A Property Rights Approach to Municipal Zoning

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1. INTRODUCTION: THE PROBLEM TO BE EXPLAINED

Municipal zoning in the United States began early in this century, and nearly all local governments in metropolitan areas now have ordinances. They include detailed regulations on the initial development and changes in the use of land and buildings. As part of the community's "police powers," zoning may be supplemented by other regulatory devices such as building codes, health laws, and subdivision regulations. Insofar as these devices affect land use, they will be considered as part of zoning in this essay.

The purpose of zoning is usually described as regulating external effects among land uses so as to provide a more efficient allocation of activities. The problem we shall be concerned with is its apparent failure to do this very well. In particular, there is evidence that zoning is too exclusive. Empirical investigations by several economists suggest that zoning tends to exclude land uses which have rather small effects on neighboring properties. Several studies have noticed the substantial differentials in land prices which zoning creates [Mieszkowski 1973]. Studies in metropolitan Boston [Orr 1975] and in New Jersey [Sagalyn and Sternlieb 1973] indicate that zoning tends to restrict the supply of new housing in metropolitan areas, particularly in the suburbs. The most damaging evidence against zoning, however, is found in two studies by Peterson [1974, 1977]. In the first, a Boston suburban sample showed that the gains from zoning by residents did not outweigh the losses to owners of property which might be developed or converted to forbidden uses. The second showed that the net effect of certain zoning restrictions in a Washington, D.C., suburban area is to lower the average value of land. If zoning were efficient, the losses from zoning restrictions would be equal to the gains from whatever benefits accrue to these restrictions. Average land values should not be affected. Peterson's studies and the others suggest strongly that there are gains from trade remaining from zoning.

Explanations for these defects fall into two categories. One is that zoning's shortcomings are endemic to all local government decisions. The collective-
ness of zoning is the problem [Ellickson 1973; Siegan 1972]. If this were true, however, we might observe that some suburbs err by allowing too little development, while others allow too much. But the empirical consensus is that zoning allows too little development. Furthermore, collective decisions by municipalities in other endeavors have been shown to reflect more rationality and sensitivity to economic conditions than zoning does [Bergstrom and Goodman 1973].

The other explanation is that zoning is an exercise in monopoly power for the benefit of local homeowners [Ellickson 1977; Hamilton 1977; White 1975]. While this seems closer to the mark, it does not explain how this monopoly power can be effective in metropolitan areas with many communities. For example, the Boston SMSA contains 78 independent municipal and township governments, a modest number compared to many other SMSAs outside the South. If one community attempts monopoly gains, developers can select sites in others nearby. What needs to be explained is why all communities acting independently seem to restrict development so much.

A secondary issue concerns the apparent choice of zoning over other means of land use controls. If zoning is so inefficient, why does it persist? Private covenants, public acquisition of land or development rights, and nuisance law are all substitutes for zoning which have largely fallen into disuse or remain untried. It is insufficient to argue that these institutions have administrative problems which inhibit their use, for zoning clearly has such problems also. Nor is it valid to evaluate the problems of other institutions as they now exist. Had there been a demand to use them, adjustments could have been made by the legislatures and the courts to implement them, just as they did for zoning.

The plan of the remaining sections is to develop a more satisfactory theory to explain both the inefficiency of zoning and its continued popularity. In the next section, the distribution of property rights implied by zoning is reviewed. Zoning is found to be defective in that rights are not fully assigned. Section 3 develops a fiscal motivation for zoning which, when coupled with the defects described in section 2, shows why zoning results in excessive restriction of development and why it is preferred to more efficient methods of land use controls. In section 4 we examine the extra-legal means by which zoning can be leased or sold to make it more efficient, and we conclude that they are inadequate. Section 5 extends the municipal services motivation to show the effects of zoning on land values and size of a suburban community.

Throughout this paper we shall focus on suburbs in politically fragmented metropolitan areas. A substantial proportion of suburban land is undeveloped and owned by a relatively small group of people. Although succession of land use in central cities is important, the development of vacant land in suburbs has been the greatest source of controversy over zoning.²

² We shall be concerned with overall restrictions on housing supply rather than on particular types of housing or of other land uses, though the analysis in this paper may be applied to these other motivations. For a description of recent court cases involving the types of limitations we are concerned with, see Zumbrun and Hookano [1977].
2. THE ASSIGNMENT OF PROPERTY RIGHTS UNDER ZONING

An important branch of the modern economics of property rights stems from an article by Coase [1960]. In it, he demonstrated that the party to whom exclusive property rights are assigned in problems of external cost does not necessarily affect the resulting output equilibrium. The theory assumes that rights are fully assigned, trade may be conducted costlessly, the resulting contracts are easily enforceable, and the initial distribution does not affect demand. In the context of zoning, the Coase theorem implies that it does not matter whether land use rights are vested in the community or in the nominal property owners. In the former case, landowners could purchase exceptions from restrictions for any land use whose value exceeded the (negative) value of the external effects to the community. In the latter assignment, the community could purchase from the landowners any use whose offense to them was greater than the value of that particular land use to its owner. Under the Coase theorem's assumptions, the use of land in either case would be identical in equilibrium.

The assumptions of the Coase theorem are extreme, but the theorem provides a fundamental insight which is useful in examining zoning. As we shall see, zoning offers a generous distribution of rights to the community. If these are excessive, the landowners ought to be able to buy their way out of them. The aforementioned empirical evidence suggests that this does not always happen. The property rights approach then leads us to inquire about the barriers to trade which may be inherent in the institution of zoning itself.³

The assignment of property rights involves at least three aspects: (1) the right to exclude others from resources (control), (2) the right to enjoy the income from the use of the resources (leasing), and (3) the right to transfer these resources (selling). Zoning withdraws part of the right to use property as a private owner sees fit and gives this control to the political authorities of the municipality. We shall summarize the nature and limitations of this control.⁴

Despite some variations among states, the basic operation of zoning is fairly similar in most urban areas. Zoning authority has been granted to local governments by similar legislative acts in nearly every state. Communities are not usually compelled to adopt zoning regulations. When they do, a comprehensive plan stating the objectives to be achieved is often urged upon them, but few enforceable constraints are put on these plans. The primary constraints upon community zoning have come from the courts. The economically important precedents are described below.

Compensation need not be paid to a landowner whose property value is lowered by a zoning restriction. However, the community may not compel the owner to develop the land for a particular use, nor may it force the owner to allow public access. Either

³ It would lead us more generally to inquire about all transactions costs which might inhibit such exchange. We concentrate here on those transactions costs imposed by the legislative and judicial systems because they may be more amenable to reform than others and because they seem to have been overlooked in most other studies. Exceptions to the last point are Ellickson [1977], Nelson [1977], and Tarlock [1972].

⁴ The following summary of the legal and institutional arrangements was derived from several secondary sources, the most important of which was Williams [1975].
of these would require purchase of the land, perhaps by eminent domain.

Zoning may not prohibit all uses of a class of property. This would normally constitute a “taking” and be invalid under the Constitution. Some of the rent must be left to the nominal owner, but it is clear that it need not be the return from the land’s most profitable use.

Zoning must show some “reasonable relation” to the preservation of “public health, safety, morals and general welfare” of the community. It is not clear what the standards for reasonableness are, but it apparently does not mean benefit-cost analysis, even in the most casual sense. The magnitude of loss by the landowner need not be weighed by benefits to the community. In some extreme cases the loss has been invoked by judges to invalidate some actions, but for the most part the rule of reasonableness can be characterized as “benefit—” analysis.

The disadvantage of the landowner is further compounded by the presumption of constitutionality of zoning. This means that the landowner who challenges what he believes to be an unreasonable zoning decision must bear the burden of proof of showing that the community is at fault. This sharply reduces the cost of zoning to the community, since it need not build an elaborate case to exonerate itself. Beyond this, the practical burden of acting as a zoning review board has usually caused higher courts to decline to review zoning cases except in areas of the most flagrant abuse.

The “general welfare” of the community which zoning is supposed to promote refers exclusively to existing residents, not to potential residents or people in nearby communities. Some state courts have recently shown some sympathy to arguments for “regional needs” to be covered by zoning, but most courts still presume that zoning is for community members only.

The characterization of zoning so far suggests a proprietary club. As such, it would be efficient except as the diversity of opinions in the club made decisionmaking difficult. The club could establish as many restrictions as the courts would uphold. It would then sell or lease them to the highest bidder, reserving those whose value to themselves exceeded the highest bid. As the Coase theorem notes, the initial distribution of rights might affect demand for land, but the result would otherwise be the same as ownership of the rights by any other type of proprietor.

The advantage of this distribution of rights over others is presumably that it makes the consequences of interdependencies (externalities) of land use more easily controlled by the decision-makers. However, by justifying zoning as part of the community’s police powers, the courts have placed strong inhibitions on the proprietary use of zoning. The police power may not be sold, nor may its normal functions be made conditional on receipt of some payment. Straightforward sales or leases of zoning as described above would undermine the whole rationale of the police power, which assumes that the market does not work for the particular activities. To sell zoning would be analogous to selling elevator safety certificates or restaurant health inspections. Thus, communities may not ordinarily lease their rights to produce income, nor may they capitalize on them by selling them to some party who can. Courts in some states uneasily accede to bartering arrangements, whereby a devel-
oper can submit to some conditions or in-kind payments imposed by the community in return for favorable rezoning of his land. Communities may also impose "subdivision exactions" on a developer to help the community pay for the cost of some municipal services, but these are usually restricted to services that accrue directly to the subdivision. No court in the United States, as far as I know, has recognized existing community residents as full legal proprietors of the rights assigned to them by zoning.5

Thus, zoning may be characterized as an incomplete assignment of property rights. The first of the three basic aspects—control—is generously assigned to the community, but leasing is permitted only in certain limited ways (discussed in section 4), and selling is almost totally prohibited. Consequently, the allocation of resources controlled by zoning will be different from that obtained under alternative, fully assigned property rights.

3. BEHAVIORAL MOTIVATION AND INSTITUTIONAL CHOICE

In order to understand the consequences of the misassignment of property rights under zoning, it is necessary to have some model of what zoning is used for. Zoning legislation itself and most economic studies of zoning have emphasized the relationship between zoning and the local public sector [Mills and Oates 1975]. To simplify the present analysis, we will assume that local municipal services are financed by a fixed-share per capita tax, which may vary among communities. We will neglect school expenditures for reasons discussed in section 4.

Because zoning is most important as a constraint on partially developed suburban communities, we must describe local political behavior in urban expansion. Assume that preferences for land use can be ranked from least restrictive to most restrictive (greatest development to least development), and that the preferences of some median voter will rule. There are two groups in any community who are of interest here. First there are "proprietors" who own undeveloped land or who may otherwise gain from community development. The other group will be referred to as "lodgers," residents who view their community solely as a place of residence. They may own the lots they live on, but they do not own any undeveloped land, and, as commuters to other places for work, they have no other financial interest in the community.6

The rural communities on the fringes of growing metropolitan areas are likely to be politically dominated by people who stand to gain from community expansion: farmers, other landowners, store owners, or real estate dealers. As the urban area

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6 Ellickson [1977] regards zoning as in fact fungible. This is despite the general judicial hostility to "contract zoning" and other devices to formalize the arrangements. While it is clear that some leasing of zoning authority is widespread, there are real barriers to even this process, which we shall take up in the next section. The issue is really one of degree: should we emphasize zoning's fungible aspects or its deficiencies in this regard? For our present purposes, it seems useful to emphasize the deficiencies, since most other aspects of real property are fully fungible, and since empirical evidence suggests that there are important barriers to trade.

* The distinction between motivations of owners of undeveloped land and other residents in zoning issues was first developed by Davis [1963].
expands, resident lodgers arrive to live in new homes. Eventually, but well before the community is fully developed, the lodgers take over the political apparatus controlling the zoning board.\(^7\)

We now examine the factors which the lodgers' fictional representative, the median voter, considers in deciding about the remaining open land. Having chosen his community and residence, the lodger is assumed to maximize utility over two goods, neighborhood quality, \(Q\), and other goods. Neighborhood quality includes such pleasures as peace and quiet, personal safety and property protection. It also includes aesthetic qualities derived from improved open spaces such as large lawns and gardens and unimproved woods, fields and meadows which still exist in most suburban areas.\(^8\)

Production of \(Q\) is traditionally associated with municipal services, \(M\), such as police and fire protection, waste disposal, traffic management, and public parks. Some of these might actually be provided privately, either voluntarily or by edict, but they still should be counted in \(M\) for our present purposes. For a given population, more municipal services produce more or better \(Q\). However, none of these services qualifies as a pure public good. The size of the group consuming \(Q\) makes a difference. In general, more residents require more aggregate municipal services to produce the same level of neighborhood quality. The relationship between \(M\) (aggregate municipal services) and \(N\) (total population) for various levels of \(Q\) is shown in Figure 1.

Figure 1 attempts to show simultaneously the relation among total municipal services, population, and open land. To do this, we assume that the community has a fixed total amount of land. Each housing unit takes up a uniform amount of open land and adds a fixed number of persons per acre. Thus there is some maximum population, \(N^*\), at which all open land is used up.

The production isoquants for \(Q\) are quadratic functions in \(N\). This is to describe a stylized story of municipal development over time which seems to fit the experience of many suburban communities. Initially, the growth of municipal services is relatively slow. More people require more services, but the size of the tax-sharing group increases fast enough to allow lower average costs per capita. As population increases, the greater density eventually produces more congestion of the services, and per capita costs begin to rise.\(^9\)

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\(^7\) For a discussion of the various participants in suburban land controversies, see Linowes and Allensworth [1975]. They make it clear that suburban zoning is not dominated by landowners and developers.

\(^8\) Stull's [1975] regressions for a Boston SMSA sample suggest, however, that undeveloped land has a negative influence on the value of single-family homes. This runs counter to survey results by Knight and Menchik [1974] and my casual impressions from newspaper articles and conversations with local officials. The difference might be accounted for by Stull's including all undeveloped land as a residual category. It also seems possible that proportion of undeveloped land might be a proxy for distance from the Boston CBD, which was, surprisingly, not significant in his regressions.

\(^9\) Whether congestion actually exists in provision of local services is an unresolved empirical issue. Studies of municipal service costs and group size are not very enlightening because they tend to measure expenditure on inputs (e.g., police services) rather than the desired outputs (e.g., public safety), and because they overlook private provision of such services. If desired output measures could be established, the case for congestion might be stronger. In any case, it is clear that community officials believe there is potential congestion of neighborhood quality.
The average and marginal costs per capita for one level of $Q$ are shown in Figure 2, which is derived directly from Figure 1 assuming constant factor prices.

As costs begin to rise, most suburban communities are apparently aware of a realistic substitute for municipal expenditures: development limitation. This accomplishes two things. First, it provides an indirect control on population so that the number (and type) of people consuming any direct municipal service is limited. Second, it preserves the open spaces (or at least lowers the density of housing) which are becoming increasingly scarce and may directly add to neighborhood quality. The question now is how the community can limit development.

There are many ways besides zoning by which open land could be preserved or density reduced. For example, land could be purchased by the community as a whole and used as a park or a preserve. It could also be purchased by individuals within certain neighborhoods. As a substitute for either type of purchase, less-than-fee interests might be acquired to allow only certain types of development.

Under any purchase arrangement, a market price must be paid for the land or for the value of the use which is forgone. This price is illustrated by line $AA'$ in Figure 1. Its slope is equal to the ratio of the market price of land and municipal services.10 (Recall that open

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10 Of course the actual price line may differ slightly depending on the arrangements adopted. Eminent domain acquisitions might cost less than purely voluntary exchanges. The important point is that some approximation of the market is demanded in any of these devices.
land is read from right to left; hence the reverse slope of the price lines.) Equilibrium population and open land (or density) would be at $N'$.

Under zoning, however, the land need not be purchased. Regulatory authority is available free of charge. Since suburban owners of vacant land are a minority, the political cost is minimal. However, there are some costs associated with zoning. The ordinance must be properly designed and enforced. Furthermore, zoning may not be so restrictive that it eliminates all possible uses for a given piece of property. Thus, the appropriate price line for zoning is $BB'$ in Figure 1. Its slope is lower because there is little opportunity cost to restrictions which inhibit population growth and the use of open land. Landowners are prevented by the rules of zoning from “buying back” the restrictions on their land. The equilibrium population in this case will be $N''$, less than $N'$, and there will be more open land or lower residential density than there would have been had a market price been paid. Zoning thus causes lower population density or too little development compared with market-tempered restrictions.

It is important to note the advantage of zoning to existing residents. With it, municipal service expenditures are much lower than they would have been under some other system, so more disposable income is available to preexisting residents. (Alternatively, zoning allows the community to purchase more $Q$ with the same expenditure. We do not examine the general choice here.) Other systems of land use controls—private covenants,
nuisance laws, and municipal acquisition of open land or development easements—all would require that land be purchased or owners otherwise compensated. Although zoning is inefficient in that it does not require residents to perceive the correct opportunity costs of the land, it does give the community a set of property rights which are more valuable than these alternatives. This helps explain its continued popularity and the historical decline of other forms of control.

This conclusion is important in discussions of zoning reform. It is often assumed that all parties are interested in improving the efficiency of land use. However, if increased efficiency means a redistribution of valuable property rights, the people who are adversely affected will resist the reforms, regardless of the efficiency improvements. For example, we may agree with Siegan [1972] that land use would be improved by abolition of zoning, replacing it with voluntary covenants. But the people who currently benefit from zoning—the resident lodgers in our model—would surely resist this redistribution of rights unless they were compensated for their loss. Lacking some compensation scheme, current resident lodgers are better off with the rights which zoning offers, even though they are not fully fungible.

One may suggest, in defense of zoning, that some lack of fungibility should be incorporated into zoning because of spillover effects. Groups outside a community may be affected by its developments, and it may not be practicable to include all those affected in the bargaining. Legally limiting the fungibility of zoning may be a desirable “second-best” way to represent these interests.

Such an approach might be justified if each zoning case involved large numbers of people or if zoning regulated activities whose undesirable effects were distributed over a wide area or were difficult to identify by source. Water or air pollution most likely fall into these categories, but surely most of the problems dealt with in the typical suburban zoning ordinance do not. Noise, congestion, unsightliness, air circulation, and access to sunlight are usually neighborhood effects, in the popular sense of the word. To deal with them, voluntary exchanges among small numbers of people seem possible. The only question is what set of rules best facilitate such exchanges. The foregoing analysis suggests that zoning, with its incomplete assignment of property rights, actually prevents many transactions between the parties who are affected, and so causes land to be used less efficiently. For most of the activities regulated by zoning, then, lack of fungibility does not yield a desirable second-best solution because a “first-best” solution seems possible in so many situations.

It is not clear what the result would be if resident proprietors controlled zoning. Although they can exercise controls over vacant land, it may not be in their interest to do so. Some proprietors would gain and others would lose. The possibilities for logrolling could result in a compromise which called for very little zoning, which would allow vacant land to be perceived as having a market price. These considerations, rather than political backwardness, may account
for the lack of strong controls in rural areas. The reality of suburban politics, however, seems to be that a great deal of power does rest in the hands of resident lodgers.

4. LEASING AND SELLING ZONING IN REALITY

Another distribution of property rights might be considered in the problem of the previous section. Suppose that communities were allowed to lease their existing zoning restrictions, but were prohibited from establishing any more restrictions than they originally had. Under this system, zoning would be efficient in the sense that it would not distort relative prices of vacant land. This would be represented in Figure 1 by line $CC'$, drawn through point $D$ to illustrate that existing open land could be chosen, since leasing zoning is not mandatory. But because of the new opportunity cost of zoning resulting from its fungibility, less vacant land will remain undeveloped.

Resident lodgers are converted into proprietors by full assignment of leasing rights. They could, if they so desired, select higher levels of $Q$, financing the increased municipal expenditures with the leasing of zoning rights, as suggested in Figure 1. We might go even further and also allow the community to sell zoning outright. Then, depending on the demand for land in their original community, they might sell their rights altogether and select another community, taking the gains from the sale with them. This would allow land use in their original community to be more intensive with

the same or even a lower level of $Q$ to suit the demands of newcomers. Thus, saleable zoning would not only allow more intensive use of vacant land, it would also allow existing land use to change. In effect, being able to sell zoning also implies being able to sell neighborhood quality.

The restrictions on selling or leasing zoning are actually not so complete as to eliminate all trade. An important form of income from the lease of zoning is referred to as fiscal zoning. This is the practice of attempting to zone for land uses which will impose relatively few municipal costs and generate relatively large local tax revenues. The difference is referred to as the “fiscal surplus” of the activity. The largest single local expenditure in most communities is education. Thus, the activities with the largest fiscal surpluses are often those which have few school-age children associated with

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11 For this hypothetical case, we assume that the legislature passes an enabling law which allows all communities to lease existing restrictions, but not to establish any new ones without compensation to the landowners.

12 The new equilibrium population, $N''$, is not identical to that obtained where all rights were retained by landowners ($N$). This is because fungible zoning makes preexisting residents wealthier than before, so they will demand better neighborhood quality. Since they can in this example only lease their rights, not sell them, they must stay in their own communities to enjoy the income this provides them. They may sell their housing to someone else, capitalizing the value of the lease that way, but the income and consumption of $Q$ from the lease continues to accrue to the buyer. Selling zoning implies foregoing any future control or income. When existing households sell zoning and move, buyers of their housing would purchase it at a lower price which reflected their limited rights (lack of zoning authority). Thus, new residents of the community are treated equally in both situations. Under a lease, they are compensated with the income; under a sale, they are compensated by lower housing prices.
them, for a given level of taxable property (or other tax base).

In a seminal paper on the topic, Hamilton [1975] demonstrated that the local property tax can become a head tax when new entrants to a community are required by zoning to consume exactly the same value of housing as existing residents. The result depends on a sufficiently large number of communities to satisfy all levels of demand, and an elastic supply of sites for all activities. Fiscal zoning is regarded solely as a device to ensure that new households pay for the local services which they consume.

Hamilton's paper is an important contribution to understanding zoning motivation and the consequences of its use. Without denying its importance, however, we wish to point out some of the limitations on the process which make fiscal zoning a less than complete lease of zoning by the community.¹³ The first limitation is judicial hostility to the practice. Many state courts have held such a motivation is beyond the scope of the zoning enabling act. Nonetheless, it is clear that communities are capable of masking their fiscal concerns with a master plan which refers only to environmental concerns, with which the courts seem quite sympathetic. However, this subterfuge turns fiscal zoning into a blunt weapon, excluding more uses than necessary. For example, it may be necessary to exclude all apartment houses on an environmental basis, rather than just those with many school-age children.

The second problem is that the process tends to inhibit change in the income level of people in the community. If the earliest residents in a zoned community are rather wealthy, they will tend to want additional residents who are both wealthy and willing to pay for the same set of local services. Lower-income residents, who may want less housing and fewer local services, will have to find another community. Since the supply of communities in a metropolitan area in reality seems to be fairly inelastic, if not fixed, this process generates too few locations for lower-income people, and adds to their housing costs (or their commuting costs, if they must find a community farther from the urban fringe).

The most important problem with the process is that certain local services may be subject to congestion and use a fixed input. Hamilton's local service paradigm is education, which probably exhibits constant costs per pupil for a large range. In terms of the production function in Figure 1, school services isoquants would be a set of straight lines of various slopes extending from the origin. This would cause the corresponding marginal and average cost curves in Figure 2 to be horizontal lines. If these were the only services of any importance to current residents, they would be indifferent to how many people lived in their community as long as their housing consumption (and hence property tax payments) were equal to theirs. (This assumes new residents have the same number of school-age children per family, on average, as existing residents."

This relationship does seem reasonable for school expenditures, but, as argued earlier, it does not seem valid

¹³ For other criticisms of fiscal zoning, see Hirsch [1977].
for other municipal services whose object is production of neighborhood quality. As public education is increasingly financed at the state and national level, neighborhood quality services become more important. The latter are more subject to congestion and involve a nonreproducible input, land. Under these conditions, the average cost pricing implied by most local tax systems cannot be efficient.

There may be informal devices to secure marginal cost pricing in such instances. One device might be for the developer of new housing to agree to higher than average property tax assessments. This would not work well for two reasons. First, most states have uniform property tax laws, so such agreements could not be enforced even if they were entered into. Second, the new residents become members of the community themselves. They can vote in community elections, and, if they gain enough power, they can see to it that the stream of benefits is diverted to serve them. An exclusive long-term lease of zoning is made much more difficult because new residents become part of the group which makes decisions about the use of the benefits.  

Despite the judicial inhibition on community sales of zoning, there is no formal barrier to private arrangements between developers and neighbors. Developers could offer some payment to nearby neighbors to persuade them not to protest at the hearing of the zoning authority reviewing their application for a variance or a rezoning. Although this may happen occasionally, it does not seem to be widespread. The explanation, I believe, lies in the absence of legal sanction (as opposed to outright prohibition) of the bargaining process. Bribing potential voters does not seem to be illegal, but the agreements are not contracts.

One problem of such judicial laissez-faire is that negotiations do not have the force of a formal contract, so that side payments by developers to residents are a necessary but not sufficient condition to get approval. Courts have held that local laws may make neighborhood review a necessary part of any rezoning, but final power must rest with community authorities. This creates additional uncertainty for both parties, since there is no guarantee that any agreements they arrive at will be enforced. Furthermore, because zoning is vested in the municipality rather than in the affected neighborhood, it is possible for unaffected or hypersensitive third parties to seek gains by obstructing some project, thus adding to negotiation costs.

The second difficulty is that the informal agreements between developers and their neighbors do not "run with the land." That is, the contracts are not binding on successive owners of the property. A developer who applies for a zoning variance may persuade neighbors not to object to his proposal by paying them some amount. If, in the time of negotiation, one of the neighbors so persuaded sells his home to

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14 These qualifications are probably much less important for zoning of commercial and industrial property. They generally do not alter the voting makeup, and they consume different types of local services. As I have suggested in a previous essay [Fischel 1975], this enables communities to extract compensation from firms for their neighborhood effects by requiring them to pay some fraction of the total tax levy in excess of direct costs they generate.
someone else, the new resident must also be reckoned with. The newcomer may demand a payment, even if he was aware of the agreement between the developer and the former owner. If the courts recognized that the original owner and the developer had made a legitimate contract, and that this contract “ran with the land,” the new owner could be excluded from any proposed benefits. But the law of zoning falls under the police power, and no limitation of this power can be written into a deed or otherwise transferred legally. The new neighbor must be recognized, and this must discourage some negotiations. Given the lengthy start-up times for most developers and the rapid turnover of suburban housing, this may be a significant barrier.

Perhaps as a result of these difficulties, few rezonings are obtained on the basis of a legal cash payment. Instead, arrangements such as gifts to local charities or financing of new public works are often used. While these are not always sufficient to guarantee appropriate zoning, they at least avoid some of the difficulties of individual negotiation. Even if they are effective in obtaining rezoning, these tactics have costs as well, since the value of such gifts to residents is typically lower than the cost to the donor. Furthermore, these tactics have the same problems as fiscal zoning. New residents become beneficiaries of the gifts and they also change the political makeup of the community. Fiscal zoning and informal private arrangements are thus imperfect substitutes for legally valid leases or sales of zoning. Full opportunity costs will not be perceived by community decisionmakers.

5. COMMUNITY SIZE AND LAND VALUES

We return now to the efficiency issues introduced in section 3. Using the same municipal services production function, we shall modify the argument to account for differences in land rents within the suburban communities. This modification will also enable us to examine one of the issues common in the urban public finance literature, that of optimal community size. Tiebout [1956] argued that the optimal population for a residential community was that at which municipal service costs per capita are at a minimum. We shall show that this is generally not true for suburban communities under our conception of local services, but that zoning will tend to prevent true optimal size from being achieved.\footnote{This issue relates only indirectly to the optimal size of a metropolitan area, with which most of the recent literature has been concerned. Our communities are strictly clubs for the consumption of residential services. Moreover, we are not “disproving” Tiebout’s hypothesis that a system of communities can provide an efficient level of local public goods by allowing migration. Our amendment is just that optimal size for such communities may not be at minimum average costs per capita when location and congestion are introduced.}

Assume a metropolitan area in which all activities but residential services are conducted at some point in a central city. Surrounding the city are a large number of suburbs of discrete size. The only physical difference among them is distance from the central point. At any given distance there are a number of communities which have a scarce resource, land, used in the production of residential services, including neighborhood quality. Cost curves for neighborhood quality are identical for every community, but
they are discrete within the community. (That is, a community cannot be divided into two communities with identical cost curves.) For convenience, we assume that each potential resident of any community demands residential services identical to those consumed by present residents, so that community homogeneity is enforced by market conditions. We assume, as before, that the addition of a new household to the community subtracts one unit of vacant land from it, adding to the density and eventually to the congestion of neighborhood quality.

The initial or "pioneer" residents of a given community choose some level of neighborhood quality, \( Q_0 \). This level of \( Q \) is maintained throughout by increasing expenditures on municipal services. The "average cost" curve (municipal cost per capita to maintain \( Q_0 \)) at different levels of population is shown in Figure 2, along with the corresponding marginal curve.

Tiebout's proposition was that optimal community size is achieved when the number of residents corresponds to minimum average costs. This would be \( N_1 \) in Figure 2. He argued that communities could use various devices, including zoning, to achieve that population. However, his result holds only in a world in which land rent is not important. Tiebout recognized this difficulty in his beach example, where there are not enough communities with beaches to satisfy all consumers, but he did not analyze the situation in any detail. In a world where differential rents can arise, we will show that \( N_1 \) is not optimal.

At a community within the outer edge of the metropolitan area, land will command positive rent for urban housing. In Figure 2, we represent the demand for location on a uniform plot of land in the community by a horizontal line, \( AR \) (average revenue). The demand is elastic because the community is one of many at the same distance from the central city. \( AR \) shifts up at communities closer to the central city because of reduced commuting costs, but it does not vary within a given community. Housing is the only rent-producing activity, and it is produced under constant costs over the range we are considering.

Neighborhood quality is tied to location, so the average costs of producing it must be subtracted from the demand for sites to obtain rent per unit of land devoted to housing. (Thus we are talking about rent net of congestion costs.) For example, at point \( N_2 \) in Figure 2, average rent equals \( AB \). Total rent for housing equals \( ABCD \), or, equivalently, the area bounded by the \( MC \) curve, the \( AR \) line, and line segment \( BE \).

In a system in which all property rights are held by landowner-developers (as in a privately owned planned community) the optimal community size will be \( N_3 \), at which point \( MC = AR \). Beyond this point, additional housing will yield no rent to the developer, not because his capital costs are rising, but because additional municipal service costs to maintain \( Q_0 \) will cause residents to choose some other community.

\( N_3 \) is optimal in the sense that total land rent for housing (the only land use) is maximized. It is not at the minimum average cost per person for producing \( Q_0 \) because sufficient rent is generated by new development to be able to compensate those who suffer the increased costs of municipal services. For example, at \( N_2 \) a
developer could rent an additional lot for amount $AB$ ($AR$ minus $AC$ of services for that lot). This would impose on earlier residents costs equal to $EA$, the difference between marginal and average costs per capita. The owner could compensate them for their higher costs and still keep amount $BE$ for himself. $BE$ is the “marginal rent” at $N_2$, if compensation must be paid.\footnote{In a completely built or planned community, the developer would typically charge each buyer $FG$, the average rent at full development. In actual planned communities, developers take pains to restrict initial residents’ control over subsequent development to assure that maximum rent need not be shared and all planned development can be completed [Reichman 1976, p. 288]. In publicly zoned municipalities, however, the community might extract more than the minimum compensation from the developer unless it were inhibited by other authorities such as the courts [Ellickson 1977].}

If control of development rests with the existing resident lodgers rather than with the owners of vacant land, the range of possible community sizes is between $N_1$ and $N_3$. If owners of vacant land can directly compensate existing residents for their higher cost of maintaining $Q_0$, then the optimal size will be achieved. For each lot developed, landowners would pay existing resident lodgers the difference between the $MC$ curve and the $AC$ curve. With this minimum side payment, there is still positive rent (the vertical distance between $MC$ and $AR$) to be had by a landowner up to $N_3$.

However, as we have seen, zoning law tends to discourage such transactions. Present residents are likely to continue to perceive the opportunity cost of the land use rights they control at a lower-than-market cost, and optimal community size is not likely to be achieved. If such transactions were completely forbidden, community size would remain at $N_1$.

The analysis can account for some of the empirical evidence about zoning referred to in section 1. At $N$ less than $N_3$, average land rent for the entire community (i.e., rent for housing divided by both developed and undeveloped land) is lower than at $N_3$. In this sense, zoning lowers land rents. But land rent per existing housing unit is higher at populations less than $N_3$. This will tend to make housing costs in the suburbs higher than they would be under other systems of land use controls. This is not because only one small suburb has excessively restricted land for housing, nor is it caused by a conspiracy among the suburbs. It is because every suburb in the metropolitan area faces similar circumstances that the total, uncoordinated effect will shift the supply of suburban housing sites to the left, with all of its consequences for metropolitan housing prices and economic structure.\footnote{For an examination of these consequences of zoning restrictions in terms of the standard urban economics model, see White [1975].}

The last result is probably what makes economists tend to think of the motivation for zoning as a monopolistic conspiracy to increase existing residents’ land values. However, a downward sloping demand curve plays no part in this analysis. Even if there were inelastic demand, zoning would tend to discourage residents from appropriating the gains. In this sense, zoning is worse than monopoly, since production of housing is even further restricted. For example, if $AR$ were downward sloping and the marginal revenue curve cut the marginal cost curve at point $E$ in Figure 2, a monopoly developer would allow $N_2$...
units. However, with zoning, lodgers have no more incentive to expand beyond $N_1$ than they did in the competitive situation, since the rents may not be appropriated by them.

Figure 2 can also be used to present another rationale for present zoning law. This argument holds that though zoning may cause underdevelopment, it is necessary to prevent the evil of overdevelopment. If there were substantial barriers to communication and exchange between landowner-developers and resident-lodgers in the community, and if the former had the right to develop without the latter's consent, too much development would indeed take place. Resident lodgers would not be able to pay the landowners to limit development to any maximum intensity. Developers in this case perceive the land rent on each lot as the difference between the AC curve and the AR line. In other words, they take the community's average rent for housing as their marginal rent. This would cause communities to expand to $N_4$, where $AC = AR$. New residents impose additional costs on older residents which are greater than the marginal benefits of locating there.

This argument might provide a basis for assigning control over development to community residents (as is already the case) rather than to landowner-developers. It would seem to depend on whether one regards overdevelopment as a greater problem than underdevelopment, and on the distributional consequences of the assignment. But this is surely not an argument for inhibiting the sale of development rights as is the case under present zoning law. If it is impossible to sell these rights (by the assumptions of the argument), then it is redundant to prohibit sales. If it is possible to sell them, the argument is wrong.

I find from innumerable reports of illegal private sales that it really would be possible to sell the rights publicly if the law allowed it. Development is not so mysterious that local officials cannot determine their constituents' best economic interests, especially when there is an open and obvious opportunity cost. These sales would tend to lead communities in Figure 2 from $N_1$ to $N_3$ (but not beyond) under our earlier assumptions about suburban governments. Other transactions costs might retard this process somewhat, but it could only improve the allocative efficiency of the present situation.

6. CONCLUSION

Our analysis has suggested that zoning represents an incomplete assignment of property rights, Communities enjoy generous controls over land use, but they cannot fully lease or sell these rights. This causes land subject to zoning to be perceived as having a lower opportunity cost than under fully assigned rights. This in turn causes too little development in zoned communities, higher prices for new housing in the metropolitan area, and lower average values of suburban land. It is not necessary to assume monopolistic control over land use by communities or to resort to public choice failures to obtain this result, though both may be additional factors.

Despite its inefficiency, zoning does offer a bundle of property rights to suburban residents which are more advantageous than most alternatives. Limited but low-cost control over other
people's property is more advantageous than having to pay for it. Reforms such as those proposed by Ellickson [1973, 1977] and Siegan [1972] would limit this control or abolish public rights altogether. These will surely be resisted by the apparently powerful political interests of suburban homeowners.

A more likely direction for reform is to increase zoning's fungibility. Some steps in this direction are transferable development rights, which allow the community to barter zoning restrictions for a limited set of public goods [James and Gale 1977]. For example, an owner of a historical building may be persuaded to preserve it in return for additional development rights elsewhere. If these programs became generally fungible and if they were accepted by the courts, they would approximate the fungible system described in section 3. Though these tendencies will make zoning more efficient, they raise problems of vertical and horizontal equity. Some discussion has begun on what the just distribution of property rights should be in this situation [Ellickson 1977; Nelson 1977], but more research on the ultimate incidence of zoning restrictions should be done before fungible zoning is formally approved by legislators or jurists.

References


