already raised property values (see the appendix for a more detailed analysis of these market adjustments).

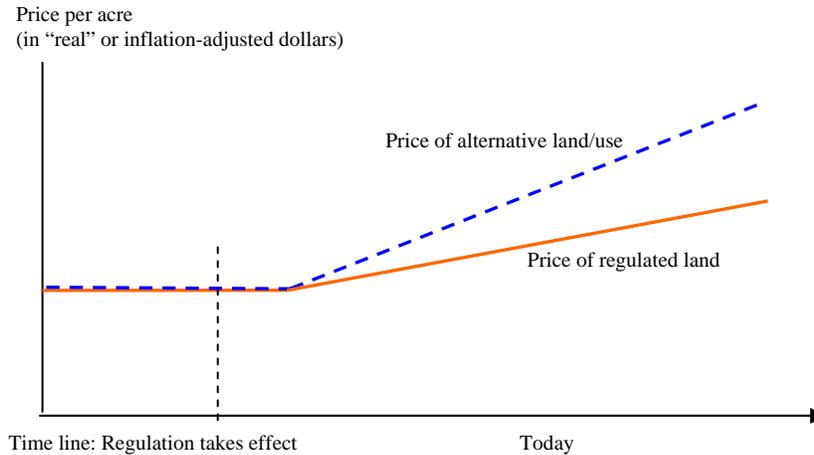


Figure 4. Land price changes when land-use regulations have “neighborhood” effects.

Environmental zoning is an example that is directly relevant to Oregon’s Measure 37. These types of regulations are frequently motivated by recognition that environmental amenities, such as habitat protection, may not be adequately protected by the decisions of individual landowners.<sup>22</sup> These regulations may also be motivated by a recognition that there can be positive neighborhood externalities when a given property is surrounded by other properties with trees, streams, open space, or other amenities that make the neighborhood more attractive to residents.<sup>23</sup> Even in cases where such amenities have successfully raised the average value of properties in a neighborhood, it will still be the case that if a single property in this neighborhood were exempt from the environmental regulations, the property owner could increase the value of his property (for example, by being able to enlarge the “footprint” of the house, adding a garage, increasing the view or open space by cutting trees, or filling in wetlands or streambeds). In this case, however, the increase in value for a single property is dependent on the other nearby properties continuing to conform to the environmental zoning rules.

<sup>22</sup> See *id.* at 121–23 (discussing and criticizing wetlands protection measures, a form of environmental zoning).

<sup>23</sup> See U.S. ENVTL. PROT. AGENCY, ENVIRONMENTAL BENEFITS OF SMART GROWTH, <http://www.epa.gov/smartgrowth/topics/eb.htm> (last visited Jan. 22, 2006) (listing environmental benefits of “smart growth” regulations).

## IV. EMPIRICAL EVIDENCE OF SCARCITY AND AMENITY EFFECTS

Numerous studies have examined how land-use regulations affect property values. Many of these have scrutinized the scarcity effects of land-use regulations aimed at controlling growth. For example, in a study of growth-control land-use regulations in the San Francisco Bay area, market values for houses were between 17% and 38% higher than in uncontrolled areas.<sup>24</sup> A study in Montgomery County, Maryland found that restrictive zoning significantly raised home prices over time.<sup>25</sup> A study of data based on many U.S. metropolitan areas found evidence that moving from less stringent to more stringent regulations generated a premium of 13%–26% in housing rents and 32%–46% for property sales.<sup>26</sup>

A comprehensive study of the effects of land-use restrictions from the one million acre New Jersey Pinelands Protection Act and its “Comprehensive Management Plan” produced similar results.<sup>27</sup> The study assessed the effect of management districts established for preservation, forest, agricultural, rural development, and regional growth.<sup>28</sup> Each district was subject to a different set of restrictions.<sup>29</sup> The study concluded that when compared to unregulated control areas, prices in regulated districts exceeded those in unregulated districts by statistically significant amounts in five out of the six years where sales data were evaluated.<sup>30</sup>

Similar to the scarcity effects, studies have documented how environmental and other amenities can affect property values. For example, in one study zoning restrictions on lakefront development were estimated to increase the average price of lakefront properties by 21.5%.<sup>31</sup> A study of Milwaukee examined land-use regulations such as minimum lot sizes; permitting of mobile homes; minimum frontage setbacks; and requirements for minimum street widths, sidewalks, curbs, and gutters.<sup>32</sup> The study found that mobile home prohibitions increased home prices by 7.1–8.5%, and that requiring an additional 10-foot setback was associated with a price increase of 6.1–7.8%.<sup>33</sup>

A detailed study of environmental zoning in Portland, Oregon was conducted in 2005.<sup>34</sup> The study is based on data from over 30,000 sales in

<sup>24</sup> Katz, *supra* note 13, at 159.

<sup>25</sup> Henry O. Pollakowski & Susan M. Wachter, *The Effects of Land-Use Constraints on Housing Prices*, 66 LAND ECON. 315, 323 (1990).

<sup>26</sup> Stephen Malpezzi, Gregory H. Chun & Richard K. Green, *New Place-to-Place Housing Price Indexes for U.S. Metropolitan Areas and Their Determinants: An Application of Urban Indicators*, 26 REAL EST. ECON. 235, 262 (1998).

<sup>27</sup> Patrick W. Beaton, *The Impact of Regional Land-Use Controls on Property Values: The Case of the New Jersey Pinelands*, 67 LAND ECON. 172, 175 (1991).

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> *Id.* at 191.

<sup>31</sup> Fiorenza Spalatro & Bill Provencher, *An Analysis of Minimum Frontage Zoning to Preserve Lakefront Amenities*, 77 LAND ECON. 469, 480 (2001).

<sup>32</sup> Richard K. Green, *Land Use Regulation and the Price of Housing in a Suburban Wisconsin County*, 8 J. HOUSING ECON. 144, 149 (1999).

<sup>33</sup> *Id.* at 156.

<sup>34</sup> Noelwah Netusil, *The Effect of Environmental Zoning and Amenities on Property Values:*

different parts of Portland, and takes into account the characteristics of the property, the characteristics of the house, the environmental zoning, and a range of variables related to property amenities on or near each property.<sup>35</sup> Using the statistical methods for a hedonic pricing analysis, the study concludes that for Southwest Portland's environmental "c-zoning" areas, the zoning and related amenities, such as tree canopy, have a positive but small net effect on the mean sale price of properties (+0.54%).<sup>36</sup>

In many cases amenity and scarcity effects will both be present, and may reinforce one another. For example, land-use regulations to protect sensitive environmental areas such as wetlands may enhance environmental amenities and the appeal of an area, while at the same time limiting the supply of developed and developable parcels. Both these effects may cause land prices to rise.

A number of studies have examined cases where amenity and scarcity effects are present. For example, land-use restrictions near Chesapeake Bay were studied to measure the effect of limits on the locations of residential and commercial development.<sup>37</sup> The restrictions included channeling development to already developed areas (scarcity effects) as well as requiring new shorefront developments to conform to landscape requirements, setbacks, and surface restrictions (amenity effects).<sup>38</sup> The analysis found that in one county subject to the restrictions, shorefront houses increased by 46–62% compared to the control area.<sup>39</sup> Houses without water frontage increased by 14–27% compared to the control area.<sup>40</sup> And finally, houses near, but not in, the designated critical area also increased compared to the control area by 13–21%. This latter result is consistent with the idea that land-use regulations can have positive effects in other, nearby markets.<sup>41</sup>

Another study of the designated critical areas near Chesapeake Bay found that the value of vacant parcels in one county increased by 33% in 1984, by 53% in 1985, and by 39% in 1986 compared to the control areas.<sup>42</sup> In other counties, the effects were also positive but less statistically significant.<sup>43</sup>

Designations such as historic district regulations have also had positive effects on land values. A 1991 study of historic designations in Chicago neighborhoods found that historic designation increased average housing values 29–38%.<sup>44</sup> Once again, areas outside the regulated zones were also

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*Portland, Oregon*, 81 LAND ECON. 227, 228 (2005).

<sup>35</sup> *Id.* at 231–34.

<sup>36</sup> *Id.* at 245.

<sup>37</sup> George R. Parsons, *The Effect of Coastal Land Use Restrictions on Housing Prices: A Repeat Sale Analysis*, 22 J. ENVTL. ECON. & MGMT. 25, 25 (1992).

<sup>38</sup> *Id.* at 28–29.

<sup>39</sup> *Id.* at 33.

<sup>40</sup> *Id.*

<sup>41</sup> *Id.*

<sup>42</sup> Patrick W. Beaton & Marcus Pollock, *Economic Impact of Growth Management Policies Surrounding the Chesapeake Bay*, 68 LAND ECON. 434, 451 (1992).

<sup>43</sup> *Id.*

<sup>44</sup> Peter V. Schaeffer & Cecily A. Millerick, *The Impact of Historic District Designation on*

affected positively.<sup>45</sup> The study found that in areas adjacent to the historic districts land, property values increased by 29%.<sup>46</sup>

Finally, in the case of non-metropolitan lands designated as farm use only, one might expect that the designation would raise the value of developed properties and vacant properties not designated as farm use only, but have no effect on farmland prices. The effect on farmlands, however, may be positive in some cases.<sup>47</sup> Many farm community members believe that their local farm economies are interdependent and scale-dependent because their profitability requires a certain scale of farming activity in the area (number of total farms and total farm sales) in order to support local services such as input suppliers, processors, etc. Economies of scale like this could imply that a reduction in the number of farms and farm acreage in a given area will give rise to increased costs and a decline in profits, which would lower farmland prices.<sup>48</sup> Farm values can also be affected adversely when residential penetration creates conflicts over farm noise, dust, or smells.<sup>49</sup>

Indeed, a study of the effects of farm protection zoning on farmland prices in Wisconsin found that farmers were willing to pay more for land zoned for farm use only than for land with a less certain future.<sup>50</sup> These effects were capitalized into higher land prices.<sup>51</sup> The premium was found to be highest on large parcels farthest from urban areas.<sup>52</sup> This represents a particularly interesting example where the (potentially negative) scarcity effects on farm lands appear to be outweighed by the amenity benefits in farming areas.<sup>53</sup>

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*Property Values: An Empirical Study*, 5 ECON. DEV. Q. 301, 311 (1991).

<sup>45</sup> *Id.*

<sup>46</sup> *Id.*

<sup>47</sup> See GERRIT KNAPP & ARTHUR C. NELSON, *THE REGULATED LANDSCAPE, LESSONS ON STATE LAND USE PLANNING FROM OREGON* 142–44 (1992) (citing data showing that reduction of non-agricultural proximate uses removes speculative influences on farmland and more closely ties value to the land's underlying agricultural productivity).

<sup>48</sup> *Id.* at 144.

<sup>49</sup> See *id.* at 126–27 (discussing conflicts between farmers and adjacent urban residents).

<sup>50</sup> D.M. Henneberry & R.L. Barrows, *Capitalization of Exclusive Agriculture Zoning into Farmland Prices*, 66 LAND ECON. 249, 257 (1990).

<sup>51</sup> *Id.*

<sup>52</sup> *Id.*

<sup>53</sup> See C. Ford Runge et al., *Government Actions Affecting Land and Property Values: An Empirical Review of Takings and Givings*, LINCOLN INSTITUTE OF LAND POLICY 7–23 (1996) (reviewing empirical evidence on the effects of government action on property values). What their analysis demonstrates is that government actions including land-use regulations, provisions of government services, and infrastructure, etc., can have positive or negative effects on land values. Their interpretation makes the point that consideration of compensation for regulatory takings (negative effects of government action on property values) should recognize the prevalence of regulatory “givings” (positive effects of government actions on property values). *Id.* at 24–25. See also John M. Quigley & Larry A. Rosenthal, *The Effects of Land-Use Regulation on the Price of Housing: What Do We Know? What Can We Learn?*, 8 CITYSCAPE 69 (2005), available at <http://urbanpolicy.berkeley.edu/pdf/QR2005.pdf> (surveying studies of the effect of land-use regulations on housing prices).

## V. THE VALUE OF AN INDIVIDUAL EXEMPTION FROM LAND-USE REGULATIONS

Given the analysis and empirical evidence presented above for amenity and scarcity effects due to land-use regulations, this section looks closely at their relationship with *the value of an individual exemption*. Where amenity or scarcity effects of a land-use regulation have raised land values, elimination of the land-use regulation on all properties can be expected to undo these changes, and land values would decline. But what happens if the land-use regulation is removed from one property only, as is the case if a landowner is given an exemption to the land-use regulation?

If the land-use regulation is binding, and constrains the landowner from taking preferred actions or favored land uses, then removing that constraint will make the landowner better off. If the landowner is acting to maximize the value of her land, then removing a binding constraint would presumably raise the value of the land. The landowner is able to avoid the costs associated with the land-use regulation (paying property taxes, conforming to building restrictions, etc.) while still enjoying the amenity or scarcity effects resulting from the continued compliance of all other landowners in the area.

The implication of this is significant. In cases where land-use regulations have raised land values, an individual exemption to that regulation can still be expected to increase the value of the exempted property. The same will be true for land-use regulations that reduce a property's value. Since an individual exemption will likely have a positive value for any binding land-use regulation whether it reduced land values or raised land values, there is no basis for using the *value of an individual exemption* as a proxy for, or even an indication of, the reduction in value caused by the enactment of a land-use regulation.

Once again, the property tax example is the most transparent. An exemption from paying current and future property taxes will increase the value of a property.<sup>54</sup> The exemption reduces the cost to the landowner without affecting the public services that have contributed to the property's high value.

In the case of scarcity effects, the land-use regulation has restricted the supply and pushed up land prices for the disallowed use, and increased the supply of lands put to alternative uses. This creates a price differential between the land markets for these two uses, and, as a result, it creates an opportunity for financial gain as a result of the exemption to the restriction.

In neither case, however, should one conclude that the positive value of an exemption to the land-use regulation is evidence that the regulation has, in fact, reduced the land's value. Indeed, in all cases where land-use regulations have actually increased land values, we can expect that an exemption to that regulation will raise the value of an individual parcel even more.

A hypothetical example can be an instructive way to highlight certain economic interactions and relationships, and in some cases an exaggerated

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<sup>54</sup> See KNAPP & NELSON, *supra* note 47, at 127–28 (discussing the effects of tax reduction for farm land, both positive and negative).

and unrealistic example is the best way to illuminate those key concepts or ideas even if the particulars are unrealistic. The following section employs such an example.

Suppose a large city like Portland (including its surrounding areas) introduced a land-use regulation 30 years ago that prohibited lands from having improvements used as restaurants, and that the only exceptions allowed were the 20 parcels occupied by restaurants at the time the regulation was implemented. Let's assume that with growth in population and income over a period of years, this hypothetical city grew to the point where it could easily support 200 restaurants, but only 20 were allowed. As you can imagine, the 20 existing restaurants would do a booming business, and would be able to charge very high prices and earn very large profits. As a result, the value of these 20 restaurant-eligible parcels would be very high. Let's suppose that each parcel would be worth \$500,000 more than other similar commercial properties.

If this situation actually existed, we might observe owners of regulated properties (those not allowed to house restaurants) looking at the differences between the price of their land and the price of a restaurant parcel and interpreting the situation as follows: "This regulation that prohibits me from opening a restaurant, or from selling my parcel to someone for restaurant use, is costing me \$500,000." This interpretation is also consistent with the idea that if they alone were given an exemption from the regulation, that exemption would be worth \$500,000 because it would enable them to sell their parcel for \$500,000 more than what it is currently worth.

The problem with this interpretation, however, is that it is not a measure of the reduction in value caused by the land-use regulation; it is most likely entirely a result of the increase in value of the 20 properties *not* subject to the regulation. True, if one parcel were given an exemption to the regulation, the property would likely increase in value by about \$500,000. But this observation measures a very different economic relationship than the "reduction in value" concept. To see this, let's carry this example further.

Suppose this hypothetical city now passes a law like Oregon's Measure 37. Eligible landowners would likely file claims arguing that, because of this land-use regulation, the value of their property has been reduced by \$500,000, and they would ask to be compensated in that amount. To verify this claim, the government would likely ask an appraiser to verify the estimate. The appraiser would look at the values of "comparables" (i.e., the other 20 restaurants) and, using standard appraisal methods, would indeed come to the conclusion that if the property in question (and only the property in question) were not controlled by the land-use regulation, the landowner could open a restaurant on the property, increasing the value of their land by about \$500,000. Once again, however, the value of an exemption is a very different economic concept than a measure of the reduction in value.

Since the standard methods used by appraisers to value properties typically consider only incremental change (i.e., for a single property), the likely effects of large changes in restaurant-eligible properties on land prices

would tend to be ignored. Yet if we were to ask what would happen to the land price differentials if the land-use regulation were removed entirely, we would come to a very different conclusion. In our hypothetical example, the premium price for a restaurant-eligible parcel is due entirely to the scarcity created by the land-use regulation.

Just look at other cities. In a city without this kind of regulation, what do we observe? In general, we find that restaurants compete for land with other uses, and they compete with each other for customers. As a result, restaurants succeed and fail, they come and go, but on average, they do not create a premium on land prices for their owners. Therefore, in this example, the answer to the question “What is the reduction in fair market value resulting from enactment or enforcement of the land-use regulation?” is, generally speaking, “none.”

This point is illustrated in Figure 5. Regulated lands (those prohibited from restaurant use) do not see any change in price after the enactment of the land-use regulation. Land not subject to the regulation, however, sees a large increase in price. The increase in price is, however, a direct result of the regulation, and the price difference would disappear if the land-use regulation was eliminated.

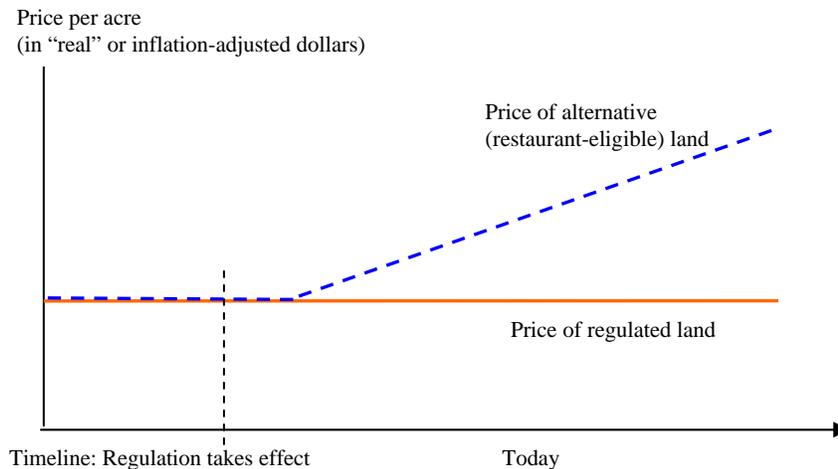


Figure 5. Hypothetical example of land-use regulation restricting use as restaurant

There may be exceptions to this conclusion. Some properties might have special attributes, making them much more valuable for restaurants than for other uses (view, prime location, etc). But, even the magnitude of this kind of “attribute premium” will be influenced significantly by the land-use regulation, and may also be an attribute that is desirable for other uses as well.

Instead of observing what restaurant properties are worth in other cities without such regulations, suppose we asked specifically: What would have happened—hypothetically—if this particular land-use regulation had

*not* been enacted or enforced? The difference in this approach is that it tries to consider the dynamic changes that would have occurred in the past thirty years if the restaurant restrictions had not been put in place instead of making comparisons to other geographic areas.

Without the regulation, we would expect that many restaurants would have been opened at various times over the past thirty years, in many different parts of the city. Some of these ventures would have been successful, while others would have failed. Restaurants would have competed with each other, and with alternative land-use options. The pattern of restaurant expansion that would have arisen would be difficult to predict or evaluate with any certainty. For example, restaurants might have been spread evenly throughout the city, or they might have become grouped in a “restaurant district” that attracted other complementary land uses (movie theaters, night clubs, etc.). The market for land would have evolved with land values that might be different than in the current situation, but it would be very difficult to discern what kinds of differences would have emerged, in which parts of town, and for which kinds of land uses. What we could be fairly certain of, however, is that in this alternative scenario without the land-use regulation, the ability to put a parcel of land to restaurant use would not cause the value of the parcel to rise by \$500,000. Most likely, in a world with no such restaurant restriction, the value of the parcel would be the same as its current value.

This hypothetical illustration highlights the following. The *reduction in market value resulting from a land-use regulation* is a fundamentally different concept than *the value of an individual exemption* to the regulation. An exemption confers a special right to one individual landowner to take advantage of an opportunity that is unavailable to other property owners. Economic analysis suggests that the value of that exemption will often be the direct result of the denial of that same opportunity to others (currently and over a period of time).

This issue is highly relevant to Oregon’s Measure 37.<sup>55</sup> To the extent that Measure 37 defines compensation based on the “reduction in the fair market value . . . resulting from enactment or enforcement of the land-use regulation,”<sup>56</sup> it would seem to be important to correctly identify and measure the dollar amount attributable to the reduction in value for the land subject to the regulation (the direct effect), as distinct from the increase in value for non-regulated lands (the indirect effect).

In cases where restrictions on development in multiple markets have shifted pent-up demand into areas that would otherwise not be of interest to developers, the land prices for the current use (farm and forest land) may be unaffected (negatively) by the land-use regulation. This is because the prices of these lands depend directly on their productivity, and on the value of what they produce in the marketplace.<sup>57</sup> Since these markets tend to be

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<sup>55</sup> Measure 37 (Or. 2004).

<sup>56</sup> *Id.* § (2).

<sup>57</sup> See James Ryan et al., *Government Payments to Farmers Contribute to Rising Land Values*, AGRIC. OUTLOOK, June–July 2001, at 22, available at <http://usda.mannlib.cornell.edu/reports/erssor/economics/ao-bb/2001/ao282.pdf> (starting with the presumption that earnings from

national or even international, the amount of land allocated to farm and forest production in a local area is unlikely to have any effect on commodity prices or profits, and therefore these changes are unlikely to affect land prices. As a result, a regulation that increases or maintains the supply of land for these uses (e.g., regulations such as exclusive farm use zoning) may not cause a reduction in their value because the value is unaffected by changes in the amount of land put to these uses locally. This kind of situation may be similar to the one illustrated in the appendix, where the land-use regulation may have a large positive effect on the prices of land not restricted under the regulation, but little or no negative effect on the prices of lands that are restricted to farm or forest uses.

#### VI. DYNAMIC INTERACTIONS

The effects of land-use regulations on property values will, in many cases, occur gradually over a period of time. When urban growth boundaries are established, for example, they tend not to be binding initially on the land-use decisions being made, so they do not typically constrain the existing demands for different land uses.<sup>58</sup> With rising population and urban expansion, however, these land-use regulations will begin to influence land prices and land uses. They may also influence other subsequent private and public land-use decisions, other public and private investments, other government policies such as taxation, and decisions about infrastructure.<sup>59</sup> As the pattern of land uses and land prices evolves, there will be feedback effects on land markets, land-use decisions, government policy, and even on demographic changes and economic growth. Over a period of years, this complex, interdependent pattern of changes that may occur *with* a given land-use regulation makes it very difficult, and perhaps impossible, to ascertain what would have happened *without* that regulation.

In particular, the direction of causality between land-use regulations and land prices is ambiguous in some cases. Land-use choices can have effects on land prices, neighborhood composition, housing quality, and government services. But these effects may also influence land-use choices. The causality can occur in either direction or in both directions simultaneously. Accounting for the simultaneity of these various influences in order to isolate and identify the effect of land-use regulations on property values would require a sophisticated and complete dynamic model of all relevant influences. However, the kinds of data needed to measure each of the relevant factors are scarce, making such estimation very difficult.<sup>60</sup>

These issues make it problematic to estimate the effect of any given land-use regulation on land prices because the “with and without” scenario

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farming drive the value of agricultural land).

<sup>58</sup> See KNAPP & NELSON, *supra* note 47, at 51–52 (noting that the original urban growth boundary for Portland was believed by Oregon’s Land Conservation and Development Commission to be too large).

<sup>59</sup> See *id.* at 40 (stating that the objectives of Oregon’s urban growth boundaries included efficient provision of public facilities and creation of a distinctly urban ambience).

<sup>60</sup> Quigley & Rosenthal, *supra* note 53, at 87.

involves speculating about what would have occurred in the absence of the regulation, and how those alternative public and private actions would have affected property values. Roads and utilities that exist today might not have been built or improved; residential development might have spread in many directions, rather than primarily in one direction. As with our hypothetical example in which it was impossible to say where restaurants and other complementary businesses might have become concentrated in the absence of restrictions on restaurants, land-use regulations such as exclusive farm use (EFU) or urban growth boundaries (UGB) present huge obstacles for evaluating with any confidence what would have occurred over an extended period of time in the “without” scenario.

The kinds of amenities that give rise to land-use regulations for environmental or aesthetic reasons can also affect the dynamic pattern of land development involving urban expansion and other kinds of development. As discussed above, these dynamics are difficult to predict, and this can add to the difficulty of distinguishing between the direct costs of a restrictive land-use regulation and the indirect effects they may have by preserving amenities and related development opportunities.

Let’s look at one example intended to highlight the way in which land-use regulations can create an impression that highly profitable investment opportunities are being blocked by the regulation alone, when those development opportunities may, in fact, exist only *because of* the regulation. For example, an opportunity to build custom homes in a pastoral setting surrounded by beautiful farmland can be a tempting and potentially very profitable investment. But in some cases, the beautiful pastoral setting may still exist only *because of* the land-use regulation; without the regulation being in place for the past thirty years, other landowners would have already sold off parcels for other uses, or built homes creating a patchwork of mixed use land and perhaps some not-so-profitable housing developments.

It would be easy to miss the connection between a) a profitable investment opportunity that is blocked by a land-use regulation, and b) the fact that this profitable investment opportunity is presenting itself only because of this very same land-use regulation, which has kept others from taking advantage of this or similar opportunities for as long as the regulation has been in effect. The economic forces behind these kinds of examples are no different than the ones in the hypothetical example above that make the opportunity to open a restaurant overwhelmingly attractive precisely because a land-use regulation has kept others from doing so.

In cases where a land-use regulation has kept the competition at bay for a long period of time, the value of an individual exemption to the land-use regulation may confer very large rewards tied directly to the fact that the regulation has held back all the other competing market forces for a period of many years. Given the dynamic interactions between land-use regulations and demographic, economic, and political changes, it is very difficult to sort out which changes may be directly attributable to land-use regulations and which are due to other related or independent factors. Even detailed statistical studies have had mixed results trying to identify these relationships. One study of single-family home sales data in Vancouver

between 1957 and 1980 found evidence that zoning impacts were positive in some cases, negative in some cases, and insignificant in other cases.<sup>61</sup>

When the focus is on housing prices, studies do suggest that existing housing prices are raised by land-use regulations.<sup>62</sup> The net effect of density controls (lot sizes) on average land prices, however, may be indeterminate if restrictions on developable lands and density cause some land prices to rise and others to fall.<sup>63</sup>

#### VII. WHEN LAND-USE REGULATIONS REDUCE PROPERTY VALUES

The focus of this essay has been on understanding the ways in which land-use regulations can raise property values. Land-use regulations can, however, reduce the value of properties affected, or they may reduce the value of *some* properties subject to the regulation, even if the effect is positive for some or most other properties affected.<sup>64</sup> For example, if a land-use regulation is too onerous, or if the amenities generated are not valued sufficiently by the residents, then the overall effect may be zero or negative.<sup>65</sup> In the end, it is a “case-by-case” empirical question that would need to be evaluated using statistical analyses of housing values in a specific city and for regulations of specific kinds.

One situation where a land-use regulation will indeed cause a reduction in property value is where a) the supply of land for an “allowed use” is higher than it would have been without the land-use regulation, and b) this additional supply causes a drop in the market price due to downward-sloping demand. This situation is illustrated in the appendix in Figure A2. For example, if a municipality zoned more land for commercial or industrial use than the demand would support, the prices for these lands would decline, and might be lower than they would have been without that particular zoning. A second situation where a land-use regulation will reduce property values is where the regulation was intended to generate neighborhood or local external effects, but the regulations were so onerous, or the positive external effects so small, that the net effect was a reduction in property values in the zoned area.<sup>66</sup>

A third situation where a land-use regulation will reduce property values occurs when the external effects represent benefits to society generally, but do not tend to be reflected in the property values.<sup>67</sup> These may

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<sup>61</sup> J.H. Mark & M.A. Goldberg, *A Study of the Impacts of Zoning on Housing Values Over Time*, 20 J. URB. ECON. 257, 271 (1986).

<sup>62</sup> Quigley & Rosenthal, *supra* note 53, at 85–86.

<sup>63</sup> *Id.* at 86.

<sup>64</sup> *See, e.g.*, Parsons, *supra* note 37, at 35 (listing winners and losers of restrictive land-use regulations abutting Chesapeake Bay).

<sup>65</sup> *See, e.g.*, Schaeffer & Millerick, *supra* note 44, at 311 (asserting that decreased property values in historic districts regulated through the establishment of the Chicago City Historic District program were the result of the regulatory burdens of the program exceeding the benefits of a historic district designation).

<sup>66</sup> *Id.*

<sup>67</sup> *See, e.g.*, Parsons, *supra* note 37, at 35 (noting that property owners of undeveloped and restricted land within the Chesapeake Bay Resource Conservation Area, such as owners of

include designations for scenic or historical areas, wild and scenic rivers, etc. Even though the benefits to society generally may be very high, these benefits accrue to the general public rather than the landowners, so that the benefits to the landowners may not outweigh the costs of the restrictions.

A fourth situation where land-use regulations impose costs on landowners is somewhat more difficult to evaluate in terms of market economics. These situations include ones where a family wishes to transfer land, such as farm or forest land, to family members for other kinds of uses like building homes for personal use.<sup>68</sup> These instances cannot be easily evaluated by looking at comparable sized parcels in appropriately zoned areas, since often the landowners have a personal attachment to the specific parcel and neighborhood where the family may have farmed for several generations. Examples of the desire on the part of farm families and woodlot owners to subdivide a portion of their land for use by family members have received great attention in the debate over Oregon's Measure 37.<sup>69</sup> The personal values of particular individuals, however, cannot easily be translated into "fair market value" in cases involving unique circumstances such as a sentimental attachment to a particular piece of land. Indeed, it would seem difficult to apply the language from Oregon's Measure 37 (reduction in fair market value) to these kinds of situations.

And finally, for current purposes, we want to distinguish between land-use regulations that reduce the value of land below its prior value, and the possibility that a land-use regulation may conflict with some future, unforeseen windfall gain or increase in value. Unforeseen economic changes can raise and lower the economic potential of lands for a variety of reasons. In some cases, these may be directly or indirectly related to the land-use regulations or complementary government actions. However, in other cases, lands may become more valuable for unforeseen reasons, and land-use regulations may begin to conflict with those uses long after enactment. The distinction between a land-use regulation that reduces a property's value (at the time it is enacted) versus one that, at some future date, is an impediment to a windfall gain that was unforeseen at the time of the regulation's enactment, represents an additional complication for interpreting laws like Oregon's Measure 37. If land-use regulations are subject to compensation for reductions in value due to unforeseen events or changes in market conditions, this would appear to put government in a perpetual position of liability for future changes in the economy.

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farms in the Resource Conservation Area, suffered lost property value).

<sup>68</sup> See, e.g., Jeff Barnard, OREGONIANS BEGIN FILING MEASURE 37 CLAIMS (Dec. 2, 2004), [http://www.kgw.com/news-local/stories/kgw\\_120204\\_life\\_ore\\_land\\_use\\_115882f.html](http://www.kgw.com/news-local/stories/kgw_120204_life_ore_land_use_115882f.html) (describing two of the first Measure 37 claimants to file, a woman near Portland who wanted to subdivide land to give to her children, and a couple in Sisters, Oregon, who wanted to build a retirement home on a 20-acre farm parcel).

<sup>69</sup> See, e.g., Pete Hunt, *The Grandmother Clause*, WILLAMETTE WK., Feb. 16, 2005, available at <http://www.wweek.com/story.php?story=6010> (highlighting the role of 92-year old Multnomah County, Oregon resident and property owner Dorothy English as the poster child of the successful ballot measure).

## VIII. SUMMARY AND CONCLUSIONS

The analysis presented here spells out how land-use regulations can, and often do, have positive effects on land values in settings where amenity effects, scarcity effects, or both kinds of effects are at work. There is also abundant empirical evidence that documents how land-use regulations have raised rather than lowered property values in many cases.<sup>70</sup>

In either case—whether a land-use regulation reduces or increases property values—an individual exemption from a binding land-use regulation can be expected to have a positive effect on a property's value. Logically, if a land-use regulation imposes a cost on landowners, eliminating that cost is likely to make that particular property more valuable, so long as the benefits associated with the land-use regulation are unaffected.

The implication of this result is highly significant. Evidence that the value of an individual exemption to a land-use regulation is positive does not, by itself, represent proof or unequivocal evidence that the enactment of the land-use regulation reduced the property's value. As a result, claims that a land-use regulation has reduced a property's value must be substantiated with other kinds of evidence and analyses. In particular, an appraiser's estimate that a property's value would rise if a given land-use regulation were removed tells us nothing definitive about whether the land-use regulation has actually reduced the property's value.

Indeed, given the dynamic and complex interconnections between land-use regulations and their amenity and scarcity effects, as well as other related government and private actions and responses, it is highly problematic to disentangle the separate effects of a particular land-use regulation from the effects of other actions and responses that may be independent or related to any given land-use regulation. Proof that a land-use regulation reduced a property's value would appear to face insurmountable obstacles in many cases. Decisions about zoning and urban growth boundaries are interdependent with decisions about funding for roads and other infrastructure development, and all of these will affect the value (and potential value) of developed and undeveloped properties within and outside each boundary and zone. Ascertaining the effect of a particular land-use regulation would appear to be particularly problematic if we recognize that, had the land-use regulation not been enacted, other public and private decisions would have had different outcomes, and these in turn could have altered the current opportunities and limitations in ways that are impossible to know.

Still, it is completely understandable that landowners limited by a land-use regulation view the value of being free of that regulation in terms of the value of an exemption. That view, with the potentially large financial gains that would appear to result, is no doubt tempting to landowners, and has led to anger over land-use restrictions. The recognition, however, that in many cases these potentially large financial gains are actually caused *by* the land-use regulation, is not well understood by the general public, in part because

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<sup>70</sup> See, e.g., Beaton, *supra* note 27, at 191 (finding that regulated areas in the New Jersey Pinelands outstripped unregulated areas in terms of price appreciation).

of the indirect, invisible, and often gradual market forces at work. In most public discussions that preceded the approval of Measure 37 in Oregon, and in those that have continued in the year following its passage, there is little evidence of a public awareness of the critical distinction between the value of an individual exemption and the reduction in value caused by a land-use regulation.

#### IX. APPENDIX: POTENTIAL MARKET EFFECTS OF LAND-USE REGULATIONS

Depending on the specific market conditions, the price differential in markets affected by a land-use regulation may be mostly, or entirely, attributable to price adjustments in one of the two markets, or it may be divided among several markets. A simple diagram provides a way to think about these kinds of effects. Consider a land-use regulation that allows land to be put to use A, but restricts certain areas of land from being put to another use, use B. Prior to the enactment or enforcement of the land-use regulation, the market can be expected to allocate some land to use A and some to use B, with the price of land being the same for both (at the margin), since both uses will compete for land in a single market/supply. Of course, prices for parcels with unique characteristics will differ because of those characteristics (soil quality, view, distance from city center, etc.).

Figure A1 illustrates this point. It describes the total supply of land on the horizontal axis. The amount allocated to land use B begins at the left end of the axis; the amount allocated to use A begins on the right end of the axis. The demand or willingness to pay for B slopes down to the right, declining as more land is allocated to B. The demand for A is “flipped” left to right, since an increase in the amount of land for use A means moving from the right end of the horizontal axis to the left. In this particular example, the demand for A is assumed to be relatively flat; whereas the demand for B is assumed to be relatively steep.

If a land-use regulation limits the amount of land available for B, we can indicate that amount with a vertical line. All land to the left of the vertical line is limited to use B; the remaining land (to the right of the vertical line) may be used for use A. We can therefore evaluate the effects of the land-use regulation on the price of land for both uses, given the way we have characterized the demand for each land use.

The land price for use B is indicated by the intersection of the supply and the demand, or price  $P_B$ . The land price for use A is indicated by the intersection of the supply and the demand for use A. In this case, all land not available for use B will be included as the supply for use A, so the intersection of the vertical supply line and the demand for use A gives us the price in the market for land use A,  $P_A$ .

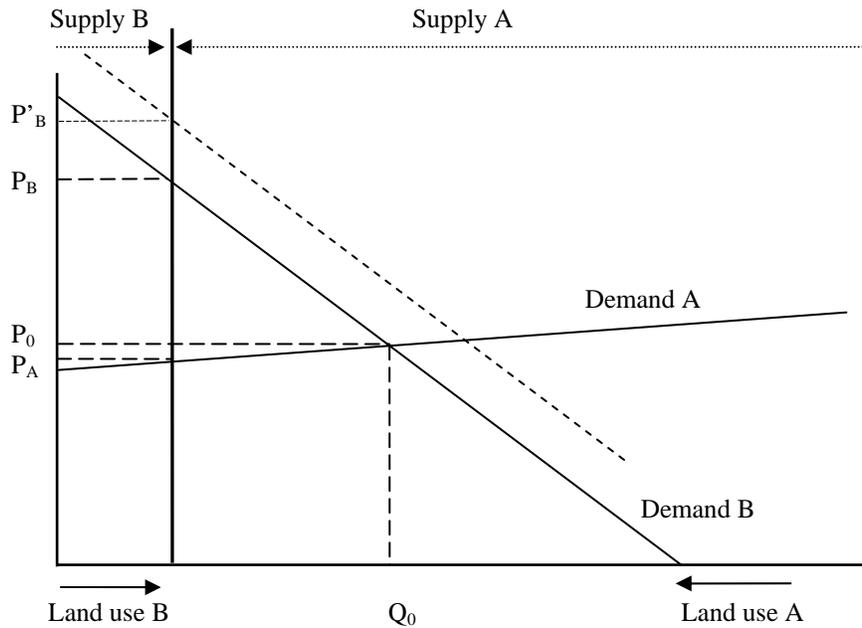


Figure A1

Prior to the introduction of this land-use regulation, how would land have been allocated and what would the price of land have been? From the illustration, we see that the vertical supply line would be removed, and the demand for one land use would play off, or compete against, the demand for the other use, leading to an equilibrium price and allocation at  $P_0$  and  $Q_0$ . Given the particular way this illustration has been drawn, we can see that most of the price differential created by the land-use regulation is due to the large increase in the price of B-lands ( $P_B - P_0$ ), and only a small reduction in land prices for land use A can be attributed to the land-use regulation ( $P_0 - P_A$ ).

These demand curves, however, can only represent the competing demand for land in one location or market. If land-use regulations have also limited the availability of land for use B in other nearby locations, then some of the pent-up demand that would have been satisfied elsewhere may spill over into the market illustrated above. This might shift demand B up (to the dotted line above "demand B"), which would cause  $P_B$  to be even higher ( $P'_B$ ), with even more of the overall differential between  $P_B$  and  $P_A$  being due to a rise in  $P_B$  rather than a decline in  $P_A$ .

For a landowner restricted to use A, the value of an individual exemption will equal the price differential  $P_B - P_A$  (or  $P'_B - P_A$ ), since they will be able to shift from use A to use B.

The magnitude of these results depends on assumptions about how steep or flat the demand curve for B is relative to the demand curve for A, and also on whether we assume that markets in other locations are affected, and whether demand shifts from those markets to this market. It is also possible that the demand for A could be relatively steep, in which case the

diagram would look like Figure A2 below. We can see that the land-use regulation, when compared to the unregulated case, causes the price of A-land be reduced ( $P_0 - P_A$ ), whereas the increase in the price of B-land would be relatively small ( $P_B - P_0$ ).

Once again, however, if the land-use regulations restrict the availability of land for use B in other locations, some of that pent up demand may be felt in the market/location illustrated in Figure A2. If this were the case, demand A would shift up (as indicated by the dotted line parallel to demand A) so that  $P_B$  would rise to  $P'_B$ .

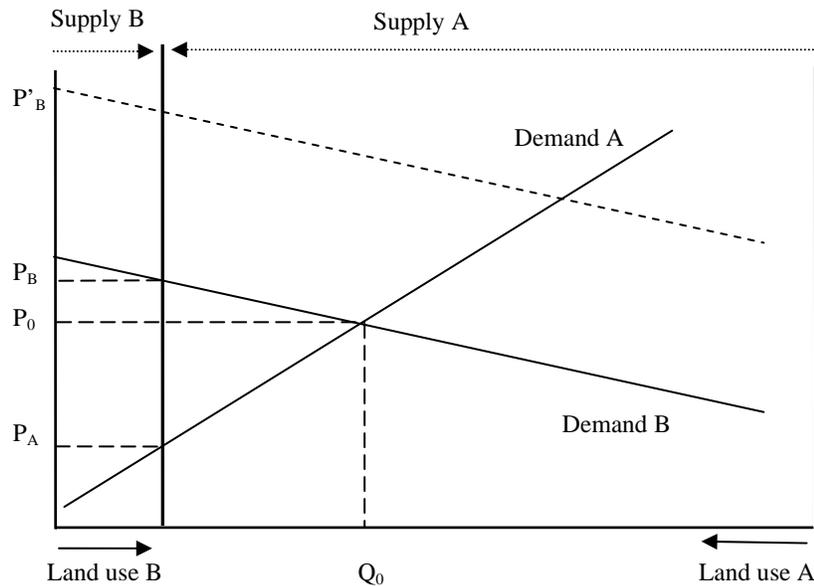


Figure A2

We can depict the case of amenity effects for residential properties by indicating how the benefits and costs of the land-use regulation will affect the demand for land in a market with a fixed supply of land. Beginning with a land base of  $Q_0$  and an initial land price of  $P_0$ , consider how land-use regulations may affect land prices. If amenity benefits like those discussed above are increased (government services, environmental amenities, etc.) this can shift the demand from  $D_0$  to  $D_1$ . This shift may include the effect of spill-over demand from other locations or neighborhoods if residents see the amenity benefits being more attractive in the market being depicted. Land prices will rise from  $P_0$  to  $P_1$  in the case illustrated.

An individual landowner who was exempted from the land-use regulations, but was surrounded by lands where the regulations were in force, would be in a position to benefit from the amenities generated but without the restrictions or costs that produce them. For example, being free of building restrictions to protect environmental zoning rules, an exempted landowner could build or expand their residential buildings in ways that their neighbors could not. The demand, or willingness to pay, for such an

exempted property might be reflected in the demand curve  $D_2$ , and the price that the exempted property could obtain in the market would be higher than for conforming properties. Here we see a case where the effect of the land-use regulation on property values is positive, but at the same time the value of an individual exemption is also positive.

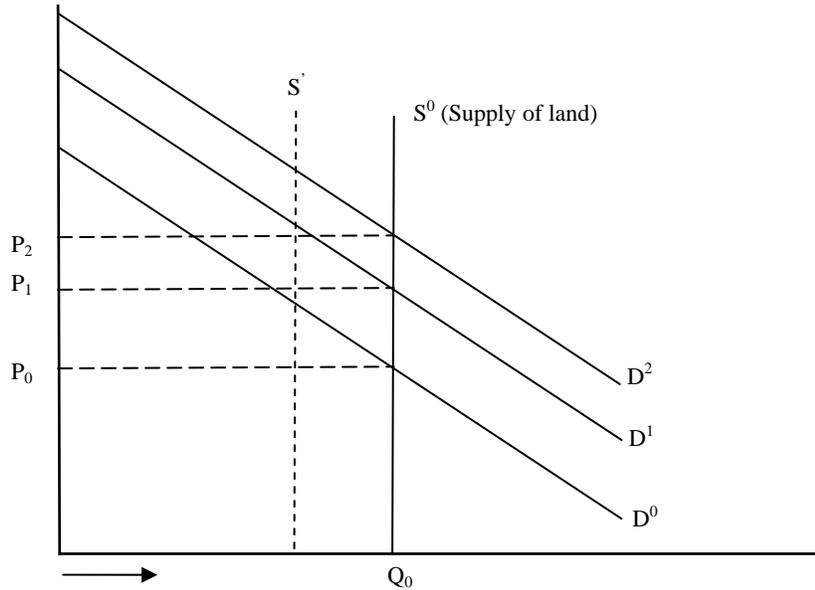


Figure A3

In cases where amenity effects are combined with scarcity effects (e.g., if environmental zoning includes setting aside environmentally sensitive areas or greenbelts), then the result could be more pronounced. This kind of change can be characterized as a shift in the supply of land from  $S^0$  to  $S'$ , so that prices  $P_1'$  and  $P_2'$  would shift up even more, to where  $S_2'$  intersects  $D^1$  and  $D^2$ . Compared to  $P_0$ , land prices will rise even more as a result of the land-use regulation, but at the same time the value of an individual exemption will remain positive.