

Elements of an Ideal Urban Policy

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This paper sketches a number of elements of an ideal urban policy. The features of an ideal fiscal system are discussed, and the potential need for modifications to that system to account for special features of the urban economy are noted. The discussion also considers a number of policies that affect the spatial sizes of cities, the size and composition of their populations, and their industrial makeups.

JEL Classification: R00, R14, H71, H72

Keywords: urban policy, local public finance, urban sprawl

I. Introduction

Government policies dealing with economic activity in cities represent an important component of broader economic policy. The proper organization and functioning of urban areas is a key factor in the economic vitality of a country, and government policies play a role in fostering such urban health. The purpose of this paper is to sketch elements of an ideal urban policy. The discussion draws on well-accepted principles from the vast literatures in urban economics and local public finance, and some representative sources from these literatures are cited along the way.

Recognizing that an important role of cities is to provide public goods and services for their residents, the paper starts with a discussion of optimal fiscal arrangements in an urban economy. The guiding principle underlying such arrangements is local autonomy in the provision of public goods. Such autonomy fosters variety in the local public sector, with cities providing different amounts of public goods according to the preferences of their residents. Ideally, public goods

Received: Dec. 1, 2012. Revised: Feb. 26, 2013. Accepted: March 5, 2013.

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should be financed by nondistortionary taxes, such as user fees levied on each household. Equity issues should be addressed via appropriate income redistribution at the national level, or equivalently through a system of intercommunity transfers between rich and poor cities.

The discussion then considers complicating factors that call for divergence from the simple system sketched above. One such factor is benefit spillovers, where individuals consume not only the public goods in their own city, but those provided in other cities as well. An example might be use of a city's parks and recreation facilities by nonresidents. In this case, fiscal arrangements must be altered to ensure that public goods are provided in the correct amounts. In particular, the central government must subsidize the provision of public goods at the local level through a system of matching grants, where the central government pays for a share of each city's public expenditure. Another complication arises when a country's institutional tradition dictates reliance on distortionary property taxes, which affect the allocation of investment across cities, in order to finance public goods. In this situation, matching grants are again required to generate the proper amounts of public goods.

While income redistribution in a society is most naturally the responsibility of the national government, many countries allow for redistribution at the subnational level. For example, the main public assistance program in the U.S. is not the responsibility of the federal government, but is administered instead at the state level. The discussion considers the benefits and drawbacks of such an arrangement, and argues that matching grants are once again required to ensure the proper amount of redistribution by subnational governments. Thus, a main theme of the discussion is that matching grants are the proper tool to deal with a variety of complicating factors that rule out the establishment of the simple fiscal system described above.

As well as fostering the proper provision of public goods and services, urban policies can help ensure that cities take up the right amount of space, and that the composition and size of their populations, as well as their industrial makeup, are ideal from society's point of view. Section 3 considers such policies. Urban traffic congestion is one phenomenon that may distort land-use outcomes, and under an ideal policy, government intervention is required to correct the distortion. Under congested conditions, road use by individual commuters generates a negative externality, so that the private cost of commuting lies below the social cost. Government intervention in the form of a congestion toll is required to align these costs. By raising the cost of commuting, congestion tolls lead to shorter commutes and more-compact cities.

Mispricing of urban infrastructure may also distort urban spatial sizes and populations. If housing developers do not face the full cost of the incremental infrastructure (roads, sewers, etc.) required by their residential developments, then housing construction, and urban expansion, may occur when it is not socially

justified. Therefore, an ideal urban policy ensures that housing developers pay the actual marginal infrastructure cost associated with their projects, so that the full social cost of development is taken into account. Such a policy ensures that urban expansion is not excessive. Greenbelt policies, which directly restrict the spatial sizes of cities, also can be used to attack urban sprawl, but the discussion argues that such policies hold the potential for misuse.

Another type of government intervention may be required to foster the agglomeration of economic activity in cities, again in response to an externality. The problem is that, while benefits from dense concentration of economic activity spur the growth of urban employment, the private gain from new business formation in cities may fall short of the social gain. The reason is that the agglomeration benefits that other firms enjoy when a new business locates in a city are not taken into account by that establishment. To ensure correct incentives for business location, urban policy can offer location subsidies to firms in industries where agglomeration economies are important. For example, the government could subsidize land costs in high-tech industrial parks in order to encourage an optimal concentration of high-tech firms within cities.

A final policy intervention concerns government efforts to ensure the economic health of central cities by attracting high-income residents to centrally-located neighborhoods. It can be argued that investment in the restoration and maintenance of historical amenities, which are plentiful in European city centers, will generate this outcome. The argument is that high-income households place a high value on historical amenities, and that presence of such amenities can draw these households from suburban locations to city centers, increasing the economic health of downtown neighborhoods.

II. Optimal Fiscal Arrangements in an Urban Economy

2.1. The ideal system

Public goods and services are important elements in the range of commodities consumed by members of a modern society. Such goods include education at the primary, secondary, and university levels; police and fire protection; roads and public transit; parks and recreation facilities; health services, which are publicly provided in most Western countries (an important exception is the U.S. case, where private provision dominates); and national defense.

Free markets guide the allocation of private consumption goods in Western societies, ensuring that individuals can fulfill their demands at prevailing prices. Public goods are, by contrast, not allocated by a market process, and the absence of a

market may prevent consumers from securing the amounts of public goods that they desire. The absence of a market can be overcome, however, by exploiting the fact that most public goods are “local” in nature. This means that a public good can be provided efficiently in jurisdictions that are small relative to the national economy. Empirical evidence shows that the efficient scale for most public goods, where cost per capita falls to a minimum level, is achieved in small to medium size cities. For example, while police and fire protection are expensive on a per capita basis in a very small city, these costs cannot be reduced further once a city has reached a modest population size, say 100,000 people. Beyond this size, further increases in population have no effect on cost per capita. Similarly, while education may be expensive on a per-student basis in a school district with 750 students, no further cost reductions are possible once a district enrolls 5000 students.

The local nature of most public goods provides the key to achieving a market-style outcome in the public sector. Because a given public good can be efficiently provided in relatively small jurisdictions, the national economy can be divided into many separate jurisdictions, each providing a different amount of the good. The resulting variety in public goods levels offers consumers the range of choice they would experience in a market setting. Consumers with a strong preference for a given public good can fulfill their high demands by residing in a jurisdiction that provides a high level of that good. Conversely, low-demand consumers can satisfy their modest needs by residing in cities providing a low level of the good. Each city would, of course, collect taxes from its residents commensurate with the level of services provided.

For example, consumers with a high demand for education would live in cities with high level of school spending per pupil, paying commensurately high taxes. The strong education demands of such consumers might reflect high incomes, or alternatively, a high subjective value for education. Low-demand consumers, by contrast, would live in cities with low spending per pupil, paying correspondingly low taxes. The upshot is that consumers with different demands for public goods sort themselves among jurisdictions, ending up with different levels of consumption, exactly as they would in market setting.

In contrast to this outcome, imagine a situation where national policy requires all jurisdictions to provide the same level of a given public good. National policy may require, for example, that spending per pupil be set at an intermediate level in all school districts. In this case, local governments have administrative responsibility for public-good provision, but they lack autonomy. The result is that the variety of public-good offerings, as described above, is suppressed, denying consumers the range of choice available under the ideal system. High demanders of education, for example, are unable to satisfy their desires, as no high-spending school districts exist. Similarly, low demanders must consume more education than they want, given that low-spending school districts are unavailable.

This discussion suggests the first principle of an ideal fiscal system: *local autonomy in the provision of public goods and services*. Such autonomy allows for a range of choice in public good levels, and the resulting sorting of consumers across jurisdictions leads to a market-style outcome in the public sector.¹

The discussion so far has made no mention of equity issues. For example, the low demanders of education may consist largely of poor consumers, and the discussion suggests that such individuals will end up sorted into low-spending school districts, an outcome that may be viewed as inequitable. The remedy is income redistribution in favor of poor households. Such redistribution could occur via the national system of income taxes, or via a system of intercommunity transfers from rich to poor jurisdictions. Note that these two redistribution mechanisms are equivalent if the process of community choice leads consumers to sort perfectly by income.

It is important to realize that, while equity concerns necessitate income redistribution, they do not overturn the fundamental principle of local autonomy in the provision of public goods. Although redistribution reduces income inequality, some residual inequality remains, and this inequality in turn contributes to continuing differences in the demand for public goods across individuals. For the economy to respond to such demand differences, local autonomy in the provision of public goods must be preserved. With such autonomy, high- and low-spending school districts will still coexist, but the spending differential between them will be narrowed, reflecting the narrowing of the income distribution.

It is important to observe that the ideal system presumes that individuals choose their city of residence entirely on the basis of the public goods it offers, an assumption that may be unrealistic. For example, moving to a different city may require a change of job, and it is unlikely that most individuals would tolerate such a disruption simply in order to alter their consumption of public goods. The consumer sorting envisioned under the ideal system is feasible, however, in a particular urban context: in a large metropolitan area, where a central city is surrounded by a variety of suburban communities. Since many residents of such a metropolitan area are likely to work in the central city while residing in the suburbs, an individual's residential location, and thus his consumption of public goods, can be altered without changing the location of employment. In this situation, selection of a suburban community may be guided in part by public-good offerings, as envisioned under the ideal system. It is clear, however, that such choice behavior may be irrelevant for residents of small and medium-size cities in remote locations, where a change in public-good consumption can be achieved only by moving to a different metropolitan area, with a consequent change in the location of

¹ This principle was first proposed by Tiebout (1956). For additional discussion, see Oates (1972) and Wildasin (1986).

employment. Despite this obstacle, local autonomy in the provision of public goods remains a desirable feature of urban policy. Autonomy fosters freedom of choice in the public sector under conditions where such freedom is feasible.

A final feature of the ideal system concerns the method of taxation. Ideally, public goods should be financed through a non-distorting system of head taxes, or user fees. The need for such taxes is not apparent at this point in the discussion, but the rationale will become clear when the effect of other financing methods is considered below. Summing up, the features of the ideal fiscal system are as follows: *local governments enjoy autonomy in the provision of public goods and services; equity is ensured by appropriate income redistribution at the national level; local public expenditure is financed through non-distorting user fees.*

The following subsections consider the effects of various complications, which call for alterations to the ideal fiscal system. The first of these is the existence of benefit spillovers. The discussion then turns to the effect of distortionary methods of finance and other issues.

2.2. The effect of benefit spillovers

A complication frequently discussed in the literature concerns benefit spillovers, which arise when residents of a given city consume the public goods provided locally as well as those provided in nearby cities. Examples include the use of central-city parks by residents of suburban communities, or the use of city streets in an adjoining town during a shopping trip. In this situation, public goods generate benefits external to the community, which may not be considered when the community selects the level of provision of these goods. In making this choice, city residents compare their benefit from a marginal increase in the public-good level to the extra amount paid in taxes. The increase is warranted if the resulting benefit exceeds the additional cost in taxes, and the public-good level is optimally chosen only when the benefit from a small increase is just offset by the extra taxes paid.

The problem with this calculation is that the external benefits to residents of other communities, which arise because of spillovers from the given city's public goods, are ignored. The result is that when public goods appear to be optimally chosen from the point of view of the given city's residents, the level is too low from society's point of view, a consequence of the ignored external benefits. The conclusion is that, in the presence of benefit spillovers, public goods are *underprovided*. For example, central-city parks may not be sufficiently large and well-tended because local residents ignore the benefits enjoyed by suburban residents who visit these parks.

Addressing this problem requires modification of the ideal system. The goal is to elicit appropriate increases in public-good levels in all jurisdictions, responding to the overlooked external benefits. This outcome can be achieved by an *artificial*

reduction in the cost of provision of public goods to each jurisdiction, which will tip the benefit-cost comparison in favor of higher outputs. To engineer this cost reduction, the central government can subsidize the provision of public goods at the local level through a system of *matching grants*. Under such a system, the central government agrees to pay a fraction of the cost of those public goods that are viewed as generating benefit spillovers. The appropriate fraction could be ascertained by surveys of public-good users, which would identify their place of residence and hence the extent of spillovers. Public-good provision will expand in response to the stimulus provided by matching grants, achieving levels that are appropriate given the extent of spillovers.²

2.3. The effect of distortionary taxes

The non-distorting user fees envisioned as a revenue source under the ideal system are seldom observed in practice. Instead, local governments often rely on other instruments, with a common revenue source in Western countries being the property tax. This tax is levied on the land and capital embodied in residential and commercial buildings and industrial factories.

The distortionary potential of the property tax arises mainly through its effect on the distribution of capital investment across cities. A high property tax rate will discourage investment in a given city, with capital instead being invested in buildings and factories in communities with lower tax burdens. In theory, the allocation of capital across cities is adjusted until the net-of-tax returns are equal in all locations, which means that before-tax returns are higher in cities with high property tax rates. In such cities, the marginal investment project must earn a higher return than in a low-tax city, ensuring that the net-of-tax return is the same in both locations. In effect, fewer investment opportunities are exploited in high-tax cities, ensuring that the marginal project earns a relatively high return before taxes.

The theory predicts that when a city raises its property tax rate in order to spend more on public goods, it loses business investment as capital relocates to lower-tax communities. Therefore, the city's property tax base shrinks as its tax rate rises, and this loss of tax base dampens the incentive to raise the property tax rate. With cities therefore reluctant to increase their tax rates, the level of spending on public goods is depressed. Indeed, the literature shows that public goods are *underprovided* relative to the ideal system under a property tax regime.

Note that this outcome does not arise when public goods are financed by user fees. In this case, a higher user fee paid by a community resident is matched by a corresponding increase in benefits, a consequence of higher spending on public goods. As a result, there is no shrinkage in the tax base (i.e., in the number of users)

² For further discussion of spillovers, see Oates (1972) and Wildasin (1986).

as fees rise, and no dampening of the incentive to provide public goods.

To better understand the intuitive reason for underprovision of public goods under a property tax system, it is useful to consider the similar phenomenon of “incentive wars.” A good example of this phenomenon is the battle between the U.S. states to attract foreign automobile assembly plants over recent decades. Over this period, more than a dozen factories were built by foreign manufacturers, each involving an investment of hundreds of millions of dollars and thousands of jobs. To attract such plants, state governments competed by offering large incentive packages involving tax abatements, worker-training subsidies, and infrastructure investment, with a typical package worth over \$100 million. However, since all competing states offered similar packages, plant locations were apparently chosen on the basis of innate state characteristics, including the level of labor union activity, proximity of suppliers, and access to the transportation network. Thus, the state incentive packages appeared to have no effect location decisions, but each involved a large sacrifice of tax revenue that could have been spent instead on goods and services for state residents.

The outcome under a property tax regime is similar. Each community worries about losing tax base in response to a higher tax rate, in the same way that state governments fear loss of an automobile factory as result of failure to offer an incentive package. But since all communities think the same way, each keeps its property tax rate low, and each ends up with its fair share of investment. Analogously, in the case of incentive packages, each state offers a package, and since the effects cancel, plants are located based on other considerations. The upshot is that property tax rates are low (analogously, state tax revenue is wasted on incentive packages) for no good reason. The end result is inadequate spending on public goods and services. In the literature, this phenomenon and its outcome have become known as “tax competition.”³

In moving to an ideal fiscal system, it may be feasible to grant local autonomy in the provision of public goods, but replacing an existing property tax regime with a system of user fees may be more difficult. However, if a property tax regime is viewed as unalterable, its undesirable effects can be counteracted by a now-familiar instrument: a system of matching grants to local governments. As in the case of benefit spillovers, the tax-competition phenomenon engendered by a property tax regime leads to underprovision of public goods, and the remedy lies in a mechanism that stimulates their provision. By subsidizing the cost of local public goods, a matching grant system provides the proper stimulus, undoing the destructive effects of tax competition. The magnitude of required matching rate is not easily computed, but some modest degree of subsidy is likely to be adequate.

A property tax regime has another undesirable feature relative to a system of user

³ Zodrow and Mieszkowski (1986) provide one of the first analyses of tax competition.

fees: it may undermine the sorting of consumers according to the strength of public-good demands that occurs under the ideal system. In particular, low-income consumers under a property tax regime may have an incentive to move into high-income communities, for reasons explained below. The result is that high and low demanders of public goods are inefficiently mixed in the same jurisdiction, rather than being separated in different communities where public goods are tailored to suit their individual preferences.

The reason why mixing may occur is that, under a property tax regime, low-income consumers pay less than an equal share of the cost of public goods. This outcome occurs because such consumers live in relatively small, low-valued houses, which yield a low tax liability. High-income consumers, who live in large, high-valued houses, incur larger tax liabilities that exceed their per capita share of public-good costs. By contrast, under a user-fee system, the tax liabilities of all households are the same, regardless of income. As a result, there is no tax benefit to a low-income household from moving into a rich jurisdiction.

Although a lower tax burden provides an incentive for a low-income household to enter a high-income community, it does not ensure this outcome. The reason is that, while the household pays less than its fair share of taxes, it forsakes the ability to choose the public-good level, which instead reflects the high demand of the dominant high-income residents. The low-income household will gain by entering the community *only if the gain from a lower tax payment per unit of the public good offsets any loss that may result from consuming an excessive amount of the good*.

The literature shows that whether this condition holds depends on the relation between the income elasticities of demand for housing and the public good.⁴ The conclusion is that, although the outcome is not guaranteed, a property tax regime may disrupt consumer sorting according to public-good demands, which occurs under the ideal system. A similar conclusion obtains in the less-typical case where local governments levy income taxes instead of property taxes to finance provision of public goods.

The above feature of a property tax regime is not easily corrected by the actions of the central government. However, consumer sorting can be preserved through a particular passive activity of that government, namely facilitating the pursuit of *fiscal zoning* on the part of local governments. Under fiscal zoning, high-income communities enact housing-market regulations that impede the entrance of low-income consumers. Such regulations typically specify that residents must consume a minimum amount of housing, via a minimum lot-size restriction. If this restriction is sufficiently stringent, it makes residence in the community unaffordable to low-income households.

Fiscal zoning as practiced in the U.S. has been viewed as inequitable. This view,

⁴ See Wheaton (1993) for the relevant analysis.

however, is contingent on the implicit belief that U.S. income inequality is excessive, and that fairness requires high-income consumers to subsidize the public-good consumption of less fortunate households via unequal property tax burdens in mixed communities. A preferable approach is to preserve sorting while addressing income inequality through appropriate redistribution at the national level. This approach ensures that public goods are tailored to suit individual preferences while achieving society's equity goals.

2.4. Local income redistribution

Although it has been claimed that income redistribution should be the responsibility of the national government, the literature offers a counter-argument in favor of local redistribution. The argument points out that altruistic motives, which underlie much of the redistribution that occurs in actual economies, may differ across regions of a country. With such differences, the extent of income redistribution should differ regionally, with transfers being generous in regions where altruism is substantial and less generous in areas where higher-income consumers are more selfish.⁵ Assistance to the poor in the U.S. follows this prescription, being the responsibility of individual state governments, and the level of support varies substantially across states. This variation partly reflects interstate variation in average incomes (and hence charitable inclinations) among non-poor households, but it may also reflect interregional differences in innate altruism.

When a society pursues local income redistribution, further adjustment of the ideal fiscal system is required, for a number of reasons. To see the rationale, observe that local redistribution may generate a distortion similar to that emerging under tax competition. This distortion arises not from the migration of capital in response to property tax differences, but instead from the migration of poor households in response to interjurisdictional differences in the generosity of transfers. In particular, poor households are likely to relocate from jurisdictions where income redistribution is modest toward jurisdictions that provide more-generous support. This phenomenon is known as "welfare migration" in the U.S., and some empirical evidence suggests that its extent may be significant.

When welfare migration occurs, an increase in transfers to the poor is doubly costly for a jurisdiction. Not only must the more-generous transfer be paid to existing poor households, but additional outlays are required to support the welfare migrants attracted by the higher transfer. Faced with these double costs, a jurisdiction rationally restricts the extent of its generosity, keeping transfers to the poor below the level that would be chosen if the poor could not migrate. But, as under tax competition, each jurisdiction behaves similarly, and with support levels

⁵ This idea was first proposed by Pauly (1973).

depressed everywhere, each jurisdiction ends up with its fair share of the economy's poor population. As a result, no jurisdiction succeeds in repelling the poor by keeping its transfer low, so that transfers are insufficiently generous no good reason.⁶

Like in the case of tax competition, the proper response to this distortion is a system of matching grants, which now support local income redistribution instead of subsidizing tangible goods and services. With the central government paying a share of the cost of local redistribution, support levels rise toward values that properly reflect the extent of regional altruism. Until the passage of welfare reform in 1996, the U.S. welfare system relied on just such a system of federal matching grants, although it is not clear that they were motivated by the present argument.

Benefit spillovers provide a further rationale for matching grants in support of local redistribution. Spillovers arise when the residents of a given jurisdiction, while caring about the local poor, also care about the well being of poor households in other jurisdictions. Under these circumstances, a larger transfer to the poor in a particular jurisdiction generates altruistic benefits for non-poor households elsewhere, yielding a benefit spillover like those discussed above. Because these external benefits are not taken into account when the size of the transfer is chosen, its level is insufficiently generous. A system of matching grants can again help in correcting this shortfall.

It is important to note that if these benefit spillovers are perfect, so that each non-poor household cares equally about all the nation's poor, then the rationale for local income redistribution disappears, even though altruism may differ regionally. In this case, redistribution should be the responsibility of the central government.

Another rationale for central redistribution relies on an insurance argument. If different regions of a country experience stochastic income shocks over the business cycle, and if these shocks are not perfectly correlated, then interregional redistribution can perform an insurance role. Regions experiencing bad times can receive transfers from those experiencing good times, reducing the variability of income over the business cycle.⁷ If redistribution is carried out at the local level, however, such interregional income smoothing is not feasible. This consideration, along with the problem of welfare migration and the likelihood that benefit spillovers are substantial, provides a strong argument in favor of national rather than local redistribution.

2.5. Implications

The preceding discussion suggests that several modifications to the ideal fiscal

⁶ See Wildasin (1991) for an analysis of this issue.

⁷ Lee (1998) presents an analysis of this issue.

system described in section 2.1 may be required. When benefit spillovers exist, when the institutional structure dictates that public goods be financed by a property tax regime or a local income tax rather than user fees, or when reliance on local income redistribution is necessary, then a system of matching grants is needed to correct the resulting distortions. Moreover, as long as income has been optimally redistributed at the national level, local governments that rely on property or income taxes should be allowed to practice fiscal zoning to preserve sorting of consumers across communities according to their demands for public goods. Regardless of any modification of the ideal system that may be required, the principle of local autonomy in the provision of public goods should be maintained, fostering variety in the economy's offering of public goods.

III. Policies Affecting Urban Form

A principal goal of urban policy is to guide the process of city formation and growth, ensuring the proper extent and form of urbanization in a society. In this section, the discussion considers a number of policies that affect the spatial sizes of cities, the size and composition of their populations, and their industrial makeup, helping to ensure that these variables are set in a socially desirable fashion. The policies considered include congestion pricing in urban transport, infrastructure pricing, greenbelt policies, location subsidies for firms, and policies designed to attract high-income residents to city centers.

3.1. Congestion pricing

Roads and freeways in cities around the world are plagued by traffic congestion. This congestion reduces the speed of travel, lengthening the duration of intraurban trips and thereby wasting huge amounts of valuable time worldwide. Congestion involves a well-known externality, which arises because addition of an extra car to an already-congested road has the effect of slightly slowing the existing traffic, adding marginally to the previous congestion. The extra car thus imposes a cost on existing road users by lengthening the duration of their trips. The driver of the extra car, however, has no incentive to take account of the externality he imposes. As a result, the private cost of travel on a congested road, which consists of the out-of-pocket cost and time cost of the road user, falls short of the social cost. The difference is the damage from the externality, namely, the increase in time costs for other road users when an extra car enters the road.

Because the social cost of travel on congested roads exceeds the private cost, the roads are overutilized. The solution to this problem is congestion pricing, where a

congestion toll is levied on each road user, raising the private cost of travel. The congestion toll is set equal to the externality damage created by a representative road user, an amount equal to the increase in time cost for other users due to his presence on the road. Because the toll increases the cost of travel, some road users now find that the benefit from a trip on the congested road falls short of its cost. Such users may reschedule their trips to uncongested hours, switch to less-convenient, uncongested routes where tolls are not levied, or reduce the length or frequency of trips. In each case, traffic volume on the congested road falls, and congestion is eased (though not eliminated). A number of different methods for levying congestion tolls exist, as explained below.

Although congestion pricing is usually viewed solely as a means of improving the functioning of a transportation network, this policy may have a profound impact on urban form. To see the reason, observe that a large share of urban road travel consists of commuting trips. Many of these trips are directed toward congested city centers, with commuters converging on the center from residential locations throughout the urban area. When congestion tolls are imposed, commute trips become more expensive, and the natural response of commuters is to attempt to economize on commuting costs. The most natural way of doing so is to reduce the length of commute trips. The commuter can achieve this outcome by moving his residence closer to the city center. This change may not happen immediately but instead may represent a long-run response to the imposition of congestion tolls.

When all commuters simultaneously seek shorter commutes, the ultimate outcome is a denser, more-compact city. The city's spatial size shrinks as commuters move closer to the city center, and the density of housing ultimately rises to accommodate the population in a smaller land area. Economic theory demonstrates that, in the end, urban residents are better off in this more-compact city than they were originally. Lower traffic congestion, a consequence of internalizing the congestion externality via the toll system, is the source of this welfare gain. Note for the gain to materialize, the congestion toll revenue, which represents a net loss for the commuters, must be returned to them in some fashion (for example, in the form of lower taxes).

This discussion shows that in the absence of congestion tolls, urban residents commute too far, and cities take up too much space. In this sense, land-use exhibits inefficient "urban sprawl," with cities encroaching excessively on the surrounding agricultural land. Thus, congestion pricing is ultimately an urban land-use policy, which limits urban sprawl.⁸

Transportation engineers envision a variety of ways by which congestion tolls can be collected. One method that relies on the most modern technology consists of a system of roadside congestion sensors paired with metering devices on cars. The

⁸ For a recent analysis establishing these points, see Wheaton (1998).

roadside sensors would compute the appropriate congestion toll per mile over each link of the road network, transmitting this information to the onboard meters, which would generate monthly congestion bills for commuters. Simpler approaches would involve adding congestion taxes to weekday charges for downtown commuter parking, or by requiring users of congested central roadways to display a sticker on their windshields attesting to the payment of a monthly congestion fee. A system of the latter type was successfully employed by Singapore in its initial implementation of congestion pricing.

3.2. Infrastructure pricing

New housing development on the urban fringe necessitates substantial infrastructure investment. Roads must be extended to serve the new developments, sewer and electric lines must be laid, and parks and schools must be built. The cost of these investments is, of course, borne by taxpayers, but the allocation of this tax burden has an important effect on the development process. The question involves the “pricing” of infrastructure to the ultimate user.

To see the issues involved, consider the rule that guides socially-desirable development of land for urban use. The rule says that development is warranted when the social value of the land in urban use exceeds its social value in the next-best alternative use, presumably agriculture. The social value of land in urban use is equal to the present value of rental income from the housing built on the land, less the cost of construction and the cost of the added infrastructure needed to serve the new housing. The social value of the land in agricultural use equals the income from the sale of agricultural products less the cost of production, all in present value terms.

For the activities of private developers to generate socially optimal land development, their decisions must conform to the above rule. This conformance in turn requires that the private and social values of land must coincide. To see how mistakes in infrastructure pricing can disrupt this coincidence, leading to nonoptimal development, suppose that infrastructure were provided for free, with no tax liability imposed. In this case, the private value of urban land is *higher* than the social value, a consequence of the failure to subtract infrastructure cost.

Housing development will occur when land’s private value in urban use exceeds the private (and social) value in agricultural use. But since the private value in urban use exceeds the social value, some parcels of land will be developed when such development is not socially desirable. In other words, the land’s private value in urban use will exceed its value in agricultural use, leading to development, when the social values in fact have the reverse relationship, indicating that development should not occur. The problem is that, because infrastructure is provided for free, development looks artificially cheap, making the land artificially valuable in urban

use.

As in the case of unpriced road congestion, the result of this pricing mistake is urban sprawl. Too much development occurs, so that cities expand excessively, consuming too much agricultural land. Because of excessive development, the city's population is also too large. To avoid this outcome, infrastructure must be properly priced. In particular, housing developers must be charged for the cost of the added infrastructure required by their housing developments. Only then will the social and private values of urban land be equal, ensuring optimal development decisions.⁹ The infrastructure charges could be levied in a lump-sum fashion at the time of development, or they could be spread out over time in a series of payments. The former approach is now commonly used in the U.S., where the charges are known as "impact fees." It should be noted that requiring the cost of the new infrastructure to be shared among all taxpayers in the city, rather than imposing the costs directly on the developer of the new housing, will generally not lead to correct development decisions. In this case, the developer incurs some tax liability (equal to a share of the infrastructure costs), but one that is smaller than the appropriate charge.

3.3. Greenbelt policies

In many countries, urban expansion is restricted by "greenbelt" policies, which preserve land at the urban fringe for use as open space. The greenbelt policies that exist in Korea have been widely studied, but such policies are also important in Britain and other countries. Greenbelt policies are typically motivated by a desire to create a nearby rural amenity for the enjoyment of urban residents, and to create more-compact cities, in an attack on urban sprawl.¹⁰

As seen above, mispricing of urban transport and infrastructure can generate urban sprawl, creating a need for policy measures to restrict urban land areas. However, the appropriate measures are the ones that have been discussed, namely congestion pricing and the proper pricing of infrastructure. The danger of greenbelt policies as a device for dealing with sprawl is that they involve guesswork. In other words, it is difficult to gauge the extent to which cities overexpand because of the above pricing errors, and thus it is difficult to know the proper extent of restriction required under a greenbelt policy. Actual overexpansion may be slight, and while proper pricing decisions would lead to the appropriate correction, a draconian greenbelt policy may unduly restrict the size of the city.

A similar problem emerges when greenbelts are motivated by a desire to create a rural amenity. In this case, the challenge is to balance the alleged benefits, namely access to open space, against the costs of restricting urban expansion. Among the

⁹ Brueckner (1997) provides an analysis of infrastructure pricing.

¹⁰ For a recent analysis of the effect of greenbelt policies, see Son and Kim (1998).

most important of these costs is escalation in the price of housing, a consequence of restricting the supply of urban land via the greenbelt. The danger is that the damage done by higher housing costs far outweighs any gains from the proximity of open space.

The upshot is that greenbelt policies hold great potential for misuse. If the goal is to attack urban sprawl, it is preferable to correct the underlying pricing errors leading to excessive urban expansion. If the goal is amenity creation, the potential losses from restricting urban expansion should weigh heavily in planners' decisions.

3.4. Location subsidies for firms

City formation is driven by forces that lead to the spatial concentration of employment, and an important force of this type is known as "agglomeration economies." This phrase refers to the gains that business firms enjoy from locating near other firms in the same industry, as well as the gains that may arise from being near dissimilar firms. One source of agglomeration economies is exchange of information among firms in industries where the state of knowledge changes rapidly, as in the high-tech sectors of the economy. Up-to-date knowledge of the latest developments is important in fostering innovation in such an industry, and this knowledge is best transmitted when firms are located near one another. Agglomeration economies are partly responsible for the formation of high-tech enclaves such as Silicon Valley in the U.S., and they provide an important urbanization force worldwide.¹¹

Like road congestion, this agglomeration force involves an externality, although the effect is positive rather than negative. In particular, when a new business locates amidst an existing concentration of firms, its presence confers agglomeration benefits on these firms, which gain from interaction with the new establishment. However, these external benefits are not taken into account in the firm's location decision. As a result, the firm may choose not to locate in a given city, perhaps because land or labor costs are too high, when the society would benefit from the firm's presence. In other words, when the agglomeration benefits enjoyed by other firms are taken into account, the social gain from the presence of the given firm is positive, even though the private gain (measured by the change in the firm's profit) may be negative. Thus, although the concentration of employment is driven by agglomeration effects, private decisions may lead to an insufficient degree of concentration, given that external benefits are not taken into account.

In this case, government intervention is needed to internalize the effect of the externality. The proper policy consists of location subsidies for firms in sectors of the economy where agglomeration effects are thought to be important, such as the

¹¹ Glaeser (1998) provides a discussion of agglomeration effects.

high-tech sector. Such subsidies, which might come in the form of subsidized land costs in high-tech industrial parks, increase the private gain from locating amidst existing employment concentrations. Although such subsidies might be viewed as an unfair handout to prosperous enterprises, their use is justified by the presence of the agglomeration externality.

3.5. Policies to attract high-income residents to city centers

A major problem in the U.S. is the decay of central cities, which is partly due to the flight of high-income residents to the suburbs. European cities suffer from this problem to a much lesser extent, with many city centers still populated by high-income households. It has been argued that one force that preserves this location pattern is the lure of historical amenities in European city centers, which creates an environment that is valued by high-income households but matters less to low-income consumers. By making European city centers attractive, historical amenities prevent a U.S.-style flight to the suburbs by the rich, keeping these centers vibrant and healthy.

The best example of this alleged effect is in Paris, where a huge investment by the French government has preserved and enhanced the historical amenities of the central city. These amenities, it is claimed, are partly responsible for the maintenance of high incomes in central Paris, reversing the U.S. pattern. In Brussels, by contrast, redevelopment has eliminated much of the historical core of the city, and high-income households are not found in the center.¹²

If this hypothesis is valid, then urban policies directed toward preserving and enhancing historical amenities provide a key to maintaining the vibrancy of central cities. Such investment is likely to generate substantial returns.

IV. Conclusion

This paper has sketched a number of elements of an ideal urban policy. The features of an ideal fiscal system have been discussed, and the potential need for modifications to that system to account for special features of the urban economy have been noted. The discussion has also considered a number of policies that affect the spatial sizes of cities, the size and composition of their populations, and their industrial makeups. It is hoped that the discussion proves useful in the formation of urban policy.

¹² Brueckner, Thisse and Zenou (1999) argue that historical amenities affect the location of different income groups in cities.

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