THE LINK BETWEEN GROWTH MANAGEMENT AND HOUSING AFFORDABILITY: THE ACADEMIC EVIDENCE

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EXECUTIVE SUMMARY

Rising concerns about traffic congestion, loss of farmland, urban disinvestment, and the costs of public infrastructure have led an increasing number of state and local governments to adopt new policies to better manage metropolitan growth. Such programs often involve a package of tools such as zoning, comprehensive plans, subdivision regulations, development fees and exactions, and infrastructure investments and are sometimes described as growth controls, growth management, sustainable development, or smart growth. Despite these efforts' increasing popularity, some observers are concerned that such efforts adversely affect land and housing markets and lead to problems of housing affordability.

We must remember that many of the ills resulting from today's sprawling development patterns are themselves caused in part by traditional land use planning and zoning practices (sometimes deliberately), such as exclusionary housing and other local land use practices. Growth controls, as distinguished from growth management, bear a striking resemblance to these traditional practices, because they are adopted with only local benefits in mind and without concern for the possible costs that other communities might bear as a consequence. Growth management, by contrast, seeks to preserve public goods, improve social equity and minimize adverse impacts of development while still accommodating new housing and economic growth.

The common assumption is that by limiting the supply of developable land, all growth management policies reduce the supply of housing. Basic economic theory suggests that if housing supply is low relative to demand, then the price for it will be high, reducing its affordability. While this reasoning may seem logical, it is far too simplistic. Housing prices are actually determined by a host of interacting factors, such as the price of land, the supply and types of housing, the demand for housing, and the amount of residential choice and mobility in the area. Further complicating this market reality is that growth management policies vary widely by state and by region and are unevenly enforced and implemented.

This report is a comprehensive review of the academic literature on the role of growth management on affordable housing. In short, the report finds that:

1. **Market demand, not land constraints, is the primary determinant of housing prices**. The strength of the housing market is the single most importance influence on housing prices whether growth management programs are present or not. The effects of growth management policies on housing prices are much more complicated to isolate because of the variations in policy styles and implementation, the structure of local housing markets, the patterns of land ownership, and the stringency of other local regulations. Even research on

the effects of urban growth boundaries (UGBs), focused largely on Portland, Oregon, suggests that UGBs can affect land values, but their effects on housing affordability remain in dispute. For example, economists have found that Portland's growth in housing prices is more attributed to increased housing demand, increased employment, and rising incomes than its urban growth boundary. Moreover, after an initial spike in housing prices between 1990 and 1994, attributed by economists to rapid increases in jobs and wages, Portland's housing prices since then have risen at about the national average. The reason may be that despite limiting the amount of land, Portland's growth management policies actually increase housing supply relative to demand.

2. **Both traditional land use regulations and growth management policies can raise the price of housing**. In the end, both traditional zoning practices and growth management policies can increase home prices, but they do so in different ways.

    - Traditional zoning and other planning and land use controls limit the supply and accessibility of affordable housing, thereby raising home prices by excluding lower-income households. Evidence shows that certain growth control and land use policies actually reduce jurisdictions' housing supply and the affordability of their housing. Such policies, already widespread in the U.S., include requirements for low-density-only, minimum housing size, or bans against attached or cluster homes. Such policies are, in fact, specifically intended to make housing more expensive and thereby exclude lower-income families, who are often people of color. This "chain of exclusion" is a powerful reality for limiting the affordability of housing in certain jurisdictions.

    - Many growth management policies improve the supply and location of affordable housing and accommodate other development needs, thereby increasing the desirability of the community and thus the price of housing. When crafted properly, growth management programs break the chain of exclusion by incorporating policies that increase housing densities, mandating a mix of housing types, and promoting regional fair share housing or other inclusionary housing elements. Studies have found that growth boundaries and adequate public facilities ordinances were often associated with shifts toward multi-family housing. Growth management programs can also make housing more affordable by lowering public infrastructure costs and minimizing regulatory delays. Finally, properly designed growth management programs also plan for all development needs, such as more open space, access to public transportation, and walkable neighborhoods. In communities with such growth management programs, residents are not necessarily worse off if housing prices increase. Instead, higher housing prices may be offset by lower transportation and energy costs and better access to jobs, services, and amenities.

3. **If housing prices may increase in any land use environment, then the decision is between good and bad regulation to improve housing choice.** The question for affordable housing is not whether prices rise because of growth management, but which regulation - traditional land use practices or growth management programs - will increase the distribution of housing types in a metropolitan area. Traditional land use practices tend be "laissez-faire" in their approach to affordable housing, or they deliberately zone for low-density, expensive homes to exclude low-income households or communities of color. Properly designed growth management programs, on the other hand, aim to overcome these exclusionary effects. Portland, for instance, has a growth management policy that draws a growth boundary to protect farmland but also increases densities inside the boundary and mandates the development of a mix of housing types, including affordable housing. However, even well-intentioned growth management programs can be ill-designed; they can accommodate too much growth and allow sprawl, or they can accommodate too little growth and result in higher housing prices. This is arguably what happened in parts of California where growth boundaries were drawn so tightly without accommodating other housing needs that housing supply fell relative to demand. Thus, housing prices rose dramatically, and poor residents were priced out or forced to overcrowd. Properly designed growth management programs are ones that include policies that mitigate the adverse effects of urban growth and the adverse price effects on lower-income households.

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THE LINK BETWEEN GROWTH MANAGEMENT AND HOUSING AFFORDABILITY: THE ACADEMIC EVIDENCE

I. INTRODUCTION

Interest in urban growth management has perhaps reached an all time high. What was once the practice in a few obscure places such as Ramapo, New York, Lexington, Kentucky, Boulder, Colorado, and Petaluma, California has moved on to the national agendas of organizations that including the American Planning Association, the National Association of Homebuilders, the Sierra Club, and the Urban Land Institute. Despite rapidly growing support for managing urban growth, there remain lingering concerns about the impacts of growth management on housing affordability. Some organizations allege that many policy instruments used to manage growth can adversely affect land and housing markets, and contribute to problems of housing affordability. Fortunately, the effects of growth management on the affordability of housing have been the subject of considerable research by scholars trained in economics, planning, and real estate for the past generation. Though no consensus has yet to form, this body of research offers considerable insights into the influence of growth management on land and housing markets.

To understand fully the effect of growth management policies on housing prices, the researcher must answer several related questions. Have housing prices been affected by such policies? If so, are price increases due to supply-side restrictions or demand-side amenities? If supply restrictions are the culprit, then how competitive is the market for developable land? Also, what barriers do housing producers face in producing higher density housing? Finally, how elastic are the supply and demand for housing in growth-managed communities? The empirical studies examined in this review address many of these questions, with several still remaining -- particularly with respect to growth management, not just growth control or traditional land use regulation.

In this report we use literature to address these questions. Our intent is not to condemn nor promote the practice of urban growth management. To do either would be naïve since growth management comes in many forms, each having different effects on housing prices. Whether and how to manage urban growth, we believe, is a decision that must be made by state and local governments after careful consideration of the potential costs and benefits of doing so, where the benefits and costs include, but are not limited to, potential impacts on housing affordability. The purpose of this review is to identify what these impacts might be and to review the available evidence.

Our analysis is based on the information and evidence presented mostly in the scholarly literature which includes articles published in refereed journals and a few other publications written by those whose work appears routinely in such outlets.[1] We do not give much weight therefore to

[1] An early draft of this report was critiqued by a group of national experts at a roundtable meeting at the

constituency publications issued by those affected by this subject; such as development and environmental interests. Also, we do not develop new theory nor do we engage in new or refined empirical analyses. Although we offer concluding observations we hope they are balanced between what is known based on reasonably defensible evidence and what we do not really yet know. For example, considerable consensus exists in the literature that traditional land use regulations and some forms of growth controls raise housing prices, but little consensus exists as to whether growth management (as we define it) does the same.

Definitions

Notably absent from our report is use of the term smart growth. We do not enter the smart growth arena because there is as yet no clear consensus on how it is defined, although efforts by Downs (2001), Kalinowski (2001), and Nelson (2001) will help. Instead, we use the terms growth management and affordable housing throughout. It is thus important to discuss what we mean by both terms.

1. Growth Management

We define urban growth management as the deliberate and integrated use of the planning, regulatory, and fiscal authority of state and local governments to influence the pattern of growth and development in order to meet projected needs. Included in this definition are such tools as comprehensive planning, zoning, subdivision regulations, property taxes and development fees, infrastructure investments, and other policy instruments that significantly influence the development of land and the construction of housing. Excluded from this definition are general policies designed to stimulate economic development (such as enterprise zones, industrial recruitment policies, and other tax abatement programs) and general policies designed to improve social welfare, such as community service programs, public health services, and other social services.

Growth management is often distinguished from growth control (see also Nelson and Duncan 1995). Where growth management accommodates projected development in a manner that achieves broad public goals, growth controls limit or ration development. Typical growth control tools are moratoria, permitting caps, development quotas, and the like. It is not always possible, however, to tell the difference between a growth control and a growth management tool simply on the basis of a label or the presence of an ordinance; a particular growth management tool can have vastly different impacts in different municipalities (Landis 1992). While our primary focus is on the relationship between growth management and affordable housing we necessarily consider the relationship between growth controls and affordable housing particularly in the context of the literature. As will be shown, we find generally that growth management as we have characterized it above appears to have fewer impacts on the provision and distribution of affordable housing relative

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to traditional land use regulations, and perhaps somewhat fewer impacts than growth control. Yet, even in growth control communities we find significant efforts to expand the supply of affordable housing through incorporation of inclusionary zoning requirements (such as in Petaluma and Boulder).

2. Affordable Housing

Housing affordability is more difficult to define. Generally, it involves the capacity of households to consume housing services; specifically it involves the relationship between household incomes and housing prices and rents. An often-quoted rule of thumb is that households should spend no more than 30 percent of their income on housing, unless they choose to do so. Measuring housing affordability is thus complicated by the inability to determine whether households spend more than 30 percent of their income on housing by necessity or by choice. Other measurement problems involve the definition of income (whether permanent or transitory, liquid or illiquid, personal or household) and the definition of housing expenditure (whether voluntary or involuntary, total or per unit of housing services, nominal or real rents, mortgage payments or down payments).

Another definition of housing affordability, the shelter poverty measure (Stone 1993), uses a sliding scale to reflect that upper income and smaller households can afford to spend much more than 30 percent of their incomes on housing and still have enough income left over to satisfy other basic needs, whereas extremely low income households that pay even 10 percent of their incomes on housing costs may be forced to forgo essential medical care and healthy food.

The National Association of Home Builders (NAHB) has its Housing Opportunity Index (2001), which is the share of homes affordable for median household incomes for each metropolitan statistical area. The NAHB Index has some intuitive limitations, however. For example, housing affordability scores are generally more favorable in metropolitan areas that are also rated as least desirable places to live according to *Places Rated Almanac* (Savageau and Loftus 1997).

Neither the NAHB nor the federal government has a lock on how to view affordable housing. This is due in part to limitations in their formulation. For example, neither considers transportation costs. We know from the Consumer Expenditure Survey (2001) that the typical American household earned $42,770 in 1999 and spent $11,843 on housing, or about 27 percent of income. For the typical household, therefore, housing is affordable. But the typical household also spent $6,815 for transportation. Housing plus transportation costs consumed 44 percent of household income in 1999. If a household's transportation costs were zero but their housing costs were 44 percent of income we would say their housing is unaffordable when in fact that household is no worse off than the typical American household.

Moreover, no definition of housing affordability considers that household satisfaction with housing depends not so much on housing prices and rents as on housing services consumed, where

housing services (the role of housing in providing shelter, storage, assembly, access to work, etc.) must be broadly defined. In London, for example, the share of income spent on housing greatly exceeds the share spent in Beijing, where rents are almost zero. That does not imply that housing consumers are better off in Beijing than in London. Residents of Los Angeles who live near the beach, whether rich or poor, pay more for housing than do those who live inland, but that does not mean that those who live inland are better off than those who live near the beach. Most existing assessments of growth management's effects on housing prices provide only limited information. A more comprehensive assessment of the virtues of growth management would take into account the direct effects of growth management on housing services and the indirect effects of such services on household satisfaction with housing.

We recommend that a coalition of interests be formed to agree on just what is meant by affordable housing. Such a definition would need to consider all forms of housing, reflect accurately all costs of housing and establish a transparent relationship between income from all sources and such costs. The U.S. Department of Housing and Urban Development and the NAHB have several jointly sponsored housing production programs; perhaps both could jointly sponsor the effort we recommend.

For our purposes, fortunately, these issues of measurement are not consequential. We are concerned here with the influence of growth management on housing affordability and thus need not measure the extent of the problem precisely; we need only examine the degree to which the problem is exacerbated by growth management. Further, although growth management can affect household incomes, such effects are likely to be small compared to effects on housing prices (given our definition of growth management); thus we focus our review on the effects of growth management on housing prices and rents. Finally, adverse effects on housing prices and rents are likely to impose the greatest affordability problems on those with the lowest incomes. Thus we consider explicitly the effects of growth management on housing prices and rents for those at the lower end of the income scale.

The next section discusses what growth management is and how it is undertaken in a variety of regimes. The third section discusses the historic connection between traditional land use regulations and exclusionary housing. The next sections discuss the theoretical relationships between growth management and housing prices, and review the evidence offered by scholarly literature. The sixth section considers whether growth management mechanisms intentionally exclude. The conclusion is followed by a complete list of references, organized by section.

II. WHY GROWTH MANAGEMENT?

Rapid suburbanization since World War II created many of the problems we face today. Roads intended to relieve congestion have become congested. Cookie-cutter subdivisions have replaced scenic landscapes. Once-vital downtown stores have been shuttered as shoppers have transferred their allegiance to convenient suburban malls. The spread of low-density residential development made public transit impractical, and the automobile has become virtually the only choice for transportation. Automobile dependence has degraded the air in some places to alarming levels. Once-tranquil communities with their own unique character have become engulfed by people, automobiles, and shopping centers. But the problem is not growth itself. Growth is inevitable. The problem is how to manage that growth in ways that both minimize costs and maximize benefits to individuals and to the larger public.

Growth management has emerged in response to the unintended and often perverse consequences of restrictive growth controls. Instead of inhibiting market-driven development altogether, growth management tames development to yield environmentally sound, fiscally efficient, and socially just outcomes. Although growth management certainly leads to plans, what distinguishes it from traditional planning is an emphasis on implementation. Growth management combines regulations and incentives to guide new development in changing land markets. Douglas R. Porter (1997) characterizes growth management as: (1) a dynamic process of evaluating current trends, managing results, and updating objectives and methods; (2) a means of anticipating and accommodating development needs; (3) a forum and process for determining an appropriate balance between competing goals; and (4) a recognition of local needs in relation to regional concerns. Ultimately, effective growth management fits available land to uses that meet economic demands, human needs, and environmental quality (Clawson 1962).

Often missing from the popular characterizations of growth management are its goals. Ervin et al. (1999) argue that growth management is composed of three essential goals:

- **Preserve public goods** such as air, water, and significant landscapes. Certain resources are available to everyone (such as air) so no one can be excluded, and adding one more person does not deprive another of its enjoyment. Yet, polluting the air does deprive people of its enjoyment. Growth management should preserve if not enhance the provision of public goods.

- **Minimize negative externalities**. Certain land uses have adverse effects on others, such as landfills near areas planned for new community development. Growth management should minimize if not prevent adverse land use impacts. Related to this but not advanced by Ervin et al. is that growth management should also maximize positive land use impacts.

- **Minimize public fiscal costs.** Finally, growth management should minimize cost per unit of development to provide public facilities and services.

In recent years two other goals can be considered to have been added (Nelson 1999):

- **Maximize social equity.** Growth management should maximize jobs-housing balances within small areas; provide equal accessibility to work, shopping, services, and leisure; ensure life-cycle housing opportunities within neighborhoods; and offer socioeconomic balance within neighborhoods.

- **Elevate quality of life.** Ultimately, growth management should elevate the quality of life relative to alternative planning regimes. Elements of quality of life may be housing and neighborhood satisfaction, security from crime and natural or manmade catastrophic events, and flexibility in housing and location choices.

Growth management is thus an attempt to confront the reasonable development needs of the community, region, or state, and to accommodate those needs in a manner that preserves public goods, minimizes fiscal burdens, minimizes adverse interactions between land uses but maximizes positive ones, improves the equitable distribution of the benefits of growth, and enhances quality of life. At its heart, growth management aims to achieve these goals by choreographing public infrastructure investment, land use and development regulation, and deployment of incentives and disincentives to influence the rate, timing, intensity, mix, and location of growth.

Growth Management Comes in Different Flavors

Growth management policies are not adopted in isolation, though often studies of these land-use regulations are studied in isolation. Rather, they are adopted as components of local *regulatory regimes,* defined as the sum of formal and informal institutions that regulate the delivery of housing and community services in a place. **For low-income households especially, it may be the local regulatory regime as a whole and not particular land-use controls that affects one's ability to find an affordable place to live**. Hence, our earlier admittedly simplistic distinction between growth *management* and growth *controls*, will be refined here through comparison of regulatory regimes on provision of affordable housing, usually in the form of higher density housing types.

Growth management regulatory regimes vary across the United States. Analyzing the results of a 1994 survey on local land-use controls in the country's 25 largest metropolitan areas, Pendall (1995b) found three broad sets of these regimes.

- The Northeast and Midwest are characterized by fragmented metropolitan areas in which municipalities tend to use large-lot zoning to control growth. These municipalities seldom adopt affordable housing programs to mitigate the price effects of their land-use regulations.

The development approval process in most Northeastern and Midwestern states tends to be idiosyncratic and unpredictable from one municipality to the next, and over time. County government plays very little or no coordinating role to assure that regional housing markets are responsive to the long-term requirements of the economy and to the needs of the entire population.

- The South (except Florida) and the Great Plains regions tend to be more laissez-faire. They seldom impose growth controls of any kind, nor do they adopt affordable housing programs. County governments are important, especially in the South, but their regulatory role is often very slight and usually designed to facilitate development rather than to control it (Lowry and Ferguson 1992).

- The West, Florida, and Maryland are all characterized by stronger growth management programs, often coordinated at the county level, with combinations of such techniques as urban growth boundaries (UGBs), building permit caps, and adequate public facilities ordinances. Exclusionary zoning is very rare in suburban and newly developing parts of these regions; municipalities and especially counties tend to use large-lot zoning primarily to protect resource lands and open space rather than to create low-density residential environments. Environmental regulation is also strong in many of these locations, and as a consequence of project- and plan-level impact assessment requirements of various sorts, the development approval process can be very long for complicated projects. For routine subdivisions, and even fairly large ones, however, state laws in many of these states have established a process that makes development more predictable than the average in the Northeast. Many municipalities in the West also adopt a large number of creative local affordable housing programs.

III. Traditional Land Use Regulation and Exclusionary Housing: The Historic Connection

One of the main criticisms of growth management is its perception as a form of exclusionary land use regulation (see Pendall 2000). Growth management may have exclusionary tendencies, which will be discussed later but there must be no mistaking that the fundamental purpose of traditional land use controls was to explicitly exclude undesirable land uses and often people from entering communities (Juergensmeyer and Roberts 1998). In this brief section, we address the ways in which land-use regulations can, and have been shown to, limit the ability of low-income households and people of color to find suitable housing in decent neighborhoods.

Local land regulation was born from landowners' and municipalities' various desires to stop nuisances before they started, to stabilize property values, and to separate people of different income levels and ethnicities. Early zoning ordinances throughout the South explicitly designated districts for black and for white residents and although such racial zoning was ruled unconstitutional in 1917 (*Buchanan v. Warley*, 245 U.S. 60), municipalities continued to adopt racial zoning ordinances for at least ten years afterward (Silver 1997). Efforts after 1917 to exclude people from neighborhoods on the basis of their ethnicity shifted toward private deed restrictions and covenants between land developers, homeowner associations, and property buyers. These racially restrictive covenants were rendered unenforceable by a 1948 U.S. Supreme Court decision (*Shelley v. Kraemer*, 334 U.S. 1), but like racial zoning they persisted afterward. New developments in Kansas City, for instance, carried racially restrictive covenants well into the 1960s (Gotham 2000).

The idea that minorities, especially African-Americans, but also Latinos and Asians, threaten property values was not just conventional wisdom but adopted federal and state policy until the 1960s. From the armed forces to public housing to transportation to urban renewal, most major institutions at the federal level were explicitly designed to separate Anglos (non-Hispanic whites) from minorities until at least mid-century. The Federal Housing Administration, created in 1934 to provide low-cost mortgage insurance, favored the most "stable" neighborhoods (Jackson 1985). The FHA's system downgraded mixed-race and minority neighborhoods. The FHA also promoted "modern" subdivision controls and zoning ordinances (Weiss 1987), both of which were thought to maintain neighborhood stability and thereby guarantee predictable property values.

Land-use regulations were therefore initially designed in part to separate people by ethnicity and born during a period of unprecedented government action to construct an American version of apartheid (Massey and Denton 1993). It is therefore only natural to suspect that land-use regulations might still be complicit in the construction and maintenance of racial and ethnic segregation. But land-use controls do not explicitly demarcate Anglo and minority neighborhoods. Instead, they work indirectly by shaping local housing markets, encouraging or prohibiting the construction of certain types of housing and thereby conditioning the tenure (rent versus own) and price of housing.

Local regulations that reduce the availability of rental housing are strongly exclusionary. For a host of reasons (such as discrimination in mortgage lending and in insurance underwriting, low incomes, limited assets, or limited or unconventional credit histories), African-Americans and Latinos in the United States have much lower home ownership rates than do Anglos: between 45 percent and 50 percent, compared with more than 70 percent for Anglos. To the extent that municipalities enact regulations that encourage the construction of mainly owner-occupied housing, they also limit the choices of the majority of African-American and Latino households who rent.

Local regulations that directly or indirectly raise housing prices also have important exclusionary impacts. When jurisdictions deliberately or unintentionally raise their housing prices, they indirectly exclude a larger proportion of Latino and African-American households than of Anglo households. In the three-year period between 1997 and 1999, the median Latino and African-American household earned approximately $29,100 and $26,600 respectively, compared with about $43,300 for the median Anglo household (U.S. Census Bureau 2000). Their lower incomes have also made wealth accumulation more difficult for Latinos and African-Americans, reducing their ability to afford substantial move-in costs for owner-occupied housing and even average-priced rentals in many markets.

There can be no mistaking that the fundamental purpose of traditional land use controls is to explicitly exclude undesirable land uses from entering communities. But such regulations also can – and have been shown to – ilimit the ability of low-income households and people of color to find suitable housing in decent neighborhoods. Growth management is an attempt to regulate land uses in ways that do not result in social exclusion.

IV. DETERMINANTS OF HOUSING PRICES EMPHASIZING THE ROLE OF GROWTH MANAGEMENT

Since this report is about the relationship between growth management and housing prices, it is necessary to discuss the determinants of housing prices. Understanding how housing prices are set in a market economy is simple yet complicated. In effect, we call "rent" our housing price. Housing rents, whether explicit (money paid) or implicit (nonmonetary costs such as pollution or benefits such as access to jobs) are determined by the demand for and supply of housing services. Housing prices are determined by the capitalized value of housing rents. "Capitalization" is the process of converting annual income into a lump sum. For example, if one earns income from renting a home for $18,000 annually ($1,500 monthly), the expenses (utilities, taxes, insurance) bring the "net" income to $12,000, and if the current market capitalization rate is 10 percent, the price of the home is $120,000 ($12,000 / 0.10).[2] Even if we own our own home there is a market rental value for it based on the capitalization rate. We consider *direct* and *indirect* effects.

A. Direct Effects

Any land use regulation regime can raise housing prices by increasing the demand for housing, decreasing the supply of housing, or increasing the rate of rent capitalization. The degree to which growth management policies affect housing prices depends on the *elasticities* of supply and demand -- that is, the degree to which housing consumers or suppliers can escape from (or capture) the effects of growth management by migrating to (or from) other markets. For this reason, land use policies are likely to have greater price impacts when imposed at the regional level than at the local level, holding other factors constant.

DiPasquale and Wheaton (1994b) create a simple way in which to consider housing prices. In effect, the price of a house can be expressed as the present value of five factors.

That is,

> **Price** = Agricultural Value + Structure Value + Infrastructure Value + Present Location Value + Future Location Value;

Where,

[2] Conceptually, capitalization is the rate of return necessary to reward risk given opportunity costs such as investing in federally-backed 30-year Treasury notes (current bearing about 6 percent). The higher the "cap" rate the riskier the investment and the higher the needed rate of return but the lower the price. In this example, if the cap rate rose to 12 percent, the price of the house would fall to $100,000 ($12,000 / 0.12). Alternatively, the lower the cap rate, the less risky the investment and the lower the needed rate of return but the higher the price. Here, if the cap rate fell to 8 percent, the price of the house would rise to $150,000 ($12,000 / 0.08).

Agricultural Value = The opportunity cost of using the land in agricultural use. The higher the agricultural productivity of the land, the higher the value of this component;

Structural Value = The opportunity cost of the resources used to construct the house. The higher the construction cost, the higher the value of this component;

Infrastructure Value = The opportunity cost of resources used to provide urban infrastructure such as schools, police and fire, water and waste water, and transportation services. The higher the cost of services, the higher the value of this component;

Present Location Value = The Value of the location where the house resides. The closer the house is to centers of employment, shopping, recreation, or other attractive features "relative to other houses" the higher the value of this component;

Future Location Value = The expected future value of the location where the house resides. The faster the city is growing, or the more the attributes of the site are becoming attractive, the higher the value of this component.

From here we can conceptualize the relationship between land use regulations, growth management, and housing affordability.

1. Agricultural value

In an indirect way, growth management policies can affect this first component of housing price. Nelson (1986) shows that when agricultural land is preserved because of growth management, the value of land for agricultural uses rises. One would expect, however, that this effect would be small in urbanized areas of a region.

2. Structural value

Many traditional land use regulations influence the actual structure of housing choice and therefore price. For example, building codes and design reviews that require expensive materials or designs can add to construction costs and increase housing prices. Zoning ordinances with exclusionary purposes can specify minimum house or apartment size requirements, thereby raising the price of each house sold in a municipality. Likewise, growth controls using building permit caps are sometimes implemented through "beauty contest" systems that favor one housing type over another (e.g., "custom homes"), often exempt entirely the construction of single houses on pre-existing lots, and encourage builders to load expensive amenities into their houses and subdivisions. Although these controls may not directly affect the cost or price of each dwelling, they do raise the aggregate price of all housing affected by them.

Traditional land use regulations also affect housing prices through controls on the type of housing that may be built in a neighborhood, town, and even (cumulatively) region. Zoning ordinances usually designate specific zones in which only single-family detached residences are allowed; sometimes entire municipalities, or even blocs of municipalities, are zoned exclusively for single-family detached homes. Zoning ordinances can also ban the construction of secondary dwellings in single-family zones and often place severe limits on manufactured housing and mobile homes or even prohibit these housing types entirely. (Zoning ordinances can also be instruments for promoting higher density, of course.) Finally, zoning can limit the supply of duplexes, "granny flats," and other housing styles by ruling out conversion of existing structures to smaller units.

Since housing markets are often segmented by location, type, style, and density range, it is often difficult to predict how supply restrictions imposed on certain housing types will affect the entire regional housing market. Because customers and housing producers can substitute among various housing submarkets in response to submarket supply restrictions, the ultimate price impact of this type of traditional land use regulation will depend on the type of regulation imposed (such as density restriction, allowable use restriction, lot size restriction) and the elasticity of demand for housing in each submarket (Grieson and White 1981). If the submarkets operate independently of one another and the demand for the restricted land use is more elastic than the demand for the unrestricted land use, then the regulation may actually serve to reduce the aggregate price of new housing. This results from the fact that the supply of land available for the unrestricted land use increases, which causes prices in that market to fall to an amount that is greater than the higher price in the restricted market (Ohls, Weisberg, and White 1974).

Under certain circumstances, restrictions on housing supply can promote reorientation of housing types. For instance, the housing stocks in Seoul and London, both of which are encircled by tight greenbelts, have shifted decisively toward multi-family structures (Bae 1998; Evans 1991). Building permit caps or quotas, by contrast, sometimes indirectly encourage builders to build large houses rather than attached housing units; since they are not guaranteed to get permission to build the volume of attached housing necessary to attain a desired profit level, they may shift up-market, where they can obtain a higher total profit per unit. Several studies have shown that fast-growing metropolitan areas make more progress toward integration (Frey and Farley 1996; South and Crowder 1998). Since young households tend to move more often than older ones, and since young households tend to be more ethnically diverse than older ones, movers tend to be more diverse and places with growing housing stock tend to have more diverse households. The effect of supply restrictions will be to deny the opportunity for low income households (regardless of ethnicity or age) to move into such areas. This outcome may be the desired effect of some forms of traditional land use regulation and of certain growth controls, but it is not a purpose of growth management as we have characterized it.

Growth management is instead oriented toward meeting development needs, not displacing them. **Typical growth management programs have affordable housing and inclusionary elements that are designed to lower the costs of construction and broaden choices to more housing segments.** The most important programs include measures to ensure an adequate supply of land for dwellings of many types. Local governments sometimes complement land-supply strategies with housing subsidy programs and affordable housing requirements. The latter essentially cross subsidize the construction of low cost units with the profits generated from high cost units. In general, however, these types of programs do not lower housing unit prices but rather increase the range of housing types available -- that is, they assure affordability at the neighborhood or municipal scale, rather than at the scale of the individual dwelling unit. By permitting, or encouraging, the construction of smaller and more dense forms of housing, housing units are made available at lower prices and rents, even though the cost per unit of housing services may be higher.

3. Infrastructure value

Traditional land use regulations can have a substantial impact on the infrastructure value of housing prices in three respects. First, modern subdivision regulations require housing developers to provide costly infrastructure improvements and other neighborhood amenities before lots are divided and sold. Seidel (1978) observes that these regulations have grown increasingly more burdensome since their introduction in the late 1800s. Initially designed to regulate the division of property, subdivision requirements are now commonly used to exact "gold-plated" community infrastructure improvements the cost of which falls necessarily on those buying homes. Second, lacking a growth management perspective, many communities using traditional land use regulations "overzone" land; that is, more land is zoned for certain land uses than is justified by near-term or long-term market conditions. Yet, because owners of such land can develop based on zoning, the outcome is haphazard extension of infrastructure which raises the cost of publicly provided infrastructure per unit of development served (Nelson 1999). Third, in some cases such communities use adequate public facilities ordinances (APFOs) and concurrency requirements to limit growth: if facilities do not exist concurrent with development then development cannot go forward. The effect is a reduction in the supply of development provided relative to need -- and thus higher prices.

Alternatively, growth management programs can lower the cost of infrastructure per unit by increasing housing densities, using existing capacities before constructing new facilities, leveraging impact fees to prioritize the location of public infrastructure investment, and by capturing economies of scale through regionalization (Knaap and Nelson 1992). This can occur by removing prior density constraints (such as increasing density). Infrastructure costs can affect more than just housing price, however; they can also change developers' calculus about which unit type they provide. For example, APFOs and impact fee programs within growth management regimes can favor the construction of attached or higher-density housing to make more efficient use of infrastructure whose costs are borne by landowners and new residents instead of the general public. It is important, then,

to consider the effect of infrastructure-related regulation on a jurisdiction's and a region's entire housing portfolio, including both the type of units provided and the cost of those units.

4. Present location value

Growth management programs can alter locational values by shaping the supply and demand for residences at particular locations. Though again this can lead to either higher or lower prices, growth management programs tend to increase locational values. They do so by increasing accessibility, or in some other way making a location more attractive, thereby increasing current locational values. Traditional land use regulation can also raise value but only by limiting the supply of properties with favorable locational features. Both regimes increase housing prices, but growth management raises aggregate welfare by making all residents and landowners better off, while traditional land use regulation lowers aggregate welfare by limiting potential interaction between present and future residents.

The relative impact of a local supply constraint created by traditional land use regulation or certain growth controls depends on the relative "openness" of the housing market being constrained. In an open regional housing market, households are perfectly mobile and move within and between jurisdictions to consume their desired level of housing. In such a market, a land supply constraint imposed by any particular jurisdiction would simply cause housing developers to look for land in another jurisdiction. Assuming that land for housing is perfectly substitutable across jurisdictions, home builders would be unable to raise prices following this type of land supply constraint, because homebuyers unwilling to pay the higher price would simply move to another jurisdiction. Any local housing price increase could result only from an increase in the level of housing amenities produced within the community. Such is not the case in a "closed" housing market. Here, housing is either heterogeneous across communities or the population is immobile. Thus, housing supply constraints imposed by individual communities are binding and serve to increase local housing prices in areas wherein which the constraints are imposed (Courant 1976; Katz and Rosen 1987). To reduce housing affordability impacts, adequate accessibility and mobility choice options are needed across the region to offset any housing affordability impacts. This is one objective of regionally-based growth management efforts (Nelson and Duncan 1995).

5. Future location value

The value of location can rise in the future under traditional land use regulation and under growth management but for different reasons. For example, if traditional land use regulations create a community that is economically exclusive, then that community will become more attractive as a place to live in the future; values will rise with the expectation that supply relative to future demand will fall. On the other hand, growth management can elevate the value of an entire region by making more efficient use of infrastructure, create or enhance agglomeration economies, and improve the

quality of life; values will rise because demand will rise. This expectation can increase housing prices even though changes in demand or supply may never actually occur (Titman 1985).

B. Indirect Effects: Housing Tenure and Occupancy

Land-use regulations have an indirect but very important connection with housing tenure that derives in part from their effects on agricultural, structural, infrastructure, and supply values. Single-family houses tend to be owned by their occupants; multi-family dwellings tend to be rented. Any regulation that promotes the construction of single-family houses and discourages the development of attached dwellings will also tend to attract more owner-occupants and limit opportunities for renters. Zoning ordinances can also exert a very direct influence on the occupancy of housing units by reserving certain zones for narrowly defined families, further limiting options for unrelated low-income individuals who wish to share a house.

C. Summary Observations

This model of housing price determination illustrates a number of important points. First, it suggests that traditional land use policies can affect housing prices in a number of ways: by altering the costs of construction, by changing the costs of infrastructure, by making the community more attractive, by limiting the supply of attractive residential locations, and by altering consumer expectations. In addition, these effects can interact in what Pendall (2000) calls a "chain of exclusion" that links housing supply, type, and tenure to affordability. We shall discuss the chain of exclusion later in more detail, but suffice it to say for now that it is an innovative way in which to assess how communities become exclusionary or inclusionary in social composition. We do recognize that growth management policies can have the same tendencies, but such policies do not always affect housing affordability.

Second, the model illustrates that the net community welfare effects of both traditional land use policies and growth management depend on more than their effects on housing prices or housing affordability (however defined). Both increases in demand and decreases in supply can increase the price of housing relative to incomes; but only increases in demand will make all residents and landowners better off (because wealth increases). This can happen under both traditional land use policies (by restricting supply relative to demand) and growth management (by increasing demand relative to supply). Moreover, the model implies that housing prices can be significantly affected by expectations about future urban growth. This has two important implications. On the one hand, only fast growing communities are likely to adopt growth management or growth control policies; thus such policies are likely to arise only in cities with high and rising housing values. On the other hand, growth management policies can affect housing prices even if they alter nothing more than expectations; that is, growth management policies can raise housing values if they raise expectations that future locational values will rise.

Finally, it is important to note that this simple model is limited. Most importantly, as an aggregate model, it is limited by an inability to address variation in submarkets and complications in growth management implementation. A state growth management policy, for example, may be undermined by local policies. At the local level, a generous permitting process may be undermined by restrictions on sewer access. Submarkets can be affected asymmetrically. Traditional land use regulation might encourage the construction of single-family homes, while discouraging the construction of multiple family homes. Alternatively, local governments might favor high-density condominiums yet exclude mobile homes. These caveats suggests that the relationship between regulation of development -- whether through traditional means or growth management regimes -- and housing affordability can be considered in a simple economic framework, but that general relationships at the aggregate level often mask subtle yet important distinctions as the submarket level.

V. GROWTH MANAGEMENT AND HOUSING PRICES: EMPIRICAL STUDIES OF THE CONNECTIONS

At the outset let us acknowledge that most research on the effect of land-use controls on housing prices and affordability has focused on single-family owner occupied housing. Many studies have considered the effects of regulations in some of the most expensive housing markets in the United States, especially California, Florida, Oregon, and metropolitan Washington, DC. These studies tend to focus narrowly on one question: How does a particular regulation, or in limited cases a battery of regulations, affect the sales price of houses? Since local governments adopt housing regulations as components of regulatory regimes, it would seem logical to investigate the way in which local regulatory regimes condition the type, pattern, and affordability of housing that is delivered. Such investigation has not, however, occurred in a very systematic way, although Lowry and Ferguson (1992) offer an interesting and helpful point of departure via case studies of the development approval process in Orlando, Sacramento, and Nashville.

A useful way to organize the empirical literature is according to the intergovernmental frameworks within which the policies are implemented. As Pollakowsi and Wachter (1990) suggest, the impact of a land use policy on the housing market should vary according to the fraction of metropolitan land controlled by individual jurisdictions. If this is true, we should expect a local growth management policy to affect the land market in ways that are quite distinct from state, regional, or nationalized management policies. One can imagine therefore a continuum of growth management. At one extreme are the nationalized growth management policies that exist in England and South Korea. Moving toward the middle are sub-national programs such as state governments that explicitly require local governments to adopt growth management, and involve state-level oversight of local activities. Florida, Hawaii, and Oregon come to mind (DeGrove 1983). Moving farther away still are state enabling acts that encourage or sometimes mandate local growth management programs but without state oversight. California comes to mind (Burby, French, and Nelson 1999). At the other extreme are purely local efforts that receive no guidance from the state or national government (Ramapo, New York; Lexington, Kentucky; Brooklyn Park, Minnesota; and Boulder, Colorado).[3]

For the most part we find that the literature surrounding the housing market effects of growth management policies is one characterized by many facts in search of a unified theory. Although studies consistently find that growth management policies contribute to housing price inflation in areas where they are imposed, there is general disagreement among scholars over the nature of these effects and the appropriate way to measure these effects. We begin this part with five subsections reviewing literature on the relationship between growth management and housing prices. The first subsection reviews housing price effects across metropolitan areas or cities. The next subsection zeroes in on studies conducted in California, where growth controls are used more

[3] Douglas Porter (1992) and Scott Bollens (1993) provide an alternate scheme for categorizing intergovernmental growth management policy implementation regimes.

than growth management. The third subsection reviews literature on Portland, Oregon, arguably the major U.S. metropolitan area with the longest experience in growth management. Interpretations and summary observations are offered.

A. Comparative Analyses and Local Case Studies: A General Picture

At its heart, growth management regulates development. The central theoretical issue is therefore obvious: How do regulatory policies *per se* affect housing prices? This basic question has been addressed in several studies. For example, Black and Hoben (1985) classified all metropolitan statistical areas (MSAs) as "restrictive," "normal," or "permissive" in terms of accepting growth usually through expanding the supply of developable land (either spatially or by allowing higher densities or both). They developed a 10-point scale where -5 reflected MSAs with the most restrictive orientation and +5 for MSAs with the most permissive orientation. They found a simple correlation of +0.7 between their index and prices for finished lots. The interpretation being that more restrictive orientations lead to higher land and presumably housing prices. Using a similar continuum, Guidry, Shilling and Sirmans (1991) found that average finished lot prices in "most-restrictive" cities was $50,659 (in 1990 dollars) but for "least-restrictive" cities it was $23,842.

In another survey, Segal and Srinivasan (1985) used information collected from planning officials to estimate the share of undeveloped land in several MSAs taken out of production because of land use regulation. Using an ordinary least squares regression[4] (OLS) model of single family house prices, they found that reduction in supply of developable land to be associated with higher prices. Later, Rose (1989a, 1989b) measured the extent to which land removed from development by natural constraints (usually water) and regulatory constraints affected housing prices for 45 cities for which the Urban Land Institute provided land priced data. He found that constraints of all kinds explained about 40 percent of the variation in house prices, with about three-quarters of that attributable to natural and one-quarter attributable to regulatory constraints.

These early comparative works faced three critical shortcomings. First, although most controlled or adjusted for local growth factors, usually population growth, none controlled for changing incomes. Growth *per se* contributes to housing demand, but so does household income. Second, none addressed the extent to which differences among communities reflected the benefits of regulation. Those benefits could include improved accessibility to employment, services, and shopping (because higher density may create more routes and support more modes), improved public services, more desirable neighborhoods, and greater sense of community. These are not easy things to measure, but if growth management is successful, then it should generate such benefits that should be reflected in the value of finished lots and homes. Third, in his review of those

[4] Ordinary least squares (OLS) regression is a commonly employed statistical technique that involves fitting a linear relationship between a dependent variable and independent variables so as to minimize the sum of the squared differences between the observed and predicted dependent variable.

studies Malpezzi (1996) surmised that no models of the housing market "pay much attention to direct measures of regulation" (p. 217). None of those studies measured growth management outcomes directly.

Several later studies employing more direct measures of regulation generally find that while restrictive land use constraints increase housing prices, the housing price impact depends on the type of regulation adopted, the overall regulatory regime within which the regulation is implemented, and the demand for new housing. Seidel's (1978) extensive nationwide survey of home builders finds that at least seven different types of land use regulations affect land development costs in unique ways. Chambers and Diamond (1988) conducted an updated version of the Black and Hoben study using more direct measures of restrictiveness and found that **regulatory delay and the lack of zoned land increased land prices** (Fischel 1989, footnote 45).

Luger and Temkin (2000) examine the impacts of land use regulation in several North Carolina and New Jersey communities. The authors construct nine different case studies from numerous interviews with local developers, planners, and engineers. The authors contend that many regulatory requirements impose "excessive" costs beyond those necessary to preserve health, safety, and environmental quality. Thus, the authors are interested not in examining the impacts of regulation, per se, but in determining the relative burden of regulations that they deem to be excessive, such as the unnecessary project approval delays that cause developers to forgo immediate market and financing opportunities. The direct costs of these excessive regulations are estimated to be from $10,000 to $20,000 per new housing unit. Although the ultimate impact on housing prices and housing affordability depends on the level and elasticity of demand for housing -- that is, the extent to which households are sensitive to changes in the price of housing compared to their incomes -- the authors contend that in a housing market with a strong but inelastic demand (where households will need to pay a higher share of their income for housing because they have no substitute locations), "excessive" regulation (as they called it) could add an additional $40,000 to $80,000 to the price of a new house.

Other recent studies point to the importance of examining the entire metropolitan regulatory regime rather than single regulations in isolated communities. Pollakowski and Wachter (1990) examine the impacts of land use controls within and across individual planning areas within Montgomery County, Maryland. The authors derive measures of constraints imposed by the county's adequate public facilities requirements and zoning regulations and find that the constraints, particularly zoning, have cumulative effects within and across individual planning areas. This suggests that the collective regional impact of land use restrictions may be much larger than the aggregate impact of each individual restriction, especially if a single entity controls land use policy for the entire region and there are few substitutes for housing in restricted communities.

Lowry and Ferguson (1992) examine the aggregate impacts of land use regulation in three different housing markets -- Sacramento, California; Orlando, Florida; and Nashville, Tennessee.

The authors find that **housing affordability is impacted more by the type of land use regulations and processes that are in place than the sheer number of such regulations**. Land supply constraints combined with rapid increases in housing demand, contributed to rampant price inflation and a decline in housing affordability in Sacramento**.** Orlando, on the other hand, was able to keep pace with the demand for new development by increasing its supply of developable land. The resultant housing price inflation in Orlando during the same period was modest, despite the complex web of state, regional, and local regulations. Interestingly, housing prices rose more rapidly in Nashville's unregulated market than in Orlando's regulated market. Despite abundant land supplies, Nashville developers engaged in rampant land speculation during the 1980s and constructed far too many homes than were demanded by residents; short term prices were high because developers needed to recover their speculative investments. Of course, in the long term, many could not recover costs. Lowry and Ferguson speculate that a more stringent and complex regulatory process in Nashville would have perhaps benefited both developers and residents by dampening rampant land speculation. On the other hand, Lowry and Ferguson do not consider long run and cyclical trends in their case studies, which can make such "event" studies problematic.

More recently Green (1999) examines the impact of various zoning constraints on the price of housing, on other aspects of housing affordability (such as rental prices) and tenure, and on the share of new housing constructed within an "affordable" range. Green finds that zoning - in effect - sets a minimum price floor for housing construction that makes small, inexpensive houses unprofitable relative to large, expensive homes, and they are therefore not produced.

Earlier case studies of urban growth boundaries and other "urban containment" programs provide mixed results (the urban growth boundaries for three representative communities are displayed in appendices 1-3). A study conducted by Gleeson (1979) in Brooklyn Park, Minnesota examines the assessed values of unimproved land parcels following the adoption of a local limitation on infrastructure extensions, a policy that functions in ways similar to an urban growth boundary. Gleeson defines land parcels as "developable" or "undevelopable" based on the location of the parcel relative to the urban development boundary. Significant findings from this study include the observed differences between undevelopable and developable farmland parcels and the lack of an observed difference between the values of developable and undevelopable "urban" parcels. Gleeson suggests that the differentials were most likely due to the relative "openness" of the metropolitan land market. Since Brooklyn Park was only one jurisdiction within a larger metropolitan area, landowners were unable to exact higher rents due to competition for land in neighboring jurisdictions.

One of the earliest studies to examine the effect of urban growth boundaries as an element of a growth management strategy is Correll, Lillydahl, and Singell's (1978) study of the Boulder, Colorado greenbelt program. By estimating an hedonic model (a statistical model that allows one to estimate the price buyers are willing to pay for each attribute of a house such as square feet, land

area, age, bathrooms, and so forth),[5] Correll et al. finds that landowners place a price premium on relative proximity to the edge of the greenbelt. Also, the preservation of open space is capitalized into land prices. They conclude that benefits of open space preservation are reflected in local housing prices.

We should point out that a crucial component of the Boulder growth management policy is a restriction on the total number of new housing units constructed per year. Boulder also adopted a city-wide height limit of 35 feet in the mid-1970s. Although one would expect these housing supply constraints to eliminate affordable housing, Miller (1986) contends that due to the mix of policies designed to encourage higher density housing and due to the demand for small units, adequate affordable housing was provided despite the presence of supply constraints. By the late 1990s, however, Boulder's housing prices had risen dramatically, raising questions about the long-term viability of a strict urban containment system that does not also accommodate more substantial increases in density than Boulder's residents have been ready to accept. Although Miller only provides descriptive statistics to support his claim, he reiterates an important point: since housing producers are likely to vary the type and style of housing to economize on regulatory costs, we should not draw conclusions about the effect of growth management policies without examining the dynamics of the entire housing market.

To summarize, several comparative analyses and case studies have examined the housing price effects of various types of development regulations. From these studies, we can conclude that when traditional land use regulations and certain growth controls act as supply constraints, especially in closed regional land markets with strong demand for new housing, housing price inflation can be substantial. On the other hand, communities engaging in growth management including some that also use growth controls actually expand the supply of higher density housing. Fewer studies have directly examined the potential amenity benefits of these regulations; however, these effects may also be driving housing price increases. Several studies also suggest that when one considers the impact of a growth management program, one should examine the entire regulatory regime for a given region rather than one or more specific regulations in individual jurisdictions. We can infer that **at the regional level, efforts to expand the supply of land for housing should have a modifying impact on housing price inflation and housing affordability**. To address this, we now zero in on California and Portland, Oregon, to gain further insights into the effects of particular types of growth controls and growth management regimes.

[5] Hedonic analysis is a type of analysis that uses multiple variate regression to estimate the contribution of structure, location, neighborhood, and other attributes on the observed price of housing. Hedonic analysis is limited to only observable and measurable relationships.

1. California

Growth management policies in California are often adopted for the explicit purpose of restricting the local supply of housing. To control the volume of new development being served in rapidly growing suburban communities, many local governments in California have adopted various types of growth controls that are either designed to directly limit the number of housing units produced or indirectly limit housing production through constraints placed on the supply of land for housing. Anthony Downs (1992) suggests that these local antigrowth regulations have contributed, in part, to a 46 percent decline in California housing production units from 1986 to 1990.

Two studies by Schwartz, Hansen, and Green (1981; 1984) examine a growth control in Petaluma, California that is designed to directly control the supply of new housing. In their 1981 study, they find that the price of new housing is significantly higher in Petaluma than in two nearby communities that do not impose growth controls. In the 1984 study, Schwartz, Hansen, and Green (1984) find that the production of low and moderate income housing has been curtailed in Petaluma as a result of the growth control. It is important to note that this result is observed despite Petaluma's policy of rewarding points to developers for the production of affordable housing units.[6] Additional studies of San Francisco Bay area communities find similar housing price effects attributable to the imposition of growth control ordinances (Dowall and Landis 1982; Rosen and Katz 1981; Katz and Rosen 1987; Elliott 1981).

A study conducted by Landis (1986) provides evidence that different growth management regimes affect housing markets differently. In his study, Landis compares the growth management programs of three California cities using a variety of local and national data sources. His analysis is interesting because each community pursues different forms of growth management. At one extreme is Sacramento, a community that allows flexible urban growth boundary expansions and frequent plan amendments. Fresno's growth management approach is unique in that it is implemented via a charge or tax placed on new development that varies with distance to existing urban development; the idea is that one could build closer to the city center to avoid the tax. Unlike Sacramento and Fresno, San Jose relies primarily on growth controls that are designed to slow the rate of rural land conversion.

According to Landis, these differences in growth management policy create distinctly different types of housing and land markets in each community. In Sacramento, a competitive market is maintained and new homebuilders face no barriers to entering or exiting the market. As a result, housing is provided in a wide range of prices and styles. In the Fresno market, the highly concentrated structure of the homebuilding industry creates a noncontestable housing market where

[6] This evidence of the ineffectiveness of the Petaluma point system does not suggest that all such measures to reduce the price impacts from growth controls will be ineffective. In fact, a study by Zorn et al. (1986) finds that a requirement to construct a percentage of new housing at affordable prices results in a 13 percent decline in the number of low income persons excluded from consuming housing in Davis, CA.

incumbent homebuilders consistently hold a competitive advantage over new entrants. The aggregate effect of the noncontestable nature of the Fresno market is to limit house choices for a given price range which at the time of the study was moderate by California standards. In San Jose, the primary effect of its growth control policy is to raise land costs, thus creating market entry costs for all developers. In response to higher land prices, small homebuilders have been forced from the market, and the price and size of new homes has increased. Gruen, Gruen and Associates (1977) quantify the extent of these entry costs in San Jose and find that the growth management system in San Jose accounts for 32 percent of the increase in housing price for one homebuilder and 43.4 percent of the housing price increase for another homebuilder.[7] The growth management regimes used in Sacramento and Fresno did not necessarily raise housing prices but the growth controls used in San Jose did.

Dowall (1984; 153) makes a similar comparison between Santa Rosa and Napa. His comparison suggests that the housing price effects of growth management can only be understood by looking at the complex interaction between housing supplies and housing demand over time. Napa, a community with a relatively restrictively drawn urban growth boundary, has seen only moderate increases in housing prices due to the relatively low demand for Napa housing. Santa Rosa, on the other hand, allocates sufficient land for housing, but still experiences housing price inflation due to speculative land-hoarding by large developers.

Research conducted in the 1990s began to cast doubt on the uniform assumptions about the general effects of growth controls on housing supply, price, and affordability in California. Landis (1992) compared seven growth-controlled cities with six similar non-growth controlled cities in California to determine the effect of growth controls. Landis found slower population increases in only three of the seven controlled cities than in their matched, uncontrolled partners. Similarly, housing shortfalls were not always higher in the growth-controlled communities than in their uncontrolled partners. Landis also found that median single family home prices did not increase more rapidly in the growth-controlled than in the non-growth controlled cities.

Warner and Molotch (1992) conducted detailed case studies and a briefer statistical analysis of growth patterns in three Southern California areas with 11 political jurisdictions (cities and counties) with and without growth controls, including downzonings (reductions in permitted residential and commercial development capacity), moratoria, permit caps, and incorporation policy. In all, they found that "growth continues under growth control . . . only two growth control measures had any statistically detectable negative impact on building activity" (Warner and Molotch 1992: 2).

[7] We should point out here that the entry costs in San Jose are also attributable to growth management policy-induced costs that have nothing to do with the urban containment boundary *per se*. These costs include land development charges and other planning-related costs.

Glickfeld and Levine (1992) did a comprehensive study of all 907 local growth control measures adopted in 443 California jurisdictions, including 14 specific measures affecting the pace, intensity, infrastructure quality, and spatial extent of new residential, commercial, and industrial development. Testing only the permit value of construction (for both residential and non-residential development), they found that the annual number of growth control measures enacted did not affect the value of construction three years later; population and the prime lending rate accounted for most of the difference among communities.

In a more recent study, Levine (1999) found that reductions in permitted zoning density associated with strong displacement of housing from coastal locations to cities and counties as much as 50 miles away from the controlled communities. "Weak measures," including (among other measures) urban growth boundaries, building permit caps, adequate public facility ordinances, by contrast, did not consistently affect the location or supply of housing.

Why are these studies on growth control so ambiguous? In most of Landis' cases, the controls were enacted in response to unusually high growth rates in previous years' rates that would not have been attained even without the controls in later years. Furthermore, growth controls often have numerous "loopholes" that preclude stringent implementation, including exemptions for affordable housing and small projects (Landis 1992: 496-97). It could be perhaps that growth controls do not slow growth in these cities or that housing consumers are finding substitute housing nearby. Or perhaps, on the other hand, either the "uncontrolled cities," special districts, or state and federal agencies were actually using *ad hoc* or informal growth controls (Landis 1992). Developers use opportunities creatively, elected officials approve projects they value, and environmentalists make compromises when they must. They conclude that growth controls do not stop growth because there is still substantial demand for construction because of population growth; there is leakage from one community to another in the system; many measures are political compromises; and many "controls" may even be symbolic rather than real (Glickfeld and Levine 1992: 80-81).

One can draw a general conclusion from these California studies that is similar to the conclusion to be drawn from other studies: **the housing price effects of growth management policies depend heavily on how they are designed and implemented**. If the policies serve to restrict land supplies, then housing price increases are expected. However, the extent of these effects depends on the relative effect on development costs for new developers versus incumbent developers, as well as the strength of the local and regional market.

2. Metropolitan Portland, Oregon

One of the strongest U.S. statewide growth management efforts comes from Oregon and is known locally there as Senate Bill 100, adopted in 1973. In Oregon, local governments are required to adopt urban growth boundaries to curb sprawl and preserve farmland. Because of the political consequences of enacting a statewide policy of restricting outward growth, policymakers were

particularly keen to incorporate additional policy levers to ensure that urban containment does not constrain the supply of land for housing and economic growth. This has meant substantial increases in densities allowed by zoning codes, emphasis on mixed use development, and efforts to streamline the permitting process (Knaap and Nelson 1992; Nelson and Duncan 1995). The relevant question to consider in the Oregon case is whether the policy instruments adopted to facilitate the provision of adequate housing supplies have been effective in increasing housing output and in controlling housing price inflation.

Most earlier studies of the price effects of Oregon's style of growth management focused on land prices. Without reviewing them here suffice it to say that all found a positive association between UGBs and other growth management features (such as infrastructure provision, timing of infrastructure expansion, and zoning density).[8] This is to be expected. What those studies did not address were housing price effects.

Knaap and Nelson (1992) argue that the Oregon land use program, of which UGBs are an important part, has been effective in reducing the potential negative supply-side effects associated with growth management. This is part because densities are increased and each community has housing supply targets. To support their claim, they construct supply and demand curves for Portland's share of the U.S. housing market. Knaap and Nelson (1992) point to the cyclical pattern of price and quantity movements from the late 1970s until the late 1980s and argue that the pattern closely approximates the timing of demand shocks in Oregon during this period. Although both the price and quantity of housing increased during the 1970s, they argue that this is primarily due to the fact that many local plans during that time had not been reviewed for compliance with state planning objectives. During the early 1980s housing prices declined along with housing production due to the recession in Oregon and the reduced demand for housing. When the demand for housing recovered in the late 1980s, relative prices did not rise to their previous levels. Knaap and Nelson conclude from this that housing supplies in the late 1980s were sufficient to meet rising demand at a relatively lower price than in the 1970s.

Two recent studies corroborate Knaap's and Nelson's findings. A study by Phillips and Goodstein (2000) measure differences in metropolitan Portland housing prices compared to all other western U.S. metropolitan areas over the period 1991 through 1996. After controlling for differences

[8] Nelson (1985; 1986) finds there is a lag between initial adoption of urban growth boundaries and market response but this lag is only two or so years. Otherwise, he finds that land value within UGBs rises and land outside UGBs falls when the market perceives the boundary is not flexible and that land outside the boundary cannot be urbanized. Knaap (1985) finds that within the UGB, urban land is valued higher than non-urban land within the UGB and non-urban land inside the UGB is valued higher than non-urban land outside the UGB. He also finds that an IGB, or "intermediate growth boundary," has a similar differential effect on non-urban land but has no effect on urban land. Here, urban land is defined as any land that can be developed at urban densities given existing zoning designations. Knaap's theoretical explanation for the different effects of UGBs on land zoned for urban uses and land zoned for non-urban uses is that UGBs, by specifying the expected date of future zoning changes, only affect the values of unzoned land. Land already zoned for development should not be affected by the boundary and should command normal urban rents.

in income, unemployment rate, climate, and other factors, they found no statistically significant association between metropolitan Portland's UGB and housing prices. The rapid rise in housing prices in Portland during the study period was apparently attributable to rapid growth in employment and in income more than to regulatory factors associated with the UGB. They also found that metropolitan Portland's housing prices were in the range of $20,000 less than predicted by their ordinary least squares model of western metropolitan area housing prices. They surmise that although the UGB can reduce the supply of developable land, higher density housing can offset this reduction. Not wanting to leave the reader with the impression that growth management of the sort practiced in metropolitan Portland is good for housing prices, they draw a "worst case" scenario to conclude that "the results . . . provid(e) weak evidence that the UGB has probably increased median housing prices . . . (by) less than $10,000." During their study period, metropolitan Portland's housing prices averaged $144,000. The worst case interpretation of coefficients thus implies a price effect in the range of about 7 percent. Phillips and Goodstein did not measure the extent to which this price effect is related to improved benefits.

Another recent study conducted by Downs (2002) comes essentially to the same conclusion using different approaches. First, using data from the National Association of Realtors and Freddie Mac, Downs found that the only period of time since 1980 when Portland's housing prices rose substantially faster than the national average was 1990 to 1994. This corresponds to Portland's emergence from the recession of the 1980s that hit Oregon's timber-based economy particularly hard. Second, using regression analysis, he found no statistically significant association between Portland's housing price changes relative to other metropolitan areas since 1994. Although he found a statistically significant relationship for the period 1990 to 1994, he attributes it mostly to rapid job and wage growth. Downs finds the existence of a UGB - even a stringent one - does not necessarily increase regional housing prices to rise father than comparable regions without a UGB. However, a tightly drawn and enforced UGB can - at least for a short period of time - exert upward pressure upon the rate of increase of housing prices, if it is combined with factors strongly stimulating the regional demand for housing. He concludes that there is clearly “no simple relationship between containment programs and housing prices. Therefore condemnations of UGBs and other containment programs as always undesirable because they inevitably cause higher housing prices are as unwise and unreliable as unqualified claims that UGBs never accelerate rates of housing price increase. The truth lies somewhere between those extremes.” (21).

B. Housing Supply Studies

Housing price studies, which we reviewed above, have little relevance to housing supply. A more useful model would directly examine the differences in housing investment decisions resulting from the imposition of growth management policy. Although a version of this supply-side approach has been adopted by several researchers, the literature on housing supply suggests many more methodological hurdles that must be overcome. First of all, housing producers do not immediately adjust housing stocks in response to demand or supply shocks (Voith 1996). Due to the durability of

the existing housing stock and the time required to construct new housing units, only a small fraction of the gap between actual housing quantities and desired housing quantities is eliminated in one year (Muth 1960; DiPasquale and Wheaton 1994a). This suggests that the effect of growth management policy on housing construction may take several years to materialize and may be difficult to distinguish from regional and national economic effects.

A second dilemma is the relative paucity of adequate information on housing stocks and services. Although the U.S. Census of Construction publishes monthly data on new construction and improvements, data on the value of existing housing stocks is incomplete. Median housing values published by the U.S. Census are only published every ten years and may not accurately reflect the true value of housing due to errors associated with the Census's use of stated valuation data. Many also argue that housing stock data are an imperfect measure of housing services, the more appropriate unit of analysis. "Housing services" is a term that is used to refer to the quantity of service yielded by one unit of housing stock per unit of time (Muth 1960). The more common unit of analysis, the individual dwelling unit, does not take into account the variations in housing quality produced by different units of housing.

Two studies help advance knowledge of the relationship between growth management and affordable housing production. The first, Pendall (2000) found that "low-density-only" zoning (limiting density to eight dwellings -- essentially single family detached "cluster" homes) or fewer consistently reduced jurisdictions' housing supply, shifted their housing stock away from multi-family and rental housing, and reduced the affordability of their rental housing. Zoning did not exert an independent effect on jurisdictions' racial and ethnic composition, but supply restrictions (especially reductions in the share of rental housing) strongly reduced the growth of the black and Hispanic population. The chain of exclusion is, he concludes, a powerful reality for low-density zoning. To a lesser extent, building permit caps and moratoria also have consistent exclusionary results. He goes on to show that, in contrast with low-density-only zoning, both urban growth boundaries and adequate public facilities ordinances were associated with shifts toward multi-family housing. Since multi-family housing is often rented, and since black and Hispanic residents depend heavily on rental housing to gain entry into a jurisdiction, urban growth boundaries and adequate public facilities ordinances may have "inclusionary" benefits that help balance any tendency they may have to raise housing prices.

Downs' (2001) is the second study. He notes that the key to separating supply-side effects from demand-side effects is to examine the interaction between the price of housing and the quantity of housing produced, since demand-side price increases suggest concomitant increases in the volume of housing units produced, whereas supply-side increases suggest just the opposite (Fischel 1989). Although this approach appears on the surface to disentangle the dynamics of a growth management-induced price effect, few studies have employed housing quantity variables in their investigations. Downs applied this approach to metropolitan Portland, Oregon, for the period extending from the late 1970s to the late 1990s and found that during the entire period, Portland's housing prices rose at the same rate as those of its peers (about 30 metropolitan areas). Downs

notes that the much-advertised spike in housing prices seen in the early 1990s was attributable more to substantial increases in employment and incomes than to supply-restricting effects of its regional urban growth boundary and other growth management efforts. Since then, Portland's housing prices have flattened to a level below those of other large metropolitan areas.

C. Summary Observations

Many studies find some evidence of housing price inflation attributable to the imposition of traditional land use regulations and certain growth controls. Microeconomic theory, however, suggests two possible explanations for this outcome. On the one hand, in the face of rising demand for housing, reductions in the supply of developable land may reduce the quantity of new housing units and increase the price of new housing relative to existing housing. If housing consumers can costlessly transfer their housing expenditures to neighboring communities or elsewhere within the existing housing market, the aggregate effect of a supply constraint may instead be merely to reduce the total quantity of new housing units produced in the affected community. If the demand for housing and developable land is perfectly elastic (meaning that households are free to come and go depending on housing price), no aggregate price increase should result from a supply constraint. Available empirical evidence suggests that the demand for housing is relatively inelastic, however (meaning that households are not very free to come and go and must essentially pay higher shares of their income for housing than if demand were elastic), but that the long run supply of housing is perfectly elastic (meaning that supply will always meet demand in some form) (Mayo 1981; Hanushek and Quigley 1980; Follain 1979). We should thus expect housing supply constraints to increase the price of housing.

We also expect to see aggregate housing price increases following the imposition of a supply constraint due to the highly segmented nature of housing markets. By reducing the total supply of urban fringe land available for housing construction, the provision of housing for the most affordable segments of the housing market becomes unprofitable, and average housing prices rise due to the overabundance of higher priced new housing units. Affordable housing production becomes even more unlikely if the supply of developable land is concentrated in the hands of a small oligopoly of landowners. Since any regulatory regimes can reduce the number of landowners along with the number of land parcels, the additional land rents exacted by newly created landowner oligopolies may create a minimum price floor for new housing.

Granted, if housing producers are flexible and are able to economize on costly land inputs, housing producers may continue to provide affordable housing by increasing new housing densities. Unfortunately, exclusionary zoning regulations often prohibit the kind of densities that would be required to serve the most affordable segments of the housing market. Furthermore, single family housing producers may be unfamiliar with the dynamics of the multifamily housing market and may be unable to enter new markets following changes in the price of land. Finally, if sufficient demand exists for higher priced multifamily units, housing producers may produce sufficient quantities of new

high density housing, but still fail to produce a sufficient quantity of new affordable units (Danielsen, Lang, and Fulton 1999).

A final possible explanation for housing price increases is that growth management policies can increase housing prices when they create *localized* amenities and *regional* amenities. Localized amenities include the open space benefits that are largely enjoyed by homeowners who live adjacent to the urban boundary where growth management includes such. Regional amenities include increased efficiency in the provision of public services and infrastructure, a sense of place that is associated with compact, contiguous urban forms, and increased accessibility due to the closer proximity between housing and neighboring commercial and recreational land uses (Nelson and Duncan 1995).

VI. GROWTH MANAGEMENT POLITICS: DO THEY MEAN TO EXCLUDE?

Why do local governments adopt land-use regulations? They may be motivated by the desire to exclude low-income residents and racial minorities, but they also adopt land-use controls to maximize or at least balance the local budget (so-called "fiscal zoning"), to create and sustain amenities for local and even regional constituencies, to assure that adequate infrastructure is available, to safeguard against natural hazards, to smooth the rate of change, to support agricultural and forest-land productivity, and to create positive externalities (for instance, by encouraging complementary land uses to locate close to one another). Many of these motivations overlap, hindering efforts to distinguish unethical or even illegal exclusionary land-use regulation from regulation to promote the public welfare. Yet a growing body of evidence permits some generalizations about the extent to which land-use regulations of various sorts are primarily motivated by an intent to exclude. Broadly speaking, this literature suggests that exclusive large-lot zoning, when adopted as the primary land-use control in a municipality, often tends to be adopted to exclude low-income households. For other residential controls and growth management measures, by contrast, it is difficult to distinguish such narrow motivations.

There is strong support from both case law, popular accounts, and the academic literature that local governments often adopt exclusive large-lot zoning, minimum house size requirements, and bans on secondary units precisely to make their housing more expensive and thereby indirectly exclude lower-income racial and ethnic minorities (Babcock 1966; Danielson 1976). Kirp et al. (1995) and Haar (1996), for example, delve into the history of conflicts in Mount Laurel, New Jersey, that led to the best-known legal decisions overruling exclusionary zoning ever to be handed down by a court in the United States.)[9] Federal courts, by contrast, have been more deferential to local zoning and have tended to uphold the right of communities to exclude low-income residents, at least on Constitutional grounds, as long as there is no direct evidence that they intended to exclude racial or ethnic minorities.[10] The adjudication of these cases and their tendency to be decided in favor of exclusionary jurisdictions show that local governments not only know that their large-lot zoning ordinances will exclude, but embrace them for precisely that reason. Rolleston (1987), studying the intensity of local residential zoning ordinances in metropolitan Chicago, found that communities with smaller minority populations than surrounding communities tend to practice more restrictive zoning, supporting the idea that exclusionary motivations contribute to local zoning decisions. But other

[9] These cases, known as Mount Laurel I (*Southern Burlington County NAACP v. Mount Laurel*, 336 A.2d 713 [N.J. 1975]) and Mount Laurel II (*Southern Burlington County NAACP v. Township of Mount Laurel*, 456 A.2d 390 [N.J. 1983]), set forth the statewide fair-share housing system that was modified and incorporated into state law in 1985 as the New Jersey Fair Housing Act (N.J. Stat. Ann. 52:27D-301 to 329).

[10] In *Village of Arlington Heights v. Metropolitan Housing Development Corp.*, 429 U.S. 252 (1977), the U.S. Supreme Court established a nearly impossible standard for exclusionary zoning cases brought under the equal protection clause of the Constitution. Proof of disproportionate impact on minorities is not enough to invalidate a zoning ordinance for Constitutional violations; plaintiffs are required to demonstrate intent to exclude.

motivations, especially the desire to maximize or at least balance the local budget, are simultaneously at work in many cases; Rolleston also found communities with growing tax bases practiced less restrictive residential zoning (Rolleston 1987).

Some unsympathetic observers of land-use regulation extrapolate from the well-documented connections between large-lot zoning and exclusionary intent, inferring that all land-use controls, especially controls on new housing, are adopted primarily to exclude low-income residents and to increase property values (Frieden 1979; Ellickson 1973). This "exclusionary hypothesis" has been tested widely on measures that limit local residential growth. These tests can be separated into two main types: adoption studies and attitude surveys.

A. Adoption Studies

Adoption studies look for features shared by jurisdictions that adopt growth measures of certain kinds; they tend to find that jurisdictions that adopt growth controls tend to be growing faster and to have more professional and white-collar residents, wealthier households, and fewer minorities, but these results are neither universal nor direct evidence of exclusionary intent (Dowall 1980; Donovan and Neiman 1992; Protash and Baldassare 1983). Some places adopt growth measures after a spurt of rapid growth in response to the desire of newcomers to maintain the quality of environment and public services that were present when they arrived (Rosenbaum 1978; Dubbink 1984). Comparing voters for and against a growth-control ballot measure in Riverside, California, Gottdiener and Neiman (1981) found no relationship between support for the measure and socioeconomic status; rather, support tended to correlate with "liberal" sentiments "generally favoring more government activity in providing public services" (Gottdiener and Neiman 1981, 62). Dubin, Kiewiet and Noussair (1992), analyzing precinct-level returns from competing 1989 growth measures in San Diego City and County, support the Gottdiener and Neiman results. They also found that minority voters, mostly renters, tended to oppose growth control measures much more often, and that homeowners tended to support them; this tends to support the exclusionary model. Brueckner (1998) finds that the adoption of growth control does not occur in a vacuum. Instead, the choice to adopt local growth control ordinances is affected, to some extent, by the adoption of similar measures in nearby communities. Brueckner speculates that this may be either due to the interdependence among jurisdictional shares of regional land supplies or to "copycat" behavior of nearby policy makers.

B. Attitude Surveys

Attitude surveys ask people about their positions on growth control, usually correlating them with actual growth conditions and sometimes with their socioeconomic status. Surveys of citizens' attitudes offer support for the idea that slow-growth sentiments respond to perceptions that growth has been fast and that infrastructure is deteriorating (Baldassare and Wilson 1996; Anglin 1990); perceptions sometimes matter more than the real rate of growth (Baldassare 1985). Liberalism also

tends to associate with support for controls in many attitude surveys; the surveys lend less support, however, to the idea that people who favor controls are wealthier than those who oppose them. A retrospective on these surveys (Baldassare and Wilson 1996) suggests that the sources of support for growth control and management may change through time, producing contradictory results even within jurisdictions, not to mention among different jurisdictions.

Studies that analyze only the effects of regulation on the sale price of single-family housing are limited because they provide little direct evidence that regulations affect the affordability or supply of housing for people with very limited incomes. They are also related only indirectly, if at all, to the issue of whether and how regulations result in the exclusion of people of color from neighborhoods or entire jurisdictions. Pendall's work is thus very instructive by showing that the chain of exclusion is a powerful reality for low-density zoning. To a lesser extent, building permit caps and moratoria also have consistent exclusionary results. Pendall also found that, in contrast with low-density-only zoning, both urban growth boundaries and adequate public facilities ordinances were associated with shifts toward multi-family housing. Since multi-family housing is often rented, and since black and Hispanic residents depend heavily on rental housing to gain entry into a jurisdiction, urban growth boundaries and adequate public facilities ordinances may have "inclusionary" benefits that help balance any tendency they may have to raise housing prices. Indeed, in some states, such as Florida, Oregon, and Washington, varying degrees of inclusionary housing is required as part of local and regional growth management efforts.

VII. CONCLUSIONS

Rising concerns over traffic congestion, loss of farmland, urban disinvestment, and the costs of public infrastructure have led an increasing number of state and local governments to adopt new policies to better manage metropolitan growth. Such programs often involve the use of zoning, comprehensive plans, subdivision regulations, building permits and fees, and infrastructure investments and are sometimes described as growth controls, growth management, sustainable development, or smart growth. Despite these efforts' increasing popularity, some observers are still concerned that growth management programs adversely affect land and housing markets and lead to problems of housing affordability. In this report we review the academic and professional literature and, in summary, find that:

A. Market demand, not land constraints, is the primary determinant of housing prices.

We cannot emphasize strongly enough that housing prices depend more on the relative elasticity of demand, especially within metropolitan regions, than on any other factor, including growth management. If location is relatively substitutable, growth management in one community may shift demand to other communities that do not pursue growth management with the overall effect being that housing prices throughout the region remain about the same. Even if locations are not substitutable (and thus there is relatively inelastic supply locally) prices are linked more to the lack of substitution than to the presence of growth management.

Dowall (1984) points out that relative differences in the demand for housing contribute to housing market outcomes that are the opposite one would expect upon a simple examination of the restrictiveness of local regulations. Knaap and Nelson (1992) also demonstrate that regional economic shocks have affected the Oregon housing market and that the statewide planning program may have been successful in mitigating housing price inflation.

Related to the issue of aggregate housing demand is the relative demand for housing in various submarkets. If the demand for multifamily homes is weak or difficult to assess, housing producers may not economize on high land costs by constructing higher density housing, even if allowed or encouraged to do so by local land use regulations. Similarly, if central city disamenities such as crime, poor schools, and poor infrastructure exert a "push factor" that increases the demand for non-urban housing, new housing prices will continue to rise in areas wherein which land is likely to be the cheapest: the suburbs and exurbs (Nelson and Sánchez 1999; Nelson and Dueker 1990).

B. Both traditional land use regulations and growth management policies can raise the price of housing.

One thing is certain about the studies reviewed. Traditional land use regulation and many forms of growth control can and do raise housing prices, either by raising input prices or by restricting supply relative to demand, or both. What is not clear is whether these outcomes apply to growth management regimes as we have characterized them. Yet, as Nelson (1986) argues, if no price effects can be attributed to growth management policies then we should question their effectiveness. After all, if one of the primary purposes of growth management is to increase the desirability of the subject community, we should expect prices there to rise but not because of supply-side constraints. The question for affordable housing is not whether prices rise because of growth management but whether the distribution of housing types has exclusionary outcomes between communities.

We can classify growth measures into two groups: a clearly exclusionary set and an ambiguous set. Exclusive low-density zoning is often motivated by an intent to limit the supply and accessibility of affordable housing, thereby raising home prices by excluding lower-income households. It is also the land-use control that has most consistently been found to displace growth and exclude low-income people and racial and ethnic minorities, as designed (Pendall 2000).

On the other hand, growth management is often designed to overcome the exclusionary effects of low-density-only zoning. Oregon's growth policies, for example, include both urban growth boundaries (UGBs) to protect rural resource land and a host of strong measures to reduce regulatory barriers in developing areas (Knaap 2000). The Portland Metropolitan Housing Rule establishes targets for multi-family housing in every jurisdiction; Oregon bans moratoria and building permit caps. Many growth management policies improve the supply and location of affordable housing and accommodate other development needs, thereby increasing the desirability of the community and thus the price of housing.

A larger group of local land-use regulations has more ambiguous effects that depend largely on their implementation. UGBs, for example, can be drawn so tightly around a city that housing prices rise dramatically, supply falls, and poor residents are priced out or forced to overcrowd. This has arguably happened in Boulder and in parts of California (Fulton, Glickfeld, and Levine 1996; Lorentz and Shaw 2000). But they can also, as in the Portland case, be mechanisms for shaping urban form, raising density, and promoting more affordable housing types. Adequate public facilities ordinances, too, can raise density and thereby encourage more affordable types of housing, while limiting the need for local governments to raise property taxes that are passed along to all households, whether owners or renters. They can also encourage shifts up-market and reduce new affordable housing supply. In most cases, regulations with more ambiguous effects are adopted to meet a host of public purposes; if state governments and local planners design them properly and in

tandem with affirmative measures to promote housing affordability, the evidence suggests that they can not only be neutral but even help promote a more inclusive housing stock.

Land-supply limiting effects of growth management need not lead to higher housing prices if housing density increases (relative to prior conditions), infrastructure is available in a timely manner, and land use decisions are made roughly concurrent with market needs. Growth management need not reduce the supply of housing units even if land supply is restricted. But growth management also promises to improve benefits, and housing prices may rise in response to them. Some benefits may be measurable but others are not. Malpezzi (1996) found ambiguous relationships between regulatory regimes and benefits he could measure, but he notes there are many more benefits than could be measured. In addition, he could not distinguish between growth management, growth control, and traditional land use regulation regimes. In reviewing Malpezzi, Knaap (1998) observes that "there are no measures of land and housing prices that are well suited for research on the determinants of intermetropolitan property values" (276) thus rendering difficult at best estimating differences in regulatory regimes between metropolitan areas, let alone differences in benefit outcomes.

The effect of growth management on housing prices depends mostly on the style of policy implementation, the structure of local housing markets, the pattern of existing land ownership, and the stringency of other local regulations. Less important than whether such policies are state-supported or localized appears to be whether the planners charged with implementation actively monitor land supplies and adjust regulations to facilitate the development of higher density housing. It appears that growth controls of the kind used throughout California significantly contribute to housing price inflation by limiting the supply of housing units. In contrast, it appears that the kinds of growth management policies used in metropolitan Portland do not themselves influence housing prices.

C. Increasingly, the choice is between exclusionary zoning and growth management—not between regulation and no regulation

More and more people are becoming dissatisfied with increasing traffic, disappearing open space, crowded schools, and other manifestations of poorly managed growth. Inevitably, they will pressure local decision-makers to respond. Often, these leaders see only two politically acceptable choices: exclusionary zoning or growth management. Growth management is clearly better for housing opportunity than exclusionary zoning. Suburbs with exclusionary zoning encircle Boston, New York, Philadelphia, Pittsburgh, Cleveland, Atlanta, and many other regions throughout the United States. This exclusionary zoning reduces housing affordability; it also promotes sprawl (Pendall 1999, Pendall 2000). Growth management, at best, incorporates deliberate policies to assure not only adequate land supply but also a range of housing types and densities. This pro-diversity strategy is, in fact, at work in metropolitan Portland though less effectively so in California, and was imposed as a remedy for exclusionary zoning by the New Jersey Supreme Court in the

famous *Mount Laurel II* case. By assuring that land is available explicitly for the construction of higher-density housing, and by removing barriers to the construction of that housing, growth management can help overcome exclusionary zoning.

One of the most important policy implications to be gleaned from this review is that the work of local planners plays a significant role in determining the severity of housing price inflation attributable to growth management policies. As Miller (1986) and Zorn et al (1986) suggest, and as evidence from Portland makes apparent, stemming housing price inflation requires planners to enact proactive measures to guarantee affordability as well as to ensure an adequate supply of land and housing. Miller, Zorn, and other researchers have shown that programs requiring developers to include affordable housing in their new projects deliver more affordable housing than incentive-based programs, but incentives and mandates together -- along with supportive land use policies -- are likely to make the most positive contribution to housing opportunity.

If left to their own devices, however, local governments will often avoid affirmative measures. The literature suggests that state or substate regional growth management programs, coupled with strong state-level housing programs, promise to help overcome parochialism. Knaap (1998) suggests that the overall effect of statewide and metropolitan growth management appears to lower the restrictiveness of local land use regulations. This can have the effect of lowering housing rents and prices. Indeed, Fischel (1999) observes that it was a regional growth management hearing board in Washington state that overturned a local government's down-zoning of land for being inconsistent with the state's Growth Management Act, restoring to the landowner all prior density rights.

D. Finally, any discussion of housing affordability going forward must consider a broad range of externalities.

Simply examining the cost of housing is not adequate when considering what is or is not "affordable". Services and amenities such as increased efficiency in the provision of public services and infrastructure, lower overall transportation costs and increased accessibility due to the closer proximity of land uses, must be factored into such calculations. In short, researchers and policy makers need to consider housing costs the same way families do: as a portion of their overall wealth. We recommend that a coalition of interests be formed to agree on just what is meant by affordable housing. Such a definition would need to consider all forms of housing and would need to accurately reflect all costs and amenity benefits.

We thus conclude that a substantial body of research suggests that instruments used to manage urban growth can affect housing prices and thus affordability. In the context of strong housing demand, growth management can adversely affect housing affordability by making the community even more desirable—which is, after all, its intent. Growth management programs can mitigate adverse effects, however, by lowering the costs of providing public infrastructure, minimizing

regulatory delays, and prohibiting exclusionary zoning practices. The implications of our interpretation of the literature are clear: successful growth management programs are ones that include policy instruments designed to mitigate the adverse effects of urban growth and expand housing opportunities available to lower income households.

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