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## **Government Urban Growth Controls**

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### **Introduction**

Government controls on urban land use are as pervasive as death and taxes. Certainly, I have never been in or seen reference to a country that placed no or even almost no, controls on how owners could develop and use urban land. The most comprehensive study of urban housing development policies, Angel and Mayo (1996), which covers 53 countries that include 80 percent of the world's population, included none that approximated free markets in housing.

Land use controls are myriad in content and procedure. Each country is different. In countries such as the U.S. where they are primarily the responsibility of independent local governments, almost every local government has a different menu of controls. Instructively, an important dichotomy is between land use controls that try to keep densities below and those that try to keep densities above levels that free markets would dictate. In Korea, most other Asian countries and most European countries, land use controls mostly try to increase densities above free market levels. In the U.S., land use controls pervasively set upper bounds to urban development densities. Consistent with our compulsion for diversity, a vociferous lobby has developed in the U.S. in recent years in favor of controls that would force densities in excess of free market levels. Marching under the banner of growth control, anti-sprawl and smart growth, devotees advocate greenbelts, open space controls, growth boundaries, etc. Most such advocates seem to be unaware that their enemies are traditional local government controls, not

free markets.<sup>1</sup> Despite loud rhetoric, only two places in the U.S. so far have adopted serious anti-sprawl policies: The Portland, OR metropolitan area and the City of Boulder, CO. Portland has a state-mandated growth boundary and Boulder has a locally generated greenbelt.

This paper focuses on controls intended to limit the growth and increase the density of metropolitan areas. My example is Korea, indeed Seoul, mainly because I have been an intermittent visitor there during more than a quarter century. However, most of my remarks apply as much to almost any other Asian country as to Korea. I am also aware that Korea's urban growth controls have been relaxed somewhat during the last decade or so. But my remarks do not require up-to-date knowledge of any country's growth control policies.

### **The anatomy of growth controls**

Growth controls of course vary in details, but basically are of two kinds; greenbelts and land use conversion controls.

Greenbelts are contiguous areas, more or less surrounding a metropolitan area, in which urban development is prohibited by law. All large Korean cities have had greenbelts for more than a quarter century. Seoul's greenbelt surrounds the city. The inner edge of the greenbelt is 5-10 kilometers from the city center and the greenbelt is 8-15 kilometers wide. Greenbelt land is mostly private property, some is farming and some is forest. Greenbelt landowners have not been compensated for their deprivation of development rights. Farm and related buildings were grandfathered when greenbelts were established. Although modern greenbelts were first established in England, they are most commonly found in Asia.

Controls on conversion of land uses from rural to urban activities pervade not only Korea and most of Asia but also most of Europe. The U.S. has no explicit land use conversion controls, except for eccentric farmland preservation provisions of national legislation. Land use conversion controls simply require government permission to develop land, typically in agricultural use, with urban buildings. Korea has long had a much-studied sophisticated and complex set of controls, referred to as Land Readjustment Projects. Typically, the government designates some contiguous rural land parcels of a few hundred hectares, near the outer edges of the metropolitan area. It buys the land by eminent domain, installs infrastructure (roads, schools, etc.) on some of the land and resells the remainder to private

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<sup>1</sup> Many organizations are anti-sprawl. Two leading Washington anti-sprawl advocates are the Urban Land Institute and the Surface Transportation Policy Project.

developers to build prescribed structures and sell them to prescribed groups of residents. Frequently, rural owners have resisted selling their land to the government for readjustment projects because of the low prices offered. The government's Ministry of Construction frequently makes large profits on conversion projects (See Hannah, Kim and Mills (1993)).

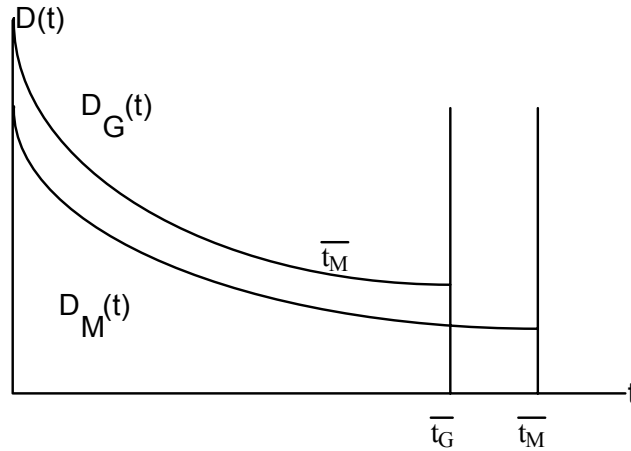
Logically, strong conversion controls make greenbelts unnecessary. Conversion controls enable government to permit urban development how, when and where it wishes. They permit complete flexibility to government, unlike greenbelts, which are physically difficult to expand and politically difficult to contract. As urban growth proceeds, economic and political pressures build up to permit urban activities to jump outside greenbelts. That has certainly happened in Seoul, and the government has built both road and fixed rail transportation systems through the greenbelt and has designated the National Capital Region that extends far south of Seoul.

### **Economic analysis of growth controls**

I start with the simplest model of housing in a noncentric metropolitan area. I assume that land and housing markets are competitive and that a transportation system (not modeled) moves workers between residences and central workplaces at constant money and time costs per kilometer of travel. I assume that housing is produced with structural capital and land inputs. The price (or rental) per unit of structural capital is exogenous to the metropolitan housing market, but the price (or rental) per unit of land equilibrates the housing market so that dwelling owners receive a competitive return from ownership. If the housing/structure land ratio were constant, then in long run equilibrium population density would decline linearly with distance from the central workplace. But the best estimates (see Thornes (1997)) are that the elasticity of substitution between housing structures and land is close to one. In that case, and in the absence of government restrictions, the density-distance function  $D_M(t)$  has the shape shown in the Figure 1. In Figure 1,  $t$  indicates distance from the central workplace and subscript  $M$  refers to the market equilibrium density function. The metropolitan area extends from  $t = 0$  to  $t = \bar{t}_m$ , where  $\bar{t}_m$  is the maximum distance at which urban activities outbid rural activities for land.

If residents have preferences for particular housing densities, they are reflected in the market density function. Suppose, for example, that residents prefer low to high housing density at given housing prices, then the market density function is lower and flatter than it would be in the absence of such preferences.

Figure 1: Density and distance function



Now suppose that, instead of a competitive market for land, the government has a binding limit  $\bar{t}_G$  to the radius of the metropolitan area, but otherwise permits housing markets to function competitively. Then the density function is instead  $D_G(t)$ , which represents the density pattern that equilibrates the metropolitan housing market if the population is squeezed into an area shorter of radius,  $\bar{t}_G < \bar{t}_m$ .<sup>2</sup> It is immaterial whether the binding constraint is imposed by a greenbelt or by conversion controls, provided the constraint limits the radius of the metropolitan area to  $\bar{t}_G$ .

Residents are of course equally well off at all density-distance combinations for a given density function. But  $D_G(t) > D_M(t)$  for any  $\bar{t} \leq \bar{t}_G$ , so at each  $t$  density is greater, housing prices are greater, housing per resident is less and residents are less well off with the government control than without the control.<sup>3</sup>

<sup>2</sup> If the metropolitan area is “closed”, then  $D_G(t)$  and  $D_M(t)$  accommodate identical populations. If the metropolitan area is “open” then residents choose among metropolitan areas so that utility is equated among all metropolitan areas. If similar controls are imposed in all metropolitan areas, all are effectively closed and no migration results. If the metropolitan area is effectively open, but employers are also free to move among metropolitan areas, then things become more complex, but the situation in the figure is nevertheless relevant. (See Hamilton (1978)).

<sup>3</sup> The restriction of the comparison to  $\bar{t} \leq \bar{t}_G$  is immaterial. Since everyone is equally well off at all points on  $DM_2$  those living at values of  $t$  in the interval  $\bar{t}_G \leq t \leq \bar{t}_M$  are better off than those living at  $t \leq \bar{t}_G$  on  $DM$ . The above results have implicitly assumed that all residents have the same incomes and tastes. But it has long been understood that residents with diverse incomes and tastes will self-segregate at various values of  $t$ , under reasonable assumptions. The conclusion does not depend on how residents self-segregate. At any  $t$ , housing price (or rent) must be greater with  $DG$  than with  $DM$ . The government control reduces the land available for

Of course, commuting distances are shorter under  $D_G(t)$  than under  $D_M(t)$ , but that does not affect the conclusion that all residents are worse off under  $D_G(t)$  than under  $D_M(t)$ . Residents are indifferent among points on  $D_M(t)$  and among points on  $D_G(t)$ . But residents are worse off at all points on  $D_G(t)$  than on the point on  $D_M(t)$  for the same  $t$ . It follows that residents are worse off at all points on  $D_G(t)$  than at all points on  $D_M(t)$ . The benefits of shorter commutes under  $D_G(t)$  than under  $D_M(t)$  are capitalized into house values, which is why house values are greater under  $D_G(t)$  than under  $D_M(t)$ . Any attempt by government to control housing prices on  $D_G(t)$  would make residents even worse off than they are on  $D_G(t)$ .

The conclusion that residents are worse off under  $D_G$  than under  $D_M$  does not depend on residents being owners or tenants. By far the largest part of housing ownership cost is interest on mortgages and foregone income on owners' equity. Together, they are proportionate to dwelling value. The same costs are passed on to tenants by landlords.

Other costs (depreciation, maintenance, repair, taxes and insurance) are similarly incurred by owner-occupiers or are passed on to tenants in competitive housing markets. Landlords receive a competitive return on their equity under  $D_G(t)$  and  $D_M(t)$ . In countries such as the U.S., real estate taxes are different for owner-occupiers than for tenants/landlords, but such differences do not alter the conclusions of this analysis.

All the above refers to static long run equilibrium. What happens as the world changes: if growth controls are instituted, made more stringent or become binding, or incomes or population increase in the metropolitan area? Of course, housing prices rise and owners make capital gains. If owners can pocket their capital gains and move where constraints are less binding or housing is cheaper for other reasons, they are ahead. (Los Angeles residents sometimes sell their high priced residences and move to Phoenix where housing is much cheaper, partly because land use controls are more relaxed.) Tenants are made worse off whatever they do. If owner-occupiers stay in the metropolitan area or move to another similar metropolitan area, the house price increases make them no better off. The capital gain is offset by the capitalized value of the increase in annual housing cost, mostly the increase in actual mortgage interest cost or in foregone income on owner's equity. Even if owners are elderly and have short life expectancies, if their children live in the same or a similar metropolitan area they are no better off with the greater legacy since they are subject to the same increase in housing cost. Thus, the correct conclusion is that, with minor exceptions, nobody is made

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housing in the metropolitan area, which must cause land's price (or rent) to be greater than without the control. I assume that the cost (or rent) per unit of structure capital is not less under the control than without it. Then the higher price of land under G causes the price of housing to be higher than under M.

better off as a result of increased stringency of growth controls, be they greenbelts or land use conversion controls. If the growth control is by greenbelts, but conversion is permitted outside the outer edge of the greenbelt, the same qualitative results follow, but the quantitative efficiency loss is likely to be less. In that case the loss is the wasted cost of commuting and other traffic through the greenbelt and the social efficiency loss of having part of the metropolitan area artificially separated from other parts. In Seoul, at least until a decade or so ago, conversion controls were stringent even outside the greenbelt, resulting in excessive housing costs both inside and outside the greenbelt.

### **Benefits of growth controls**

Based on the preceding analysis, only a malevolent government would enforce growth controls. Surely, that cannot be the correct portrayal. In fact, several arguments have been or can be made in favor of growth controls. I analyze the claims I have seen or can think of in this section.

The most ancient argument in favor of controls on urban growth is the claim that rural life in the focus of virtue, independence and self-sufficiency. In the U.S., this belief has been associated with Thomas Jefferson and a horde of writers during the two centuries since his time. But the idea has existed in many other countries. To my knowledge, the virtue of rural life has not been a major literary theme in Korea, perhaps because the country is small enough that rural residents have long been able to have relatively easy contact with nearby urban life. Certainly, the high rural literacy rate has made the rural-urban distinction less sharp than in many countries.

Some traditional anti-urban arguments have certainly been self-serving. Jefferson himself was a plantation and slave owner and benefited from low rural wage rates. That was typical of the U.S. South even after slavery ended; southern plantation owners certainly benefited from cheap black workers until after the middle of the twentieth century. On the other hand, in other parts of the U.S. farms were small and farmers employed little paid labor. Many large landowners have benefited from cheap farm labor in the United Kingdom and Latin America, and elsewhere. Legal obstacles have sometimes made rural-urban migration difficult in some places.<sup>4</sup>

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<sup>4</sup> At some times and in some laces, certainly in India, Russia and the U.S., poor farmers have typically needed to borrow money in order to plant seed and pay other expenses before crops are harvested and sold. Laws may prevent farmers from leaving the land until loans are repaid. Monopoly power on the part of moneylenders may enable them to charge high enough interest rates that farmers cannot pay off their debts.

It is possible to have some sympathy for anti-urban sentiments. Urban crime rates have always exceeded rural levels in the U.S. and most other countries. Even in the U.K., urban death rates exceeded those in rural areas until after Dickens' time. However, since the industrial revolution, in some countries and during the last 40-50 years in most countries, most economic growth has taken place in urban areas and urban incomes have been two or more times rural incomes in many developing and transitional countries. In recent decades, urban birth and death rates have been lower than those in rural areas. (See Becker and Morrison in Cheshire and Mills (1999)). During at least four decades, Korea has experienced rapid and smooth urbanization. I find it impossible to have sympathy for arguments for the superiority of rural life in almost any country during any part of the last century or so. Of course, people should choose freely where to live and work, but I see no virtue in government attempts to curtail urban growth. Invariably, anti-urban biases are focused on preventing poor people from migrating to urban areas or on removing the poor from urban areas. Such policies have been endemic in Latin America and India and, in earlier years, in Korea. Frequently, the excuse is that the poor live in illegal housing, typically because no housing they can afford meets legal standards, thus criminalizing urban poverty.

A related justification for controls is to affect the relative sizes of urban areas by making controls more stringent around the largest urban areas. Physical controls are never a good way to alter the size distribution of urban areas. More important, governments are typically the cause of excessive sizes of the largest urban areas. In Korea, for example, the best secondary schools, universities and public infrastructure have been established in Seoul. In addition, government offices with which businesses must interact are concentrated in Seoul. Attempts to decentralize government offices have been made in recent years.

Closely related is the political fact that most governments fear large metropolitan areas. Only there can large groups of people be assembled to demand political changes, some good and some bad. Pressure to democratize Korea was concentrated in Seoul. Similarly, black Americans made progress in demanding civil rights only as they migrated to cities from the rural south in the 1950s and 1960s.

Much the same argument, strongly made by planners, is that market forces just produce largest metropolitan areas that are excessively large. Except for cases, such as Seoul, where governments have overinvested, there is no evidence or analysis to support the conclusion. Nor is there any reason to believe that government controls follow a coherent plan to alter the size distribution of urban areas. Direct controls on growth would certainly not be an efficient policy to implement such a plan.

A defense specifically of greenbelts is claims of environmental and amenity benefits. It is important to distinguish between the two claims. Environmental protection means protection against air and water pollution. Dispersal of emissions sources does of course provide some protection from air and water pollution, but greenbelts are a clumsy policy for the purpose. The voluminous literature on environmental policies invariably focuses on charges or direct controls on emissions. Charges or controls may indeed need to be more stringent in large high-density metropolitan areas and the result may be some source dispersion. But greenbelts are hardly appropriate environmental controls. Extra travel across greenbelts may actually increase emissions.

It is frequently claimed that greenbelts provide amenity benefits. That claim must be qualitatively correct. In a crowded city such as Seoul, residences close to the edge of the greenbelt must provide subjective advantages to residents. (See Lee and Linneman (1998) and references therein.) But greenbelts can hardly be sensible amenities. For starters, greenbelt land is private land, to which residents do not have access. Second, greenbelts are too large and poorly located for recreation, etc. Seoul certainly could justify more public open space, especially in crowded areas. Contrast London, which has excessive public open space. Buying and clearing land in the vicinity of central Seoul would be extremely expensive. Some large housing developments, especially south of the Han River, have considerable open space. As a second best policy it might indeed be justifiable for government to buy substantial parts of greenbelts, open them for public use (hiking, picnicking, sports, etc.) and permit sale of remaining greenbelt space for private urban development. In some countries, including Korea and the U.S., when governments want agricultural land for urban development, they buy the land by eminent domain at agricultural prices, rezone it and resell it to private developers at urban prices, which may be 10 times as great as those the government paid for the land.

The final important argument in favor of development controls is that they prevent excess travel and congestion. This argument is popular in both Korea and the U.S. In the U.S., it goes under the rubric of “smart growth” or “anti-sprawl.” The claim is that development controls generate high density metropolitan areas so residents can live close to work places and that high densities make fixed rail public transit feasible. Many U.S. writers regard the connection between suburbanization and congestion as axiomatic.

In high-density metropolitan areas such as Seoul and Tokyo, streets are inevitably crowded with cars, trucks and buses. In almost any large metropolitan area such fixed rail commuter lines are justified, but they should be built sparingly because construction is extremely expensive and disruptive and they are invariably operated with massive subsidies. In the



U.S., fares rarely cover operating costs; much greater capital costs are financed with government subsidies.

Suburbanization and congestion have almost nothing to do with each other. In Chicago and many other U.S. metropolitan areas, more than half of both residences and jobs are located in suburbs. Despite controls that permit only absurdly low suburban residential densities, it would be easily possible to reduce commuting kilometers by about 15 percent without building any new dwellings or roads. (See Mills (1998)). All that is needed is fuel taxes that would make fuel costs about the same as those in Japan, Korea or most of Europe. Such fuel costs also have the virtue that revenues would about cover the opportunity cost of urban roads. Residents would effectively “swap” dwellings to move closer to work places. Electronic pricing of road use could be employed instead, but it would be very expensive to install and operate and would be subject to abuse and sabotage. If low residential density limits were also relaxed, road use would be further reduced as housing densities increased near important work places.

Predominant reliance on automotive vehicles for commuting would not be feasible at current population and employment densities in Seoul. Nor would I advocate abandonment of Seoul’s extensive subway system. But the sale of substantial parts of the greenbelt for residential and business development could remove the need for rapid expansion of expensive fixed rail commuter systems.

Korea is a crowded and industrial country. Land is inevitably much more expensive relative to incomes than in the U.S. Metropolitan densities would not and should not approach low U.S. levels even in a much freer land market than exists in Korea. But the social efficiency of Seoul and other Korean metropolitan areas could be enhanced if urban land development were much less regulated by government and much more by competitive market forces.

### **Why do governments regulate urban land use?**

The foregoing leaves unanswered why government regulation of urban land use is pervasive. Historically, an important argument in Korea has been to preserve agricultural land so that food can be provided from domestic sources to feed the population in case of an emergency that might impair agricultural trade.<sup>5</sup> That is no longer important, if it ever was, since Korean

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<sup>5</sup> Incredibly, the same argument is made in the U.S., that agricultural land must be preserved against suburban sprawl since it will be needed in the future to produce food to feed the population. The argument is laughable in a country that has been plagued with agricultural

agricultural productivity has increased so much. In addition, permitting urban competition for agricultural land would induce further increases in agricultural productivity.

Frankly, I am not sure why land use controls remain so popular and pervasive. At the national level, planning has long been discredited by technical economist and has been practically discredited during the last two decades. But a mystique still surrounds urban planning, at least in the U.S., and in most of Europe. Certainly, governments love to regulate people's lives and have done so pervasively in the U.S. in recent decades, but have regulated less in Korea and in other transitional economies during the last two decades or so.

In the U.S. arbitrary rezoning to lower permitted densities has become endemic in Chicago and some other metropolitan areas. Despite elaborate ideological rhetoric, the realistic explanation is that property owners benefit by reducing competition from similarly high density neighboring dwellings. But that motivation can hardly explain controls to increase density in Korea and elsewhere.

In the U. S., especially in high income metropolitan suburbs, controls that restrict housing supply and make house prices high frequently appear to be motivated by a desire to exclude low income people from the community. However, a sequence of papers by Epple and others<sup>6</sup> suggests that land use controls are hardly needed for the purpose. Of course, high housing prices exclude low-income people whether the controls for the purpose are U.S.-style restrictions to low densities or metropolitan area-wide land use controls to impose high densities. I find it somewhat difficult to believe that Korean greenbelts have been imposed in order to keep low-income people on farms while others take advantage of urban growth opportunities. Indian governments have certainly taken erratic measures to exclude or remove poor people from at least parts of metropolitan areas, although with only slight effect. But Korea's more centralized government just does not appear, at least to this foreign observer, to have such discriminatory attitudes.

My conclusion is that I see no virtue in growth controls, whether by greenbelts or by conversion controls, but nor can I find a coherent reason for their popularity; indeed, at least in the U.S., for their increasing popularity.

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surpluses for most of a century, where every responsible analysis forecasts continued surpluses, and enough food is or could be produced to fill deficits in many other countries.

<sup>6</sup> See Epple and Platt (1998) and references therein.

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