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THE EFFECTS OF LAND-USE REGULATION
ON THE PRICE OF HOUSING:
WHAT DO WE KNOW? WHAT CAN WE LEARN?

By

John M. Quigley
Larry A. Rosenthal

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John M. Quigley  
quigley@econ.berkeley.edu

Larry A. Rosenthal  
lar@berkeley.edu

Program on Housing and Urban Policy  
University of California, Berkeley  
Berkeley, CA 94720-6105

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For discussion and criticism only. Comments welcome.

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Executive Summary

Effective governance of residential development and housing markets poses difficult challenges for land regulators. In theory, excessive land restrictions limit the buildable supply, tilting construction toward lower densities and larger, more expensive homes. Often, local prerogative and regional need conflict, and optimal policymaking must adjust tradeoffs carefully. When higher-income incumbents control the political processes by which local planning and zoning decisions are made, regions can become less affordable as prices increase. Housing-assistance programs meant to benefit lower-income households could be frustrated by limits on density and other restrictions on the number and size of new units.

The empirical literature on regulatory effects on price varies widely in quality of research method and strength of result. A number of credible papers seem to bear out theoretical expectations. When local regulators effectively withdraw land from buildable supplies—whether under the rubric of “zoning,” “growth management,” or other regulation—the land factor and the finished product can become pricier. Caps on development, restrictive zoning limits on allowable densities, urban growth boundaries, and long permit-processing delays have all been associated with increased housing prices. However, the literature fails to establish a strong, direct causal effect, if only because variations in both observed regulation and methodological precision frustrate sweeping generalizations. A substantial number of land-use and growth-control studies actually show little or no effect on price, implying that, sometimes, local regulation is symbolic, ineffectual, or only weakly enforced.

The literature as a whole also fails to address key empirical challenges. First, most studies ignore the endogeneity of regulation and price (e.g., a statistical association may show regulatory effect, or it may just show that wealthier, more expensive communities have stronger tastes for such regulation). Second, research tends not to recognize the complexity of local policymaking and regulatory behavior. For example, enactments promoting growth and development, often present in the same jurisdictions where zoning restrictions are observed, are rarely measured or analyzed. Third, regulatory surveys are administered sparsely and infrequently. Current studies are often forced to rely upon outdated land-use proxies and static observations of housing price movements. Fourth, few studies use price indicators honoring best methodological practice, which questions the veracity of simple means and medians, opting instead for repeat-sales techniques.

An agenda for future research in this area should address these shortcomings and generate replicable findings relevant for policy reform efforts. Ideally, a national regulatory census would measure, at regular intervals, municipal enactments and implementation patterns. The most demanding aspect of this task is the development of standard regulatory indices facilitating comparison at the municipal level and allowing for aggregation to the metropolitan and state...
levels. Over time, this survey should help describe changes in both antecedent law and resulting
land-policy behavior, so that time-series encompassing both regulation and price can be
compiled. It is possible that existing building-permit surveys can be adapted to help facilitate this
effort. Regular reporting from developers and builders regarding their experience of local
regulatory processes should then complement the census of law and behavior. An additional
source of information would be a regularly refreshed national land-use survey, mapping in some
detail the ever-changing patterns of residential and other development in metropolitan areas.

Early efforts to improve and expand research should be focused mostly on the deliberate,
painstaking development of better, more current data. Once this is accomplished, the existing
community of land-use and economics scholars will develop methods providing more reliable
tests of refutable hypotheses in this area.

Introduction

Measuring the effect of local land-use regulation on housing prices is a formidable empirical
challenge. Land-use rules are intended to reduce local externalities, providing local amenities
that make communities more attractive and housing prices higher. However, restrictive zoning
and growth controls also tend to slow expansion and reduce net densities of the housing stock.
We would expect such supply constraints to increase home prices. Distinguishing between these
impacts is difficult empirically. Local homeowners seeking to maximize home values and
minimize tax burdens typically control the politics underlying land-use enactments. In addition,
many localities combine restrictions on new development with a range of economic incentives
meant to spur it along. Measuring the economic constraints imposed by actual regulatory
behavior and decisionmaking, as opposed to merely observing formal rules as adopted, is a
difficult empirical problem, and comparisons across metropolitan areas are frustrated by the
sheer variety of local practice.

This paper offers some background on land-use regulatory practices, particularly in terms of their
history and legal basis. A review of these practices leads to a taxonomy describing the incidence
and effects of land regulation in housing markets. The review of empirical literature provides a
detailed framework for evaluating and understanding what is known about effects and
magnitudes. In the conclusion, we recommend fruitful areas of inquiry to reduce our uncertainty
about the importance of land-use regulation in the housing market.

Historical Background

While casual observers presume that local land-use authority arises from the police powers of
cities and towns, in the American system local control is, in fact, entirely derivative. Under the
traditional “Dillon’s Rule,” municipalities have no more power over their land than their state
governments have delegated them (see Briffault (1990); Frug (1980)).
Prior to the 1920s, experimentation with planning and zoning in U.S. cities and towns was sparse, and it arose primarily as a consequence of the desires of large-tract residential developers to eliminate industrial and commercial activities in their path. With the common law “coming to the nuisance” defense to such property-tort claims still intact, developers turned to city councils for relief in the form of authorizing ordinances clearing the way. One such measure adopted in Los Angeles outlawed the operation of a brick kiln in place long before any of the nearby residences were built. The ordinance was upheld in the face of constitutional challenges in the U.S. Supreme Court’s decision in Hadacheck v. Sebastian. Answering the kiln owner’s claims of wrongful confiscation of his business, the court remarked, “There must be progress and if in its march private interests are in the way they must yield to the good of the community.”

A watershed moment in the history of city zoning was New York City’s 1916 adoption of its trendsetting comprehensive ordinance. With numerous older cities facing drastic changes in land use and neighborhood character as a result of rapid industrialization, the U.S. Department of Commerce adopted and circulated in 1922 its Standard State Zoning Enabling Act, which within three years had spawned hundreds of conforming city zoning ordinances around the country. Key constitutional challenges brought by developers argued that the value of their investments had been so damaged by the regulation as to constitute an uncompensated taking in violation of the Fifth Amendment, or perhaps a violation of substantive due process in contravention of the Fourteenth Amendment. These arguments were cursorily set aside in the lower courts, particularly after the zoning ordinance in the Cleveland-area suburb of Euclid, Ohio, was upheld in the high court’s landmark 1926 decision in Village of Euclid v. Ambler Realty Co.

The Euclid case signaled the general legal validity of zoning ordinances aimed at segregating various land uses in a town plan. More specifically in terms of housing markets, so-called “Euclidean” zoning thereafter could permissibly separate single-family and duplex developments from multi-family apartment buildings. The court endorsed the view that apartments legally stood as commercial operations having lesser land-use standing than detached homes. The landowner’s claim to lost property value in Euclid turned largely upon a desire to build higher density residential structures, hoping to collect commensurately higher per-acre returns. The high court practically equated such development with noxious industrial activities having deleterious effects on single-family neighborhoods:

[A]partment houses [have] sometimes resulted in destroying the entire section for private house purposes …. [T]he apartment house is a mere parasite, constructed in order to take advantage of the open spaces and attractive surroundings created by the residential character of the district. [The court then enumerated numerous evils accompanying multi-family development, such as noise, traffic, loss of open space, and loss of safety for children.] Under these circumstances, apartment houses, which in a different environment would be not only entirely unobjectionable but also highly desirable, come very near to being nuisances.

The court’s blessing of local zoning prerogative in Euclid led to expansive exercise of such authority, in ways plainly biased toward protecting single-family home values.
Zoning and planning practice evolved into widely recognized professional disciplines as the American suburb came of age in the post-war period. Where developers and buyers would have reached identical arrangements of well-segregated uses, such ordinances were simply legal formalities rather than binding constraints. But as the inner cities deteriorated and federal urban renewal policy foundered, suburban arrivistes grew increasingly defensive of their property values. In the fragmented metropolis, the capture of a sustainable property tax base came to be viewed as a zero-sum game, and large-lot zoning became a tool for smaller governments to exclude low-income residents.

Lawyers and policy reformers during the civil rights era deemed such practices as “exclusionary zoning.” Local land-use practice was criticized for exacerbating segregation, not simply by consistency of land-use and housing stock characteristics, but in more blatant ways by income and even racial characteristics (Danielson (1976)). Additionally, with adjacent towns essentially colluding in their land-use policies to keep property values high, regions recognized the implicit tradeoff between, on the one hand, parochial development control via strict zoning, and, on the other hand, the resulting decline in overall housing production as vacant urban land supplies dwindled. A number of states experimented with land-use reform, most notably in judicial form in the famous Mount Laurel exclusionary zoning cases in New Jersey.  

By the time suburbanization slowed substantially in the 1970s, land-use practice turned to address a slightly different malady, that of the town which perceived new housing and population growth of any kind to be a threat to quality of life and household property value. “Growth control” regulation—which introduced such land-use measures as numerical permit caps and outright moratoria on new residential construction—are largely a creature of sprawl in metropolitan areas in the West, where substantial open space still remained along corridors within tolerable commute distances of job centers (Lewis (2000); Landis (1992)). One early cap on building permits was enacted by the exurban Bay Area town of Petaluma, California. Environmental advocates for “smart growth,” compact development, and “infill” reuse of parcels in central cities sponsored the adoption of “urban growth boundaries” such as that mapped around metropolitan Portland, Oregon, in the late 1970s. Modern land-use regulation of the type that might conceivably affect housing prices comprises both traditional zoning and more recently developed devices grouped under the aegis of growth control.

**Taxonomies of Land-Use Regulation**

The sheer variety of local land-use enactments makes it difficult to disentangle the link between regulation and its economic effects. Such measures can be grouped into five rough categories proposed by Deakin (1989):

- Limits and geographic preferences on the density and intensity of development
- Design and performance standards for lots and buildings
- Cost shifting from the locality to the developer

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*John M. Quigley and Larry A. Rosenthal*  
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Withdrawal of land from developable supplies
Direct and indirect controls on growth, applied against buildings and population

Downs (1991) lists several kinds of regulation (e.g., land-use restrictions, building codes, environmental protection, and process requirements) that add delay and cost to housing production, thereby reducing the affordability of housing. Downs classifies three separate kinds of cost-increasing effects: (1) direct restrictions on the supply of housing units and land usable for housing purposes; (2) direct cost increases; and (3) delay. Reducing the supply of affordable housing also removes price competition, which might lower the price of existing housing.

Table 1 lists a more detailed taxonomy of observed land-use regulations. Its categories are derived from a 1992 planning survey of municipal development authorities in California (see Levine (1999)). Presumably, empirical models relating land-use regulation to house prices would recognize this dimensionality. But this level of comprehensiveness is ordinarily infeasible in practice. In synthesizing prior work, we seek to identify the measures of regulation actually used in a variety of credible studies and to suggest the strengths and limitations of the body of professional literature.

As a way of categorizing types of regional growth strategies, Nelson (2000a) introduces a category of land-use regulation he calls “urban containment.” Such policies are borne of desires to make development more compact and to preserve agriculturally and environmentally rich sources of open-space beyond exurban areas. Nelson distinguishes among various containment systems: (1) “closed regions,” outside of which development is substantially curtailed and within which it is encouraged; (2) “open regions” not proscribing development beyond them; and (3) ”isolated” containment lacking within-boundary incentives and leading to displaced construction beyond the metropolitan region (Nelson (2000b); see also Downs (2002)). A recent survey of “containment” by Nelson and colleagues (Nelson, Dawkins, and Sanchez (2003)) analyzed a variety of regulations to ascertain:

- If any “boundary” had been established
- If all urban areas within the boundary were surrounded
- How frequently land gets added to the circumscribed area
- If techniques, if any, are used to prevent development outside the boundary
  - Large-lot zoning (>10 acre minimum)
  - Farm, forest, or open-space exclusive use
  - Development right purchase/transfer
  - Land banking
  - Land suitability evaluation systems
  - Others

The “urban containment” approach isolates land-use regulation within an identified region context at the expense of mapping intra-metropolitan variation in any great detail.
Table 1. Land-use regulatory categories

| Residential Development | Building Permit Cap  
| Population Cap  
| Floor Area Ratio Limit  
| Downzoning to Open Space/Agricultural Use  
| Reduction in Permitted Residential Density  
| Referendum for Density Increase  
| Super-Majority in Legislative Body for Density Increase |
| Commercial/Industrial Development | Square Footage Cap (Commercial)  
| Square Footage Cap (Industrial)  
| Rezoning to Lower Intensity  
| Height Reduction |
| Land Planning | Growth Management Element  
| Moratoria  
| Urban Growth Boundary  
| Tiered Development  
| Subdivision Cap  
| Other Growth Control |
| Adequate Public Facilities (APF) Requirements | Roads  
| Highways  
| Mass Transit  
| Parking  
| Water Supply  
| Water Distribution  
| Water Purification  
| Sewer Collection  
| Sewer Treatment  
| Flood Control  
| Other APF Measures |
| Service Capacity Restrictions | Roads  
| Water Supply  
| Water Distribution  
| Wastewater Collection/Treatment Capacity  
| Wastewater Treatment Quality  
| Flood Control |
| Development Impact Fee Coverage | Administration  
| Traffic Mitigation  
| Mass Transit  
| Parking  
| Water: Service  
| Treatment  
| Sewer  
| Flood Control  
| Parks/Open Space  
| Natural Resources  
| Schools  
| Libraries and Arts  
| Other Development Fees |
Glickfeld and Levine’s monograph (1992) reports the results of an exhaustive study of 907 growth control measures in 443 California jurisdictions, including 14 specific measures affecting pace, intensity, infrastructure quality, and spatial extent of new residential, commercial, and industrial development. These were population growth caps, housing permit caps, adequate public facilities ordinances (APFOs), residential downzoning, required voter approval for upzoning, required council supermajority for upzoning, commercial square footage limits, industrial square footage limits, commercial/industrial infrastructure limitations, commercial/industrial downzoning, commercial height restrictions, growth management elements of general plans, and urban growth boundaries (UGBs) or greenbelts. Three things explain the boom in growth control: (1) sheer population growth; (2) changing patterns of growth toward edge cities; and (3) the popular identification of growth as the cause for traffic, congestion, and declines in quality of life.

Differences in the average number of restrictive measures were associated with jurisdiction size. Jurisdictions lacking such measures tend to have a smaller population, lesser education, are only slightly poorer, and exhibit no real ethnic difference. The authors tested prevailing assumptions about means of adoption, and found that enactment of growth control via popular vote (so-called “ballot box planning”) was far less prevalent than believed. Glickfeld and Levine found little association between growth control and actual local growth, leading to the possibility that adoption is largely symbolic or rhetorical. Actual development permits show some correlation with growth control, but this is an artifact of population size. Factor analysis of adoption patterns showed six rather distinct patterns:

- Population control (permit and growth caps, UGBs)
- Floor space control (commercial and industrial)
- Infrastructure control (residential and commercial/industrial)
- Zoning control (rezoning, downzoning)
- Political control (voter approval, supermajority reqs.)
- General control (growth elements and others)

Reasons stated for growth control fell into three categories: (1) rural land preservation; (2) urban population growth containment; and (3) urban infrastructure protection. Higher numbers of measures adopted actually corresponded with higher adoption of pro-housing programs, but this, too, was apparently a population size effect. For overall construction trends, the authors detected a strong quadratic relationship between a three-year lag of non-residential permit valuation and growth control adoption. The overall conclusion is that local growth control is a response to regional growth more than local social or fiscal conditions. Theories why growth control does not stem growth include:

- Regulations are local, growth is regional
- Regulation cannot compete with exogenous population pressures
- Leakage occurs, so that nearby growth bleeds across jurisdictional boundaries
• Political compromise leads to strong talk in ordinances and plans, but weak walk in enforcement, variances, and permits actually negotiated

**Constructing a Framework**

The traditional rationale for the regulation of land uses within urban areas is the promotion of economic efficiency through the control of external effects. Early litigation and judicial decisions describe these externalities in physical terms (e.g., smoke and vibration from a manufacturing operation interfering with basic enjoyment of residential property [cf. Hadacheck]). Numerous commercial activities, such as professional office practices in medical clinics and hospitals, are costlier if not adequately insulated from the disruptions caused by incompatible neighboring uses.

The economic prescription for limiting these external effects is the segregation of land uses—the partitioning of urban space so that these externalities are contained spatially. After all, the particulates from industrial smokestacks are inoffensive when placed in an area zoned for heavy industry, but may cause economic losses in an area zoned for laundries.

Figure 1, adapted from Bailey (1959), illustrates the effects of zoning regulations on the price of land put to different uses. In equilibrium, adjacent parcels of identical uses command equal prices, and this condition is not altered by drawing and administrative boundary between them. Adjacent parcels of land as inputs at S1 and L1 are priced identically due to their proximity to one another. If S parcels (with “smokestacks”) provide a negative externality to L parcels (with “laundries”), then L parcels further from the boundary (e.g., L2) will be more valuable. As long as L parcels provide no externality to S parcels, the latter will be priced identically (e.g., S2=S1). For any pattern of externalities, it is easy to show that segregation of land uses maximizes land values and enhances efficiency.

Clearly, a large body of land-use regulation in urban areas is intended to enforce this efficiency principle. The location of industrial activity is heavily regulated and retail sites are allocated, at least in principle, recognizing the adverse consequence that might affect residences.

As land-use regulation has evolved, however, the fiscal externalities between land uses may have become more important than the physical externalities that originally motivated the introduction...
of zoning. Suppose instead of laundries and smokestacks in Figure 1, S refers to high-income (“snob”) housing, and L refers to low-income housing, located in adjacent bedroom communities (in this instance, treating zones on either side of that diagram’s main boundary as separate towns), each lacking substantial nonresidential tax base. Suppose further that taxes on housing finance public expenditures enjoyed on an equal per-household basis. It is not hard to show under these conditions that the segregation of housing illustrated in Figure 1 is efficient (e.g., Hamilton (1976))\(^6\). Taxes paid by residents on parcel S1 in Town A are returned to them as public expenditures, as are the taxes paid by residents in parcel L1. Introducing a few units of L housing into Town A provides a negative externality to other residents of Town A and a positive externality to the residents of those units of L housing in Town A. (S households now pay more in taxes than they receive in public expenditures; L households are in the opposite circumstance.) Given sufficient coercive authority, land-use regulators in towns dedicated to S housing can price development licenses to require builders of new L units to pay for the cost of the fiscal externality those units impose on existing residents (see, e.g., Courant (1976); Cooley and Civita (1972)).

Absent zoning regulation or other forms of development licensing, this spatial pattern of residences is inherently unstable. Those consuming S housing will always wish to form an exclusive enclave, yet it will always be in the interests of those consuming L housing to locate in the midst of that higher-income enclave. Zoning, thus, is a mechanism that permits a stable equilibrium in residential patterns and can promote efficiency in the urban region. Zoning laws chosen to limit the ability of builders to produce L houses in S communities creates an artificial scarcity resulting in differences in the price of otherwise identical land as an input into L and S housing. If the price of land in L housing, thereby, is increased to reflect the capitalized value of the fiscal externality, the allocation is efficient. Households choose efficiently between L and S housing; all households pay for the public services they consume, and some residential integration between consumers of L and S housing is possible in equilibrium.\(^7\)

These stylized models of land-use regulation are far removed from zoning in practice and do not reflect real-world political and distributional considerations. It may be impossible to separate fiscal externalities from physical or social ones; for example, if lower-income residents of L housing make a neighborhood of S housing less “desirable.” It may be impossible to separate these latter externalities from simple prejudice against residents of L housing who may be members of minority groups or, perhaps, are just poor. It also may be infeasible or socially undesirable to distribute local public expenditures efficiently; for example, if local schools or health facilities redistribute local resources to lower-income households.

Finally, the political considerations of fiscal or social externalities may not lead planners to seek efficiency in resource allocation at all. If local governments can act as monopolists, then it will be in their interests to zone out less valuable houses or less desirable neighbors. Moreover, as a political matter, it will be expedient to characterize these actions as eliminating physical externalities. As inflation increases home prices and the cost of providing local public service, local demand for restrictive zoning controls also will increase (Thorson (1996); Cooley and
LaCivita (1982)). Fischel (1985) points out that even where monopoly power is associated with higher home prices, it is possible that other motivations (e.g., wealth and endowment effects, preferences for segregation, and locked-in effects) may drive demand for regulation.

Figures 2 and 3 illustrate externality zoning and monopoly zoning. As Figure 2 is drawn, the imposition of a restriction on land available for housing may increase social welfare when the incremental social cost per unit exceeds the private cost borne by the incremental resident. The imposition of a supply restriction, reducing available housing from \( Q_u \) to \( Q^* \), improves welfare by the amount of the shaded area. In contrast, Figure 3 illustrates the effects of zoning in the absence of these externalities. Restricting supply from \( Q^* \) to \( Q_r \) reduces social welfare by the amount of the shaded area. Importantly, the exercise of monopoly power increases the housing prices paid by new residents from \( P^* \) to \( P_r \). With property tax finance, this enriches current residences at the expense of new residents.

Importantly, the most stringent forms of monopoly control in this setting arise if neighboring jurisdictions cannot undermine the supply restrictions imposed by the price-discriminating town. Monopoly control would be easiest to exercise if one regulatory body governed an entire housing market. If, instead, sets of fragmented localities are in perfect competition with one another, long-run metropolitan supply levels could remain relatively unaffected, depending upon the demographic composition of demand, among other factors. In the most competitive environment, standard house prices might remain essentially unchanged, and the total price of housing locations would differ primarily by the variable amenity packages produced in each place via land-use regulation and local spending on public goods (see Thorson (1996); Pollakowski and Wachter (1990)).

In the exercise of this kind of monopoly power over local development, town authorities may act as promoters seeking profit in league with private developers (Stoker (1995)). It also is likely that local governments act strategically, and even cooperatively with one another, to maximize private returns on their regulatory decisions (Brueckner (1996)). Many commentators argue that the regulatory regimes observed are excessively restrictive even for fiscally protective purposes (e.g., Downs (1991)), suggesting that exclusion rather than efficiency is the outcome of monopoly regulation.
When neighbors pose threats rather than opportunities, a vision of municipal competition for households on fiscal and other fronts seems quite credible. Some of the preferences that individual housing market actors and their local government representatives seek to vindicate are plainly discriminatory against minorities and the poor (Rolleston (1987); Yinger (1986)), and they contribute to the well-documented race and income segregation in metropolitan areas (Massey and Denton (1993)).

Fiscal zoning theory thus contemplates that exclusionary zoning has efficiency advantages relative to unregulated markets. Under this view, collectively charted land-use controls ensure that public services will be provided only to those who pay their full costs. Naturally, this kind of system has regressive tendencies. Incumbents and applicants for entry have varying demands and capacities to pay the marginal cost of the public services they consume. Thus, residents are tempted to discriminate not just on a first-come, first-served basis up to some density limit, but also through sifting among potential entrants by their ability to pay and their expected consumption of publicly provided goods.

If town residents could exercise total control over growth, we would expect the median voter to reject projects that engender losses in utility, financial, or quality-of-life considerations (Cooley and LaCivita (1972)). Zoning and property taxation are the methods by which voters or public officials force newcomers to increase their contributions to the fisc. Given congestion costs and externalities, and the political impracticability of price discrimination using taxes, growth controls may be an attractive solution to the local fiscal challenge. Property tax limits, like California’s Proposition 13 effectively make new residents less attractive and support growth control. However, the determination of if proposed new development is profitable to the community depends on the details of financing and the cost characteristics of local service packages. With average-cost pricing and decreasing-cost conditions, new residents are welcome. The linkage between demands for housing and public services, the cost conditions for public services, and regulation and house prices makes it unlikely that the optimal zoning arrangement will be identified by either planners or local politics.

Mills (1979) observes that most externalities involve only the exteriors of structures and increase with density. Such costs can be internalized through common ownership, as in some multi-family developments, but the high transaction costs of property assembly make this solution infeasible. On fiscal considerations, property taxes play the familiar role of prices in the exchange of goods: they pay production costs and deter consumption by those valuing the goods less. A head tax would be most efficient, but its regressivity makes it implausible and undesirable. Mills characterizes growth caps and permit moratoria as rather blunt instruments,
since new households are excluded regardless of the capacities to pay the private and external costs their entries engender.

Beyond the social mischief land-use rules may cause, they undermine the efficiency advantages of the unregulated, competitive land-housing market. In later work, Mills (2002) groups various land-use barriers under the rubric of “urban density control,” identifying the general impact irrespective of the precise regulatory tactic employed. Mills argues that competitive markets in housing services, neighborhood density, and the desirability of locations (proxied by commute distances from the urban center) should sort households efficiently according to their varying tastes. Excessive land regulation in exurban areas—driven by unreasonable fear of unwanted density—distort these markets and cause sprawl.

Private Bargaining as Substitute for Regulation

Before we turn to summarizing the empirical effects of land-use regulation on housing price, we should note the institution of private land-use regulation and enforcement.

An alternative to exogenous government regulation is a private covenant among neighbors. Fischel (1990, 1985) characterizes zoning as a reformation of private property rights. He distinguishes zoning from the private land covenants described above, and from arrangements in homeowner’s associations (HOAs) in which each member specifically agrees, as a condition for entry, to be governed by a set of deed conditions and restrictions. By contrast, zoning systems involve government coercion and affect the fortunes of those who may not have explicitly agreed to the rules in advance. When disputes arise, individuals in HOAs must bargain with neighbors one-on-one or seek small-number political solutions before the HOA governing board. Market institutions may settle such disputes better than political, or even judicial ones, given that only markets can take any account of the interests of outside demanders as proxied by the interests of developers.

Numerous commentators have questioned whether local land-use regulation is preferable to private contractual arrangements among neighboring landowners. Static zoning restrictions constrain land development in predictable ways, but it is unlikely that fixed rules will efficiently resolve spillover problems in changing local economies. In an important early law review article, Ellickson (1973) pointed out zoning’s shortcomings in this regard. He argued that a more flexible and responsive system of restrictive covenants augmented by liberalized nuisance law and carefully modulated administrative fines would offer efficiency advantages. Siegan (1972) famously pointed out that zoning-free Houston, Texas, adequately manages spillovers by adopting deed restrictions and establishing informal neighborhood-based expectations. Another example of this kind of governance by neighborly agreement is the written set of “covenants, conditions and restrictions” (CCRs) typically agreed to by purchasers of homes in common-interest developments (CIDs) as part of their membership in local HOAs (Gordon (2004); McKenzie (1994)). In this setting, regulation is made a self-implementing, endogenous system, in which conflicts are vetted and settled within the HOA under its operating rules. Were the
entirety of a town’s housing stock composed of units with HOAs, it would be equivalent to substituting rule within such fragmented subdivisions for the aggregate governance system of the town’s plans and ordinances.

However, this internal governance has its own costs. Spreyer (1989) showed that these covenants are costly, or politically difficult, to install where zoning is already in place or when neighborhoods are already developed. Drawn to Houston as a test-bed much as Siegan was before her, Spreyer sampled prices for single-family homes in areas of Houston that were (1) zoned, (2) governed by covenants, and (3) governed by neither zoning nor covenants. Spreyer found no significant difference between values in zoned and covenanted areas, but found both were significantly higher than values in areas lacking both.

Importantly, recent studies show that unwanted neighborhood effects reduce land values only marginally and disappear over small distances. Kenyon (1991) summarizes six hedonic studies of the effects of unwanted land uses, such as power plants and pollution sources on neighboring property values. Depressed property values are rarely as pronounced as feared, and economic effects dissipate quickly as a function of distance. Such “field effects” of spillovers are rarely identified in local political battles, where bandwagons form to oppose not just the specific project under consideration, but all future ones as well.

A Survey of Empirical Evidence

This section provides a survey of empirical evidence on land-use regulation and its effects on housing prices. The claim that zoning and growth control effectively raise housing prices, thereby shaping development and demographic patterns, is far from conclusively established in empirical research. This section will review studies, collecting them into useful categories for comparison and contextual synthesis.

Methodological Issues

A critically important feature of the literature is the generally weak and indirect measure of regulatory variables. Given the lack of uniform national standards for measurement of land regulation as adopted and variably enforced, generalizing findings from the literature as a whole is difficult, if not impossible, to accomplish in any satisfying fashion. The best studies are those that manage measurement uncertainty adeptly, such as by confining the analysis to a reasonable geographic scope. Those that abstract most strenuously from simple, palpable measures of regulation appear elegant and creative, but may end up trading off careful explanation for strained conclusions.

In a stylized setting of the problem, the researcher asks a set of local regulators to describe their land regimes. Given the wide variety of local enactments and enforcement patterns, a suitable method for summarizing regulatory behavior is not at all obvious. Some surveys err on the side of completeness, posing an exhaustive list of possible enactments and asking each respondent...
which ones have been adopted, sometimes along with a Likard-style scale attempting to measure
the importance of each enactment (e.g., Levine (1999)). These longer surveys often generate an
undifferentiated set of dummy variables, and assigning weights in a summary measure is largely
guesswork. Shorter survey instruments attempt to capture only those enactments deemed
important beforehand, so that prior hunches about their relative significance then create possible
selection bias in the results.

In a pure experimental sense, the a priori observation of legal restrictions would measure
regulation in isolation, without regard for its observed impacts. Alternatively, an a posteriori
approach would attempt to detect the effects of a regulatory framework based on outcomes such
as the local authority’s actual approval, rejection, and alteration of proposed residential
construction projects. The latter approach is often frustrated by the developer’s endogenous prior
knowledge of the relative restrictiveness of a set of jurisdictions. The builder’s savvy awareness
of where new construction is welcome will influence where land is purchased and the number
and size of new units to propose.

Malpezzi (1996) identifies a number of possible regulatory indicators, most featuring a mixture
of these theoretical perspectives on measurement. Several studies utilize surveys of local
planning officials, identifying the presence or absence, and sometimes the relative importance, of
various land-use enactments (e.g., Levine (1999); Glickfeld and Levine (1992); AIP (1976)) and
even rent control (e.g., HUD (1991); National Multi Housing Council (1982)). The problems of
constructing summary indices aside, such surveys have the advantage of capturing an “on-the-
books” state of local legal conditions at a particular time. At the same time, relying on such
measures risks overestimating the stringency with which written enactments control local
development decisions; without actual implementation, observed regulation may be largely
symbolic. Another strategy employed in some early studies involves polling experts regarding
their subjective assessments of the relative restrictiveness of an area’s land-use controls (e.g.,
Segal and Srinivasan (1985)). Geophysical limits, such as the presence of water (Malpezzi
(1996)), and ratios of vacant and buildable land by planning area (Pollakowski and Wacht
(1990)), also have been employed. Surveys of regulatory effects (e.g., Linneman et al. (1990))
ask local officials to estimate, frequently with artificial Likard scales, such factors as approval
rates, application-processing delays and approval rates.

Another key aspect in assessing models of regulation and housing price is an evaluation of the
choice of covariates that may influence real estate markets independently of land-use restrictions.
Several controls make repeated appearances in the literature. Income and income change directly
affect aggregate home prices, since housing and housing service are normal goods in most
circumstances and across most income ranges. Income and other demand proxies, such as
population, demographic change, and density factors, provide additional ways to isolate price
variation not directly related to land-use strictures. Variables attempting to capture regional
macroeconomic conditions, such as those measuring trends in employment levels or general
health of local business and commerce, are typically employed. Capital costs, as they vary by
metropolitan area, may be tracked via proprietary data sources available through, for example,
Boeckh or Means. Median age of housing stock and state of home repair are alternative measures. Indicators of municipal land-use patterns, such as vacant-land proportions, presence of geophysical barriers or impediments, and proximity to mass transit corridors, are often included. Care must be taken to ensure that land-use features and regulatory constraints are not collinear. Finally, variations in home quality need to be tracked in order to control for how differences in size, age, maintenance, and amenities influence transaction prices. This is a key point: the more sophisticated the analysis of housing prices—a formidable empirical challenge on its own—the more credible the estimate of regulatory effect on prices become.

**Monopoly Zoning Studies**

One strand of empirical work attempts to evaluate the monopoly-zoning hypothesis directly. These studies posit that the more fragmented the governance structures of an urban area, the less monopoly power any one town will have due to entry-price competition from its neighbors. White (1975) and Hamilton (1978) theorized that larger suburban towns, like any market firm enjoying the prerogatives of concentrated supply, would be more able to exploit market power in pricing entry for housing and public-service bundles than smaller jurisdictions in more fragmented regions. In political terms, this version of land-supply behavior amounts to capture of regulatory decisionmaking by higher-value landowners seeking to ensure their property values by way of local protectionism. Hamilton’s paper offered affirmative, but weak, evidence that less fragmented urban areas would be more prone to price discrimination driven by local land-use controls. He sampled median home prices in only 13 metropolitan areas, and his rudimentary measures of zoning controls were number of municipalities per capita and a dummy variable for areas having more than four local governments. Estimated in two separate equations, the coefficients on these proxies for monopoly regulatory power were negative as expected, but statistically insignificant.

In a challenge to Hamilton, Fischel (1980) cast early doubt on the postulated effect of regulatory power concentrations. Fischel essentially retested Hamilton’s house-price models using a more precise measure of metropolitan fragmentation. In a home-price sample from the 1970 census for 10 large urbanized areas, Hamilton compiled more refined counts of local governments (e.g., townships and villages) having control over development. A dummy variable capturing Baltimore and Washington—the only areas in the sample with quite low fragmentation—had an insignificant coefficient, even having the wrong sign in one of the two specifications. Diluting the results even more, pairwise comparisons of the two relatively unified areas with all others in the sample yielded an abundance of insignificant results, again with mixed signs. Fischel’s contrary findings in this regard represent an early example of the interesting, but, ultimately baffling, methodological variety in this literature.

Later work on monopoly regulation and land-price by Rose (1989) generates important innovations on measurement and estimation. Notably, Rose distinguishes between “natural” (i.e., geophysical) and “contrived” (i.e., regulatory) constraints on developable land, and his models credibly test their independent effects. Geographic variation are measured by the proportion of
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an urbanized area’s surface occupied by water; the calculation includes population density gradients, meant to proxy for the radial fall in bid-rents under the standard Alonso-Muth-Mills “flat city” price models. Rose uses three different land-price indicators; one measure is taken from Federal Housing Administration site-price data, the others from Urban Land Institute (ULI) data on raw and improved land. In addition to governments per capita, Rose constructs two concentration ratios measuring the proportion of a region’s area contained within its four largest jurisdictions. (One of these ratios uses a denominator including the central city, while the other accounts for total area net of downtown.)

Sadly, these innovations fail to yield any robust proof of the monopoly zoning hypothesis. Rose’s regulatory measures all have the expected sign, but only one of nine models results in a statistically significant coefficient. The study is slightly more persuasive on the price-elevating impacts of so-called “natural,” geophysical constraints on development, both in terms of strength of result and proportion of price-variance explained. Later work by Hendershott and Thibideau (1990), probing how income influences aggregate constant-quality home prices and the extent they differ from regional median prices reported quarterly by the National Association of Realtors, uses Rose’s concentration ratio as a control, finding no significant association with housing price.

More recently, Thorson (1996) advanced the cause somewhat. His examination of monopoly zoning uses decennial census data at the place level from 1970 through 1990 to analyze reported median home values. Unlike Rose, Thorson’s more complex models include a multitude of housing and neighborhood quality controls, a number of which eluded Fischel’s (1980) specifications (e.g., age, size, commuting distance, units/square mile, and energy prices). Across all three census surveys and varied specifications of the model, Thorson’s concentration ratio is significantly related to increased home values. The analysis also captures a significantly greater proportion of the variation in home price than earlier authors.

Thorson’s more robust findings lend credibility to claims that government concentration is associated with higher home prices, particularly in more recent census years. However, the monopoly zoning literature as a whole does not even attempt to evaluate the regulatory mechanisms by which this might occur. Such investigation requires detailed measures of actual local behavior, beyond simply mapping the physical arrangement of jurisdictions.

Early Surveys and Place-Specific Studies

From the mid-1970s, significant litigation relating to the effects of zoning and growth control in places like Ramapo, New York; Mount Laurel, New Jersey; and Petaluma, California, led to heightened attention to these phenomena in urban economic and other literatures. Prior to that time, studies such as Crecine, Davis and Jackson (1967) and Rueter (1973)—denominated by Fischel (1990) as “zoning-does-not-matter” studies—had not identified any systematic land-price effects of various local zoning regimes. This segment of the literature historically has questioned whether the market follows regulation or vice versa, contending at times that the lack...
of confirmable impacts substantially weakened the case for zoning as a tool in the management of local externalities. This section will explore some of the studies published during the 1970s and 1980s. In the aggregate, this work questions, but fails to entirely nullify, the earlier empirical case against zoning. It remains possible that zoning and growth controls merely tend to verify, and reproduce, existing price differences in communities formed as households become sorted according to income, public service, and other dimensions.

Peterson (1974) sampled 1,500 single-family home sales in communities along Boston’s circumferential highway, Route 128, during 1971. He found that increasing home-construction densities (from one house per acre, to four) made unbuilt land over 30 percent more valuable. A supplemental sample of 68 vacant-land sales similarly affected by varying density allowances produced nearly identical price differences. From the similarity between home and vacant land transactions, Peterson concluded zoning effects are largely capitalized into land values, affecting housing prices relatively little. He posited that net housing-price changes are a function of three different facets of “downzoning,” that is, increases in minimum lot size (in his study, from one-quarter to one acre). First, large-lot regulation likely induces more costly homes, which in turn increases prices of neighboring lots awaiting construction. Second, larger lots ease per-acre demands on public services such as education. Third, such density eliminates three homes per acre. The net effect of these impacts, Peterson argued, would actually force long-run housing prices downward, so long as the net value of lost housing construction exceeded the sum of neighborhood amenities and tax savings.

Mark and Goldberg (1986) compiled single-family home sales data from 1957 to 1980 for two separate Vancouver neighborhoods, one affluent and one blue-collar. For each transaction, the authors observed a variety of housing quality features. At the parcel level they also measured zoning characteristics, neighboring land uses, and history of zoning changes. Estimated in the aggregate and in separate annual regressions, their models could not confirm with any statistical reliability that zoning increased price, nonconforming uses reduced market value, or changes to less restrictive land controls increased it. Zoning impacts on price were sometimes positive, sometimes negative, and sometimes insignificant altogether.

Fischel (1990) uses Mark and Goldberg’s paper to launch an overarching criticism that still beleaguer much of the literature to this day: few analysts recognize, or compensate for, the inherent endogeneity of observed land-uses and the regulations ostensibly dictating them. Counter to the intuitive causal story—of regulation regulating—tight zoning may instead be induced politically by the predilections of high-income households living in high-price homes. Econometric models that do not address this joint-determinacy issue are inherently suspect.

Thus, a portion of early research in this area questions if adoption of such regulations has any real effect on prices, development patterns, or growth rates. In their 1988 survey findings on California land-use practice, Glickfeld and Levine (1992) argue that regulation is local, while growth patterns are regionally determined. Their lag-time model suggests that regulatory adoption follows increased building permit activity. But nearby increases in demand cross
jurisdictional boundaries, and political compromise leads to the appearance of strict standards that are often considerably weaker in enforcement. The regulation itself has a price; variances and conditional use permits represent negotiated buy-outs of supposedly ironclad restrictions. The net effect of adopting development restrictions may ultimately be symbolic only, meant to appease NIMBY (“Not in My Backyard”) and other constituencies, but generally lacking the will or ability to implement true growth management in the face of population pressures.

Landis (1992a) likewise questions if growth controls work. Using California data in a quasi-experimental setup, he compared seven growth-controlled towns with six similar towns without such controls. Only three of the seven controlled cities grew slower than their uncontrolled counterparts, and prices were not appreciably higher as a result. Landis could not find systematic differences in municipal debt levels or fiscal condition indicators. He suggests that either the regulation is symbolic or there is uncodified constraint activity going on in the control-group jurisdictions. Growth control measures are usually adopted in response to high growth rates during market booms, and these subside due to natural economic cycles.

Numerous other studies question how binding land-use enactments—and growth controls, in particular—are in practice. Warner and Molotch’s (1992, 1995) surveys of several localities in Southern California confirm that growth continues unabated in cities adopting various growth control measures.

On the other side of the ledger, Segal and Srinivasan (1985) relied upon interviews with regional governmental staff to develop a measure of the proportions of regulated and unregulated developable land from 1975 to 1978. Fifty-one metropolitan areas were included in a model of housing supply and demand. Their results suggested that towns in which more than 20 percent of vacant land was regulated had significantly higher housing prices, by a factor of about six percent. An inter-metropolitan measurement problem arises, requiring that structural differences between housing sectors must be controlled. The authors recognize this challenge, but use precious few such variables. A growth restraint index (percent of land withdrawn from buildable supplies) was highly significant, alone capturing 40 percent of the variance in observed home-sales prices.

Similarly, Black and Hoben (1985) generated a scalar measure (running from +5 [most growth-oriented] to -5 [most growth restricted]) summarizing a ULI survey of local planning officials in 30 metropolitan areas. Their dependent variables comprised experts’ estimates of average land values in single-family-zoned and unimproved acreage on the urban fringe. Their restrictiveness indicator was quite significantly associated with higher land prices as measured in 1980, less so for price increases observed from 1975 to 1980. An unpublished analysis based on an updated version of the ULI survey by Chambers and Diamond (1988) reported mixed results. Average project approval time was significantly and positively associated with higher land prices measured in 1985, but the same variable was negative and insignificant as a determinant of land prices measured just five years earlier.¹¹
In a study of land prices across the country, Shilling, Sirmans and Guidry (1991) used state-level land-use and environmental data, compiled during the 1970s by the American Institute of Planners (AIP, 1976). Cities in states with stronger land controls were found to have slightly higher prices; the authors estimated the regulation/price elasticity to be about 0.16. The same authors (Guidry et al. (1991)) used expert-opinion data compiled by ULI; 11 experts in real estate ranked the land-use restrictiveness of 30 metropolitan areas on a 10-point scale. The authors found that average 1990 lot prices in the 15 least restrictive cities were just less than $24,000, while that sample’s most restrictive cities averaged lot-prices over $50,000.

Much of the literature seems to establish that land-use regulation increases the price of existing housing while reducing the value of developable land. California studies prominently support this conclusion. For example, Schwartz and Zorn (1988) demonstrated that growth controls in the city of Davis, while not affecting the unit price of housing services, nevertheless increased the average amount of housing consumed, thereby increasing housing payments, on average, per household.

Dowall and Landis (1982) found that density controls in the San Francisco Bay Area were significantly associated with small increases in average residential land prices. Elliot’s (1981) early study of building permit caps showed upward price effects in regions where numerous towns had enacted them; in areas where the control was adopted more sparsely, little effect was shown.

Frech and Lafferty (1984) analyzed the effect of a special program, the California Coastal Commission’s restrictions on development in the coastal zone, and determined that withdrawal of developable land forced housing prices higher. Other California studies, like Wolch and Gabriel (1981), and two by Schwartz, Hansen, and Green (1984, 1981), use cross-jurisdictional comparisons to show that artificially restricting the pace of development has definite distributional impacts, namely, higher housing prices.

Land-use restrictions may raise housing prices in myriad ways. Levine (1999) provides a taxonomy of these effects in his work. The cost of housing construction can be increased by subdivision requirements, exactions, and other development regulations. Some growth control systems might place numerical limits on the number of permits granted, further restricting supply. The intent often is to encourage higher quality and more expensive housing by increasing its profitability. Finally, when demand for moderately priced units shifts to adjacent areas without such restrictions, prices may rise in those places when supply cannot quickly respond to the shock (Landis, 1992a).

More generally, restrictive land-use policies add to the costs of housing development by restricting land supply. Towns may impose exactions and other costly requirements as conditions for permit or subdivision approval; they also may create onerous application procedures. Delays in the permitting process can cause developers to incur added interest cost, taxes, inflation, and overhead expenses. Changes in the variety of residences available can slow competition among
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various housing types. Indirectly, developers’ failure to respond to demand quickly may cause an increase in price. Ultimately, these sources of friction in supply markets create barriers to entry for development firms and facilitate the setting of monopoly rents by existing providers (Dowall (1984)).

The net effect of density control on land prices may be indeterminate, however. When land is withdrawn from a developable base, restricted supply tends to increase the bid-price at which the market for such land will clear. But limiting density also makes raw land less valuable per acre as an input into new housing production (Morgan (1984)). These effects of density control run counter to each other, and the total impact of density restrictions on land prices is ambiguous.

The empirical literature on growth control, largely from California evidence, supports the case that supply effects dominate. In many studies, development restrictions are shown to increase price and bar the poor, thus exacerbating income segregation. Zorn, Hansen and Schwartz (1986) studied price effects in Davis, California. The analysis took into account the imperfect implementation of growth limits and the presence of inclusionary programs meant to counterbalance the policy’s effect on the poor. Importantly, the authors also factored in the extent to which pre-existing homes increased in quality. Nonetheless, the study concluded that price increased an average of nine percent relative to the nearby suburbs of Sacramento, where growth controls had not been adopted.

Earlier studies focused on Petaluma, located north of San Francisco, which found its rural tranquility threatened by the Bay Area’s suburban expansion in the early 1970s. In response to the sprawl creeping up the interstate highway, Petaluma adopted a pioneering growth control ordinance allowing only 500 building permits annually. Schwartz, Hansen and Green (1984) compared Petaluma to the relatively unregulated market in nearby Santa Rosa. Low-priced, small-floor-area homes began to disappear after growth management was imposed, and the housing stock shifted generally away from units affordable to low- and moderate-income households. The transition occurred, the authors concluded, because of the way Petaluma chose to assign its limited building permits among competing applications. Its ordinance used a “beauty contest” point system that rewarded costly design amenities at the expense of moderate-income housing (see also Schwartz (1982)).

In a study of 1,600 home sales in 64 Bay Area communities in 1979, Katz and Rosen (1987) found even more drastic price increases associated with growth controls (permit caps and outright moratoria). Homes in towns with such development restrictions were 17 to 38 percent more expensive than elsewhere. These authors’ measurement of land-use regulation failed to account for differences in rules among towns in their sample. A single dummy variable identified the presence or absence of a growth management program. The authors’ model did not address the likely endogeneity of regulation and housing market indicators, instead explaining:

[D]ifferences in house prices could possibly be the “illusory” outcome of weakness in the statistical technique resulting from omitted variables, sample selectivity problems, or
both. The positive price differential for houses in growth-controlled jurisdictions may reflect structural or neighborhood quality characteristics (not included in the model) that are correlated with the presence of formal growth controls. This is possible but not likely because the addition of extra quality controls as well as other characteristics on the subsample for which additional information was available did not tangibly alter the strength or direction of the results.

Importantly for the consideration of empirical work in the field, the modern view is that land-use choices are endogenous, meaning that one cannot estimate their effects (e.g., on prices, segregation, or neighborhood and housing quality), without accounting for the ways in which those effects themselves influence the land-use choices being studied. The preferable method is to account for the simultaneity of various influences in a more complete model (Colwell and Sirmans (1993)). Ideally, such a model would address:

- the particular ways in which a community restricts growth (the growth-control instrument), the interrelationship between the determinants of land values (the cross-elasticity between implicit markets), and the interrelationship between growth-control and nongrowth-control communities (the cross-price elasticity between implicit markets) (Knaap (1991:471)).

In practice, however, the scarcity of data measuring each of these factors makes precise measurement problematic.

Portland’s experimentation with metropolitan-level land regulation has provided an interesting natural experiment for housing price research. The “urban growth boundary” (UGB) drawn in the late 1970s between the fringe of the city’s exurban areas and surrounding agricultural sectors has drawn particular attention. The twin goals of sprawl prevention and farmland preservation motivate this kind of growth management. Knaap (1985) identified two boundaries: (1) an outer ring drawn to contain all growth until 2000; and (2) an inner ring, with the area between the two demarcated as growth-controlled at local option if desired densities have not been reached in the urban core. Knaap sampled land prices on undeveloped single-family sites located in all three categories: inner city, between the lines, and outside the year-2000 UGB. Controlling for distance from the central city, Knaap’s results showed significant land-price increments inside and outside the outer UGB. These results were replicated along the inner ring, but were most significant in the most affluent suburbs, perhaps because of the discretionary nature of that boundary. Knaap concluded the market perceived the constraint on development, and the explicit time-restrictions on development outside the exurban UGB, to be genuine and binding, with prices falling into line accordingly (see also Nelson (1988)).
More Recent Work on Price Effects of Zoning and Growth Management

Clever model design and data collection strategies can begin to meet the difficult challenge of good empirical work in this area, yielding results that, on balance, appear persuasive. A number of good examples provide in-depth analyses of localities within single metropolitan areas. A very thoughtful study by Pollakowski and Wachter (1990) sought to detect housing price effects within and across multiple jurisdictions in Montgomery County, Maryland (suburban Washington, DC). The authors generated a hedonically adjusted repeat-sales\textsuperscript{15} housing-price time series, measured quarterly across 17 planning areas of the county. The authors constructed indices of restrictive land-use practices based upon proportions of developed and vacant land in various zoning categories. To these localized measures, the authors added two additional land-use regulatory measures. One was an index to capture the effects of regulations in one planning area on its neighbors, calculated as a ratio. The second was a growth-control ceiling imposed on each planning area by the county. The models also featured a sophisticated set of covariates, including commute times from a central-city hub, a gravity index of employment accessibility, and a construction cost index from standard cost-estimator services. In the model combining all three land-use regulatory measures, both the in-zone and adjacent restrictiveness measures added significantly to home prices over time. Importantly, the effects of the growth ceilings, local regulation, and spillover constraints were greater when considered in the aggregate than when measured independently of one another.\textsuperscript{16}

Malpezzi (1996) developed a mixed set of land-use measures from the 1990 Wharton survey of planning and policy (see Linneman and Summers (1993, 1999)), which he combined with AIP state indicators and a rent-control variable from a ULI survey. Malpezzi’s analysis of reported home values and contract rents in the 1990 Census showed a significant association between tighter land restrictions and higher home prices. Only the AIP index had a statistically significant effect on rents. Malpezzi estimated the premium paid for moving from a liberal to strictly regulated environment to be 17 percent for rents, but more than 50 percent for house values. Later, Malpezzi and his colleagues Chun and Green (1998) estimated a more complex, two-stage model based on an updated version of the same regulatory measures and PUMS microdata on rents and home values. For both dependent variables, the linear specifications show positive and significant results for the instrumental regulatory index, with coefficients ranging from 0.02 to 0.08. The effect of moving from less stringent to more stringent regulation is estimated to be a 13 to 26 percent increase in rents or a 32 to 46 percent increase in asset prices for the quadratic models, or 9 to 16 percent and 31 to 46 percent increases, respectively, for the linear models.

In a more recent sample of 37 Milwaukee suburbs, Green (1999) traced the effects of six land-use indicators: (1) the permitting of mobile homes; (2) minimum lot sizes in new subdivisions; (3) minimum frontage setbacks; (4) minimum street widths; (5) sidewalk requirements; and (6) curb and gutter requirements. On the former, a mobile-home prohibition increased home prices between 7.1 percent and 8.5 percent, while requiring an additional 10 feet of setback caused price increases of between 6.1 percent and 7.8 percent. Green also traced the effect of these land-use measures on housing affordability, finding both the permitting of mobile-homes...
and the imposition of street-width minima to significantly reduce the proportion of homes then priced below $75,000.

In a study of post-war growth patterns in the United Kingdom, Simmie, Olsberg and Tunnell (1992) found that so-called “urban containment” policies tend to increase the long-run price of both buildable residential land and finished housing. The authors note that during slow economic times such land-use policies are not a true constraint, while during periods of growth, they may unwisely deflect job creation and housing investment to neighboring regions. The authors’ focus was on regional and national open-space and agriculture reservations, such as the London Green Belt, the designation of travel-to-work areas (TTWAs), and environmental protection of “areas of outstanding natural beauty (AONBs). Based upon other work on Britain by Evans (1988) and Cheshire and Sheppard (1989)—the latter comparing growth-controlled Reading and growth-oriented Darlington—Simmie and his colleagues assert that the containment of growth has forced prices higher. Thus, they advocate reexamining the prevailing “garden-city” design assumptions underlying sprawl-containment policies, in favor of forward-thinking land-use planning that allows for changing technologies in construction and transportation.

Other authors have reached to the Far East as test beds for theories on land control’s price effects. Malpezzi and Mayo (1997) calculate price and supply elasticities for Malaysia, Korea, and Thailand, finding that supply is more responsive to market signals in less regimented environments. Fu and Somerville (2001) develop a methodology for assessing how floor area ratios (FARs) distort builders’ design choices, and then test their methodology on a sample of 1992-1993 land-lease data for redevelopment sites in Shanghai, China. The authors conclude that allowable intensity of land-use significantly affects price, as does neighboring population densities and related costs of resettling households displaced by the redevelopment projects under study.

Conclusions and Recommendations for Further Research

Tables 2 and 3 present a summary of the empirical work before and after 1990, as reviewed in this paper. As we have documented, despite many careful and thorough empirical analyses, it is not possible to draw firm general conclusions about the linkage between local regulations and housing prices. Many careful analyses report some effect of regulation on housing prices, but there are many exceptions. For example, the measurement of housing prices in aggregate studies is often crude, relying upon owner’s estimates of house values from the decennial census, and quality adjustments are ad hoc as well. In microeconomic studies, house prices also are measured crudely.

But, perhaps the most important reason why empirical research is not definitive is the difficulty of measuring the regulatory environment facing households and builders in a satisfactory manner. As suggested in the section on Taxonomies of Land-Use Regulation of this paper, statutory regulations vary along a variety of dimensions, and the enforcement of these rules may vary systematically. As indicated in Table 2, there are important and unresolved issues of
measurement in characterizing local land-use regulation across jurisdictions. Thus, much of the research reported in Table 3 is based upon observing natural experiments provided by the regulatory environment of a single city, or perhaps a single neighborhood in a city.

Accordingly, we think the most promising strategy for improving our understanding of the economic effects of zoning and land-use restrictions would be to devote resources to measuring regulatory conditions systematically in a large cross-section of cities and metropolitan areas.

There are at least two precedents for measuring regulations through a broad cross-section survey of regulations and behavior. Glickfeld and Levine (1992) designed and implemented two successive surveys (Levine (1999)) of land-use restrictions and planners’ proclivities in California. These surveys elicited high response rates, in part, through close collaboration between the authors, the League of California Cities, and the California State Association of Counties. The instrument from the earlier survey by these authors is included as Appendix A to this paper.

The Glickfeld and Levine survey reports detailed information on the revenues and expenditures of each jurisdiction in California, documenting the types and magnitudes of public revenues and the capital outlays and operating expenses made by governments. The survey also documents expenditures by category for each jurisdiction. The heart of Glickfeld and Levine’s study, however, is a detailed set of questions posed to land-use officials about the importance of public incentives in fostering growth and another set of questions documenting the regulatory environment in each city. The survey has been used to analyze regional housing production (Levine (1999)), the regional distribution of single-family and multi-family housing (Glickfeld and Levine (1992)), residential segregation (Rosenthal (2000)), and changes in demographic conditions in California cities (Quigley, Raphael, and Rosenthal (2004)).

In another example, Linneman and his associates at Wharton (Buist (1990); Linneman, et al. (1991)) designed a survey that was administered across a broad cross-section of municipalities, with the cooperation of the International City Managers Association. The Wharton survey asked local officials their opinions about factors affecting the development process and the management of economic growth. Officials also were asked about the presence and magnitudes of impact fees and exactions. A companion set of questions was asked of county officials. The survey resulted in a profile of about 1,000 local jurisdictions and the counties in which they were situated.

This survey was used to analyze the patterns of decentralization in the United States (Linneman and Summers (1993, 1999)). Malpezzi (1996) generalized the determinants of a summary index of the detailed Wharton measures. This “Malpezzi Index” of land-use regulation was used to characterize the regulatory environment across U.S. metropolitan areas in 1999. This generalization has proven quite valuable in characterizing and comparing regulatory environments. For example, Malpezzi et al. (1998) used these measures to explore the determinants of variations in house prices across the metropolitan areas, and Greulich, et al.
(2004) used these measures to analyze the effects of immigration on housing prices. The original Wharton survey instrument is included as Appendix B to this paper.

The authors of this paper believe that a systematic update and extension of this work would have a high social and scientific payoff. Note that we are proposing a research program, not merely a measurement effort. As described by Malpezzi and his colleagues, and as is surely well known to the authors of these two comprehensive planning and regulatory surveys, there are many unresolved issues in the design of a survey instrument and the characterization of a regulatory environment that spans local governments in different states. But the wide variation in regulation that could be measured in a national survey would be invaluable in assessing the effects of these differences upon housing outcomes and prices in U.S. metropolitan areas.

In our view, a useful survey of local land use regulation would have four components. First, it would be a national survey with representation from stagnating, as well as growing, regions, and from large and small political jurisdictions. Second, it would sample metropolitan areas, as well as localities, to permit analysis of the interplay among political jurisdictions, and between localities and regional authorities. Third, it would measure the outcomes of regulatory process, as well as the statutes of their implementation at the local level. Fourth, it would sample builders and developers, as well as government officials, to establish, as far as possible, the linkage between regulation, its effects upon the quantity of housing, and its price.

Ideally, the lessons learned from developing a survey of regulation could be implemented in revising and extending the ways in which residential construction and building permits are reported through the U.S. Census Bureau. Currently, the Census requires annual reporting of residential building permits. (These are reported on form C-404, which is reproduced along with other construction-census instruments in Appendix C of this paper.) It may be that modest changes to these reporting requirements will provide a body of data that could be valuable in measuring the linkages between restrictive regulations, the enforcement of regulations, and the cost of housing across the United States.
References


**Endnotes**

1 This section draws, in part, upon materials compiled by Dwyer and Menell (1998).

2 239 U.S. 394 (1915).

3 272 U.S. 365 (1926).

5 Historically, urban containment was also intended to inferior public health conditions from migrating toward the suburbs (Simmie, Olsberg, and Tunnell (1992)).

6 A review by Fischel (1992) opines that the stability and pervasiveness of fiscally driven land-use regulatory regimes is strong evidence of their overall efficiency. Studies showing strong upward pressures on home price due to land-use restrictiveness are entitled to a presumption of validity, under this view.

7 Viewed in Coasean terms, zoning is not the only technique by which the fiscal externality can be incorporated into an efficient pricing mechanism. Instead of assigning the property right ab initio to the S residents, society can just as easily assign it in the first instance to the L residents desiring entrance. So long as Coasean bargaining requirements are fulfilled concerning the necessary transfers, the efficient level of L housing within S zones will still be attained (Fischel (1985)). Such a reassignment of initial property rights undergirds judicial efforts to undo zoning regimes deemed overly “exclusionary” (e.g., Kirp, Dwyer and Rosenthal (1995)).

8 Some argue, however, that discriminatory fiscal policies alone, in the absence of land controls, segregate neighborhoods by income through the voluntary actions of individual households (Epple and Plant (1998)).

9 Known as the "taxpayer revolt" initiative passed by the voters in 1978, California's famed Proposition 13 slashed property tax revenues by setting a one percent maximum tax rate, rolling back assessable values to 1975 levels, limiting tax-bill increases to two percent per year, and allowing reassessment only when property changes hands. Proposition 13 also required a two-thirds legislative vote for state tax increases.

10 The discussion that follows makes use of an excellent survey of the early literature by Fischel (1990).

11 Perceptions of real estate experts, such as those relied upon by Black and Hoben (1985) and Chambers and Diamond (1988) seem inherently remote and subjective. However, the relative merit of such indicators comes from careful comparison to the often clumsy attempt to translate more thorough, sophisticated surveys of regulatory behavior into useful summary indices.

12 A prior Petaluma study by the same authors showed an average housing cost increase of eight percent over Santa Rosa due to the regulation (Schwartz, Hansen, and Green (1981)). The earlier paper also provides useful background on the federal legal challenge brought by the housing industry against Petaluma’s growth control ordinance. The trial court in San Francisco held that the permit cap effectively prohibited entry by would-be residents of the town, thereby infringing on their constitutionally protected right to travel. The Ninth Circuit Court of Appeals reversed, holding that plaintiff builders and landowners lacked standing to raise the right to travel claim on behalf of outsiders (Construction Industry Association v. City of Petaluma, 375 F. Supp. 574 (N.D. Cal. 1974), rev’d on other grounds, 522 F.2d 897 (9th Cir. 1975), cert. denied, 424 U.S. 934 (1976)).

13 The Petaluma Plan did assign positive “beauty contest” points for multi-family units, and this factor was deemed important by federal judges reviewing the scheme. Since the addition of symbolic inclusionary features helped Petaluma’s growth control ordinance withstand constitutional muster, other
growth-restricting communities around the country used similar tactics (Fischel (1992:222); Ellickson (1981)).

An even more ambitious approach is suggested by Navarro and Carson (1991) who add to the land-use analytical agenda the following list of collateral issues:

- a. Degree of “spillover” effects into neighboring jurisdictions in the region
- b. Degree of subsidization of growth by incumbents
- c. Rates of development and population growth consistent with the city’s ability to provide facilities and infrastructure
- d. Extent of “doubling up”
- e. Link between rate of job creation and population growth
- f. Efficiency properties of various commercial and industrial growth controls
- g. Target rate of job creation
- h. Effect of differing rates of population growth on tax base and per capita income
- i. Effectiveness of various affordable housing provisions.

The repeat-sales housing price index adjusts for the quality-imbalance biases inherent in simple means and medians, given the infrequency of transactions and the shift in the composition of sales over time (Bailey, Muth, and Nourse (1963); see Redfearn and Rosenthal (2001)).

Additional evidence of interjurisdictional effects in the Washington, DC, metropolitan area may be found in work by Wachter and Cho (1991).
<table>
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<tbody>
<tr>
<td>Adams, Milgram, Green and Mansfield</td>
<td>1968</td>
<td>Northeast Philadelphia, PA</td>
<td>Zoning (single family, apartment or row houses).</td>
<td>More than 1,000 sale transactions for undeveloped but zoned and subdivided lots 1945-62.</td>
<td></td>
<td></td>
<td>Sales prices for land zoned for single-family homes were lower per acre than prices of land zoned for row houses or apartments.</td>
</tr>
<tr>
<td>Downing</td>
<td>1970</td>
<td>Milwaukee, WI</td>
<td>Minimum lot sizes.</td>
<td>Undeveloped residential land values</td>
<td></td>
<td></td>
<td>Larger minimum lot sizes reduced the price per acre of land (permitted higher density increased land values).</td>
</tr>
<tr>
<td>Downing</td>
<td>1973</td>
<td>Milwaukee, WI</td>
<td>Commercial zoning.</td>
<td>Land values</td>
<td></td>
<td></td>
<td>Land zoned for commercial uses was significantly more valuable than residentially zoned land.</td>
</tr>
<tr>
<td>Peterson</td>
<td>1974</td>
<td>Milwaukee, WI</td>
<td></td>
<td>Housing values</td>
<td></td>
<td></td>
<td>Prospect of rezoning a residential property for commercial purposes can result in higher home values.</td>
</tr>
<tr>
<td>Peterson</td>
<td>1974</td>
<td>Fairfax County, VA</td>
<td>Zoning (minimum lot size); also a sewer moratorium imposed in 1972.</td>
<td>Sale price of residually zone parcels 1969-1973</td>
<td>Included interactions between zoning and other variables.</td>
<td>OLS</td>
<td>As distance from DC increased, the impact of zoning restrictions on price per acre decreased. Also, by 1973, sewer moratorium had an impact on lot values -- grandfathered, permissible sewer connection pushed lot value up higher, and decreased significance of other variables (including zoning).</td>
</tr>
<tr>
<td>Hushak</td>
<td>1975</td>
<td>Urban-rural boundary, Columbus, OH</td>
<td>Commercial zoning</td>
<td>Land values</td>
<td></td>
<td></td>
<td>Land zoned for commercial uses was significantly more valuable than other classifications.</td>
</tr>
<tr>
<td>Gleeson</td>
<td>1979</td>
<td>Brooklyn Park, MN</td>
<td>Growth management program.</td>
<td>Land values</td>
<td></td>
<td></td>
<td>Its 1963 growth management program depressed land values in restricted areas relative to unrestricted areas.</td>
</tr>
<tr>
<td>Gabriel and Wolch</td>
<td>1980</td>
<td>50 San Francisco Bay Area jurisdictions, CA</td>
<td>Dummy variable indicating council attitudes toward growth.</td>
<td>1976 house values</td>
<td></td>
<td></td>
<td>Communities with pro-growth attitudes had house values $4,200 (8%) lower than in anti-growth communities.</td>
</tr>
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<tr>
<td>Janczyk and Constance</td>
<td>1980</td>
<td>Rancho Cucamonga, CA</td>
<td>Building moratoria.</td>
<td>Building activity</td>
<td></td>
<td></td>
<td>There was an anticipatory effect of increased building and a post-moratorium effect of a supply decrease, also a short-run redistribution of activity from moratorium area to nearby areas.</td>
</tr>
<tr>
<td>Chicoine</td>
<td>1981</td>
<td>Will County, IL</td>
<td>Commercial zoning.</td>
<td></td>
<td></td>
<td></td>
<td>Supports proposition that land zoned for commercial uses is more valuable than other classifications.</td>
</tr>
<tr>
<td>Elliot</td>
<td>1981</td>
<td>Selected California communities</td>
<td>Considered four types of growth control -- localities isolated in imposing regulations, localities surrounding by other growth-controlling localities, restrictions that controlled rate of growth and restrictions that controlled quality of growth.</td>
<td>Housing prices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schwartz, Hansen, and Green</td>
<td>1981</td>
<td>Petaluma and Santa Rosa, CA</td>
<td>Petaluma Plan -- limited new residential permits to 500/year, rationed based on design features and developer-provided amenities and services to community</td>
<td>Standard-unit housing prices</td>
<td></td>
<td></td>
<td>After several years (plan put in place in 1972), housing prices in Petaluma had risen 8% above those of Santa Rosa (which had no growth controls, and formerly the same prices). Schwartz et al. also compared Petaluma to Rohnert Park and found no significant price increase differential, but did find that building permits increased sharply in Rohnert Park after growth control.</td>
</tr>
<tr>
<td>Asabere and Colwell</td>
<td>1984</td>
<td>Champaign and Urbana, IL</td>
<td>Commercial zoning</td>
<td></td>
<td></td>
<td></td>
<td>Commercially zoned land had values 80% above average, residually zoned land had values 50% below average.</td>
</tr>
</tbody>
</table>
Table 2  
A Summary of the Empirical Literature Linking Land-Use Regulation and Housing Prices (pre-1990)

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<tr>
<td>Schwartz, Hansen, and</td>
<td>1984</td>
<td>Petaluma, CA</td>
<td>Petaluma Plan -- limited new residential permits to 500/year, rationed based on design features and developer-provided amenities and services to community.</td>
<td>Two -- price of a standard quarter-acre suburban lot, zoned for single-family, and the price of unimproved acreage near developing fringe of metro area, suitable for single-family development (both obtained from ULI survey of local real estate experts).</td>
<td></td>
<td></td>
<td>Fraction of affordable housing (small, low-priced homes) had dropped significantly below that of a control group (Santa Rosa).</td>
</tr>
<tr>
<td>Black and Hoben</td>
<td>1985</td>
<td>30 MSAs</td>
<td>Index of restrictiveness from a ULI -- based on rankings by a panel of experts.</td>
<td>Two -- price of a standard quarter-acre suburban lot, zoned for single-family, and the price of unimproved acreage near developing fringe of metro area, suitable for single-family development (both obtained from ULI survey of local real estate experts).</td>
<td></td>
<td>OLS-stepwise regression</td>
<td>Index of restrictiveness accounted for a significant amount of variation in price of developable land (significance of index’s impact on lot price was unreported).</td>
</tr>
<tr>
<td>Knapp</td>
<td>1985</td>
<td>Portland area, OR</td>
<td>Urban growth boundaries -- inner and outer (no growth outside outer until year 2000).</td>
<td>455 sales of undeveloped sites zoned for single-family homes, from inside and outside both boundaries.</td>
<td>Included a variable for distance from Portland CBD, also lot size zoning.</td>
<td></td>
<td>Land outside outer boundary sold for significantly less than land inside. The author found mixed results for inner boundary -- in affluent county, boundary was a constraint, but not in less affluent county; lot size zoning was only significant in affluent county regressions.</td>
</tr>
<tr>
<td>Segal and Srinivasan</td>
<td>1985</td>
<td>51 large MSAs</td>
<td>Index of growth restrictions, including percent of developable suburban land withdrawn from market by growth controls -- obtained by surveying planners in each metro area</td>
<td>House prices</td>
<td></td>
<td></td>
<td>Index was highly significant, explaining about 40% of variation in housing prices. Also, areas that withdrew 20% of land from development had housing price inflation of 6% compared to unrestricted cities. Growth-restricted cities had price inflation of 17% compared to unrestricted. The effect was nonlinear -- cities that had larger percentages of land withdrawn had higher inflation rates.</td>
</tr>
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<tr>
<td>Vaillancourt and Monty</td>
<td>1985</td>
<td>Montreal suburban fringe, Quebec</td>
<td>Exclusive agricultural zoning imposed in 1978 (by provincial law).</td>
<td>1,200 sales of land from 1975-1981</td>
<td></td>
<td></td>
<td>Parcels subject to new zoning lost between 15-30% of value compared to similar unrestricted land.</td>
</tr>
<tr>
<td>Chressanthis</td>
<td>1986</td>
<td>Lafayette and West Lafayette, IN</td>
<td>Zoning variables</td>
<td>House values, 1960-80</td>
<td></td>
<td></td>
<td>Zoning variables were stable determinants of housing values.</td>
</tr>
<tr>
<td>Mark and Goldberg</td>
<td>1986</td>
<td>Two neighborhoods in Vancouver, BC; one affluent, one poorer</td>
<td>Three zoning-related measures -- zoning of the home itself, nearby land uses that might affect value of home, and whether a rezoning occurred during 1957-1980.</td>
<td>Sale price of single-family homes sold from 1957-1980</td>
<td>Age of home, number of rooms, lot size.</td>
<td>OLS; did separate regressions for the affluent and poorer neighborhoods, and separate regressions for each of the 23 years.</td>
<td>The effects of the zoning and land use variables are inconsistent over time (vary in sign, magnitude, significance).</td>
</tr>
<tr>
<td>Nelson</td>
<td>1986</td>
<td>Salem, OR</td>
<td>Considered the effects of Salem's urban containment program.</td>
<td>Land prices</td>
<td></td>
<td></td>
<td>Urban land prices near the greenbelt boundary increased, and nearby rural land prices decreased.</td>
</tr>
<tr>
<td>Schwartz, Zorn and Hansen</td>
<td>1986</td>
<td>Davis, CA and other Sacramento suburbs</td>
<td>Presence of growth controls -- ceilings on number of building permits and requirements for developers who obtained permits to build affordable housing.</td>
<td>House prices</td>
<td></td>
<td></td>
<td>House prices in Davis grew more rapidly than those of control sample of other suburbs after growth controls put in place in Davis. The authors estimate that growth controls caused prices to be 9 percent higher in 1980 than they would have been without them. They also show that older housing (built before growth controls) had an increase in both price and quality.</td>
</tr>
<tr>
<td>Katz and Rosen</td>
<td>1987</td>
<td>64 communities in San Francisco Bay Area, CA</td>
<td>Communities categorized by whether they had a growth control program -- building permit moratorium or binding rationing system -- in effect for at least one year during 1973-79</td>
<td>1600 single-family home sales in 1979</td>
<td></td>
<td></td>
<td>Houses in growth-controlled communities had sale prices around 20% higher than in the non-growth-controlled communities.</td>
</tr>
<tr>
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</tr>
<tr>
<td>Chambers and Diamond</td>
<td>1988</td>
<td>30 MSAs - updated data from same sample as Black and Hoben.</td>
<td>Index of restrictiveness from a ULI -- based on rankings by a panel of experts, and delay time and general availability of zoned lots.</td>
<td>Two -- price of a standard quarter-acre suburban lot, zoned for single-family, and the price of unimproved acreage near developing fringe of metro area, suitable for single-family development (both obtained from ULI survey of local real estate experts).</td>
<td>OLS-stepwise regression</td>
<td>Mixed results, but authors conclude that delay and zoning did increase land prices.</td>
<td></td>
</tr>
<tr>
<td>Nelson</td>
<td>1988</td>
<td>Portland area, OR</td>
<td>Urban growth boundaries -- inner and outer (no growth outside outer until year 2000).</td>
<td></td>
<td></td>
<td></td>
<td>Confirms Knapp's results; shows that greenbelt boundary resulted in high land values near Portland, low values in greenbelt, and high values farther out.</td>
</tr>
<tr>
<td>White</td>
<td>1988</td>
<td>Ramapo, NY</td>
<td>Zoning regulations (minimum lot size).</td>
<td>200 sales of vacant lots zoned for residential use 1977-80</td>
<td>Included variables to separate subdivision-cost effect from zoning constraint effect.</td>
<td></td>
<td>Subdivision-cost effect accounted for one-quarter of difference in sale price for quarter-acre and one-acre lots, while zoning accounted for three-quarters of difference (one-acre lots sold for less per sq. ft.).</td>
</tr>
<tr>
<td>Cheshire and Sheppard</td>
<td>1989</td>
<td>Darlington and Reading, UK</td>
<td>Comparison of the two cities, Darlington being the least restrictive and Reading the most, based on planning applications, acceptances and appeals</td>
<td>Asking sale prices (from real estate agents) and sample survey of households</td>
<td>Hedonic price function, including variables for structural characteristics of housing, school districts, proximity to transportation and countryside amenities</td>
<td></td>
<td>House price to income ratio for four housing types was consistently higher in Reading than Darlington. Reading's policies area estimated to increase housing prices by 2.3 to 17.3 percent (depending on housing type and distance from city center), with the highest impact of policies on low-density dwellings close to city center (older units), and the lowest impact on higher density development far from center (newer units), which the authors attribute to developers ability to change housing type in response to restrictions.</td>
</tr>
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</table>
### Table 2: A Summary of the Empirical Literature Linking Land-Use Regulation and Housing Prices (pre-1990)

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<tr>
<td>Rose</td>
<td>1989</td>
<td>MSAs</td>
<td>Index of potential monopoly in metro areas (e.g. # of local governments) - based on Hamilton (1978).</td>
<td>Developable land prices -- from ULI survey and FHA data</td>
<td>Included variables to account for existence of natural barriers to development.</td>
<td>OLS</td>
<td>About 10% of variation in intermetro land prices is accounted for by index of potential monopoly; natural barriers accounted for 30% of variation.</td>
</tr>
<tr>
<td>Spreyer</td>
<td>1989</td>
<td>Houston, TX (which has no zoning) and nearby municipalities (which do)</td>
<td>Homes placed in one of three categories: zoned, unzoned but covenanted (mainly Houston properties), unzoned and uncovenanted.</td>
<td>House values for single family homes</td>
<td></td>
<td></td>
<td>Unzoned but covenanted (in Houston) had values not statistically different from properties in zoned cities, but properties that were unzoned and uncovenanted had values less than those in the other two categories. The authors suggest these results indicate that covenants are an alternative to zoning in relatively undeveloped areas where developers can acquire and impose covenants on large areas of land (i.e., there is a larger transaction cost for covenants in developed areas).</td>
</tr>
</tbody>
</table>
TO: City Managers (City Clerks in Non-Manager Cities)

RE: SURVEY ON LOCAL GROWTH CONTROL AND GROWTH MANAGEMENT MEASURES

The League of California Cities is sending this survey on local growth control and growth management measures to all cities in the state. The results will provide a database that describes the scope and nature of growth control and growth management measures being undertaken in local jurisdictions in California. This database will be used to assist individual cities now considering growth control and growth management measures by providing information on the types and impacts of such measures. This information will also be considered by the League's Growth Control Task Force in developing policies on growth control and growth management. In addition, we anticipate that the next legislative session will be focused on growth control and growth management restrictions.

This survey asks for information on all growth control or growth management measures undertaken in your jurisdiction, whether adopted as an ordinance by the city council or through the initiative ballot process. While people may have different definitions of growth control and growth management measures, for the purposes of this questionnaire such measures are those that control the rate, intensity, type and distribution of development in the jurisdiction.

We would like you to identify measures that are applicable citywide, or have an impact on the entire jurisdiction even though it may be limited to a particular geographical area. Advisory measures, short-term restrictions (such as a zoning moratorium to prepare a community plan), single site or project restrictions which do not have a jurisdiction-wide effect, or measures which are no longer in effect should be excluded.

Only one survey per jurisdiction should be completed. Please have the staff person who is the most knowledgeable on the purpose, content and impacts of your city's growth control and growth management measures complete this survey. In many jurisdictions, the Planning Director would probably be the appropriate person.

Please fill out and return this survey even if you do not currently have any growth control or growth management measures. It is extremely important that every jurisdiction respond to this survey. We apologize for the length of this survey, but please respond to all of the questions. Please return this survey as soon as possible, but no later than December 30.

Thank you for your assistance. The results of this survey should be available in February, 1989.
LEAGUE OF CALIFORNIA CITIES
SURVEY ON GROWTH CONTROL

RETURN BY DECEMBER 30.

GENERAL INFORMATION

1. NAME OF JURISDICTION: ____________________________________________

2. NAME OF RESPONDENT: ____________________________________________

3. TITLE OF RESPONDENT: ____________________________________________

4. POPULATION: not coded; replaced with standardized data

5. GEOGRAPHIC LOCATION: not coded; replaced with standardized data
   Check one of the following:
   a. _____ Northern Coastal                    g. _____ Central Inland
   b. _____ Northern Foothill/Mountain         h. _____ Central Desert
   c. _____ Northern Inland                   i. _____ Southern Coastal
   d. _____ Northern Desert                     j. _____ Southern Foothill/Mountain
   e. _____ Central Coastal                     k. _____ Southern Inland
   f. _____ Central Foothill/Mountain           l. _____ Southern Desert

6. DEVELOPMENT CHARACTER
   Check one of the following that describes the character of your city:
   a. _____ Urban/Suburban                       b. _____ Rural

7. GROWTH DEMAND
   Check one of the following that best fits your city:
   a. _____ There is a strong market demand for housing development in our jurisdiction.
   b. _____ There is a strong market demand for commercial and industrial development in our jurisdiction.
   c. _____ Both a. and b.
   d. _____ There is a lack of a strong demand for growth in our jurisdiction.
   e. _____ Other (Please Explain) ______________________________
           ______________________________
8. PLANNING DOCUMENT STATUS

Please check below all applicable statements regarding the status of your city's required planning documents.

a. _____ Our general plan is complete (i.e., includes all state mandated elements).
   Please note year of adoption: ____________

b. _____ We are currently in the process of updating our general plan.

c. _____ We are currently in the process of updating one or more state mandated general plan elements.

(d) _____ Our general plan is incomplete or over 10 years old.

e. _____ We have asked for or received a general plan extension from the State Office of Planning and Research.

f. _____ We have adopted a general plan growth management element or are currently developing such an element.

(g) _____ Our housing element is complete and finally adopted.
   Please note year of adoption: ____________

(h) _____ We only have a draft housing element.

(i) According to the State Department of Housing, Community Development (HCD), our adopted housing element has been deemed:
   (1) _____ In compliance.   (2) _____ Out of compliance.
   (3) _____ Obsolete            (4) _____ No determination/unknown.

(j) According to HCD, our draft housing element has been deemed:
   (1) _____ In compliance.   (2) _____ Out of compliance.
   (3) _____ Obsolete.            (4) _____ No determination/unknown.

II. RESIDENTIAL GROWTH CONTROL AND GROWTH MANAGEMENT MEASURES

9. POPULATION GROWTH LIMITATIONS

Does your city have a measure* which establishes a population growth limit or restricts the level of population growth for a given time frame (i.e., annual basis)?

*"Measure" includes initiatives adopted by the voters or regulatory ordinances adopted by the city council. It excludes resolutions or other policy statements.
a. _______ YES  

b. _______ NO

If YES, adopted by (1)_______ initiative or (2)_______ ordinance.  
(3)_______ year enacted.

10. HOUSING PERMIT LIMITATIONS

Does your city have a measure which restricts the total number of permitted residential building permits in a given time frame (i.e., annual basis) for:

a. _______ YES  
b. _______ NO

If YES, applies to (1)_______ single family or (2)_______ multiple family or (3)_______ both

If YES, total # of permitted units:(4)_______ per (5)_______.

If YES, adopted by (6)_______ initiative or (7)_______ ordinance.  
(8)_______ year enacted.

11. HOUSING INFRASTRUCTURE REQUIREMENTS

Does your city have a measure which specifically requires adequate service levels (i.e., road capacity/traffic congestion) or service capacity (i.e., water, sewers, etc.) prior to or as a condition of approval of a residential development?

a. _______ YES  
b. _______ NO

If YES, adopted by (1)_______ initiative or (2)_______ ordinance.  
(3)_______ year enacted.

12. HOUSING DENSITY AND LOCATIONAL RESTRICTIONS

Does your city have a measure which did any of the following (check all applicable responses):

a.______ Reduced the permitted residential density by general plan amendment or rezoning.

Applicable to: (1)_______ Entire City or (2)_______ Part of City
Adopted by: (3)_______ initiative or (4)_______ ordinance.
Year enacted: (5)_______.

b.______ Requires voter approval to increase residential densities.

Applicable to: (1)_______ Entire City or (2)_______ Part of City
Adopted by: (3)_______ initiative or (4)_______ ordinance.
Year enacted: (5)_______.

c.______ Requires super majority council vote to increase residential densities.
Applicable to: (1) ______ Entire City or (2) ______ Part of City
Adopted by: (3) ______ initiative or (4) ______ ordinance.
Year enacted: (5) ______.

d. ______ Redesignated or rezoned land previously designated for
residential development to agriculture or open space (i.e.,
hillside or ridge preservation).
Adopted by: (1) ______ initiative or (2) ______ ordinance.
(3) ______ year enacted.

IF YOU ANSWERED YES TO QUESTIONS 9, 10, OR 11, OR CHECKED A RESPONSE TO
QUESTION 12, PLEASE ANSWER THE FOLLOWING QUESTIONS 13 - 15. IF YOU ANSWERED
NO OR DID NOT CHECK A RESPONSE TO QUESTIONS 9-12, GO TO QUESTION 16.

13. PURPOSES OF RESIDENTIAL GROWTH CONTROL AND GROWTH MANAGEMENT MEASURES

Please check all of the applicable purposes for all of your city’s
residential growth control or growth management measures as listed below:

a. ______ Air Quality
b. ______ Water Quality
c. ______ Agricultural Land Preservation
d. ______ Open Space/Ridgeline Preservation
e. ______ Limitation of Urban Sprawl
f. ______ Preservation of Sensitive Environmental Areas
g. ______ Reduction in Traffic Congestion
h. ______ Sewer Capacity Limitations
i. ______ Water Quantity Limitations
j. ______ Rapid Population/Housing Growth
k. ______ Quantity of High Density Housing Developments
l. ______ Quantity of Low Income Housing Developments
m. ______ Quality of Life Preservation
n. ______ Other: (please specify)
o. ______ Information not available
p. ______ Not applicable - no residential growth control or growth manage-
ment measures

14. IMPACTS OF RESIDENTIAL GROWTH CONTROL AND GROWTH MANAGEMENT MEASURES

Please check all of the applicable impacts of all of your city’s
residential growth control or growth management measures as listed below:

a. ______ Increase in housing costs above inflation rates.
b. ______ Reduction in the historical level of new housing development.
c. ______ Increase in average commute distances.
d. ______ Increase in traffic levels/congestion.
e. ______ Decrease in projected traffic levels/congestion.
f. ______ Reduction in projected population levels.
g. ______ Other. (Please specify):

h. ______ Information not available.
15. LOW-MODERATE INCOME HOUSING EXEMPTIONS

Does your city exempt low and/or moderate income housing units (i.e., affordable to families with an income of 120% or less of the median) from application of your residential growth control/growth management measures?

a. _____ YES.  b. _____ NO.  c. _____ Not applicable - no residential growth control or growth management measures.

16. LOW-MODERATE INCOME HOUSING INCENTIVES

Does your city provide any incentives (i.e., density bonus, financial subsidies, etc.) for construction of low and/or moderate income housing units?

a. _____ YES.  b. _____ NO.

If YES, please specify: _____________________________________________

III. COMMERCIAL AND/OR INDUSTRIAL GROWTH CONTROL AND GROWTH MANAGEMENT MEASURES

17. SQUARE FOOTAGE LIMITATIONS

Does your city have a measure that restricts the amount of square footage that can be built within a given time frame for:

a. Commercial (i.e., retail and office): (1)_____ YES  (2)_____ NO

If YES, applicable to: (3)_____ Entire City or (4)_____ Part of City
If YES, adopted by: (5)_____ initiative or (6)_____ ordinance
(7)_____ year enacted.

b. Industrial (light industrial/warehouse): (1)_____ YES  (2)_____ NO

If YES, applicable to: (3)_____ Entire City or (4)_____ Part of City.
If YES, adopted by: (5)_____ initiative or (6)_____ ordinance
(7)_____ year enacted.

18. COMMERCIAL/INDUSTRIAL INFRASTRUCTURE REQUIREMENTS

Does your city have a measure that specifically requires adequate service levels (i.e., road capacity/traffic congestion) or service capacity (i.e., water, sewer, etc.) prior to or as a condition of approval of commercial and/or industrial development?

a. _____ YES  b. _____ NO

If YES, adopted by: (1)_____ initiative or (2)_____ ordinance
(3)_____ year enacted.
19. COMMERCIAL/INDUSTRIAL LOCATIONAL RESTRICTIONS

Does your city have a measure which redesignated or rezoned land previously designated for commercial and/or industrial development?

a. _____ YES   b. _____ NO

If YES, applicable to: (1) _____ Entire City or (2) _____ Part of City.
If YES, adopted by: (3) _____ initiative or (4) _____ ordinance
(5) _____ year enacted.
If YES, redesignated to: (6) _____ residential (7) _____ agriculture
(8) _____ other, Specify: ________________________________

20. COMMERCIAL BUILDING HEIGHT LIMITATIONS

Does your city have a measure adopted within the last 5 years, which restricts the permitted height of commercial/office buildings?

a. _____ YES   b. _____ NO

If YES, applicable to: (1) _____ Entire City or (2) _____ Part of City.
If YES, adopted by: (3) _____ initiative or (4) _____ ordinance
(4) _____ year enacted.

IF YOU ANSWERED YES TO QUESTIONS 17, 18, 19 OR 20, PLEASE ANSWER THE FOLLOWING QUESTIONS 21 - 22. IF YOU ANSWERED NO, GO TO QUESTION 23.

21. PURPOSES OF COMMERCIAL AND/OR INDUSTRIAL GROWTH CONTROL AND GROWTH MANAGEMENT MEASURES

Please check all of the applicable purposes for all of your city's commercial/industrial growth control or growth management measures as listed below:

a. _____ Air Quality Preservation
b. _____ Water Quality Preservation
c. _____ Agricultural Land Preservation
d. _____ Open Space Preservation
e. _____ Limitation of Urban Sprawl
f. _____ Preservation of Sensitive Environmental Areas
g. _____ Reduction in Traffic Congestion
h. _____ Sewer Capacity Limitation
i. _____ Water Quantity Limitation
j. _____ Quality of Life Preservation
k. _____ Other (please specify):
l. _____ Information Not Available
m. _____ Not applicable -- no commercial/industrial growth control or growth management measures.

22. IMPACTS OF COMMERCIAL/INDUSTRIAL GROWTH AND GROWTH MANAGEMENT MEASURES

Please check below all of the applicable impacts of all of your city’s commercial/industrial growth control or growth management measures as listed below:
a. Increase in the average commute distance
b. Increase in traffic levels/congestion
c. Decrease in projected traffic levels/congestion
d. Reduction in the historical level of new commercial/industrial development.
e. Loss of projected new commercial, office or industrial developments/employers
f. Reduction in projected employment levels
g. Reductions in projected sales tax revenues
h. Reductions in projected property tax revenues
i. Increase in the historical level of residential development
j. Other (please specify):

k. Information not available
l. Not applicable -- no commercial/industrial growth control or growth management measures

23. JOBS/HOUSING BALANCE

Has your city enacted a policy or ordinance which specifies a desired or required ratio of the number of housing units per the number of jobs within a given area or within the entire city?

a. YES   b. NO

If YES, what is that ratio or percentage:

24. JOBS/HOUSING LINKAGE

Has your city enacted an ordinance to require commercial/industrial developers to pay in-lieu fees for housing development or to construct housing units as a condition of development approval?

a. YES   b. NO

IV. OTHER GROWTH CONTROL AND GROWTH MANAGEMENT MEASURES

25. URBAN LIMIT LINE/GREENBELT

Has your city established an urban limit line or greenbelt, other than the boundaries of your city, beyond which residential, commercial and/or industrial development is not currently permitted?

a. YES   b. NO

If YES, adopted by: (1)___ initiative or (2)___ ordinance. (3)___ year enacted.

26. OTHER MEASURES

Does your city have other existing or pending measures which fall under the definition of growth control or growth management which are not covered under the prior questions?

a. YES   b. NO
If YES, please describe: (1)______________________________

If YES, adopted by: (2)____ initiative or (3)____ ordinance or (4)____ pending and (5)____ year enacted.

V. MONITORING AND EVALUATION OF GROWTH CONTROL AND GROWTH MANAGEMENT MEASURES

27. MONITORING BENEFITS AND IMPACTS

Has your city established a program for monitoring or measuring the benefits and impacts of your growth control or growth management measures?

a.______ YES       b.______ NO

28. EVALUATING BENEFITS AND IMPACTS

Have any studies been conducted by the city or any other public or private agency or group to analyze the benefits and impacts of your growth control or growth management measures?

a.______ YES       b.______ NO       c.______ Don't Know

If YES, please list the titles and authors of these studies below:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

VI. GENERAL COMMENTS

29. Please use the space below to write any comments on growth control and growth management measures which were not included in the prior questions or any comments you may have on this survey.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Please return this survey by December 30 to:

League of California Cities
Attn: Sheryl Patterson
1400 K Street, 4th Floor
Sacramento, CA 95814

GROWTH.leg
APPENDIX B

WHARTON SURVEY INSTRUMENT
WHARTON URBAN DECENTRALIZATION PROJECT
(with the cooperation of the International City Managers Association)

* * * * * * *

DEVELOPMENT REGULATION SURVEY QUESTIONNAIRE

I. JURISDICTION

Name of Jurisdiction __________________________ Zip Code __________

1. Type of Jurisdiction:
   [ ] City
   [ ] County
   [ ] Township
   [ ] Town, Village, or Borough
   [ ] Other ______

2. Size of Jurisdiction: ______ Square miles

3. Population __________________________
   a) Current Population Estimate ______
   b) Annual Population Growth Rate
      Past 5 years ______ % per year
      Projected next 5 years ______ % per year

II. DEVELOPMENT POLICIES

The following questions concern public policies and actions that affect the supply of land for single-family detached housing. Please give us the benefit of your opinion.

4. What is the main building code utilized by your community?
   Building Officials and Code Administrators (BOCA) [ ]
   Southern Building Code (SBCCI) [ ]
   Uniform Building Code (UBC/ICBO) [ ]
   Council of American Building Officials (CABO) [ ]
   Other [ ]
5. Please rate the importance of the following factors, on a scale of 1 to 5, to the development process in your community. (1 = not at all important to 5 = very important)

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Very Important</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Population Growth</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Population density</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Adequate infrastructure</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Land costs</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Regulation</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Development standards</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Comprehensive planning</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Tax rates</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Quality of life</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Other specify</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

6. On a scale of 1 to 5, please rate the effectiveness of each of the following growth management techniques in controlling growth in your community. (1 = not effective to 5 = very effective).

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Very Important</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Adequate facilities</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Ordinances</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Building permits</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Population limits</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Exactions/impact fees</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Urban service boundary</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Farm protection</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Zoning ordinance</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Other specify</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

7. How did the time to obtain a routine single-family project approval (zoning and subdivision) change during the period from 1983 to 1988?

<table>
<thead>
<tr>
<th>Shortened considerably</th>
<th>Shortened somewhat</th>
<th>No change</th>
<th>Increased somewhat</th>
<th>Increased considerably</th>
<th>No opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
8. What is the typical amount of time between application for rezoning and issuance of a building permit for the development of:

<table>
<thead>
<tr>
<th></th>
<th>Less than fifty single-family units</th>
<th>Fifty or more single-family units</th>
<th>Office building of under 100,000 square ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 3mons.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>3 to 6 months</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>7 to 12 months</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>13 to 24 months</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>More than 24 months</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

9. What is the typical amount of time between application for subdivision approval and the issuance of a building permit (assume proper zoning already in place) for the development of:

<table>
<thead>
<tr>
<th></th>
<th>Less than fifty single-family units</th>
<th>Fifty or more single-family units</th>
<th>Office building of under 100,000 square ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 3mons.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>3 to 6 months</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>7 to 12 months</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>13 to 24 months</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>More than 24 months</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

10. How does the acreage of land zoned for the following land uses compare to demand?

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Far more than demanded</th>
<th>More than demanded</th>
<th>About right</th>
<th>Less than demanded</th>
<th>Far less than demanded</th>
<th>No opinion/not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Multi/Family</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Commercial</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Industrial</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

11. How does the current availability of land zoned for the following single-family residential lot sizes compare to demand?

<table>
<thead>
<tr>
<th>Lot Size</th>
<th>Far more than demanded</th>
<th>More than demanded</th>
<th>About right</th>
<th>Less than demanded</th>
<th>Far less than demanded</th>
<th>No opinion/not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4,000 sq. ft.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>4,000 - 8,000 sq. ft.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>8,000 - 10,000 sq. ft.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>10,000 - 20,000 sq. ft.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Over 20,000 sq. ft.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
12. How many single-family lots have been approved for development (with full services) for each of the following lot sizes during the past 12 months? If zero, please indicate "0".

<table>
<thead>
<tr>
<th>Number of Lots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4,000 sq. ft.</td>
</tr>
<tr>
<td>4,000 - 8,000 sq. ft.</td>
</tr>
<tr>
<td>8,000 - 10,000 sq. ft.</td>
</tr>
<tr>
<td>10,000 - 20,000 sq. ft.</td>
</tr>
<tr>
<td>Over 20,000 sq.ft.</td>
</tr>
</tbody>
</table>

13. How many acres of land have been approved for development (with full services) for each of the following land uses during the last 12 months? If zero, please indicate "0".

<table>
<thead>
<tr>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-family</td>
</tr>
<tr>
<td>Office</td>
</tr>
<tr>
<td>Retail</td>
</tr>
<tr>
<td>Industrial</td>
</tr>
</tbody>
</table>

14. Approximately what percentage of applications for zoning changes were approved in your community during the past 12 months?

- [ ] 100-90%
- [ ] 89-60%
- [ ] 59-30%
- [ ] 29-10%
- [ ] 10-0%

15. How has the provision of roads and sewers kept pace with growth needs?

<table>
<thead>
<tr>
<th></th>
<th>Much more than needed</th>
<th>Slightly more than needed</th>
<th>About right</th>
<th>Less than needed</th>
<th>Far less than needed</th>
<th>No opinion/not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
16. For a typical 2,000 - 3,000 sq. ft. single family home (for example, with 3 bedrooms and 2 baths), please indicate which fees/exactions are imposed in your area and associated characteristics:

<table>
<thead>
<tr>
<th>Amount (dollar or set-aside acreage)</th>
<th>Assessed at the time of:</th>
<th>Paid at the time of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit of Impact (e.g. per sq. ft.)</td>
<td>Zoning</td>
<td>Sub-division</td>
</tr>
<tr>
<td>Schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sewer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Libraries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Centers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We do not use fees/exactions

17. Which of the following techniques does your community use to regulate the conversion of land from agricultural/open space to residential, commercial or industrial use?

- [ ] Agricultural Land Conversion Tax
- [ ] Transfer of Development Rights
- [ ] Land Banking
- [ ] Real Estate Transfer Tax
- [ ] Urban Development Boundaries
- [ ] Water/Sewer provision Staging Plan
- [ ] Historic Preservation Requirements
- [ ] Other

18. In your community, how prevalent are the following modes of introducing growth management policies?

<table>
<thead>
<tr>
<th></th>
<th>Very prevalent</th>
<th>Somewhat prevalent</th>
<th>Not prevalent</th>
<th>Not sure/do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizen referendum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative action by the municipality</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Legislative action by the county</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Legislative action by the state</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Administrative action by public authorities</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
19. How much has the cost of lot development, including subdivision, increased from 1983-1988?

[ ] None  [ ] 1-9%  [ ] 10-19%  [ ] 20-29%
[ ] 30-39%  [ ] 40-49%  [ ] 50% or more

20. How would you describe your jurisdiction?

[ ] High growth area  [ ] Medium growth area  [ ] Slow growth area  [ ] No growth area

21. In your opinion, how do living conditions in this community compare to five years ago?

[ ] Better  [ ] Worse
[ ] About the same  [ ] Not sure/do not know

22. In your opinion, who should pay for roads, sewers, and schools when a new residential development is built?

[ ] Developers  [ ] All residents in the city
[ ] Users  [ ] New residents
[ ] Share between developers and new residents

23. Name________________________________________

24. Title________________________________________

25. Organization____________________________________


27. Address________________________________________

28. Telephone_______________________________________

29. How long have you worked or lived in the community?

______________ years.

30. Check this box if you would like to receive a copy of the results of this survey. [ ]

THANK YOU

November 1989
WHARTON URBAN DECENTRALIZATION PROJECT

SURVEY OF COUNTY GOVERNMENTS

I. GENERAL INFORMATION

1. Name of County: __________________________

2. State: __________________________

3. Size of County: ______ square miles

4. Size of population: ______________

5. Number of municipal governments (cities, towns, boroughs, villages, or townships) in county: ____________
   Number of school districts in county: ____________
   Number of special districts in county: ____________
   Number of cities in county with population > 100,000: ______

6. How would you describe your county? Please check one.
   [ ] High growth area   [ ] Medium growth area
   [ ] Slow growth area   [ ] No growth area

II. FINANCIAL POLICY AND ADMINISTRATION STRUCTURE

7. TAXATION

   (a) Which governments have the authority to impose a property tax in the county? Please check each that do.
       [ ] County   [ ] Municipalities   [ ] Special Districts   [ ] School Districts

   (b) What is the effective county tax rate for each of following types of property? (effective rate = statutory rate \times average assessment ratio)

       Residential ______ % answers should be \leq 10\%
       Commercial _____ % answers should be \leq 10\%
       Industrial _____ % answers should be \leq 10\%
8. IMPACT FEES AND EXACTIONS (set-aside requirements)

(a) Which of the following levels of government impose impact fees or exactions on new residential developments, for each type of service indicated? Please check each government unit that assesses an impact fee.

- SCHOOLS: [ ] County [ ] Municipalities [ ] School Districts
- PARKS: [ ] County [ ] Municipalities [ ] Special Districts
- LIBRARIES/COMMUNITY CENTERS: [ ] County [ ] Municipalities [ ] Special Districts
- PUBLIC SAFETY: [ ] County [ ] Municipalities [ ] Special Districts
- WATER: [ ] County [ ] Municipalities [ ] Special Districts
- SEWER: [ ] County [ ] Municipalities [ ] Special Districts
- ROADS: [ ] County [ ] Municipalities [ ] Special Districts
- OTHERS: [ ] County [ ] Municipalities [ ] Special Districts

(b) Please answer this question for only those services financed by impact fees/exactions charged by the county. If there are no county impact fees, then please go on to question 9. Do not include permit fees.

Consider a new development consisting of 100 single family homes (approximately 3 bedrooms, 2 baths, 2500 square feet, half acre lot, 1 car garage). What impact fees or exactions are typically applied? Please fill in 0 if no fees or set asides are required. If dollar fees are substitutable for acreage set-asides, list only the $ amount.

<table>
<thead>
<tr>
<th>$ AMOUNT PER UNIT</th>
<th>ACREAGE SET ASIDE PER UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools:</td>
<td></td>
</tr>
<tr>
<td>Parks:</td>
<td></td>
</tr>
<tr>
<td>Libraries/</td>
<td></td>
</tr>
<tr>
<td>Community Centers:</td>
<td></td>
</tr>
<tr>
<td>Public Safety:</td>
<td></td>
</tr>
<tr>
<td>Water:</td>
<td></td>
</tr>
<tr>
<td>Sewer:</td>
<td></td>
</tr>
<tr>
<td>Roads:</td>
<td></td>
</tr>
<tr>
<td>Others:</td>
<td></td>
</tr>
</tbody>
</table>
9. Debt Structure

(a) General obligation bonds are issued by:

[ ] County       [ ] Municipalities
[ ] Special Districts  [ ] School Districts

(b) Revenue bonds (pledged against user charges) are issued by:

[ ] County       [ ] Municipalities
[ ] Special Districts  [ ] School Districts

10. User Fees

(a) Which levels of government impose user charges? Check all relevant levels.

[ ] County       [ ] Municipalities
[ ] Special Districts  [ ] School Districts

(b) For those user charges utilized by the county, list the item and unit of impact.
(Ex. Item: Toll roads charge = $.10 per mile)

Item 1: __________  charge = __________
Item 2: __________  charge = __________
Item 3: __________  charge = __________
Item 4: __________  charge = __________

11. To what extent is the financial and production organization of your county influenced by the following factors? On a scale of 1 to 5 (5=highest grade), please check a number for each factor.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Desire to approximate most cost effective structure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire to mitigate service inequities within county</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire to have maximal autonomy by local communities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adherence to historical custom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. In choosing the county's mix of taxes, fees, debt, user charges and the like, do you consider the relation between your choice and the choices of nearby counties?

[ ] Yes       [ ] No

Please comment:
13. In your opinion, do municipalities within your county and across other counties "compete" for jobs and high income residents by their choice of financing and service provision:

[ ] Yes       [ ] No

We would appreciate any elaboration you might make on this point.

14. To what extent do the following characteristics of municipalities influence whether or not they arrange for public services through the county, produce the service in conjunction with other municipalities, or produce the services themselves? (5 = highest grade)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average household income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to grants-in-aid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire for autonomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to privatize</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

III. LAND USE REGULATIONS AND ADMINISTRATION

15. ZONING

(a) Please check the statement below which best describes your county.

[ ] Only the county exercises zoning authority.
[ ] Only municipalities exercise zoning.
[ ] The county zones unincorporated areas only and municipalities exercise separate zoning authority.
[ ] The county zones for some municipalities while other municipalities decide their own zoning.

(b) If your county exercises zoning authority, please check each type of zoning used.

[ ] density restrictions       [ ] minimum lot size requirements       [ ] allowable use zoning
16. BUILDING PERMITS

(a) What statement below best describes your county? Please check one.

[ ] Only the county issues building permits.
[ ] Only municipalities issue building permits.
[ ] The county and some (or all) municipalities separately issue building permits.

(b) Please rate the degree to which the following factors influence whether a residential, commercial, or industrial project is awarded a county permit. (1 = not important, 5 = very important). Please check one number for each.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Impact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Impact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population Impact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preservation of residential character</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. LAND CONVERSION

Which of the following techniques does your county use to regulate the conversion of land from agriculture or open space to residential, industrial, or commercial use? Please check all techniques used.

[ ] Agriculture Land Conversion Tax
[ ] Transfer of Development Rights
[ ] Land Banking
[ ] Real Estate Transfer Tax
[ ] Urban Development Boundaries
[ ] Water/Sewer Provision Staging Plan
[ ] Historic Preservation Requirements
[ ] Others _____________________________ (Please specify)

IV. ADDRESS INFORMATION

Name: ________________________________

Title: ________________________________

Organization: _________________________

Street/box: ___________________________

City: _________________________________ State: ___________ Zip: _____________

Telephone: __________________________

THANK YOU!
APPENDIX C

CENSUS BUILDING PERMIT SURVEY INSTRUMENTS
1. PERIOD IN WHICH PERMITS WERE ISSUED –

2. GEOGRAPHIC COVERAGE

If your building permit system had a coverage change, please mark (X) in appropriate box, provide an explanation in Section 6, then continue completing the form in Section 3.

- Permits no longer required
- Permit office has merged with another permit jurisdiction
- Permit office has split into two or more jurisdictions
- Permit office is now responsible for additional land outside of its original boundaries

3. NEW RESIDENTIAL BUILDINGS

a. If no new residential permits were issued during this period, mark an (X) in the box and proceed to Section 4.

<table>
<thead>
<tr>
<th>Type of structure</th>
<th>Item No.</th>
<th>Number of Buildings</th>
<th>Housing units</th>
<th>Valuation of construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Single-family houses, attached and detached [Exclude manufactured (mobile) homes.]</td>
<td>101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Two-unit buildings</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Three- and four-unit buildings</td>
<td>104</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Five-or-more unit buildings</td>
<td>105</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. TOTAL – Sum of 101–105</td>
<td>109</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. ADDITIONS, ALTERATIONS AND RENOVATIONS TO RESIDENTIAL STRUCTURES

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Number of permits</th>
<th>Valuation of construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>434</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. INDIVIDUAL RESIDENTIAL PERMITS AUTHORIZING CONSTRUCTION VALUED AT $500,000 OR MORE

(If more space is needed, please attach a separate sheet.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Name and address of owner or builder</th>
<th>Buildings</th>
<th>Housing units</th>
<th>Valuation of construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Kind of building</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site address</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Kind of building</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site address</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. COMMENTS (Continue on a separate sheet)

600

7. PERSON TO CONTACT REGARDING THIS REPORT

<table>
<thead>
<tr>
<th>Name</th>
<th>Telephone</th>
<th>Fax</th>
<th>E-mail address</th>
<th>Internet web address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>710</td>
<td>720</td>
<td>740</td>
<td></td>
</tr>
</tbody>
</table>
INSTRUCTIONS FOR COMPLETING FORM C-404, "REPORT OF PRIVATELY-OWNED RESIDENTIAL BUILDING OR ZONING PERMITS ISSUED"

Public reporting burden for this collection of information is estimated to vary from 2 to 30 minutes per response. The average is 10 minutes per response for those that report monthly and 25 minutes for those that report annually. This includes time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: Paperwork Project 0607-0094, U.S. Census Bureau, 4700 Silver Hill Road, Stop 1500, Washington, DC 20233-1500. You may e-mail comments to paperwork@census.gov; use *Paperwork Project 0607-0094* as the subject. This agency may not collect this information, and you are not required to complete this form, unless it displays a current valid Office of Management and Budget control number.

GENERAL INSTRUCTIONS FOR EACH SECTION

1. PERIOD PERMITS WERE ISSUED – Include all privately-owned residential permits which were authorized during the month or year shown.

2. GEOGRAPHIC COVERAGE
   - Discontinue – A building permit is no longer a requirement in your geographic coverage area.
   - Merger – Permit office has stopped issuing permits because it has merged with another permit-issuing jurisdiction. That new office has taken over the responsibility of issuing building permits for your office.
   - Split – Your permit office no longer covers a particular jurisdiction because that area now issues its own building permits.
   - Annexed land area – Permit office is now responsible for additional land outside of its original boundaries.

3. NEW RESIDENTIAL BUILDINGS – Summarize information for number of buildings, number of housing units, and valuation of construction as shown on the building or zoning permit. Enter the valuation as shown on the permit. If no valuation is listed, enter your best estimated value.
   - Item 101 – Single-family homes, attached and detached – Include all new privately-owned attached and detached single-family houses. Include attached single-family houses known commonly as townhouses or row houses where (1) each unit is separated from adjoining units by a wall that extends from ground to roof, (2) no unit is above or below another unit, and (3) each unit has separate heating and separate utility meters.
   - Item 103 – Two-unit buildings – Include all new privately-owned residential buildings that only contain 2 housing units, and do not meet the definition of attached single-family as shown under Item 101. All units must be stacked or share common utilities.
   - Item 104 – Three and four-unit buildings – Include all new privately-owned residential buildings that only contain 3 or 4 housing units, and do not meet the definition of attached single-family as shown under Item 101. All units must be stacked or share common utilities.

4. ITEM 434 – ADDITIONS, ALTERATIONS, AND RENOVATIONS – Summarize information for number of permits and valuation as shown on the building permit for all additions, alterations and renovations to residential properties. Enter the valuation as shown on the permit. If no valuation is listed, enter your best estimated value. Also include residential permits for property outside residential structure, such as sheds, fences, decks and pools and replacements, such as reroofing, residing, and new windows.

5. INDIVIDUAL RESIDENTIAL PERMITS AUTHORIZING CONSTRUCTION VALUED AT $500,000 OR MORE – Please enter data in this section for individual permits valued at $500,000 or more included in Sections 3 and 4 above. If more than two such permits were issued, attach a separate sheet.

6. COMMENTS – Enter any explanations from Section 2, miscellaneous notes or questions. Include any revisions to data entered on previous forms.

7. CONTACT INFORMATION – Please fill in any blank areas or make any corrections to information already entered in these fields. Enter the Internet web address for your permit office, if applicable.

INSTRUCTIONS FOR CLASSIFYING RESIDENTIAL BUILDINGS

RESIDENTIAL BUILDINGS

Residential buildings are buildings containing one or more housing units. A housing unit is a house, an apartment, a group of rooms or a single room intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants live separately from any other individuals in the building and which have a direct access from the outside of the building or through a common hall.

PERMITS TO INCLUDE

- privately-owned residential buildings, which include all residential buildings owned by a private company or an individual during the period of construction
- housing for the elderly, such as assisted living facilities, that do not have 24-hour skilled nursing care
- "tumkey" housing, which is housing that will be sold to a local public housing authority when completed
- all housing built by nonprofit organizations
- buildings manufactured partially off-site and transported and assembled at the construction site, such as prefabricated, paneled, pre-cut, sectional and modular (these do not include "mobile-HUD inspected" homes)
- foundation and interior finishing permits only when issued separately and a valuation of construction is shown (Include data on the proper line item depending on the number of housing units in the intended superstructure. Enter zero for the buildings and units in Items 101–105. Enter number of permits issued for additions and alterations to residential buildings in Item 434.)
- additions and alterations to residential buildings and on property outside residential structures
- major replacements, such as roof, siding, doors, and windows

PERMITS TO EXCLUDE

- publicly-owned buildings
- manufactured (mobile-HUD inspected) homes including additions, alterations and renovations
- group quarters, such as dormitories, jails, nursing homes, etc.
- hotels/motels
- landscaping
- nonresidential buildings, other than structures on residential property such as sheds and garages which are included in Item 434.
- demolitions
- moved or relocated buildings
- maintenance and repair, which are expenses to keep a property in ordinary working condition
- farm buildings, such as silos, barns, etc.

MISCELLANEOUS CLASSIFICATION INSTRUCTIONS

- Enter a building in only one category. If you cannot determine a category, please call our staff on 1-800-845-8244.
- If a building has mixed residential and nonresidential use, enter the housing units based on the residential portion of the building. Please estimate the valuation based on the residential portion of the building only.
- Classify all buildings that are being totally re-built on an existing foundation as new construction.
- Type of ownership (e.g. condominium, cooperative, timeshare, etc.) is NOT considered when classifying a building.
<table>
<thead>
<tr>
<th>Form: SOC-Q/SF.1</th>
<th>SURVEY OF HOUSING STARTS, SALES, AND COMPLETIONS (SINGLE-FAMILY BUILDINGS)</th>
</tr>
</thead>
</table>

**TO BE COMPLETED BY CENSUS FIELD REPRESENTATIVE**

<table>
<thead>
<tr>
<th>Address or location of building</th>
<th>Builder/Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project name (if any)</th>
<th>PSU</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building permit number</th>
<th>Permit</th>
<th>Month</th>
<th>Day</th>
<th>Year</th>
<th>Block</th>
<th>Lot</th>
<th>Serving post office, State, ZIP Code</th>
<th>Place code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TO BE COMPLETED BY RESPONDENT**

**START**

<table>
<thead>
<tr>
<th>Has excavation started for the footings or foundation of this house?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Start Date</th>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ex Comp</th>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMPLETED**

<table>
<thead>
<tr>
<th>Is this house completed or occupied?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comp Date</th>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DETACH ATTACH**

<table>
<thead>
<tr>
<th>Is this house –</th>
<th>Detached</th>
<th>Attached as part of a group of two or more row or townhouses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**MANUFACTURED**

<table>
<thead>
<tr>
<th>Is this house –</th>
<th>Modular</th>
<th>Panelized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipped from the factory as package of walls, roof, and other components on site</th>
<th>Precast?</th>
<th>Site-built?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Include some factory components such as roof and floor trusses, wall panels, door frames, etc</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Finish square area of completely finished floor space, including space in basement and attic with finished walls, floors, and ceilings</th>
<th>Square feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INT-EXT**

<table>
<thead>
<tr>
<th>Is square footage based on interior or exterior dimensions?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**FOUNTATIONS**

<table>
<thead>
<tr>
<th>What type of foundation does this house have?</th>
<th>Full or partial basement</th>
<th>Crawl space</th>
<th>Slab</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Go to FIN_BSTM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fin BSTM</th>
<th>Part or all of basement finished?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bsmt_soft</th>
<th>Square feet</th>
<th>Lot_size</th>
<th>Square feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BEDROOMS**

<table>
<thead>
<tr>
<th>How many bedrooms are in this house?</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FULL_BATH**

<table>
<thead>
<tr>
<th>How many full bathrooms are in this house?</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HALF_BATH**

<table>
<thead>
<tr>
<th>How many half bathrooms are in this house?</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**STORIES**

<table>
<thead>
<tr>
<th>How many stories, NOT INCLUDING the basement, are in this house?</th>
<th>One</th>
<th>Two (including 1 1/2 stories)</th>
<th>Three or more (including 2 1/2 stories)</th>
<th>Split-level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EX_WALL**

<table>
<thead>
<tr>
<th>What exterior wall material covers most of this house?</th>
<th>Wood or wood products (including masonite or T111)</th>
<th>Brick or brick veneer</th>
<th>Aluminum siding (not covered with vinyl)</th>
<th>Concrete stucco (such as Shotcrete)</th>
<th>Vinyl siding (including vinyl-covered aluminum)</th>
<th>Concrete block (including cinder, cement or building blocks)</th>
<th>Stone, rock, or other stone materials</th>
<th>Fiber cement siding (such as Hardiplank and Hardboard)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

**EX_WALL2**

<table>
<thead>
<tr>
<th>Is there any secondary exterior wall material, not including trim, shutters and woodwork around openings?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**EX_WALLS**

<table>
<thead>
<tr>
<th>What secondary type of wall material is used?</th>
<th>Mark ONE box only.</th>
<th>Wood or wood products (including masonite or T111)</th>
<th>Brick or brick veneer</th>
<th>Aluminum siding (not covered with vinyl)</th>
<th>Concrete stucco (such as Shotcrete)</th>
<th>Vinyl siding (including vinyl-covered aluminum)</th>
<th>Concrete block (including cinder, cement or building blocks)</th>
<th>Stone, rock, or other stone materials</th>
<th>Fiber cement siding (such as Hardiplank and Hardboard)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIN_SQ_FT**

<table>
<thead>
<tr>
<th>What is the square foot area of completely finished floor space, including space in basement and attic with finished walls, floors, and ceilings?</th>
<th>Square feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FLOORPLAN**

<table>
<thead>
<tr>
<th>Is the square footage based on interior or exterior dimensions?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**FOUNDATIONS**

<table>
<thead>
<tr>
<th>What type of foundation does this house have?</th>
<th>Full or partial basement</th>
<th>Crawl space</th>
<th>Slab</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Go to LOT_SIZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIN_BSTM**

<table>
<thead>
<tr>
<th>Part or all of basement finished?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**BSMT_SOFT**

<table>
<thead>
<tr>
<th>Square feet</th>
<th>Lot Size</th>
<th>Square feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LOT_SIZE**

<table>
<thead>
<tr>
<th>What is the size of the individual lot on which this house is being built?</th>
<th>Square feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
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<tbody>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**INT-EXT**

<table>
<thead>
<tr>
<th>Is the square footage based on interior or exterior dimensions?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**FLOORPLAN**

<table>
<thead>
<tr>
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<th>Slab</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Go to LOT_SIZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIN_BSTM**

<table>
<thead>
<tr>
<th>Part or all of basement finished?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**BSMT_SOFT**

<table>
<thead>
<tr>
<th>Square feet</th>
<th>Lot Size</th>
<th>Square feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PARKING**

<table>
<thead>
<tr>
<th>What type of parking does this house have?</th>
<th>Mark ONE box only.</th>
<th>Garage for 1 car</th>
<th>Garage for 2 cars</th>
<th>Garage for 3 or more cars</th>
<th>Carport</th>
<th>Other off-street parking (including a driveway with no garage or carport)</th>
<th>None of the above</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

**FIRESIDES**

<table>
<thead>
<tr>
<th>How many working fireplaces are in this house?</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DECK**

<table>
<thead>
<tr>
<th>Does this house have any decks? (floored areas without a roof, not sitting directly on the ground; typically made of wood)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**PLEASE CONTINUE ON REVERSE SIDE.**
**Patio**

Does this house have any patios? – (Floor areas with or without a roof, sitting directly on the ground. – Do not include small concrete pads at entryways.)

1. Yes
2. No

**Porch**

Does this house have any porches? (Floor areas with a roof, enclosed or open, not sitting directly on the ground. – Do not include small covered entryways.)

1. Yes
2. No

**Heat Source**

What energy source will be used most for heating this house?

1. Electricity
2. Natural gas (from underground pipes)
3. Bottled gas (including propane or tank gas)
4. Oil (including heating oil or kerosene)
5. Wood (including pellets)
6. Solar
7. Coal
8. No heat
9. None of the above – Specify:

**Heat System**

What heating system will be used most in this house?

1. Heat pump, air source (including reverse-cycle air conditioners)
2. Heat pump, ground source (including closed-loop geothermal systems)
3. Forced-air furnace without heat pump
4. Hot water or steam (including hydronic systems)
5. Electric baseboard (including heat strips, wall panels, radiant heat)
6. Fireplace with insert
7. Stove that burns coal or wood
8. Non-portable room heater that burns liquid fuel and is connected to a flue, vent, or chimney to remove smoke/fumes
9. Passive solar system that uses a "thermal storage wall," "sunspace," or "solar greenhouse"
10. None of the above – Specify:

**Air Cond**

Does this house have central air-conditioning?

1. Yes
2. No

**Sales Category**

Is this house being built –

1. For sale, or is it already sold? – Go to CONDO
2. For the owner by a single general contractor on the owner's land? – Go to CONTRACT PRICE
3. On the owner's land entirely by the owner, or by the owner acting as general contractor? – Go to FINANCING
4. For rent?

**Contract Price**

What is the contract price for this house?

$ – Go to FINANCING

**Condo**

Is this house part of a condominium project?

1. Yes
2. No

**Deposit**

Was a deposit taken or a sales agreement signed for this house?

1. Yes
2. No – Go to INTEND PRICE
3. This is a MODEL home – Go to INTEND PRICE

**Deposit Date**

When was the deposit taken or sales agreement signed?

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
</tr>
</thead>
</table>

**Sales Price**

What is the sales price?

$ – Go to FINANCING

**Closing Costs**

Does the sales price include or exclude closing costs?

1. Includes
2. Excludes

**Lot Value**

What is the value of the individual lot (including improvements such as grading, paving, installation of utilities, etc.)?

$ – Go to FINANCING

**Intend Price**

What will the sales price be?

$ – Leave FINANCING blank

**Financing**

What type of financing was or will be arranged, or will the house be paid for entirely with cash?

1. Conventional
2. FHA
3. VA
4. Farmer's Home
5. Pay cash
6. Habitat for Humanity
7. Loan from an individual
8. State or local government mortgage-backed bonds

20. None of the above – Specify:

Your Census Representative

---

Please retain this form for your use when contacted by your census representative.
# Survey of Housing Starts and Completions (Multiunit Buildings)

## To Be Completed by Census Field Representative

<table>
<thead>
<tr>
<th>Builder/Owner</th>
<th>Project Name (if any)</th>
<th>Serving Post Office, State, ZIP Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address and Identification of Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building Permit Number</th>
</tr>
</thead>
</table>

## To Be Completed by Respondent

### Start
- Has excavation started for the footings or foundation of this building?
  - 1 Yes
  - 2 No - Go to UNIT DIY

### Start Date
- Month
- Year

### Expected Completion
- When do you expect at least half the units to be available for occupancy?
  - Month
  - Year

### Completed
- Are at least half of the units in this building available for occupancy?
  - 1 Yes
  - 2 No - Go to UNIT DIY

### Completed Date
- Month
- Year

<table>
<thead>
<tr>
<th>Units A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
</tr>
</tbody>
</table>

### Floors A
- How many floors are in this building, excluding the basement unless it will contain two or more units?

### Attached A (For buildings with 3 floors or less)
- Are any of the units attached side-by-side, with no other units above or below?
  - 1 Yes - Continue
  - 2 No - Go to BEDROOMS A

<table>
<thead>
<tr>
<th>How Many</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
</tr>
</tbody>
</table>

### Attached B (For buildings with 3 floors or less)
- Is each unit separated by a ground-to-roof wall with a separate heating system, and with individual meters for public utilities such as water/sewer, electricity, gas, etc.?
  - 1 Yes
  - 2 No

### Bedrooms A
- How many units will have:
  - No separate bedrooms (efficiency)?
    - One bedroom
    - Two bedrooms
    - Three bedrooms or more?

<table>
<thead>
<tr>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
</tr>
</tbody>
</table>

### Baths A
- How many units will have:
  - One bathroom?
  - One and a half bathrooms?
  - Two bathrooms or more?

<table>
<thead>
<tr>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
</tr>
</tbody>
</table>

---

*Note: The table continues with similar questions and options for additional details.*
### FIN_SQ_FT_A

What is the total square foot area of all floors in this building, excluding unfinished basements, laundry or boiler rooms, garage space, etc.?

<table>
<thead>
<tr>
<th></th>
<th>1 1/2 baths</th>
<th>1 1/2 baths</th>
<th>1 1/2 baths</th>
<th>1 1/2 baths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Square feet</td>
<td>Square feet</td>
<td>Square feet</td>
<td>Square feet</td>
</tr>
</tbody>
</table>

### MANUF_A

Is this building -

1. **Modular**?
   - Finished 3-dimensional sections of the complete dwelling, built in a factory, are transported to the site to be joined together on a permanent foundation.

2. **Panelized**?
   - Shipped from the factory as a package of wall panels, roof trusses, and other components that are assembled on site. May include all materials required to finish the house as a complete package.

3. **Site-built**?
   - Built on site. Can include SOME factory components such as roof and floor trusses, wall panels, door frames, etc.

### AIR_COND_A

Does this building have air-conditioning?

<table>
<thead>
<tr>
<th></th>
<th>1 Yes</th>
<th>2 No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
</tbody>
</table>

### HEAT_SRC_A

What principal energy source will be used for heating this building?

<table>
<thead>
<tr>
<th></th>
<th>Electricity</th>
<th>Gas (including propane, natural, bottled, tank, or butane gas)</th>
<th>Oil (including heating oil or kerosene)</th>
<th>None of the above - Specify</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
<td>3 No heat provided</td>
<td>20 None of the above - Specify</td>
</tr>
</tbody>
</table>

---

### HEAT_PUMP_A

Will this building have any heat pumps?

<table>
<thead>
<tr>
<th></th>
<th>1 Yes</th>
<th>2 No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
</tbody>
</table>

### FPLACE_A

How many units in this building have a built-in fireplace with a flue?

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>Units</th>
<th>Units</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PARKING_A

Are there parking spaces in or under the building?

<table>
<thead>
<tr>
<th></th>
<th>1 Yes</th>
<th>2 No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
</tbody>
</table>

### OWNERSHIP_A

Are the units in this building -

1. For rent?
2. For sale as condominiums or cooperatives?
3. For sale, not as condominiums or cooperatives?

<table>
<thead>
<tr>
<th></th>
<th>1 Yes</th>
<th>2 No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>1 Yes</td>
<td>2 No</td>
</tr>
<tr>
<td></td>
<td>1 Yes</td>
<td>2 No</td>
</tr>
</tbody>
</table>

### OTHER_BLDGS

Have other permits been taken out previously for residential buildings in this project?

<table>
<thead>
<tr>
<th></th>
<th>1 Yes - Approximately when did this last occur?</th>
<th>2 No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Month/Year</td>
<td></td>
</tr>
</tbody>
</table>

### NOTES

Your Census Representative