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LAND POLICIES AND THEIR OUTCOMES

Edited by Gregory K. Ingram and Yu-Hung Hong

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CONTENTS

2

Restricting Residential Construction

Edward L. Glaeser

Land use regulations have existed throughout American history. Even in the nineteenth century, communities were free to stop building that threatened public safety or proved a nuisance (Novak 1996). But over the past 40 years, the degree to which these regulations have reduced housing supply, especially in high-cost coastal regions, appears to have increased enormously. New permitting has declined significantly, particularly in the pricier areas (Glaeser, Gyourko, and Saks 2005a).

This chapter reviews the basic facts about permitting and discusses the welfare issues inherent in land use regulation. The first section reviews five major facts that together suggest that high housing prices are being driven in part by limits on supply and that supply is being restricted more by regulations than by lack of land. The variance in land prices across America's cities has increased greatly, and the places with the highest prices have the lowest levels of permitting. Those areas with little permitting are not particularly short of land; indeed, permitting per acre rises with existing housing density. In some high-cost areas, the land per housing unit has been rising with prices. High prices are not driven by high construction costs or the high values placed on land. Formal measures of land use controls are negatively associated with permitting and positively associated with housing prices.

These facts suggest that land use regulations are responsible for the limited supply and rising prices of land, but it is not obvious that this situation is inefficient. After all, these policies are popular for a reason. The next section of this chapter, following Ellickson (1977), reviews the externalities that rationalize the

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limits on residential construction. The most straightforward case is that of structures themselves creating externalities, primarily for aesthetic reasons. In this case, either taxing or limiting new construction is theoretically appropriate.

Although some restrictions are appropriate, there are both theoretical and empirical reasons to believe that regulation is excessive in at least some regions of the United States. On theoretical grounds, in a simple model in which voters choose the limit on new building, if residents are politically powerful relative to the owners of vacant land the outcome will be too little development. In the extreme case in which only current residents have political rights, then all new development with any negative impact will be shut down.

Empirically, it is hard to quantify the total externalities associated with new construction, but within Greater Boston, using a number of instrumental variable estimates, the elasticity of price with respect to density ranges from -0.06 to -0.16. Taking these estimates literally as the cost of density for existing homeowners suggests a tax of between 6 and 16 percent on new homes. In many areas, land use regulation appears to raise taxes by much more than this amount. Moreover, the main impact of land use regulation appears to be a shift in new construction from one area of the country to another, and so the justification of this outcome must lie in differences in externalities across space, not just overall externalities from new construction. There is little evidence to support the view that the environmental costs of new construction are much lower in the places where construction is regulated less.

In some cases, the relevant externalities might not be the housing units themselves, but rather the congestion associated with the residents of the units. In such a situation, directly taxing congestion is more efficient if it is feasible, but, administratively, restricting zoning is far easier. However, it is not enough for a particular community to be appropriately limiting construction if other adjoining communities are not. In the extreme case, people everywhere cause the same amount of congestion, but zoning is applied only in some jurisdictions. Such zoning may seem justified, but it is completely inefficient because it just shuffles people from one place to another.

Another type of externality is the composition of a community. Zoning may appear attractive to a community because it would keep out poor people or minorities, but such policies may run counter to society-wide objectives for greater integration or for ensuring that lower-income children have the chance to live in middle-income neighborhoods.

Zoning also may be adopted because of pecuniary or fiscal externalities. Pecuniary externalities exist if, by restricting the supply of housing in one community, the price increases because demand is not perfectly elastic. This effect is likely to be important only if communities have unique attributes that lead to downward sloping demand. Fiscal externalities occur when new buildings generate tax costs that are not covered by expected tax revenues. These effects are claimed to be important, but they suggest that changing the fiscal structure of towns is an appropriate first step.

The potential costs of overregulating new construction are the subject of the penultimate section of this chapter, which is followed by conclusions. The high prices and volatility that are one obvious consequence could be particularly harmful to the poorer members of society. A second consequence of overregulation is that development within metropolitan areas will be skewed in the wrong direction. In some cases, land use regulation may alleviate other externalities by pushing development toward the older, denser areas. In others, it will push development out toward the fringe, which may have deleterious environmental and congestion-related consequences.

The section ends by discussing the national economic consequences of restricting growth in the most productive areas of the country. If the restrictions on supply in the San Francisco Bay Area or in Massachusetts were completely arbitrary and served no good purpose, they could easily impose economic costs on the country of many billions of dollars a year. But these costs would have to be balanced against the advantages of these regulations. The conclusion to be drawn from this situation is not that land use regulations are currently faulty, but that the topic deserves far more research and political debate.

Some Basic Facts on Permitting and Housing Prices

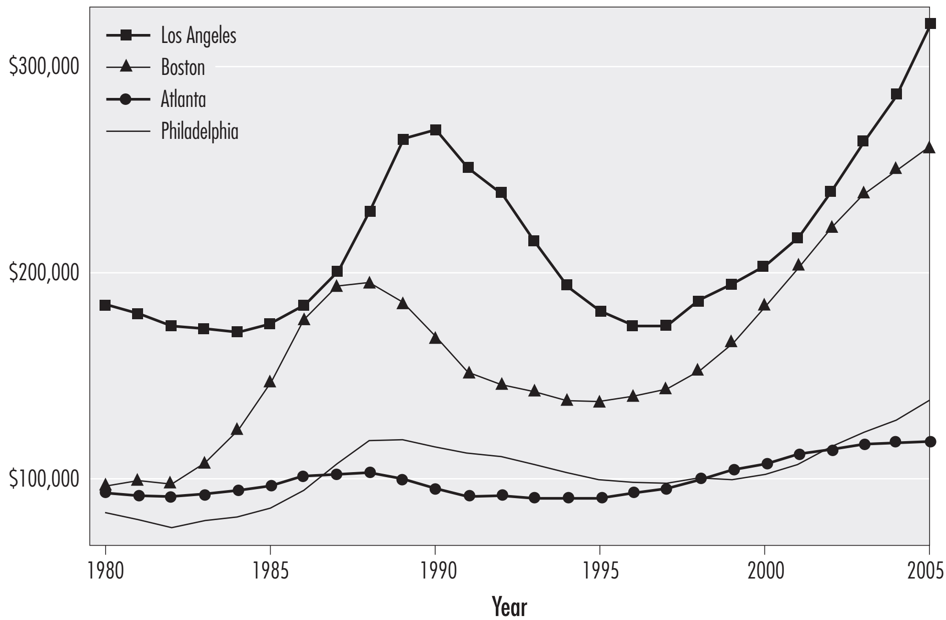
This section reviews five basic facts about permitting and housing prices. First, the past 25 years have seen an enormous increase in the disparity in housing prices across America, and the high-price areas are almost exclusively in regions with low levels of permitting. Second, low levels of permitting do not appear to be associated with low levels of population density. Third, in some high-cost areas rising prices have been associated with more land per unit. Fourth, high and rising housing prices are driven neither by construction costs nor the high values placed on land. Fifth, formal measures of land use controls are negatively associated with permitting and positively associated with housing prices.

Over the last 40 years, there has been an enormous increase in the range of housing prices across U.S. metropolitan areas. Glaeser, Gyourko, and Saks (2005a) report that in 1970 the metropolitan area that was more expensive than 90 percent of all metropolitan areas was only 35 percent more expensive than the median metropolitan area. By 2000 the 90th percentile metropolitan area was more than twice as expensive as the median metropolitan area. The considerable increase in the value of aggregate housing stock over the last 35 years has been concentrated in a small number of metropolitan areas generally on the East and West Coasts.

Figure 2.1 shows the time path of housing prices for Los Angeles, Boston, Philadelphia, and Atlanta for the period 1980–2005. It is calculated using 1980 median housing values as the base and allowing prices to grow at the rate suggested by the Repeat Sales Index of the Office of Federal Housing Enterprise Oversight (OFHEO). Los Angeles started expensive and has become more expensive over time. In 1980 Boston was no more expensive than Philadelphia or Atlanta, but over the past 25 years this region has experienced explosive growth, making it one of the country's most expensive metropolitan areas. Philadelphia and Atlanta have had very similar housing price histories, although their construction patterns differ wildly. In Philadelphia, new construction has been modest; Atlanta's construction has been explosive. The combination of price and quantity data suggests that Atlanta remains inexpensive, despite strong demand, because of elastic supply. Philadelphia remains inexpensive because of limited demand.

The wide disparity among metropolitan areas serves as a reminder that much of America remains inexpensive. In the 2000 census, 75 percent of all metropolitan areas had median housing values of less than $127,000. The very cheapest areas

Figure 2.1
Housing Prices in Four U.S. Metropolitan Areas, 1980–2005



Source: Repeat Sales Index of the OFHEO.

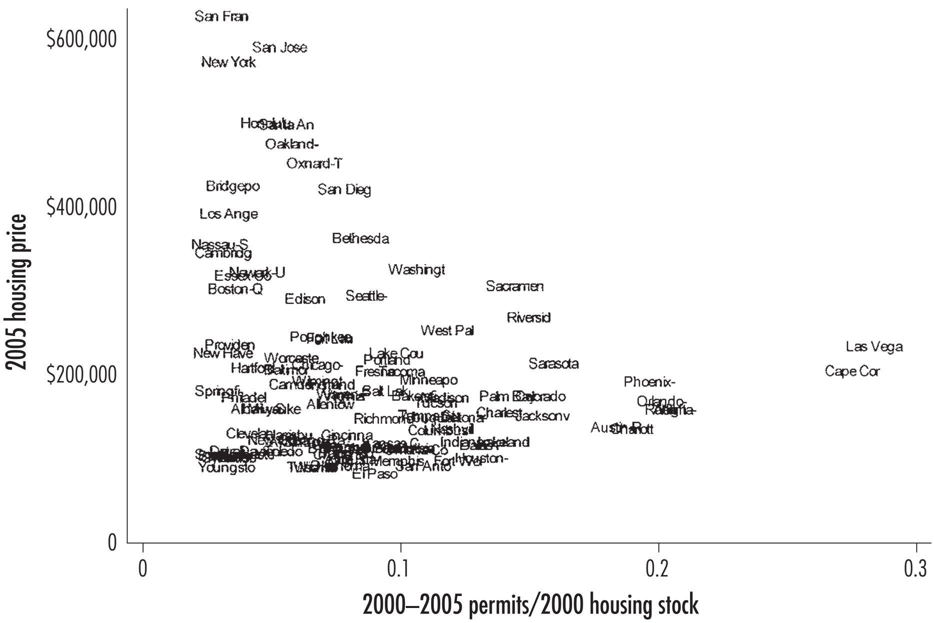
are those in which housing demand has collapsed because long-run factors have led to an exodus from manufacturing cities in colder regions of the country. However, a large number of cities are like Atlanta and are growing. In those cities, the steady supply of new units has kept prices down.

Figure 2.2 shows the relationship between housing prices in 2005 (calculated using the 2000 census median housing value and the OFHEO Repeat Sales Index) and total permits between 2000 and 2005 divided by the 2000 housing stock. Metropolitan regions are restricted to those with more than 200,000 units in 2000. The graph shows essentially an L shape. The cities with the highest housing prices, such as San Francisco and New York, invariably have little new permitting. The cities with vast amounts of new permitting, such as Las Vegas and Phoenix, invariably have modest prices. There is also a great clump of cities with low prices and low permits.

One way of making sense of this graph is a conventional supply and demand framework. In San Francisco and New York, demand is high but supply is limited, and so prices are high. In Las Vegas and Phoenix, demand is high and supply is elastic, and so prices are low. Finally, in Youngstown and Cleveland demand is low, and so prices are low. Although this graph does not reveal why supply is restricted in New York and San Francisco, it does suggest the importance of supply-side analysis.

One hypothesis about the restriction of supply is that it is fundamentally about the lack of land. If this hypothesis were correct, then one would expect to see new development tightly linked with density, especially in high-demand areas. Figure 2.3

Figure 2.2
2005 Housing Prices and 2000–2005 Permits Across U.S. Metropolitan Areas



Sources: 2000 Census and the Repeat Sales Index of the OFHEO.

shows the relationship between the logarithm of population density in 2000 and permits issued between 2000 and 2005 divided by the housing stock in 2000. Only the 164 cities with housing values that fall around the cross-metropolitan area median in 2000 are included. The relationship is negative, but it is far from perfect. If permits issued are regressed on the log of initial density for cities in 2000, the regression can be estimated as

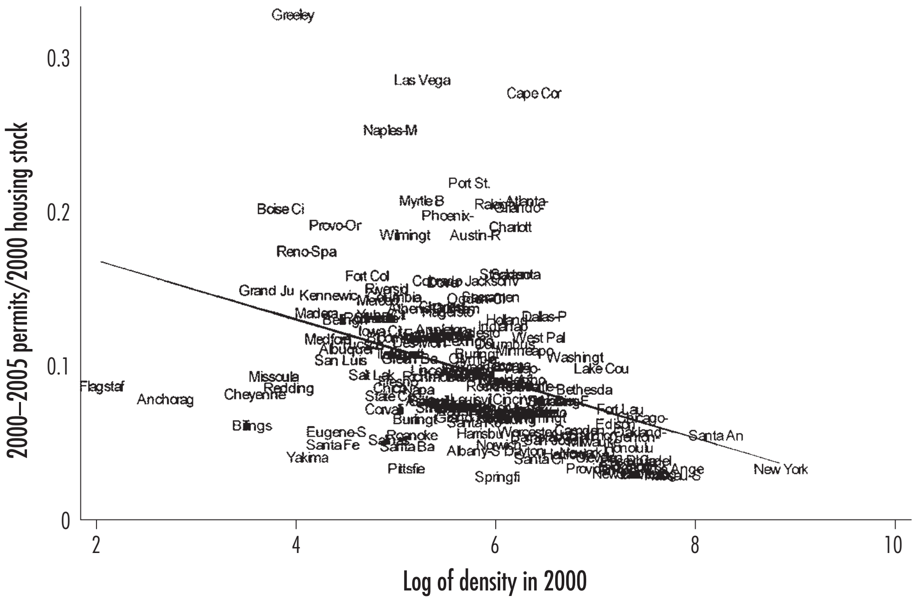
$$\text{(1)} \qquad \text{2000–2005 Permits} = \underset{(0.02)}{0.2} - \underset{(0.004)}{0.018}{}^{*}\text{Log(Population Density in 2000)}.$$

Standard errors are in parentheses, and r-squared is 14 percent. More density means less construction relative to the initial stock, but the fit is quite imperfect.

Although construction relative to the initial housing stock is one way to measure permitting, under such a method high-density areas will appear to permit less. Perhaps a more reasonable measurement of building intensity is to look at new construction relative to the physical size of the area—that is, permits per acre. This method more sensibly normalizes permits by the amount of land on which one can build rather than by the existing stock of housing.

If one considers permits per square mile instead of permits divided by the initial housing stock, then the relationship with initial housing density becomes dramatically positive. Figure 2.4 shows the relationship between the logarithm of permits between 2000 and 2005 divided by total land area and the logarithm of

Figure 2.3
2000–2005 Permits Divided by 2000 Housing Stock and Density in 2000 Across U.S. Metropolitan Areas



Sources: 2000 Census and the Repeat Sales Index of the OFHEO.

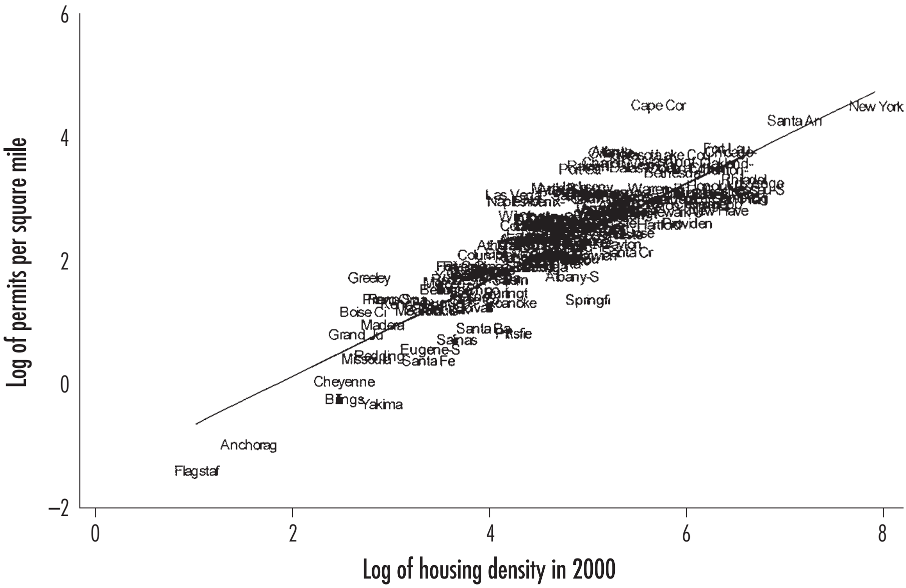
housing units in 2000 divided by total land area. The relationship is strikingly positive (r-squared = 75 percent). Even though places with high initial density levels issue fewer permits relative to the initial stock, they issue many more permits relative to their total land area.

This relationship is not just reflecting high demand in high-density areas. In this sample, the correlation between housing values in 2000 and later building permits is negative (again supporting the view that supply constraints are important). Controlling for initial housing prices only makes the relationship between initial density and later growth stronger. This relationship is also not just reflecting the replacement of existing units, which might cause a spurious positive relationship between existing density and new permits. A strong positive relationship also exists between the net increase in the number of homes divided by the initial acreage and initial density in this sample.

This relationship holds within at least one metropolitan area. Figure 2.5 shows the connection between the logarithm of permits per acre between 1980 and 2002 and the logarithm of homes per acre in 1980 across a sample of 187 Boston-area towns (the sample is detailed in Glaeser, Schuetz, and Ward [2006]). Again, a strong positive relationship emerges. More development per acre is found in areas that are already dense, which makes it difficult to believe that the barrier to supply is the availability of land.

A look at only the 15 most expensive metropolitan areas in the sample reveals that all of these areas had relatively modest growth, but many of them were far

Figure 2.4
2000–2005 Permits per Square Mile in 2000 and Density in 2000 Across U.S. Metropolitan Areas



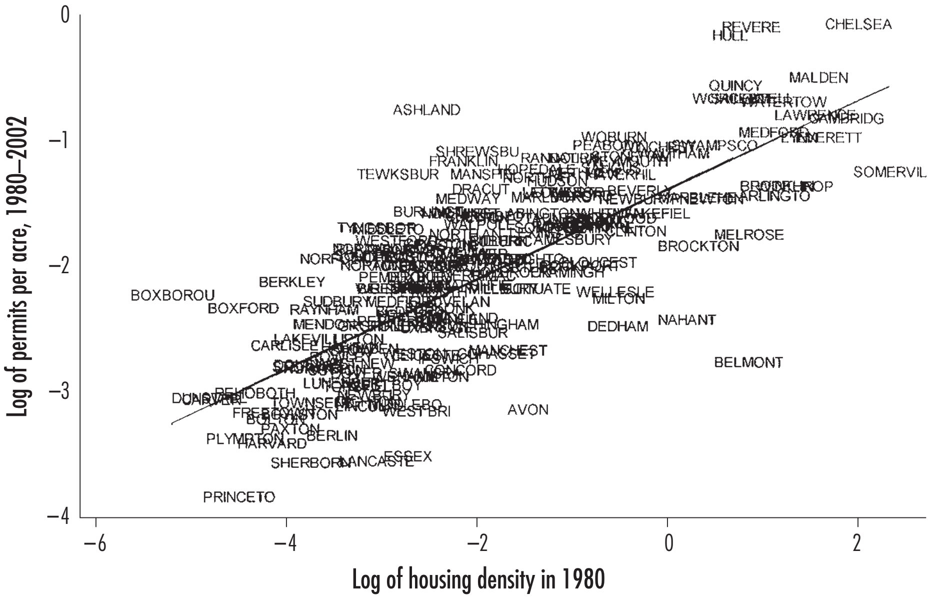
Sources: 2000 Census and the Repeat Sales Index of the OFHEO.

from dense. One-third of these 15 cities had population density levels below the average across all metropolitan areas. And nine of the fifteen cities had population density levels of fewer than 670 persons per square mile, or roughly 1.1 persons per acre. Density alone cannot explain the combination of high prices and low supply in these areas.

A third fact about land use is that in at least two areas with rising prices and declining permits—Boston and New York City (Manhattan)—the amount of land per home is rising dramatically. For example, Jakabovics (2006) finds that in Greater Boston "the median lot size for new single-family houses was 0.91 acres [in 1998], up from 0.76 [in] 1990." Some of this increase might stem from rising incomes, but Glaeser, Kahn, and Rappaport (2000) report that the income elasticity of demand for land area is between 0.1 and 0.25. Therefore, only an increase in income of between 80 and 200 percent could explain a 20 percent increase in land area. Greater Boston, however, certainly did not see incomes rise anywhere close to that magnitude over that time period. Bureau of Economic Analysis data suggest a real income increase in Boston of 13 percent over this time period, which should be associated with an increase in lot size of between 1.3 and 3 percent.

In Manhattan, land per unit is a function of building height, and in an area of increasing demand and limited land area one might expect building heights to soar. However, Glaeser, Gyourko, and Saks (2005b) report that in the 1970s, 80 percent of new multifamily residential buildings in Manhattan had more than 20 stories, whereas in the 1990s, only 44 percent of new multifamily residential buildings had

Figure 2.5
1980–2002 Permits per Acre in 1980 and Density in 1980 in Greater Boston



Source: Glaeser, Schuetz, and Ward (2006).

more than 20 stories. As prices were skyrocketing, building height was declining and land per unit was consequently rising. The combination of these two facts again points to changes in the restrictions on supply.

A fourth relevant fact is that high housing prices cannot be explained either by high construction costs or by a high value on land. Glaeser and Gyourko (2003) suggest that the cost of supplying housing can be written as

(2) Cost = Structure Cost + Land Area*Price of Land + Zoning Tax,

where Structure Cost refers to the physical cost of building the unit, Land Area*Price of Land is the value of land if that land does not come with the right to build, and Zoning Tax is the residual that can be associated with the right to build on that land. This decomposition is obviously a simplification; its main point is that the nonstructural costs of supply should be decomposed into the value of the land and the value of the right to build on that land.

Estimating structural costs is reasonably straightforward. Using R. S. Means data, it is possible to estimate the physical costs of building a unit back to the 1950s. Glaeser, Gyourko, and Saks (2005b) show that as late as 1970, this physical cost of construction equaled at least 90 percent of the value of the median home in almost every metropolitan area. Since 1970, in high-cost areas the gap between housing value and structure cost has increased dramatically. In the priciest 10 percent of metropolitan areas, structure cost now represents only about half of the value of housing; the remainder lies in the combination of land cost and the zoning tax.

It is not possible to observe enough land sales to estimate directly the value of land. As such, Glaeser and Gyourko (2003) estimate the value of land by using hedonic regressions. At their best, these estimates yield the value that consumers place on having more land associated with their homes. In the absence of land use controls, the value of land on the extensive margin should be the same as the value of that land if it sits under a new home. But hedonic estimates are not perfect, and if people buy bigger lots where land is cheap, one should expect the hedonic estimates to underestimate the true value of land on the extensive margin. If people buy bigger lots in tony neighborhoods where land is expensive, then the hedonic estimates will overestimate the true value of the land.

Despite the problems with this estimation, hedonic values can be used to estimate prices per acre in different markets. These price estimates range from $6,000 per acre in Houston to $100,000 per acre in Los Angeles. On the basis of these estimates, the zoning tax can be estimated at about 34 percent of the value of a house in Los Angeles and 19 percent in Boston. Because prices have risen dramatically in these markets since 1999, the estimated zoning tax is likely to be much higher today. Moreover, even if the price per acre estimates are off by a very significant amount, the zoning tax will still constitute a significant share of the overall value of the home.

This methodology can be applied more easily to Manhattan apartments, where the supply cost is just

(3) Cost = Structure Cost of Next Floor + Zoning Tax.

When developers are producing apartment buildings, no extra land is needed to create more units; the building just needs to go up. It is therefore possible to estimate the zoning tax by simply comparing the sale price of condominiums and the physical cost of building an extra floor.

Using a variety of different estimates of structure cost, Glaeser, Gyourko, and Saks (2005a) estimate that the zoning tax in Manhattan as of 2002 was about 50 percent of the value of a house. In 2002 it was possible to build extra units by going up at a cost of $300 per square foot. The median sales price for a condominium in the sample described by Glaeser, Gyourko, and Saks was $600 per square foot. These two facts are best reconciled by taking into account the fact that developers face restrictions (especially rules about air rights) that prevent them from erecting taller buildings.

The final fact is that formal measures controlling land use are negatively associated with permitting and positively associated with housing prices.[1] In the 1980s, Katz and Rosen (1987) found that housing prices were between 17 and 38 percent higher in those communities in the San Francisco Bay Area that had adopted growth controls. A few years later, Pollakowski and Wachter (1990) found weaker results in Montgomery County, a suburb of Washington, DC. Finally, Glaeser, Schuetz, and Ward (2006) report that housing prices are higher in the towns in eastern Massachusetts that require more acreage per lot, but only so long as the investigator does not also control for the housing density of the community.

1. Maser, Riker, and Rosett (1977) were pioneers in this type of research, but they focused on more classical use zoning and not on development restrictions.

Estimating the price effects of zoning restrictions is compromised by the fact that homes in geographically proximate communities should be close substitutes. According to this view, once the researcher controls fully for town attributes (such as density), growth controls should have no further empirical impact on price. The law of one price ensures that two neighboring towns with identical attributes have the same housing prices regardless of whether one town has a growth control and the other does not. As such, comparing across towns in a small region, holding town attributes constant, would not give an accurate picture of the price effects of zoning. Restricting growth will raise prices for the entire region, even if it does not have any impact on the town that is itself doing the zoning.

This argument suggests that looking at the quantity effects of land use regulation and multiplying those quantity effects by accepted housing demand elasticities may in some cases be a better method of estimating the price effects of land use controls than looking directly at the impact of zoning on prices. Unsurprisingly, Glaeser, Schuetz, and Ward (2006) found a strong link between minimum lot size and new construction. Other land use regulations, such as restrictions on building on wetlands, also reduce new construction. Multiplying these quantity effects by reasonable housing demand estimates suggests that land use controls have a sizable impact on Massachusetts prices, even though these price effects are hard to see in traditional town-level regressions.

Overall, the facts discussed in this section reveal that land use controls are an increasingly important part of America's urban landscape. The sizable increase in prices in many areas has been accompanied by a decrease in new construction. This decrease does not appear to stem from a lack of land, but rather restrictions on new construction. None of this means that land use controls are necessarily excessive; it is just that they are important. The next three sections explore the potential benefits and costs of restrictions on new development.

The Demand for Land Use Controls: Restricting Externalities

This section turns to the basic economics of residential land use controls; it does not discuss commercial and industrial zoning.[2] These controls have both advantages, such as reducing externalities from heavy industry, and disadvantages, such as increasing commute lengths. But a proper discussion of these rules is beyond the scope of this chapter. It focuses exclusively on residential land use controls and then only on those rules that increase the land required per new unit. Some rules, such as those on structure quality or even many septic tank regulations, may affect construction levels, but they act to increase production costs rather than directly limit the number of homes that might be built in a given jurisdiction.

At least four types of land use controls directly limit the number of units that can be built. First, and the most obvious, minimum lot size rules determine the number of homes that can be built in a given geographic area. Second, environmental restrictions, such as wetland rules, make some land off-limits to development.

2. Ellickson (1977) has written the classic statement on the economics of zoning. Fischel (1978) presents a slightly different view that emphasizes property rights.

Third, subdivision rules may require developers to set aside large amounts of land for roads, which then limit the amount of land that can be used for housing. Fourth, restrictions on building height also limit the number of units that can be built within a given area.

The benefits of these rules stem from the externalities associated with new construction. This section describes five different classes of externalities: (1) real externalities associated directly with building more structures; (2) real externalities associated with number of residents, not structures; (3) real externalities associated with the composition of residents; (4) pecuniary externalities; and (5) fiscal externalities. The case for residential land use controls is clearest when there are real structure-related externalities. Population composition externalities may or may not justify zoning. Pecuniary externalities should not be internalized, and so while they may lead to zoning, they are not efficiency-related causes of zoning. Finally, fiscal externalities (where the marginal home does not cover its fiscal costs) suggests changing local public finance rules, but real nonstructure-related externalities presumably call for government intervention, not necessarily zoning.

REAL STRUCTURE-RELATED EXTERNALITIES

Traditional zoning and nineteenth-century nuisance laws were almost entirely justified on the basis of claims about real externalities. Novak (1996) discusses the roots of modern land use controls in nineteenth-century nuisance suits. During that premodern era, both public and private litigants could sue to remove buildings that they could establish were a public or private nuisance, such as a fire risk or a house of ill repute. Indeed, the best case for land use controls that limit the number of units in a geographic area is that the structures themselves cause externalities. For example, rules restricting higher building are potentially justified because the new building will block views in old buildings. A pioneering 1916 New York City zoning ordinance was aimed at addressing the provision of light within the city, and many rules facing the owners of high-rise apartment buildings are at least justified on the basis of light and sight lines.

As for single-family, detached dwellings, the real externalities associated with new structures can be either aesthetic—such as the current residents enjoy living in a low-density environment—or environmental—such as the open land will serve the public health benefits of improving water and air quality. Covering up open space with concrete can limit the amount of soil that will absorb water, which may increase flood damage. If the structure replaces trees, then a reduction in air quality may be associated with new building.

Why Might Land Use Regulation Be Excessive? The simplest model of real externalities is that in which the utility of living in a given location is represented by $V(S) - P$, where S is the number of structures in the area and $V'(S) < 0$, and P is the price of living in the location. In this model, T total lots could be developed at cost C, and zoning will ensure that only S of those lots are built. The utility flow from living in a reservation locale is $\underline{U}$. Optimal development will sum the flow of extra utility going to residents minus construction costs, or $S(V(S) - C - \underline{U})$, which yields a first-order condition of $SV'(S) + V(S) - C = \underline{U}$.

Totally unrestricted development would set $V(S) - C = \underline{U}$, which would yield too much development.

Now it is useful to model a zoning equilibrium that maximizes λ times the utility of current residents and $1 - \lambda$ times the utility of empty lot owners. Current residents are assumed to permanently occupy their lots, and so they do not care about prices. If the initial development of a town yields a population of S_0, then the number of extra lots will maximize $\lambda S_0 V(S_0 + \Delta) + (1-\lambda)\Delta\big(V(S_0 + \Delta) - C - \underline{U}\big)$, which yields a first-order condition of

$$(4) \qquad \left(\frac{\lambda}{1-\lambda} S_0 + \Delta\right) V'(S_0 + \Delta) + V(S_0 + \Delta) - C = \underline{U} .$$

If $\lambda = 0.5$ or $S_0 = 0$, then zoning does indeed yield the first-best outcome. If $\lambda < 0.5$ and $S_0 > 0$, then there will be too many units, because the owners of empty lots are ignoring the interests of existing landowners.

However, because the democratic process gives power to residents and not to empty lots, there are reasons to believe that $\lambda > 0.5$ is a more realistic assumption. In this case, too few lots will be allowed, because political power is allocated to people, not to land. In essence, then, there is a strong incentive to allocate rents from landowners to current residents. This problem would be mitigated if there were more side payments, so that landlords compensated residents for the costs imposed on them by new construction. Alternatively, if the town owned the land, then the town would attain the optimal number of new units.

Is the Zoning Tax Too High? Although structure-related externalities undoubtedly exist, there is a question about their magnitude. If people are homogeneous, then social surplus would be increased by stopping construction if the increase in value to current landholders is greater than the decrease in value to the landowners whose construction is being blocked. This section treats land use regulation as a tax rather than a quantity restriction and asks whether that tax is too high.[3]

Returning to the previous model, socially optimal development sets $SV'(S) + V(S) - C = \underline{U}$, and because the sales price of housing equals $V(S) - \underline{U}$, then Price = Construction Cost + $SV'(S)$, which means that the appropriate tax equals the number of old units times $V'(S)$—the loss in utility to the resident of each unit. This loss in utility also equals the loss in price (in a perfectly homogeneous world). Thus, the optimal tax should equal the number of existing units times the reduction in value to each unit.

As a share of final price, the tax equals $SV'(S)$/Price, which, in turn, equals the change in the log of price associated with one new unit times the number of old units, which equals the change in the log of price associated with the change in the log of the number of units or the elasticity of price with respect to housing density. As such, theoretically the elasticity of housing price with respect to density yields a rough guideline of what a reasonable zoning tax might be. If, for example, this elasticity were 0.1, so that a 10 percent increase in density is associated with a 1 percent increase in value, then each new unit creates $0.1 * 1/N$ damage to each

3. The reasoning here for doing so is quite close to that of Brueckner (1990).

existing unit, where N is the number of existing units. This number would have to be multiplied by N to measure the total social damage from each new unit. A price elasticity of 0.1 suggests that the optimal zoning tax should be 10 percent.

This calculation contains both an upward and a downward bias. First, the measured impact of density on prices includes both the real effect of congestion and a second effect stemming from the fact that as more housing becomes available, prices will fall for the usual supply and demand reasons. This second effect is associated with the pecuniary externality from new construction and should not be included in the estimate of the social damage produced by more building. Second, the measured impact of density on local prices omits any beneficial environmental or aesthetic effects on nonresidents.

The magnitude of these effects can be estimated with the simple regression

$$\text{(5)} \qquad \text{Log(Housing Price)} = a - b^{*}\text{Log(Distance to Boston)} - c^{*}\text{Log(Housing Density)}.$$

The results from an ordinary least-squares regression of this form are shown in column (1) of table 2.1. The baseline elasticity is 0.16, which suggests that a 10 percent increase in housing density is associated with a 1.6 percent decrease in housing prices.

This regression is compromised for two reasons. First, density is itself endogenous, and land that is inherently more valuable should have more houses built on

Table 2.1
Density and Housing Prices in Greater Boston

Dependent variable: Log(Median Single Family Sales Price in 2004)	(1)	(2)	(3)	(4)	(5)
Log(Housing Density)	–0.16 (0.03)	–0.19 (0.03)	–0.18 (0.03)	–0.06 (0.02)	
Log(Distance to Boston)	–0.42 (0.05)	–0.47 (0.06)	–0.45 (0.06)	–0.21 (0.03)	–0.20 (0.03)
Percentage of adults with B.A.s				0.014 (0.0006)	0.014 (0.0006)
Log(Density) < 0					–0.04 (0.02)
Log(Density) > 0					–0.08 (0.02)
Intercept	14.1 (0.15)	14.2 (0.16)	14.1 (0.16)	12.9 (0.09)	12.9 (0.09)
Instrument for density	None	Log(Density in 1910)	Log(Minimum Acreage per Lot)	Log(Minimum Acreage per Lot)	None
R-squared	0.28				0.84
Number of observations	184	184	184	184	184

it. This finding indicates that the coefficient may be biased toward zero. Second, the regression does not control for housing characteristics or lot characteristics that should correlate negatively with density and that probably will cause this coefficient to be biased away from zero. The first problem can be addressed with instruments, but the second problem requires microdata, and thus these regressions should be viewed as purely illustrative.

The first problem can be addressed by instrumenting for current density levels in two ways. The first way is to use density as of 1910, but it will be helpful only if the factors that made a city attractive in 1910 (and thus denser) are not the factors that make a city attractive today. Column (2) in table 2.1 reveals that when historical density is used as an instrument, the coefficient drops to −0.19. The third regression (column [3]), uses minimum acreage per lot in the town, as calculated by Glaeser, Schuetz, and Ward (2006), as an instrument for current density levels. With this control, the coefficient on density becomes −0.18. If these regressions include more house attributes, the coefficient falls.

Second, the fourth regression (column [4]) includes the share of the adult population with a college degree (B.A.) or higher. This variable appears to be a desirable locational attribute, and indeed it explains high housing prices much more than distance to Boston or housing density. When this variable is included in the regression, the coefficient on density drops by two-thirds. Meanwhile, this coefficient may be biased upward, because desirable unobserved attributes attract skilled people into the town. However, if this regression is taken literally, it suggests that two-thirds of the impact of density controls on price comes from shaping the composition of the population, not from the impact of density itself. As such, the regression suggests that the structure-related coefficient is –0.06 and that the composition-related coefficient is twice that. The chapter will return to this result when it discusses the externalities associated with population composition.

The regressions suggest an impact of density on housing prices of between −0.06 and −0.19, which means that the optimal zoning tax should be between these two numbers. These estimates are significantly below estimates of the zoning tax in Greater Boston based on recent numbers, and yet they do indicate that the optimal zoning tax is not zero and may be as much as 20 percent of the value of a house (Glaeser, Schuetz, and Ward 2006). Moreover, these estimates fail to include any impacts of density on the well-being of nonresidents.

Glaeser, Gyourko, and Saks (2005b) engage in a more thorough analysis of the zoning tax in New York City, where the relevant zoning concerns limitations on the height of new buildings. The social loss from limiting building height is the difference between the sales price of a unit minus the physical cost of that unit, which is again the zoning tax.

For Manhattan apartments, Glaeser, Gyourko, and Saks (2005b) attempt to calculate an upper bound on the property value lost from the externalities associated with new construction. They assume that, at most, each new unit blocks the view of one existing unit, and they determine the value of a view by comparing the price of a unit on the bottom floor of a building with the price of a unit on the top floor of the building (which is approximately 20 percent of the value of a New York City apartment). Their calculations suggest that it might be reasonable in Manhattan to have a zoning tax of 20 percent. Of course, the measured zoning tax is about five times this amount. This calculation, however, misses the social loss to pedestrians from lack of light.

In all of these calculations, an optimal zoning tax system requires efficient collection by all communities. If some places impose the tax and others do not, then misallocation of housing across space will result. For example, assume that each home produces \$10,000 in damage in any community in which it is built. In this case, a zoning tax of \$10,000 would be efficient if it is levied everywhere. If, however, one community imposes a \$10,000 zoning tax and another levies no tax, then far too many houses are built in the place without the zoning tax. This problem is the topic of the next subsection.

Heterogeneity in Regulation and in Externalities Zoning restrictions serve two purposes when externalities exist. First, they serve to limit the overall number of structures being built. And, second, they allocate structures from places with restrictive zoning to places with permissive zoning. So far, little is known about the impact of zoning rules on the aggregate construction of new units. However, the effect is probably modest, and, moreover, it runs counter to the federal policies that favor housing construction (at least relative to other forms of investment). Indeed, federal housing policies have generally supported the idea that people should consume more housing, not less, which does seem to require more construction.

The impact of zoning on reallocating construction from one place to another seems clearer, but is it desirable? The key to desirable reallocation is not that the new structures create negative externalities, but that these externalities be worse in one place than another. If new construction imposes similar costs everywhere, it may be better to have no limits on construction than to have limits in one area but not in another. Consider the extreme in which N units are to be built and spread between two communities. Welfare in each community equals $U - c$ times the number of units built in each community. The construction costs in each community are the same. In this case, the first-best outcome is achieved without any zoning taxes. Exactly $N/2$ units will be built in each community, and each person will receive welfare equal to $U - cN/2$.

If the first community restricts the number of units by zoning a total of Q units, then the number of units in the second community will rise and average welfare will equal $Q^*(U - cN/2 + c(N/2 - Q)) + (N - Q)^*(U - cN/2 - c(N/2 - Q)) = U - cN/2 - c(N - 2Q)(N/2 - Q)$, so that the total social loss is $0.5c(N - 2Q)^2$. Indeed, any limitation on new construction will cause social losses. In this example, despite the externality, zoning causes social losses because the same rules are not imposed everywhere.

Structure-related externalities justify reallocating construction from one jurisdiction to another if, and only if, the social costs of construction are higher in some places than in others. One natural way in which this variance could occur is if the social cost of density is convex or concave. For example, in the sample of 184 cities and towns in Greater Boston used for the regressions in table 2.1, there is some evidence that these social costs are convex, because the impact of density on prices is more negative at higher levels of density—see column (5) of table 2.1. At lower levels of density, density has less impact on housing prices (once controlling for the share of the population with college degrees). At levels of density above one home per acre, the coefficient rises and becomes more significant.

If this relationship reflects the real social costs of structure and not omitted variables, then it would make sense to smooth construction across space. Places with lower density levels should allow more units relative to places with higher density levels. And yet the previous section suggested that the opposite is true. Higher-density places are issuing more permits than lower-density places. If the social costs of structural density are indeed convex, zoning policy appears to be doing the opposite of what it should be doing. For these permitting practices to be optimal, the social costs of density must be concave and moving from a low-density place to a medium-density place must create large costs, but moving from a medium-density place to a high-density place would create only modest costs.

This discussion leads to three main conclusions. First, if externalities are similar everywhere, then stemming the total supply of new housing in one community is unlikely to achieve the first-best outcome. Second, the uneven application of zoning rules will always cause social losses. And, third, differences in zoning rules are advantageous only if the differences reflect differences in externalities across space. The housing elasticity regression run here implicitly assumes away the third possibility. Because one extra unit of housing will have the same impact everywhere, benefits can be gained only by reducing the total supply of new housing.

NONSTRUCTURE-RELATED EXTERNALITIES

In recent years, the rhetoric surrounding opposition to new construction has often revolved around the increase in traffic congestion that would accompany an increase in the number of drivers. In this case, there is a real externality—drivers do not internalize the social costs of their road usage—but it is not directly related to the new structure. Rather, the new structure generates actions that are themselves the source of the externality.

Naturally, an economist's first reaction to this situation is to suggest that the road congestion be priced directly rather than tackled through an indirect regulation such as a ban on new structures. If there were no implementation costs, this approach could yield the first-best outcome, but imposing congestion charges on every road in suburban America seems to be an implausible policy solution. Indeed, from a local perspective imposing limits on new construction seems to be a somewhat reasonable response to local traffic congestion.

However, from a regional perspective it again seems unlikely that zoning will lead to sensible traffic policies. The optimal regional traffic policy would crowd people closer to places of work (exactly the opposite of the traditional zoning separation of work and residence). Optimal policy would also push new units into inner-ring suburbs and into areas close to highways that have the capacity to accommodate more drivers without increasing the delay.

Current zoning policies do not seem to favor any of these objectives. Restrictive zoning in areas closer to the city center will push development outward, and if the residents of these new units commute to the city center, this situation will be worse than if they are located closer to the city center. A full analysis of this problem is beyond the scope of this chapter, but it is clear that because traffic runs through towns, cross-town externalities abound, and there is little sense in using local zoning as a tool for restricting traffic congestion.

COMPOSITIONAL EXTERNALITIES

Yet another type of real externality is related to the composition of a town. Housing values in a town are closely linked to the human capital of a town's residents. It would be surprising if people did not prefer better educated and more successful neighbors. Preferences for racially homogeneous neighborhoods also may create further incentives to use land use regulation to control town composition. In this case, restricting supply, particularly of low-cost units, will increase prices, thereby making it less likely that the poor will live in the town.

There is ample evidence that this force prompted various forms of public and private land use regulation in the twentieth century. For example, private developments often had restrictive covenants that prevented the sale of homes to blacks or Asians. Several cities even attempted to zone explicitly by race. And there is at least anecdotal evidence that minimum lot size is intended to ensure a wealthy population, and it certainly appears to have that effect. For example, across the 184 cities and towns in the Greater Boston sample used here, the correlation between minimum lot size and the share of adults with more than college degrees is 18 percent.

Although most observers find snob zoning objectionable on moral grounds, the consequences for efficiency are less clear. A simple model with a uniform distribution of human capital on the unit interval may help clarify the situation. It is assumed that utility equals $V(h, \hat{h}) - P$ where h is the individual's human capital, $\hat{h}$ is the human capital in the area, and P is the price of housing. There are two locations. One has an unlimited supply of lots that can be developed at cost C, and so the price in this area equals C. In the other location, the number of lots is fixed at $S < 1$ by zoning, and the price will be determined by demand as long as the price is weakly greater than C.

If, following Benabou (1993), it is assumed that $V_{12}(h,\hat{h}) > 0$, so that the high human capital people value the human capital of their neighborhoods more, then there will be two equilibria with a positive population of both communities. In one of these, the average human capital is exactly equal in the two locales, and the price in the zoned area equals C. This equilibrium is unstable in the standard informal sense of instability, because if there is a slight reallocation of skilled people into either community the equilibrium breaks down. In the second equilibrium, there is a marginal value of h, denoted h^*, and everyone with human capital levels above h^* lives in the zoned community.[4] In this case, $h^* = 1 - S$, and the price of the zoned community satisfies

(6) $$V(1 - S, 1 - 0.5S) - P = V(1 - S, 0.5 - 0.5S) - C.$$

If the extra land rents are shared equally across society, then the socially optimal level of zoning in this equilibrium will maximize,

(7) $$\int_{h=1-S}^{1} V(h, 1 - 0.5S) + \int_{h=0}^{1-S} V(h, 0.5 - 0.5S),$$

4. There is also an equilibrium in which people live only in the unzoned community.

which yields

$$(8)\qquad 0.5\left(\int_{h=1-S}^{1} V_2(h,1-0.5S) + \int_{h=0}^{1-S} V_2(h,0.5-0.5S)\right) = V(1-S,1-0.5S) - V(1-S,0.5-0.5S) = P - C.$$

This equation equalizes the cost in lost externalities from expanding the zoned city with the gains in terms of allowing one more person to live in the high human capital area. Increasing the size of the high human capital city reduces the average human capital of both places, but it allows one more skilled person to live in the skilled area.

If zoning is determined to maximize the property value gains in the zoned community—that is, $S(P - C)$—the number of homes will satisfy

$$(9)\qquad V_1(1-S,1-0.5S) - V_1(1-S,0.5-0.5S) + 0.5\left(V_2(1-S,1-0.5S) + V_2(1-S,0.5-0.5S)\right) = P - C.$$

The first term is the reduction in prices associated with the fact that as supply increases the human capital of the marginal buyer is lower, and this outcome will reduce people's willingness to pay for the high human capital environment. The second term captures the fact that as the high human capital area grows, the area becomes less selective and the willingness of people to pay for it falls.

In general, there may be either too little or too much zoning relative to the social optimum. Too little zoning may result because property value maximization places no importance on the inframarginal tastes. If these residents value the human capital of their neighbors most, then there is actually too little zoning. Too much zoning may stem from the fact that as zoning becomes more permissive, the identity of the marginal buyer changes and that buyer is less willing to pay for the zoned area.

PECUNIARY EXTERNALITIES

Another possible justification for zoning is the pecuniary externality inherent in building new units. Housing prices may rise not because any real externality is being internalized, but because the supply is being restricted. For example, if all homes are homogeneous within a community and there is a distribution of willingness to pay to live in a particular community characterized by the cumulative function $F(P)$, then the market price will be $S = N(1 - F(P))$, where N is the size of the universe of total buyers and $dP/dS = -1/F'(P)N < 0$. Restricting supply will increase price without any real externality whatsoever.

This simple fact means that attempts to evaluate the efficiency of zoning by asking whether zoning increases the total value of all property within a jurisdiction are mistaken. As long as the demand curve slopes normally, restricting supply will push up prices but not in a way that increases efficiency. All gains will be produced by the losses imposed on prospective buyers, and the net social effect will be negative. In essence, zoning is equivalent to letting the town act like a local monopolist.

Although this effect surely exists and is one reason that zoning may not be efficient, it may not be all that large. After all, most communities do not have monopoly control over some sort of unique attribute. Even those towns in California that do have remarkable environmental amenities are competing with each other. No one town has much of an ability to control the supply of homes with great climates. As such, this is an interesting line for future research, but it seems unlikely to be a major cause of land use regulation.

FISCAL EXTERNALITIES

Fiscal externalities are those in which the public cost associated with a new housing unit is greater than the tax revenues associated with the new unit. These externalities seem to arise for three reasons. First, even if all the housing units in a town are identical, fiscal externalities can arise if new units require infrastructure not needed by the existing units. An example might be extension of a road or sewage system to accommodate a new house. In this case, zoning does not seem to be the appropriate response. An impact fee designed specifically to charge the developer for any new infrastructure costs seems far more sensible.

A second reason for fiscal externalities is decreasing returns to scale in the provision of local public services. For example, if the marginal cost per student is increasing in the local high school and if new units pay the average cost, then the costs for existing residents will rise with each new unit of construction. As noted earlier, if the gap between the marginal cost and the average cost is the same everywhere, then a new resident imposes the same social cost on any town, and local zoning rules that shift people from one area to another will not achieve any good. The only way that zoning policies that reallocate consumers make sense is if the gap between average and marginal costs is higher in some places than in others. Although this notion seems to be a crucial issue for zoning policy, there is little evidence of these increasing costs and even less evidence of differences across towns in the gap between average and marginal costs.

The third reason possibly underlying a fiscal externality is if a new home is worth less than an existing home but uses the same level of services, or if the residents of new homes generally use more services. For example, a cheaper home that will house the same number of children as a standard home in the same area will bring in lower tax revenues than existing homes, but will impose the same school-related costs. Alternatively, the new home may have the same price as the existing homes, but if the new home is more likely to be bought by a younger couple with children, then the town will lose money from this new construction.

Again, this force explains why towns do not want new building, but it does not necessarily justify spatial differences in zoning policy. Families with children have to be housed somewhere, and they will impose this cost on whatever town they move to. As such, if zoning pushes them from one community to another, there will be no social gain from land use regulation. This regulation has beneficial effects only if the real costs of public services are higher in some places than in others.

Moreover, even though it seemed implausible to price traffic congestion efficiently, it is not impossible to imagine charging residents more directly for the social services they consume. Such charges could take the form of school-related fees for families with children, or they could take the form of state aid that compensates towns more directly for the children they school. Ensuring that communities receive the appropriate compensation from the state could eliminate at least one of the reasons for restricting new development.

The Costs of Excessive Land Use Regulations

As noted in the previous section, although there are reasons to think that zoning does serve positive functions, it is also liable to abuse, particularly because homeowners do not internalize the cost of zoning imposed on the owners of vacant lots. This section discusses the different effects of restricting construction through land use regulation. If the amount of land use regulation is socially optimal, then these effects are unfortunate by-products of regulation, not social losses.

CONSEQUENCES FOR HOUSING PRICE LEVELS, WEALTH DISTRIBUTION, AND VOLATILITY

The first-order impact of restricting supply is higher prices. Even if regions are not motivated to act like monopolists, the net effect of many jurisdictions independently restricting construction through zoning is to reduce the total number of units available in an area, which will push up prices. Indeed, most of the empirical work on land use regulations has tried to test the link between land use regulations and higher prices.

And what are the effects of these higher prices on the economy? Most obviously, higher prices represent a transfer from buyers to sellers. Nothing is intrinsically wrong with higher prices, which essentially are an intergenerational transfer that presumably will be undone to a large extent by bequests. However, if it is true that a significant fraction of the rise in prices in coastal regions is the result of restricting supply, then these supply restrictions play a role in enriching older Americans at the expense of younger ones.

A related question is the impact of these higher prices on consumption. The transfer of wealth from buyers to homeowners makes homeowners richer and renters poorer. The net impact on consumption will depend on the marginal propensity of these two groups to consume. Higher prices also may induce younger potential home buyers to save more.

Among the most worrisome effects of land use regulation is the impact that higher housing prices have on the poor. Because homeowners are generally richer, the tendency of land use regulations to redistribute to them will necessarily be regressive. The poor who are likely to be affected the most are those with preferences or with family connections that tie them to expensive areas. Because cheap housing is still abundant in much of America, housing regulation does not affect the poor who are sufficiently mobile.

At some point in time, restricted supply leads to lower quantities and higher prices. Over time, restricted supply means more volatility in prices and less volatility in quantities. In places with a flexible supply, increases in demand lead to more building, not higher prices, and decreases in demand result in less building, not lower prices. In places where supply is inflexible, increases and decreases in demand do not change supply, and all of the impact of increases and decreases is felt on prices.

In figure 2.1, which compares prices in Boston and Atlanta, Atlanta represents a much more permissive permitting environment than Boston. Relative to its

Figure 2.6
Price Volatility and Supply in Larger, More Expensive U.S. Cities

housing stock, the Atlanta region issues about seven times as many permits as the Boston region. The figure reveals that prices in Boston are both much higher than those in Atlanta and far more volatile. Atlanta did not share Boston's 1980–1988 boom in which prices doubled, but it also did not share Boston's 1988–1994 bust in which prices lost 50 percent of that previous gain.

Figure 2.6 shows the relationship between supply and price volatility more systematically. Price volatility is measured by taking the average of the absolute value of the difference between the five-year growth in housing prices and the region's usual housing price growth between 1980 and 2004. For regions that always grow by the same amount, this quantity will be zero. For regions that sometimes grow by $50,000 over five-year periods and sometimes do not grow at all, this quantity will be $25,000. Supply is measured by dividing the average number of permits in the area by the housing stock in 1980. The role of differences in demand conditions is reduced by restricting the sample shown in figure 2.6 to those areas that had housing prices above the average ($108,000) of the original sample of 184 as of 1990. The overall relationship is extremely negative. As permits relative to stock rises by 1 percent, the average gap between price changes and average price changes drops by $10,000. Areas with restricted supply are much more volatile. Again, nothing is intrinsically wrong about price volatility, but it should be understood as a by-product of restricting supply.

CONSEQUENCES FOR INTRAURBAN DEVELOPMENT

A second area in which land use regulation affects outcomes is development within urban areas. One major impact of land use restrictions is that people will tend to live in older homes rather than trying to meet the restrictions to building new ones, thereby reducing the quality and quantity of housing consumed. But such a tendency is unlikely to present special policy needs unless something is intrinsically unsafe or unhealthy about the older homes.

The impact of land use regulation on development patterns within metropolitan areas is less clear. The areas most restricted by land use regulation appear to be medium-density suburbs. More construction per acre is carried out in the high-density areas, and very low-density areas are still dominated by landowners who want to sell their property. Pushing development toward older areas that are close to the city center has advantages from a traffic perspective, at least if employment is centralized. But if employment is decentralized and located near the particularly zoned suburbs, then the impact of land use regulation on traffic is less clear. Land use regulations that push development out toward the urban fringe will almost surely have unattractive consequences for drive times and congestion.

One consequence of this reasoning is that the costs of land use regulation cannot be determined by looking solely at rising housing prices. If some people adjust to restricted supply by living farther out where homes are still cheap, then longer commutes must be added to these costs. Commuting costs plus housing costs are then the added costs of restricting the number of housing units.

If zoning pushes development toward older, denser communities, the social consequences are mixed. The older, denser communities do have attractive attributes, but these communities also are the most likely to be segregated (Cutler, Glaeser, and Vigdor 1999). The newer suburbs have much less racial segregation than the old inner cities. The negative effects of land use regulations on segregation will only be exacerbated if land use regulation enforces a uniformity of lot and structure that keeps lower-income people out of higher-income areas. Even though such uniformity may be efficient, it also may be extremely unattractive socially.

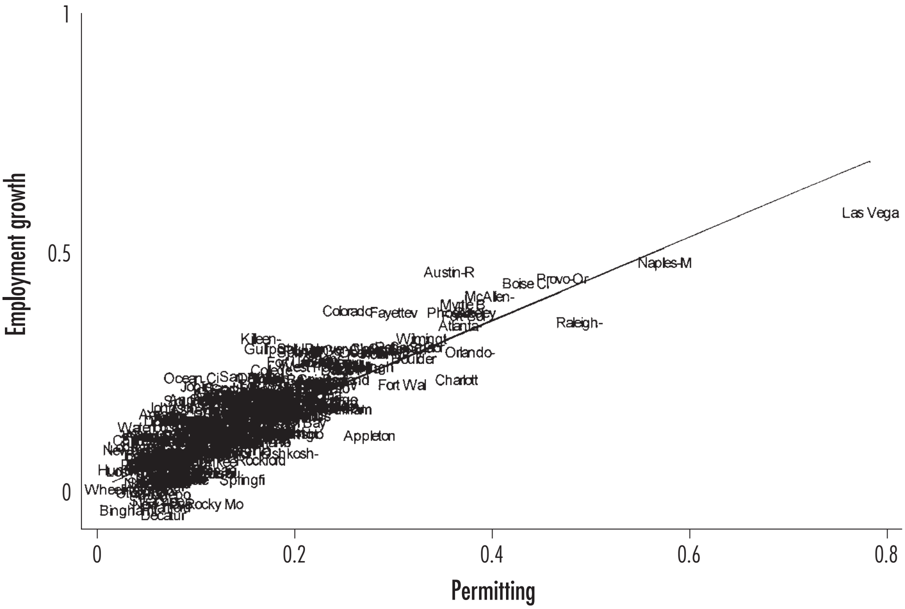
The efficiency results may be reversed, however, if neighborhood quality plays a major role in children's human capital accumulation. If parents do not sufficiently internalize the benefits to their children of moving to a higher human capital area, then land use regulation will exacerbate an existing inefficiency: the underconsumption of middle-income neighborhoods by low-income parents. Because many government policies, including subsidy of education, suggest that externalities are associated with human capital accumulation and that it is particularly desirable to subsidize the education of the less fortunate, this represents a further loss associated with land use regulation.

ECONOMIC MISALLOCATION ACROSS REGIONS

Perhaps the most striking aspect of land use regulation is its potential impact on the economy as a whole. Differences in wages across space strongly suggest that significant differences in productivity also exist across space. After all, why would employers be willing to pay so much more for workers in New York or Boston than for workers in Oklahoma if workers in those urban areas are not more productive?

And yet because of housing restrictions, fewer people move to areas that are more productive and instead move to places where productivity is lower. After all,

Figure 2.7
Employment Growth and Permitting in the 1990s Across U.S. Metropolitan Areas



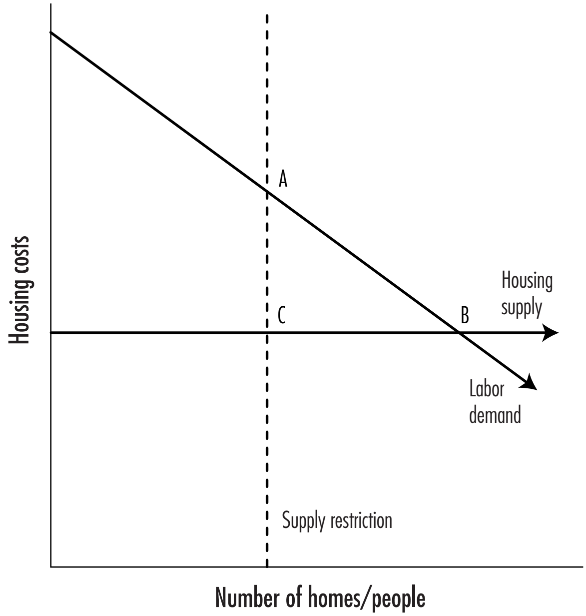
the population and employment of a region are determined by its housing supply. Figure 2.7 depicts the strong—more than 70 percent—correlation between permitting in the 1990s and employment growth over the same period across metropolitan regions. By restricting housing supply, communities are restricting labor supply as well, which has inevitable consequences for economic productivity. The basic point is the same for any artificial supply restriction.

A simple analysis of this point begins with a Rosen/Roback framework in which housing costs C equalize the flow of utility across space, so that $W + A - C = \underline{U}$, where W reflects wages, A reflects amenities, and $\underline{U}$ is the reservation utility. In an extreme case in which zoning serves no real function, it is assumed that A is fixed, housing is elastically supplied at $\underline{C}$, and wages are linearly declining in the number of workers (figure 2.8). In the absence of zoning regulations, point B in figure 2.8 represents the free market equilibrium.

Land use regulations that restrict the number of developable lots in an area will reduce the number of workers in that area and will cause both housing prices and wages to rise. In figure 2.8, this scenario is shown at point A where prices are high and the quantity of homes and people is much lower. The social loss from restricting housing is the triangle ABC, which equals half the increase in housing costs times the reduction in the total number of workers. If the labor demand elasticity is known, then the size of the triangle can be determined by knowing only the extent to which zoning has reduced population or increased prices.

These numbers—workers and prices—may be quite large. For example, it would be entirely reasonable to believe that the population of the San Francisco

Figure 2.8
The Welfare Consequences of Restricting Supply



Bay Area has been reduced by 200,000 workers because of land use regulation and that housing costs are $20,000 per year higher. These figures can be associated with an annual flow loss of $2 billion because of land use restrictions in that area alone.

This kind of calculation directly assumes that there are no efficiency gains from restricting externalities, and thus it is useful only as an illustration of how economically costly misallocating people from economically productive areas to less productive areas might be. If the externalities of living in the Bay Area are vastly larger than the externalities associated with living in Houston or Las Vegas, then this reallocation is efficient. And yet the potential losses if these policies are wrong are large enough that it surely makes sense to put more effort into studying these questions.

Conclusions

Over the past 40 years, the United States has witnessed a revolution in land use regulation as towns have increasingly restricted new construction. These policies have been associated with a significant increase in prices in coastal areas and a regional reallocation from more productive regions of the country to less productive areas. Rising housing prices also have caused economic hardship among buyers and brought great windfalls to longtime homeowners.

Although there are many good reasons for land use regulation, there are also reasons to suspect that communities are acting too aggressively to restrict new construction. The biggest problem is not NIMBY (not in my backyard)-ism per se. Rather, it is that voters reap the benefits from reducing new units, but they do not generally bear the costs to landowners who are prospective developers. As we do not have good means of transferring rents between these groups, homeowners have an incentive to block any new development that will inconvenience them, even when that development will yield huge financial returns to a prospective developer.

This topic is important and understudied. Although it is not clear that land use regulations in America should be changed significantly, more debate and more light on the topic are needed. It is at least possible that the current land use policies have enormous social costs that greatly outweigh their benefits.

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