

## **A Revisionist Model of Suburbanization and Sprawl : The Role of Political Fragmentation, Growth Control, and Spillovers**

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# A Revisionist Model of Suburbanization and Sprawl

## The Role of Political Fragmentation, Growth Control, and Spillovers

*Pillsung Byun & Adrian X. Esparza*

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### Abstract

This article proposes a process-based conceptual model that explains sprawl in the United States since the 1970s. In contrast to traditional explanations that look to “natural,” or ecological, processes, our explanation of sprawl focuses on the local regulatory environment and the ways in which residents and homebuilders respond to it. We look at the way in which growth controls—given fragmentation—produce “spillovers” and whether spillovers have been a principal force (process) fueling suburbanization and exurbanization in recent decades. Although the role of spillovers has received some attention recently, few scholars have launched comprehensive analyses of its impact on the contemporary urban landscape. Our spillovers-based explanation of sprawl will likely hold for metropolitan regions in which growth management/control has been imposed in the absence of statewide or regionwide coordination.

**Keywords:** *suburbanization; spillovers; growth controls*

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Traditional explanations of post-World War II suburbanization in the United States are based on natural-evolution and flight-from-blight rationales (Mieszkowski and Mills 1993). These explanations typically hinge suburbanization on causal factors that reflect the socioeconomic situation of the 1950s and 1960s, such as spatial mobility, consumer demand given rising income, federal policies (i.e., taxation and highway construction), central city decline, fiscal crises, and discriminatory practices.

During these years, the costs and consequences arising from suburbanization were rarely considered. Instead, the benefits of suburban growth—increased tax revenue and investment in public services and infrastructure—received the bulk of attention (Durbin, Kiewiet, and Noussair 1992). In effect, the city was treated as a “growth machine” fueled by land development, homebuilding, and road and highway construction (Molotch 1976; Esparza and Carruthers 2000). This perception dominated much of the metropolitan United States (and still does for many communities) and paved the way for continued suburban growth.

As the country entered the 1970s, however, jurisdictions began struggling with the negative consequences of suburbanization. This led many suburbs to implement restrictive zoning (e.g., large minimum-lot residential zoning), growth control, and growth management to combat the environmental, social, and economic consequences of rapid suburban growth (Dowall 1979).

Because of political fragmentation, suburban localities have the authority to implement growth management or growth control measures without consideration of the regional (i.e., extrajurisdictional) impacts of such measures. Such an environment of spatially inconsistent growth policies has allowed spillovers to progress from suburb to suburb and, eventually, to reach the metropolitan fringe. These spillovers are the spatial shifts of residential development and population growth from growth-controlled suburban localities to adjoining localities having no such controls. Considering that political fragmentation is standard across metropolitan areas, spillovers produced by

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locally enacted growth control or management may well account for suburbanization or sprawl in recent decades.

The aim of this article is to present a conceptual model of suburban and exurban sprawl that builds on the processes feeding spillovers in metropolitan regions. In contrast to “natural” or ecological-based explanations for suburbanization, our approach positions sprawl on the local (jurisdictional) regulatory response to the negative consequences of rapid growth. To accomplish this, we draw on the research literature that looks at suburbanization and sprawl, fragmentation, growth control and growth management, and spillovers.

The article consists of four sections. Following the introductory first section, the second section presents definitions of concepts used throughout this article. The third section reviews traditional explanations of suburbanization, then covers the more recent literature on market-failure explanations of sprawl and studies of spillovers. This discussion demonstrates the need for a conceptual model of how spillovers contribute to sprawl. The fourth section synthesizes the discussions on fragmentation, growth controls, sprawl, and spillovers. From this synthesis, we develop and present our conceptual model of spillovers and sprawl. The article concludes by highlighting implications of our research for planning practice and education.

### ► Terms and Definitions

This article builds on a few key terms and concepts that should be defined at the outset. First, locality refers to a political jurisdiction that has autonomous regulatory authority over land use and land development decisions. In other words, localities are political entities embodying political fragmentation. In this article, localities and jurisdictions are used interchangeably.

Second, political fragmentation refers to the autonomous regulatory authority that every locality (jurisdiction) has over land use and land development decisions. By definition, therefore, we exclude metropolitan regions in which state-level regulation guides planning and growth management. We focus instead on politically fragmented metropolitan regions.

Third, growth controls or growth management techniques are defined as those applied to residential development and location and include such devices as housing permit or population growth caps, urban growth boundaries or urban service limit lines, adequate public facility ordinances applied to residential development, and restrictive residential zoning such as large minimum-lot zoning and downzoning for preserving open space. We recognize that growth control differs from growth management (Landis 1992; Nelson et al. 2002), but we

use them interchangeably because they share the common goal of minimizing growth-induced costs.

Finally, our definition of spillovers applies to the residential choice of households (housing demand) and the locational decisions of homebuilders (housing supply). On the demand side, spillovers involve households' desire to move to specific suburbs, but their choice is shifted elsewhere because of unfavorable housing markets produced by local growth controls. As a result, population growth (or residential location) that would otherwise occur in localities where growth controls are imposed is shifted to neighboring localities with no or fewer controls. On the housing supply side, spillovers can be defined as the shift of residential development from a locality where development is less or not profitable because of growth controls to the neighboring localities where homebuilding is lucrative. In particular, homebuilders are oriented to adjoining jurisdictions where no or fewer growth controls are imposed and housing demand pressures are shifted. Consequently, residential development that would otherwise take place in growth-controlled localities moves to non-growth-controlled or less controlled jurisdictions. These two aspects—housing demand and supply—of spillovers are interdependent and cannot be separated easily. Figure 1 illustrates how housing demand and supply work together to produce spillovers, given local growth controls.

### ► Explanations for Suburbanization, Spillovers, and Sprawl

The existing research concerning suburbanization/sprawl and spillovers is voluminous, and our efforts are not geared toward providing a comprehensive review of this literature. Instead, we begin with conventional explanations for suburbanization and link them with more recent literature on market failures and spillovers. The review demonstrates how the progression of research and thought has moved toward the conceptual model we present.

#### Traditional Explanations for Suburbanization

Mieszkowski and Mills (1993) present two theories of middle-class migration to the suburbs. One is natural-evolution theory; the other is flight-from-blight theory. According to natural-evolution theory, transportation innovations, the preference for single-family detached housing (Gordon and Richardson 1997; Ewing 1997; Peiser 2001), and rising income fueled middle-class suburban migration. Given the exodus of the middle class, it is not surprising that commercial and

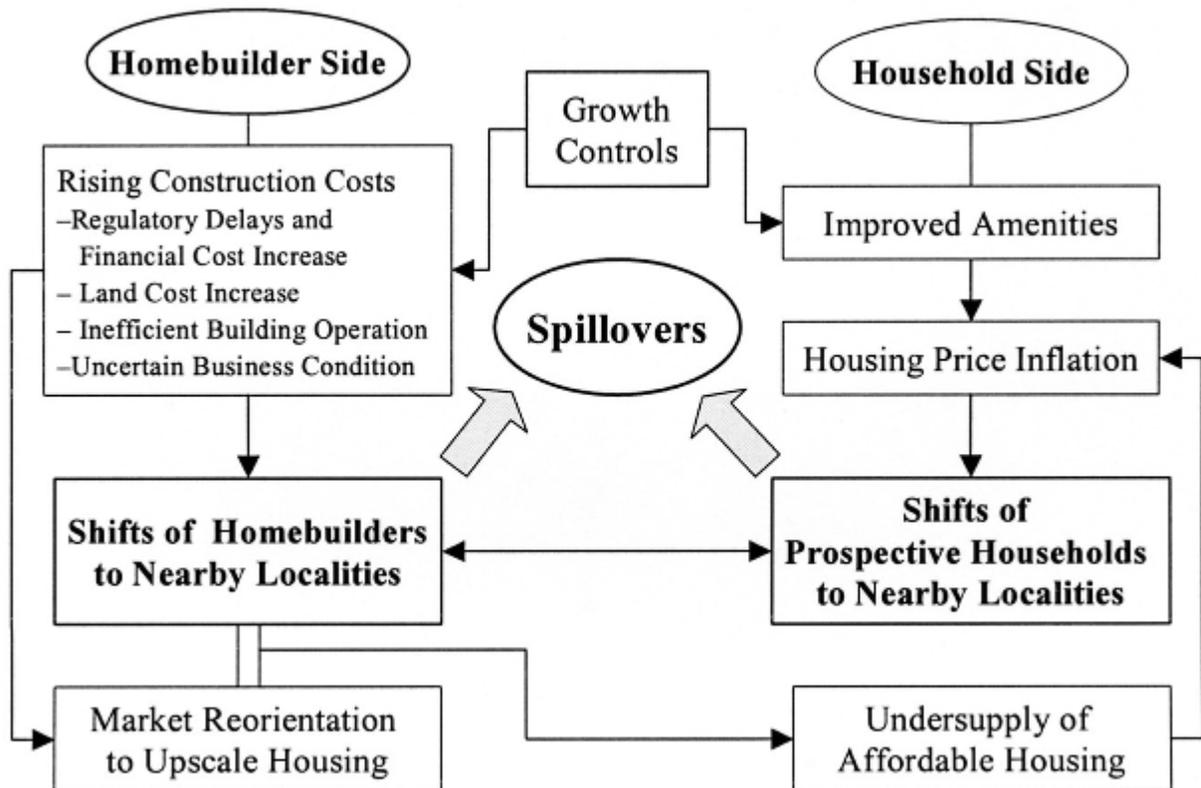


Figure 1. Conceptual framework of spillovers.

related businesses followed suit and headed to suburban communities.

When explaining these broad social and spatial shifts in American urban society, scholars focus on specific factors of suburbanization. Government expenditures for highway construction, favorable mortgage policies, redlining, and the subsidization of the automobile have all been discussed (Kunstler 1993; Peiser 2001; Persky and Kurban 2001; Rusk 2000). Moreover, Kunstler (1993) suggests that the mass production of suburban housing and the resulting reduction in housing prices enabled blue-collar workers and young married couples to join the suburbanization craze. These factors sustained postwar suburbanization by allowing low-cost ownership of single-family housing in suburban areas. Furthermore, they provided the middle class with the opportunity to satisfy preferences for single-family housing in “quality” suburban neighborhoods.

Flight-from-blight theory draws on the ecological rationale embodied in the Chicago School of urban sociology (Park, Burgess, and McKenzie 1925). The “models” that are based on this theory focus on the in-migration of ethnic minorities and

low-income groups into central cities, and the cumulative decline of central cities as the driving forces of suburbanization. The increasing number of low-income and ethnic minorities in central cities after World War II deepened the tax burden of middle-class and non-Hispanic whites, heightened social problems, and aggravated ethnic tensions (Mieszkowski and Mills 1993). According to Frey (1979), the flood of minorities into central cities (especially black migration from the rural South to midwestern cities shortly after World War II) and the resulting white flight to suburbs were widespread during the 1950s. White flight after the 1960s can be primarily attributed to the cumulative decline of central cities in economic, fiscal, and environmental terms, given the relocation of the middle class and businesses to suburbs, rather than to the in-migration of ethnic minorities into central cities (Frey 1979).

Because of these suburbanization trends, the tax revenues of central city governments were continually undermined. Such reduction in tax revenues resulted in the declining quality of public services and infrastructure, and increasing tax

burdens for central city dwellers. This solidified central city decline, even though black migration from the South had slowed by the 1960s (Frey 1980). In particular, central city decline meant deteriorating neighborhood amenities for middle-class residents who are mainly homeowners. Homeowners tend to be sensitive to negative changes in neighborhoods that threaten their housing values (Fischel 2001). Consequently, surrounded by central city decline, the white middle class pursued “flight-from-blight” to suburban communities. Once there, they pursued the formation of their own communities that were based on social homogeneity and relative freedom from heavy tax burdens (Richmond 2000). Subsequently, the middle class implemented fiscal and exclusionary zoning to maintain “community character” (Brueckner 2000).<sup>1</sup>

Natural-evolution and flight-from-blight explanations are not mutually exclusive. Rather, they are connected by their shared focus on residential choice behavior. In this regard, both explanations can be related to people’s perception of stress from existing residences in central cities and the pursuit of alternative residences in suburban areas.

These explanations, however, do not deal with how the middle-class demand for housing and neighborhood quality is supplied by developers and homebuilders. Realistically, the supply of their housing is influenced by the jurisdictions’ growth controls and the supply of land. Natural-evolution and flight-from-blight explanations do not fully recognize that residential relocation and related housing development are constrained by local land use regulations, especially growth controls. Because natural-evolution and flight-from-blight explanations overlook constraints of growth controls on residential location and development, the explanations fail to cover the discussion of spillovers involved in growth controls and their contribution to suburbanization or sprawl. Such constraints grew in importance throughout time, especially since the 1970s.

### The Market-Failure Explanation for Sprawl

More recently, research emphasizes market failures as factors fueling suburbanization (see Ewing 1994, 1997; Brueckner 2000). To be sure, these studies also cover causal factors presented in natural-evolution and flight-from-blight explanations. By underscoring market failures, however, they pursue policies that can overcome sprawl and its induced problems. These studies describe sprawl as an urban problem prevalent in the metropolitan United States. For this reason, they prefer to use the term *sprawl* rather than suburbanization.

According to Brueckner (2000), market failures induce sprawl in the following way. First, in the land market, the social

value of open space inherent in agricultural or rural land is not fully reflected in the valuation of such land. Due to this market failure, rural land that can function as open space has been in large measure converted to urban land uses. Moreover, Ewing (1997) affirms that this market failure results in the undersupply of open space as a public or quasi-public good due to the “free-rider” problem. Second, the social costs of automobiles, such as traffic congestion and air pollution, are externalized. As Ewing (1997) points out, this functions as a subsidy to motorists. In other words, suburban residents commuting to central cities or other suburbs are not fully responsible for the social costs (e.g., air pollution and traffic congestion) of driving. Third, the cost of public infrastructure generated by new development is not fully paid by new development-related residents under the average-cost-based pricing system.

In short, overlooking the social value of agricultural or rural lands as well as the average-cost-based pricing system of public infrastructure allows for the lowering of development costs in suburbs. In addition to these two failures, the externalized social cost of automobiles contributes to making suburban living comparatively inexpensive. For these reasons, market failures promote sprawl.

According to Downs (1999), the belief that sprawl is generated by market failures is based on the unrealistic assumption that land markets operate freely. Rather, suburban land markets are controlled by locally enacted zoning and land use regulations. In this respect, Downs points out the limitation of studies on sprawl that focus on market failures. In effect, such studies do not confront the influences of local restrictive zoning or growth controls on housing or land markets given political fragmentation. As a result, the relationship of spillovers arising from growth controls to sprawl is not given adequate attention.

Figure 2 summarizes natural-evolution, flight-from-blight, and market-failure explanations of suburbanization and sprawl.

### Spillovers, Political Fragmentation, Growth Controls, and Sprawl

There are three avenues of research within the spillover literature that inform a discussion on spillovers and sprawl in metropolitan regions. The first looks at the relation among fragmentation, growth controls, spillovers, and sprawl. The second examines the price effects of growth controls with respect to spillovers, and the third investigates the relationship between growth controls and spillovers. In the first case, however, spillovers are not the primary issue. Instead, the focus is

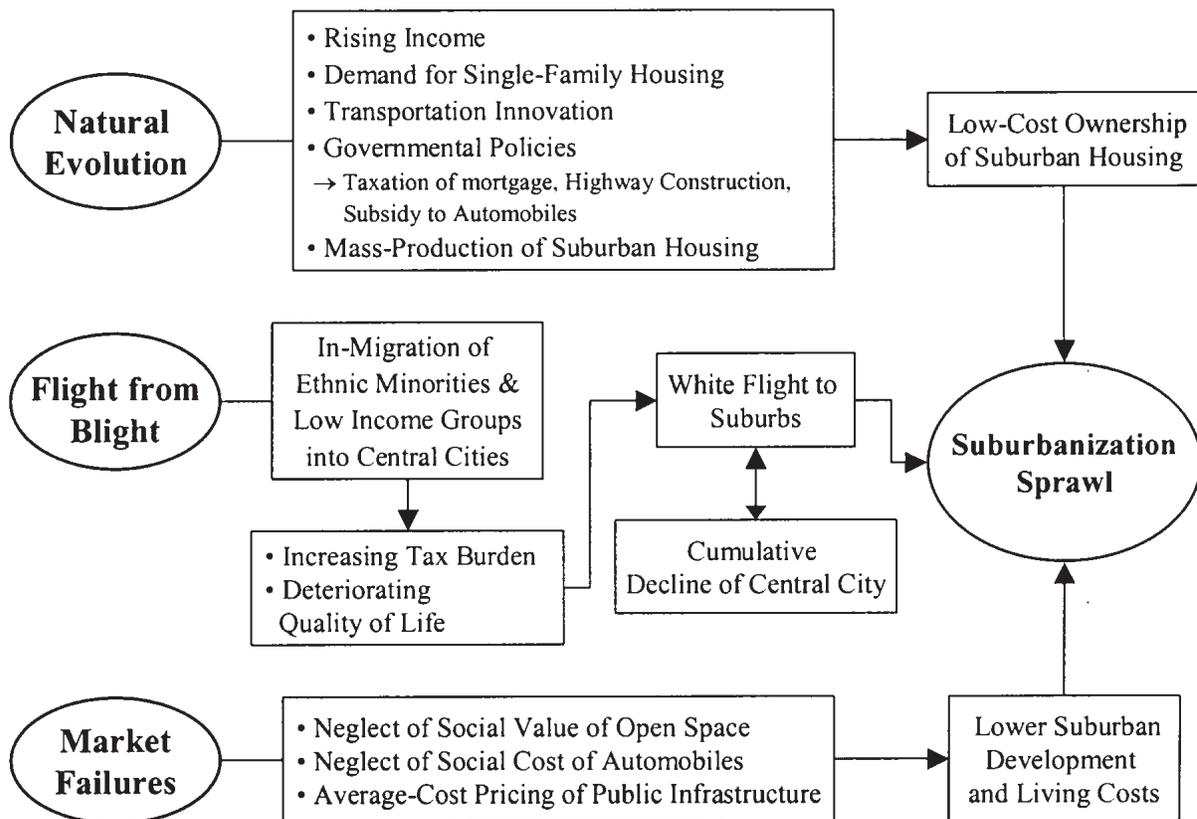


Figure 2. Natural-evolution, flight-from-blight, and market-failure explanations.

on whether political fragmentation or growth controls can explain sprawl adequately. In the second case, spillovers are considered indirectly as an outcome of tight housing markets generated by local restrictive zoning or growth controls. Unlike these two cases, in the last case, the relationship between spillovers and local growth controls is dealt with directly.

To be sure, many studies within the spillover literature address constraints of growth controls on residential development and (re)location. The issue of how spillovers feed sprawl is not, however, discussed. We discuss each research path in detail.

#### *Political Fragmentation, Growth Controls, and Sprawl*

Given political fragmentation, the spread of growth control or management among localities can shift population growth and residential development to the distant suburbs and urban

fringe, thereby contributing to sprawl. Nevertheless, these spillovers and their relationship to sprawl are not given much attention in the literature. Yet the literature demonstrates implicitly the importance of spillovers in understanding suburbanization during the past three decades.

Pendall (1999) incorporates both municipal fragmentation and local growth controls in his analysis of sprawl. He does not, however, deal specifically with the issue of how, given municipal fragmentation, local growth controls reinforce sprawl through the process of spillovers. Razin and Rosentraub (2000, p. 822) state, "Political fragmentation can lead to sprawl by inhibiting regionally coordinated planning and through inter-locality competition for growth and related tax revenue base." Razin and Rosentraub analyze this relationship by using OLS regression. Their model, however, does not specify the process of spillovers as an underlying mechanism of sprawl in the metropolitan United States.

Carruthers and Ulfarsson (2002) deal with the relationship between political fragmentation and sprawl. Using data for the

period 1982-1992, they develop a simultaneous equation model that relates political fragmentation to urban sprawl, controlling for other socioeconomic variables. Carruthers and Ulfarsson suggest that local restrictive zoning and growth controls implemented for fiscal or exclusionary purposes lead to an uncoordinated shift of growth from one locality to adjoining localities and finally to the urban fringe. In this way, they show that spillovers contribute to sprawl. Their empirical models and the ensuing discussion do not, however, specifically identify spillovers and their relation to sprawl.

#### *Price Effects of Local Growth Controls*

Many studies consider how growth controls affect local housing markets, especially the price of new housing. These studies indirectly demonstrate that residents are priced out of jurisdictions implementing growth controls and forced into adjacent localities where growth controls are not imposed. In effect, these studies show that spillovers are related to growth controls.

Yet, they do not advance discussion on how spillovers feed sprawl given growth controls enacted in politically fragmented metropolitan areas. Simply put, spillovers and their connection to sprawl are not the primary focus of studies that evaluate price effects. Rather, they focus on tight housing market conditions and price effects produced by local restrictive zoning and growth controls.

The following summary of price effects is critical to our conceptual model of how spillovers promote sprawl. First, growth controls raise the cost of housing construction, which inflates the price of new housing (Dowall 1979, 1984; Elliott 1981; Schwartz, Hansen, and Green 1981; Landis 1986; Zorn, Hansen, and Schwartz 1986; Katz and Rosen 1987; Lillydahl and Singell 1987; Singell and Lillydahl 1990; Levine 1999; Mayer and Somerville 2000). Controls such as housing permit caps, adequate public facility ordinances, urban growth or service boundaries, and large minimum-lot zoning increase construction costs of homebuilders in the following ways: (1) regulatory delays<sup>2</sup> and the resulting increases in financial costs; (2) the rise in land costs because of the amount of land required by density constraints (Dowall 1979), or the land supply constraint by urban growth or service boundaries; (3) inefficiency in homebuilding operations by inhibiting economies of scale; and (4) uncertainties in the local business environment for homebuilders.

Clearly, rising construction costs could affect the housing market in other ways. More costly construction increases the price of new housing. This, in turn, increases the demand for existing housing. The shift in housing demand might pressure

developers or homebuilders to lower profit margins of newly built houses. From the long-term perspective, however, the price of new housing increases because of housing supply's elasticity to increased construction cost (Singell and Lillydahl 1990). In addition, the diffusion of local growth controls within metropolitan regions can delay the spatial shift of housing demand (i.e., prospective households), which can mitigate housing price inflation, because the shift is affected by ease of residential search in nearby communities (Singell and Lillydahl 1990).<sup>3</sup>

Second, local restrictive zoning and growth controls generate housing supply constraints that make housing markets tighter (Dowall 1984; Nelson et al. 2002; Landis 1986; Lillydahl and Singell 1987; Singell and Lillydahl 1990; Skidmore and Peddle 1998; Levine 1999). Because local restrictive zoning and growth controls result in higher housing construction costs, many small- or medium-scale homebuilding businesses are forced out of the market. Moreover, in the case of housing permit caps, the control itself restricts housing supply directly. Thus, after growth controls take effect in localities, the number of residential building permits issued in the localities decreases, as shown in Thorson (1997) and Mayer and Somerville (2000). Many homebuilders move to other localities to reduce costs (Levine 1999) because they are unable to bear financial burdens in growth-controlled jurisdictions. In the end, this behavior leads to a drop in housing supply in growth-controlled jurisdictions.

In addition, such housing supply constraints are aggravated because local growth controls prevent homebuilders from adjusting housing construction to demand shocks produced by constrained housing supply (Frieden 1979). This is revealed by the lower price elasticity of new construction (Mayer and Somerville 2000) that appears in growth-controlled localities. Therefore, housing price inflation will not be mitigated in the short term.

Third, in addition to the rise in construction costs and related supply constraints, local growth controls enhance neighborhood amenities and improve new housing characteristics (Dowall 1984; Nelson et al. 2002; Schwartz, Hansen, and Green 1981; Landis 1986; Lillydahl and Singell 1987; Singell and Lillydahl 1990; Skidmore and Peddle 1998; Levine 1999). Enhanced neighborhood amenities and improved housing characteristics increase housing prices, as hedonic housing price models demonstrate. Growth control or management measures initially seek to minimize the costs of urban growth (e.g., traffic congestion, safety-related problems, and loss of open space) and reduce tax burdens for the provision of additional public services and infrastructure that prevent negative externalities of urban growth. In this situation, amenities improved by growth controls actually increase housing prices.

This implies that controls conform to the property interests of homeowners. Ultimately, such enhanced neighborhood amenities produce additional housing demand from the middle and upper classes (Schwartz, Hansen, and Green 1981), thereby fueling housing price increases.

As mentioned previously, restrictive zoning and growth controls discourage small- or medium-scale homebuilders from participating in housing markets. Moreover, such controls function as barriers to market entry by requiring potential developers to adjust to restrictive local growth controls (Dowall 1979). Given this, local housing markets can be monopolized by a small number of large-scale homebuilders (Dowall 1984; Somerville 1999). By using their monopolistic position, these homebuilders can shift construction to an upscale segment of the market. That is, they can build housing characterized by expensive or luxurious materials, large-size structures, and large-size lots (Dowall 1979, 1984; Landis 1986; Nelson et al. 2002; Pendall 2000). Such a market reorientation serves as a business strategy to offset rising costs and reduced profitability brought about by growth controls. At this juncture, housing affordability becomes a problem. Market reorientation creates significant barriers to even moderate-income homebuyers (Dowall 1984).

As shown above, when restrictive zoning or growth controls are used in politically fragmented metropolitan regions, price effects are produced, first by rises in housing construction cost and related supply constraints, and second by improved amenities and market reorientation. It is clear that price effects generate spillovers. On the housing demand side, rising housing prices force prospective households to look for housing substitutes in nearby jurisdictions. On the supply side, growth controls raise the cost of construction, and higher construction cost forces homebuilders to seek out alternative localities where they face fewer restrictive controls and can profit from households looking for housing substitutes.

Despite these outcomes, research on price effects of local restrictive zoning and growth controls rarely discusses spillovers. Clearly, it presents links between price effects of growth controls and spillovers. Nevertheless, seldom does it deal with how spillovers involved in growth controls shape suburbanization or sprawl in the metropolitan United States, given political fragmentation.

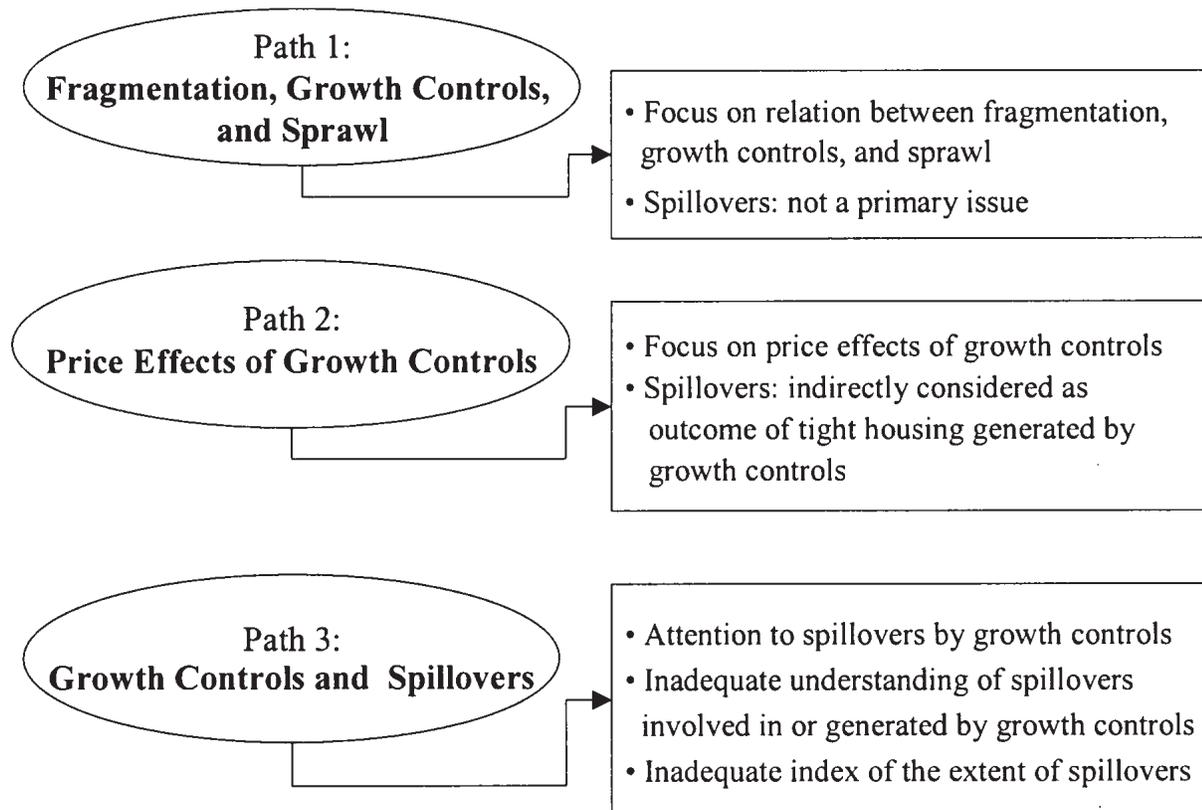
#### *Local Growth Controls and Spillovers*

A handful of studies consider relations between growth controls and spillovers explicitly. For example, Schwartz, Hansen, and Green (1981) and Pollakowski and Wachter (1990) address the spillover effects of housing demand from

growth-controlled localities to noncontrolled localities. Both studies, however, focus only on interjurisdictional housing price effects (i.e., housing price increases) among spatially neighboring jurisdictions without regard for changes in housing development in localities that adjoin growth-controlled jurisdictions. This suggests that these studies fail to grasp the deeper issues of spillovers—spatial shifts of residential development and population growth—involved with growth controls. Thus, they do not discuss the contributions of spillovers to sprawl.

Levine (1999) deals with the effects of growth control on net change in housing production in California's jurisdictions during the period 1980-1990. Levine develops a model that regresses the number of housing units in 1990 with the number of housing units in 1980, population density in 1980, and the number of growth controls enacted in each locality during the period 1979-1989. He finds that local growth controls have a negative effect on the net change in housing units. On the basis of modeling results, he suggests likely reductions or displacement of housing units across California. In other words, he presents the extent of spillovers generated by growth controls at a state level. But his model does not encompass effects of growth controls enacted by neighboring jurisdictions on the change in each locality's number of housing units. A nearby jurisdiction's growth controls are also likely to generate spillovers to a certain non-growth-controlled locality neighboring such a jurisdiction. Furthermore, the locality facing spillovers from the nearby growth-controlled jurisdiction comes to enact growth controls—interdependency of policy decisions among spatially proximate jurisdictions (Brueckner 1998)—to reduce costs arising from spillovers. In this respect, Levine's model fails to cover the progression of spillovers to distant suburbs or the urban fringe by the diffusion of growth controls, which contribute to sprawl. This limitation results from the inadequate understanding of spillovers.

Shen (1996) discusses the cumulative effects of local growth controls on spillovers in the politically fragmented San Francisco Bay region for the 1980s. He uses a quasi-experimental approach based on a population distribution model. By using 1970-1980 as the control period, Shen calculates deviations of the observed population as of 1990 from the projected population for 1990. The estimation of deviations is based on the assumption that there have been no additional local growth controls in the 1980s. Using such deviations as a spillover index, Shen reveals the effects of local growth controls as well as the spatial distribution of spillovers. Shen's spatial autocorrelation analysis of spillover index values implies that growth controls implemented in spatially clustered, middle-class suburbs engender the spillovers of prospective residents to the clusters of distant but uncontrolled localities amid



*Figure 3.* Existing research paths of spillovers.

diffusion of controls. He adds that the spatial distribution of spillovers does not follow a concentric-ring pattern around a central city of the San Francisco Bay region. In short, Shen empirically attempts to discuss the relationship between spillovers and sprawl by exploring the spatial distribution of spillovers. He does not, however, elaborate on how spillovers involved in growth controls affected suburbanization or sprawl in the San Francisco Bay region during the 1980s. It should be noted that Shen excludes growth controls of neighboring jurisdictions in his spillover index. This demonstrates Shen's insufficient understanding of spillovers, as with Levine (1999). Figure 3 summarizes the description and limitations of existing research paths of spillovers.

► **Conceptual Model:  
Spillovers, Political Fragmentation,  
Local Growth Controls, and Sprawl**

Spillovers unfolded by locally implemented growth controls and their diffusion given political fragmentation explains

sprawl or suburbanization in metropolitan regions. Considering that sprawl or suburbanization is realized by residential and business location and that such location choices are regulated by land use controls, this type of explanation can be quite persuasive. In addition, this explanation considers that local restrictive zoning or growth controls are not implemented from a regional perspective. Moreover, the explanation highlights the progression of spillovers toward suburban areas and the urban fringe given political fragmentation.

In the following discussion, we deal with the spread of local growth controls arising from political fragmentation and spillovers that result from growth controls. From this platform, we present a four-stage conceptual model of how spillovers promote sprawl given local growth controls enacted in politically fragmented metropolitan regions. We argue that this model broadly provides a robust explanation of suburbanization or sprawl during the past three decades. Figure 4 presents the four-stage conceptual model of spillovers and suburban sprawl. In the model, transitions from Stage 1 to Stage 2 and from Stage 3 to Stage 4 are simultaneous and circular.

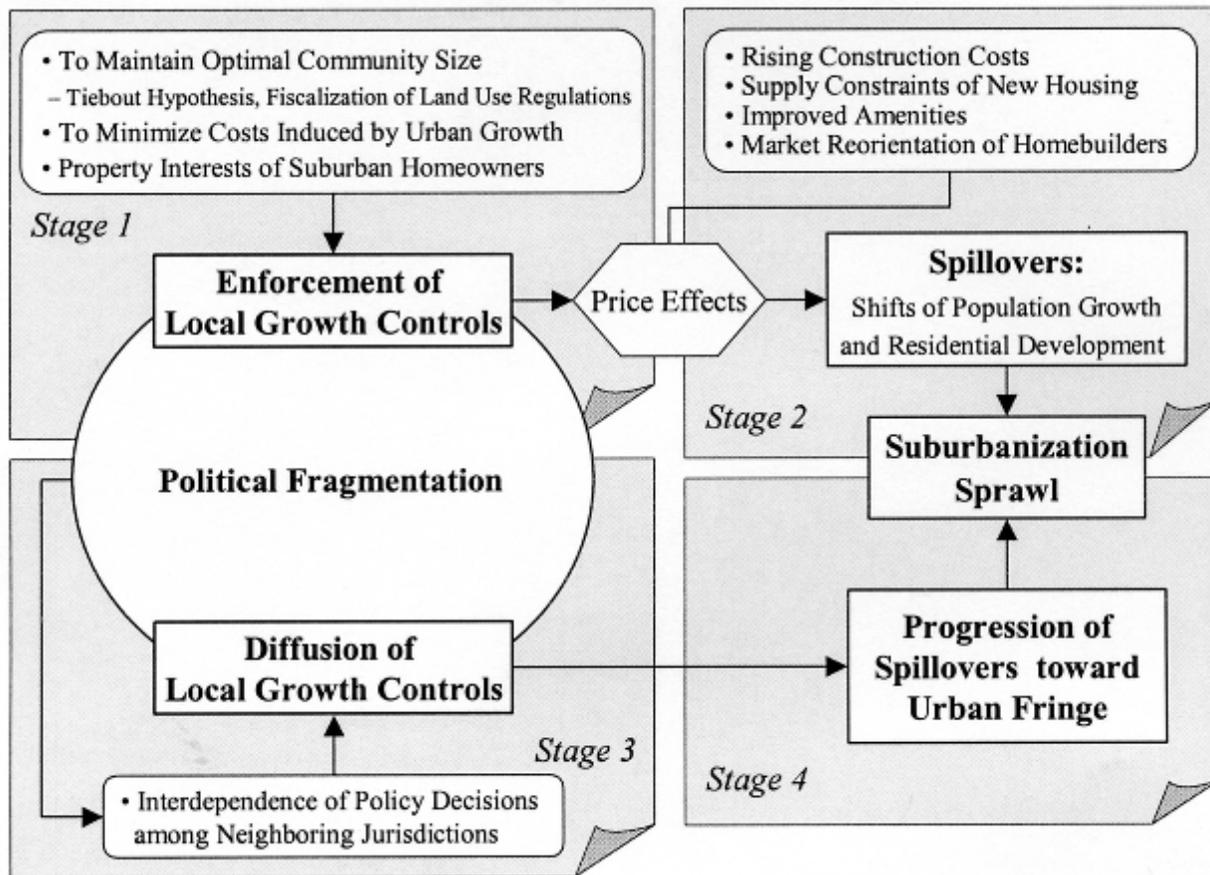


Figure 4. Four-stage conceptual model of spillovers and suburban sprawl.

Stage 1 builds on the understanding that in the United States, localities in metropolitan regions have regulatory authority over land use and related land development decisions. This is political fragmentation, which is based on home rule as well as police powers delegated to localities by state governments. By using the authority to regulate land use, localities regulate population growth and land development to maintain or achieve optimal community size, as displayed in Stage 1. This is implied by Tiebout's (1956) discussion of the impacts of localities' public service expenditure patterns and related residents' tax burden on residential choice behavior given political fragmentation.

Tiebout (1956, p. 418) argues that residents as consumers choose and move to "communities which best satisfy their preference patterns for public goods" under the condition of municipal fragmentation. The fragmentation reflects each locality's different public service expenditure pattern and related tax burden. Given the spatial mobility of residents,

local governments try to provide public goods that their current or prospective residents want to secure at the minimum average costs, that is, at the lowest tax burden possible to maintain or achieve stable tax revenue bases. According to Tiebout, such efforts by local governments can be achieved by operating at the "optimum community size," that is, the population size that enables the provision of public services and infrastructure at the minimum average cost (Tiebout 1956, p. 419). Thus, each local government reveals the tendency to enact either restrictive land use regulations and growth controls, or progrowth land use policies for maintaining or attaining the optimum community size. This tendency is made possible because localities can impose regulation, independent of the actions of other localities in the metropolitan region, given political fragmentation. Following Tiebout's discussion, local governments' economic and financial interests (i.e., optimal community size) with respect to the provision of public services and infrastructure can lead governments to enact growth

control or management. From Tiebout's discussion, a rationale for the fiscalization of land use regulations is derived. And growth controls reflect such fiscalization.

As Stage 1 illustrates (see Figure 4), local restrictive zoning and growth controls have been implemented by suburban localities because of increasing concern about urban growth-induced costs amid "no or slow growth" movements strengthened since the 1970s (Lillydahl and Singell 1987, p. 64).<sup>4</sup> The costs arising from growth include negative externalities such as traffic congestion and air pollution, the increasing costs of public infrastructure and rising tax burdens, and loss of farmland or open space.

Moreover, the implementation of growth controls by suburban jurisdictions conforms to the property interests of homeowners, as shown in Stage 1. Fischel (2001) relates the enactment of growth controls in suburban localities to the property interests of suburban homeowners. According to Fischel (2001), suburban homeowners cannot ensure the price of their housing as investments against possible negative neighborhood change. Given this situation, homeowners are very sensitive to possible negative changes that affect the quality (i.e., amenities and social character) of their neighborhoods. In addition, property owners tend to actively participate in local politics to protect housing values from possible negative impacts arising from urban growth. At the same time, homeowners try to avoid increases in tax burdens due to urban growth. Local governments must respond to the interests of homeowners because property taxes are the single largest source of fiscal resource (Fischel 2001). Accordingly, governments enforce local restrictive zoning or growth controls for preserving or enhancing housing values while keeping tax burdens at the lowest level possible. Stated otherwise, suburban jurisdictions where homeowners are usually dominant protect only the economic interests of single-family housing owners "under the banner of improved environmental quality" (Frieden 1979; Schwartz, Hansen, and Green 1981).<sup>5</sup> Through this process, homeowners and suburban governments make the most of municipal fragmentation without regard for regionwide coordination.

As shown above, political fragmentation is a basic and long-standing condition of the United States' metropolitan regions. Here, the problem is neglect of regional impacts of each locality's restrictive zoning or growth controls. Under the environment of fragmentation, localities do not have to consider coordination with other localities to minimize the negative regional impacts of local growth controls.

Given the politically fragmented context, growth controls used in a certain locality shift population growth or land development to neighboring localities—*Stage 2*. This is the process of spillovers, that is, a regional impact induced by the localities'

enforcement of restrictive zoning or growth controls. The price effects of growth controls (i.e., higher housing costs) discussed previously produce spillovers. In other words, prospective or existing residents are "priced out" by unfavorable housing market conditions that occur because of local growth controls. These residents are forced to seek housing substitutes in neighboring localities. Also, homebuilders have to move residential development projects to other non-growth-controlled or less controlled localities because of unprofitable business conditions. In this stage, spillovers can be considered as one process propelling suburbanization or sprawl.

More important, growth controls have spread among suburban jurisdictions within metropolitan areas—*Stage 3*. The diffusion has been reinforced by the interdependence of policy decisions among neighboring jurisdictions, given political fragmentation.

According to Brueckner (1998), the spread of local growth controls is the result of a certain locality's response to a nearby locality's implementation of growth controls. This indicates interdependence of policy decisions among spatially connected jurisdictions. In reality, one locality's adoption of restrictive zoning (e.g., large minimum-lot size residential zoning) and growth controls (e.g., housing permit cap) tightens housing market conditions from local and even regional perspectives. Such conditions will induce spillovers toward nearby non-growth-controlled localities. Furthermore, in nearby localities, the conditions will generate disequilibria in housing and residential development markets, deteriorating amenities, and the resulting increase in the fiscal burden for provision of public goods. In this situation, neighboring jurisdictions choose to enact growth control or management to enhance their community amenities and lessen the fiscal burden. As a result, the spread of growth controls among localities is continuous. It is important to recognize that political fragmentation is the basic condition allowing for this interdependence in policy decisions among spatially proximate localities as well as the ensuing diffusion of growth controls within a metropolitan region.

With respect to spillovers, the diffusion of growth controls reveals spatial and temporal characteristics. As households are forced to seek housing substitutes in alternative localities, spillovers occur, and these localities in turn impose growth controls. Thus, additional spillovers occur. This process proceeds throughout space and time, eventually making households in search of housing reach the remote suburbs or fringe within metropolitan regions (Frieden 1979; Carruthers and Ulfarsson 2002; Shen 1996). This generates spillovers on the housing demand side, as shown by *Stage 4*.

The housing market—homebuilders—respond quickly to the diffusion of growth controls by seeking localities located at

the fringe, where growth controls are negligible. This leads to spillovers on the housing supply side, as illustrated by Stage 4. According to Frieden (1979), the diffusion of local growth controls and strong environment movements within the San Francisco Bay Area during the 1970s forced homebuilders to shift toward the metropolitan fringe where growth controls were absent. He adds that at the fringe, homebuilders tended to perform small-scale conventional developments to avoid possible local opposition from citizen groups. Frieden claims that such small conventional developments prompted suburban sprawl because developments were scattered, and, thus, they were prevented from supplying common space, community facilities, and mixed land uses.

With such spatial shifts, spillovers can exacerbate sprawl as uncontrolled outward expansion of urban development, as illustrated in Stage 4. This mode of developments causes environmental problems, economic inefficiency, and social justice issues. Ultimately, a process has been put in place that propels spillovers toward the urban fringe—and beyond—as localities resort to regulation to combat the negative consequences of growth-induced land development.

### ► Conclusion

During the past several decades, suburbanization and sprawl have claimed the attention of legions of scholars. Throughout the years, they have documented the extent of suburbanization and the attendant decline of central cities; its negative consequences to the environment, housing markets, social justice, and equity; and a range of allied themes. Others have developed theories and models that attempt to explain why and how suburbanization occurs and, more recently, how it is connected to exurbanization. Among these, natural-evolution and flight-from-blight theories have endured and, in many respects, remain the most popular explanations for suburbanization in the United States.

It is our claim that these explanations are outdated and ill-equipped to address suburbanization during recent decades. For this reason, we moved beyond the traditional view and presented a conceptual model that responds to processes shaping suburbanization in more recent years. The conceptual model builds on recent research that moves us toward a deeper understanding of suburbanization or sprawl.

Spillovers are at the core of our explanation because they embody residential choice behavior (housing demand) and the business decisions of homebuilders (housing supply). But the process fueling spillovers begins with the imposition of growth controls and/or growth management devices in

politically fragmented metropolitan regions as jurisdictions seek to dampen the negative impacts of growth and stabilize local budgets. Such efforts, made without regard for regionwide consequences, channel spillovers to unregulated settings, eventually reaching the distant suburbs at or beyond the urban fringe where regulations are far less restrictive, thus lowering costs for homebuilders and homebuyers. In this regard, our conceptual model builds on the work of Esparza and Carruthers (2000), who document how land use regulations imposed in isolated communities of the Rocky Mountain region promote exurban development. In our case, we consider the imposition of regulation and control in metropolitan regions, where numerous communities acting in “isolation” also promote the outward extension of development, given fragmentation.

It is important to mention that within fragmented metropolitan regions, factors other than growth controls and land use regulation may also feed spillovers. For example, varying property tax rates, the level and quality of public services, and impact-fees structures may also induce spillovers. We do not account for this broader set of factors in the conceptual model, yet we acknowledge their potential role. At this juncture, our aim is to advance new approaches to conceptualizing suburbanization and sprawl so that others may extend the conceptual model in future research.

There are several implications of our research that deserve mention. First, planning education should equip students with a deeper understanding of the processes fueling suburbanization or sprawl. Planning students should also learn how such processes have shaped suburbanization or sprawl with respect to the demographic complexion and development features involved in spillovers. The ecologically based models, taught in urban geography and urban history classes for generations, may have had explanatory power in past years, but they fall well short of explaining suburbanization or sprawl in the contemporary urban United States, where fragmentation and regulation work together to fuel sprawl. In effect, planners should be made aware of the pitfalls of land use regulations that are applied to affect outcomes, in the absence of a deeper understanding of processes. In short, layers of legal authority, land use regulations, homebuilding activities, and residential choice play out simultaneously in dozens of jurisdictions that collectively function as a metropolitan region.

Second, for this reason, planning education should emphasize planning at the regional scale rather than at the jurisdictional or urban scale. Many programs across the country have responded to the emergence of the “regional problem,” but it is clear that regional planning should be positioned at the center of learning.

Third, our students need to be made aware of the complexity of regional systems, given the growing arsenal of land use regulation, growth controls, and growth management devices that fill the “toolbox” of the contemporary planner. Our conceptual model attempts to recognize and account for the complexity inherent in metropolitan regions as policies lead to unintended consequences. Foremost, this is the lesson we wish to impart: the contemporary metropolitan region is far from planned or intentional, and sprawl is the outcome of short-term decisions aimed at alleviating longer-term problems. Education is one way of bringing planning back to metropolitan regions.

### ► Notes

1. Brueckner (2000) recognizes that the middle class forms communities at the suburban fringe in response to central city decline and increasing tax burden. At the suburban fringe, the middle class aggravates sprawl through fiscal and exclusionary zoning.

2. According to Mayer and Somerville (2000), regulatory delays can include (1) delays until (re)zoning or subdivision approval; (2) negotiation over the provision of on-site and off-site infrastructure as well as over size, density, and the form of proposed development projects; and (3) delays for obtaining building permits. These regulatory delays raise financial and time costs, and heighten uncertainty concerning the outcome and length of the regulatory process, thereby reducing the amount of new construction.

3. In this regard, Lillydahl and Singell (1987) state, “In cities located in metropolitan areas where growth controls are largely absent, growth controls may have little or no effect on housing prices but they increase building activity in surrounding communities.” This implies spillovers serve as a mechanism that stabilizes housing price inflation generated by local growth controls. As Elliott (1981) points out, however, in the case of metropolitan areas where growth controls are widespread, local growth controls may have considerable price effects.

4. Traditionally, growth means more tax revenues for localities, although growth also increases the cost of public services and infrastructure provision (Durbin, Kiewiet, and Noussair 1992). For this reason, localities welcome new development as long as tax revenues at least balance costs of additional public services or infrastructure without raising tax rates or deteriorating the quality of life (Thorson 1997). When the marginal costs of public service and infrastructure provision increase beyond the balance point, however, servicing new developments for accommodating negative externalities of development increases tax burdens for existing residents because of average-cost-based financing. Furthermore, new development structurally produces environmental degradation such as the depletion of open space and agricultural land. Since the 1970s, many suburban localities in the United States have endured population growth that localities were not able to service without raising taxes. As a result, the localities have enforced restrictive zoning or growth controls without prioritizing pro-growth policies (Durbin, Kiewiet, and Noussair 1992).

5. In this respect, the socioeconomic and demographic characteristics of residents in a locality influence the locality’s adoption of restrictive zoning or growth controls. Durbin, Kiewiet, and Noussair (1992) show the relation of people’s preference for growth control to their socioeconomic status (e.g., homeownership and ethnicity), political stance (liberal versus conservative), and perceived quality of life (e.g., traffic experience). The study uses voting results on propositions of growth control measures in San Diego County and the City of San Diego, California, in 1988. Brueckner (1998) deals with the significant effects of a city’s socioeconomic characteristics on growth control efforts as a response to the enactment of growth controls in nearby jurisdictions. Dowall (1982) classifies growth-managed or -controlled localities by their fiscal, social, and environmental characteristics and confronting pressures through cluster analysis.

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