Urban Political Economics*

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August 2003

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Abstract

This chapter considers the role of economic and political institutions in the formation of local public policies. The chapter has three objectives. First, to synthesize the dominant models of local policy formation with mobile households, with particular emphasis on the objectives that are attributed to the institutions that provide collective goods. Second, to describe and model local political institutions, and consider their implications for taxes, expenditures and voting behavior. Third, to examine how institutional change, specifically the entry of new institutions in the form of private government, influences policy outcomes and the welfare of residents.

Keywords: multi-community democracy, stratification, property value maximization, developers, local political institutions, legislative decision making, the common pool problem, citizen candidates, private government, supplementary provision, supplementary regulation, potential competition, gated communities.

1.   Introduction

The "new" political economics uses the tools of modern economic analysis and game theory to study how economics and politics interact to determine public policies. In contrast to public economics, with its emphasis on the positive and normative effects of tax and spending policies, and public choice, with its emphasis on collective choice rules, political economy emphasizes the process of policy formation. Political economics is fundamentally concerned with how optimal policies are modified by political and institutional constraints. Much of modern political economics has been developed in macroeconomics, where, for example, questions about differences in public sector performance across countries are a natural concern. In this context, the political economics approach is to ask whether there are institutional differences between governments that lead to systematic variations in spending, or whether there are systematic failures in legislative decision making processes that lead to excessive levels of spending or public debt. In political economics, the emphasis is on how government policies are determined.

For better or worse, urban political economics does not exist as a well defined field of study. This is not to say that economics and politics do not combine to determine local public policies. Surely they do. However, political economics is a very new field, and the perspectives and models of political economics have not been widely applied to urban policy issues. What follows is a selective review of a particular set of topics where local politics and urban economics intersect. Specifically, this chapter considers the role of economic and political institutions in the formation of local public policies. The

chapter has three objectives. First, to synthesize the dominant models of local policy formation with mobile households, with particular emphasis on the objectives that are attributed to the institutions that provide collective goods. Second, to describe and model local political institutions, and consider their implications for taxes, expenditures and voting behavior. Third, to examine how institutional change, specifically the entry of new institutions in the form of private government, influences policy outcomes and the welfare of residents. If this chapter has a unifying theme, it is that local economic and political institutions are interesting and important.

Caplin and Nalebuff (1997) argue that institutions should be integrated more fully into economic theory. They classify economic models of institutions into three groups: (1) models that focus on how the economic environment influences institutions, (2) models that focus on the implications of a given institutional structure for economic outcomes, and (3) integrated models that allow for "the influence of institutions on economic outcomes and for the influence of the environment of the institutions." (p. 307) The models that are considered in this review fit this classification quite naturally. The models of local policy formation reviewed in Section 2 focus on how the economic environment influences the formation of communities. The models of local political institutions in Section 3 take membership as fixed, and examine the consequences of different institutions for outcomes. The models of private government in Section 4 are integrative. They consider how the institutional environment influences policy outcomes, and how the economic environment influences the formation or entry of new institutions.

2.   Objectives and local policy formation

There are three basic approaches to modeling the formation of public policy at the local level. Each approach considers a system of local governments providing collective goods to mobile residents who choose between jurisdictions to maximize utility. The approaches differ fundamentally in their treatment of the problem of collective choice and in the objectives that are attributed to the institutions that provide collective goods. The first approach, pioneered by Westhoff (1977,1979) and Rose-Ackerman (1979), assumes that community tax and spending policies are made through open agenda majority voting. The second approach, initiated by Wildasin (1979) and Brueckner (1979), supposes that local policies are chosen to maximize aggregate property values in a community. The third approach, initiated by Henderson (1974) and Stiglitz (1977), assumes that local policy is formed by profit maximizing entrepreneurial governments or developers.

2.1.   Politics

One of the interesting consequences of the dominance of the Tiebout (1956) tradition in local public finance is that models of local government have historically paid little attention to politics or political institutions. As noted by Rose-Ackerman (1983ab) and others, Tiebout's original model can be seen as an explicit attempt to eliminate the need for politics at the local level. A metropolitan area in Tiebout's world is composed of an arbitrarily large number of competitive local governments, each offering a different

bundle of taxes and public expenditures. Since each voter's ideal policy is offered by one of these local governments, an individual can always secure her most preferred policy outcome by moving. Mobility is thus a substitute for politics in the informal Tiebout tradition.

However, attempts to formalize Tiebout's insights inevitably forced authors to confront the collective choice problem, and led to the development of equilibrium models of local government in which politics play an important role. Here we briefly review the key elements of such a model, focusing on the characteristics of the political equilibrium within a community. [1]

Following Epple, Filimon and Romer (1984), consider a metropolitan area composed of a fixed number of communities with fixed geographic boundaries. Each community provides a congestible local public good to its residents. There are no spillovers between communities. Public good provision in each community is financed by a local tax on housing services that balances the community government's budget. The public good and tax package, or policy vector, in each community is chosen by majority rule.

Preferences are represented by the increasing and strictly quasi-concave utility function $U(g,h,x)$, where g is the level of the local public good in the consumer's community, h is housing services, and x is a composite numeraire commodity. Residents

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[1] See Ross and Yinger (1999) for an extensive review of the literature on models of "sorting and voting," with particular emphasis on the determinants and consequences of the capitalization of fiscal variables into housing prices.

differ in income y, which is continuously distributed on a closed support.[2] Letting p^h

represent the before-tax price of housing and t represent the local property tax rate, the

budget constraint of a resident with income y is $x + ph \le y$, where $p = (1 + t)p^h$ is the

after-tax price. Residents are perfectly mobile, and move between communities in

response to perceived differences in utility levels, which in turn reflect differences public

goods, taxes, and housing prices.

The indirect utility function of a consumer with income y is

$$V(p,y,g) \equiv Max_h\ U(g,h,y - ph) = U(g,h(p,y,g),y - ph(p,y,g)), \tag{2.1}$$

where h(p,y,g) is the Marshallian demand function for housing. The assumptions made

about the form of the direct utility function imply that the level sets of V(p,y,g) in (g,p)

space slope upward and are strictly concave. Further, the slope of such an indifference

curve, $dp/dg = -(\partial V/\partial g)/(\partial V/\partial p)$, is assumed to be strictly increasing in income. This is

an instance of the Spence-Mirrlees "single-crossing property" (Gans and Smart (1996),

Edlin and Shannon (1998)). The single-crossing property serves two important functions

in this setting. First, it ensures that consumers are sorted by income in equilibrium. In

particular, it ensures that each community is occupied by consumers with incomes in a

connected interval, and that higher income consumers reside in communities that provide

higher levels of the public good. Second, as discussed below, it ensures that there is a

policy vector for each community that a majority of community residents prefers to any

other.

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[2] More recent work in this literature assumes that individuals are differentiated by income and a taste parameter. See, for example, Epple and Platt (1998), Epple and Romano (1998) and Epple, Romer and Sieg (2001).

The budget constraint of a community government is $tp^hH - c(g,N) = 0$, where H is aggregate housing consumption in the community, N is community population, and $c(g,N)$ is the increasing and convex cost of public good provision.[3] Solving the government budget for $p = p^h + c(g,N)/H$ (thus eliminating the tax rate), and substituting this into the indirect utility function yields a consumer's "policy preference" function $W(g,y) \equiv V(p^h + c(g,N)/H,y,g)$. As noted by Persson and Tabellini (2000, p. 20), the salient assumption about individual behavior in political economics is that the consumer, as a political agent, engages in "voting, lobbying or some other form of political activity" to maximize her policy preferences. The most preferred policy or "bliss point" of a resident with income y is

$$g(y) = \text{Argmax}_g \, W(g,y) = \text{Argmax}_g \, V(p^h + c(g,N)/H,y,g), \qquad (2.2)$$

where $g'(y) > 0$ by the single-crossing condition.

The characteristics of a consumer's most preferred policy, and the political actions that follow from the pursuit of that outcome, depend in part on how the consumer expects the endogenous variables N, H and p^h to respond to changes in the community's tax and expenditure policy. Two different assumptions about voter expectations have been made in this literature. Prior to Epple and Romer (1991), most authors assumed voter myopia. Myopic voters treat N, H and p^h as fixed. In this case, the locus that describes the set of feasible (g,p) pairs from the voter's perspective (the "government services frontier," $p = p^h + c(g,N)/H$) is increasing and convex, and the consumer's most preferred policy lies at the tangency of this locus and the highest indifference curve that the voter can reach, as

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[3] If the distribution of income is F(y), and this community contains all consumers with incomes in the interval $[y^-,y^+]$, then $N = F(y^+) - F(y^-)$, and, in equilibrium, housing consumption is

$$H = \int_{y^-}^{y^+} h(p,y,g)dF(y).$$

shown in Figure 2.1. Further, the policy preferences of each consumer are "single-peaked" (Black (1948)) under these conditions: a consumer's ordering of policy alternatives is determined by their relative distances from her bliss point g(y). More formally, if policy preferences are single-peaked, then for any alternative policies g" and g', g" ≥ g' ≥ g(y) or g" ≤ g' ≤ g(y) implies W(g",y) ≤ W(g',y).

In subsequent work, some authors have endowed voters with a limited amount of foresight regarding the impacts of policy choices on community populations and housing market outcomes. More specifically, Epple and Romer (1991) and Epple and Platt (1998) assume that voters take only the policy vectors of other communities as fixed when making political choices. This implies that each voter takes the level of utility available in other communities as fixed, but is cognizant of how policy changes in their home community will influence population and housing market outcomes through intra-metropolitan migration. Epple, Romer and Sieg (2001) find that local policy choices in a sample of Boston communities are more consistent with this utility taking assumption than the with simpler assumption of voter myopia.

An equilibrium in this model requires that every consumer maximize utility, over goods and communities, that community budgets balance, and that community housing markets clear.[4] [5] In addition, and most important for our purposes, the policy vector in each community must be a political equilibrium. In this literature, the political process is

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[4] The tradition is to close the model by assuming an exogenous housing supply function for each community. See Epple, Filimon and Romer (1984) for this convention, and Henderson (1985) for an alternative.

[5] The existence of an equilibrium in the model outlined in this section has been demonstrated by Epple, Filimon and Romer (1993). However, the existence of equilibria in models of multicommunity democracy is, in general, problematic. See Caplin and Nalebuff (1997) for a general discussion. Hansen and Kessler (2001) present conditions under which an equilibrium fails to exist the original Westhoff (1977, 1979) model. The Westhoff model differs from the model described above in two ways: housing is not considered, and local public goods are financed through a proportional income tax. Nechyba (1997) provides an existence proof for a related model in which housing consumption is exogenous.

an idealized form of majority voting, sometimes called open agenda or institutionless majority rule, in which each element of the government services frontier is put against every other element in a sequence of pairwise elections until a Condorcet winner emerges. The essence of the celebrated median voter theorem (Black (1948)) is that with single-peaked policy preferences, such an equilibrium policy exists and corresponds to the median of the most preferred policies of the voters in a community.[6] Since the most preferred policy function $g(y)$ is monotonic, the median of the most preferred policies in turn corresponds to the most preferred policy of the consumer with the median income, that is, to the bliss point of the median voter.[7]

The resulting equilibrium has three properties. The first is "stratification": each community is composed of individuals with incomes in a single, connected interval.[8] The second property is "boundary indifference": the border consumer between two adjacent communities must be indifferent between them. The final property is "ascending bundles": public good levels (and housing prices) increase with the highest income in a community.

Stratification, or the sorting of consumers into imperfectly homogeneous communities, plays a role in many important policy issues. Epple and Romer (1991) show, in contrast to the traditional view, that local redistribution may occur in equilibrium in a system of stratified communities.[9] In the case of education, stratification

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[6] See Gans and Smart (1996) for a general examination of the implications of single-crossing conditions for the existence and stability of majority voting equilibria.

[7] If the distribution of income is $F(y)$, and this particular community contains all consumers with incomes in the interval $[y^-,y^+]$, then the equilibrium policy of the community is $g(y^M)$, where the median income y^M satisfies $F(y^+) - F(y^M) = N/2$. Median voter models of local politics have a very long history. See, for example, Bowen (1943) and Bergstrom and Goodman (1973).

[8] In models with two-dimensional heterogeneity (e.g., Epple and Platt (1998)), stratification is imperfect in the sense that two residents with identical incomes (but different taste parameters) may reside in different communities in equilibrium.

[9] The traditional view is that local redistribution with mobile households is infeasible since generous redistributive policies will repel high-income households, and thus

and local property tax finance lead to differences in educational spending and presumably outcomes across communities. Fernandez and Rogerson (1996,1997,1998,1999) examine the implications of stratification for local spending on education and education finance reform, while de Bartolome (1990) considers the implications of stratification for the production of educational peer group effects. Epple and Romano (1998) use a multicommunity model to study the implications of stratification for competition between public and private schools. The broader implications of stratification for knowledge spillovers, economic growth and the distribution of income are considered by Benabou (1993, 1996), Durlauf (1994,1996ab) and Fernandez and Rogerson (2001).

There are at least three potential sources of inefficiency in this context. First, there is in general no reason to expect the preferred policy of the median voter to coincide with the policy that maximizes welfare in the community. For example, if we take utilitarianism as our normative benchmark, the optimal policy will maximize the policy preferences of the resident with the mean rather than the median income (see, for example, Persson and Tabellini (2000), Section 3.1). Second, the method of finance may distort consumption and production decisions. This is certainly the case with property tax finance and housing, as discussed in this context by Yinger (1982) and others. Finally, the location choices of consumers may be inefficient due to externalities associated with migration, as in de Bartolome (1990). This issue arises, in general, whenever consumers choose between a finite number of jurisdictions, and changes in the population of one community cause changes in the utility levels in others (Scotchmer (1986)).

2.2.   Property values

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undermine the tax base. See Wildasin (1991) for a review of the literature on local redistribution, and an analysis of equilibrium and optimum redistribution policies in a federal system.

Models of multicommunity democracy assume that collective choices are made through direct majority voting. Of course, there are many other political institutions that might aggregate the policy preferences of individuals in a city, including a representative institution like a city council. We will consider the role of representative local political institutions in the next section. This subsection considers another popular, if somewhat ad hoc, rule for aggregating preferences. This is the assumption that policies are chosen to maximize property values in a community.

Following Edelson (1976), Wildasin (1979), and especially Brueckner (1979, 1982, 1983), consider a large system of small communities in which each community has an exogenous stock of houses.[10] Index the houses in a particular community by $i = 1,2,…,N$. Residents derive utility from a public good g, housing h_i and a composite numeraire commodity x according to the utility function $U(g,h_i,x)$. Public good provision is financed by a uniform tax on house value that balances the community's budget. Although residents have identical preferences, they may differ in income y. Each community is "open" in the sense that the utility level that it must offer an individual with a particular income is exogenously determined. Heuristically, this can be justified by assuming that the number of communities is arbitrarily large, and that moving between communities is costless. Denote the equilibrium utility level that a community must offer a resident with income y by $U^*(y)$.

The maximum amount that a resident with income y is willing to pay for the services offered by house i, the bid rent for house i, denoted $R_i(g,h_i,y)$, is implicitly defined by

$$U(g,h_i,y - R_i) = U^*(y). \tag{2.3}$$

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[10] Brueckner (1983) introduces housing production into the framework outlined here and shows that the welfare implications of property value maximization then depend on the method of finance. In particular, a head tax per house is required in order for property value maximization to lead to a first-best allocation.

Then the implicit function theorem implies

$$\partial R_i/\partial g = (\partial U_i/\partial g)/(\partial U_i/\partial x). \tag{2.4}$$

In this open community model, the slope of the bid rent function with respect to the level of the public good is equal to the consumer's marginal rate of substitution between the public good and the numeraire. This means that the benefits of public spending are perfectly capitalized into house rents. This result plays an important role in the analysis.

The value of house i is defined as the present value of the stream of net rents that the house provides. Assuming that the house earns rent R_i in perpetuity, house value V_i is given by the asset equilibrium condition

$$V_i = (R_i(g,h_i,y) - \tau V_i)/\theta, \tag{2.5}$$

where τ is the property tax rate, τV_i is the property tax liability per period, and θ is the constant discount rate. Community budget balance requires $\tau \Sigma_i V_i = C(g,N)$, where $C(g,N)$ is the provision cost function. Then (2.5) implies that aggregate property value in the community is

$$\Sigma_i V_i = (\Sigma_i R_i(g,h_i,y) - C(g,N))/\theta. \tag{2.6}$$

The critical assumption in this branch of the literature is that the community chooses the level of the public good to maximize (2.6). Of course, since resident utilities are fixed by assumption, there is nothing else to maximize in this setting. Interestingly, since all houses are owned by absentee landlords, at least in this basic version of the model, this objective implies that local policies are chosen to maximize the wealth of a

group of non-residents. Using (2.4), the first-order condition for a maximum of $\Sigma_i V_i$ with respect to g implies

$$\Sigma_i(\partial U_i/\partial g)/(\partial U_i/\partial x) - \partial C/\partial g = 0. \tag{2.7}$$

Thus, the level of the public good that maximizes aggregate property value satisfies the Samuelson condition for efficient provision. In this system of open communities, aggregate property value maximization and welfare maximization are synonymous.[11] This result has been the basis of a number of tests for allocative efficiency in the local public sector.[12]

Several authors have argued that property value maximization may be the reduced form outcome of some unspecified political process. Wildasin and Wilson (1996) note that

"in communities where significant numbers of households are owners of their own property, voting behavior may be motivated by land-value maximization considerations; to the extent that this is so, there is no real difference between a voting model and a model based on land value maximization. Even if voters are not landowners, it is not implausible to assume that the interest of landowners is reflected in the local political process, if that process can respond to pressures brought to bear by mechanisms other than voting." (p. 179)

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[11] Welfare maximization can serve as an institutional objective in its own right. For example, it is reasonable to suppose that exclusive institutions like private governments (Helsley and Strange (1998)) or political parties (Caplin and Nalebuff (1997)) choose policies to maximize the welfare of their members.

[12] See Brueckner (1979, 1982) and, more recently, Deller (1990), Taylor (1995), and Hughes and Edwards (2000).

Many local policies seem at least consistent with the objective of property value maximization. For example, local growth controls seem to be popular with voters in part because they increase the property values of current residents.[13]

Others have tried to articulate the individual incentives and political institutions that might support property value maximization as political equilibrium, or to provide what Persson, Roland and Tabellini (1998) call "micro-political" foundations for this objective. Sonstelie and Portney (1980) argue that with perfect mobility and no limit on the number of communities, it is optimal for a resident property owner to separate consumption and investment decisions by voting for the policy vector that maximizes property value and then moving (if necessary) to the community that offers the highest level of utility.

Brueckner and Joo (1991) develop a dynamic model with imperfect mobility that examines how capitalization influences the policy preferences of current residents in a community. In particular, they show that expectations about future housing prices cause voters to consider the preferences of future residents when choosing the level of a durable public good. The key result is that the level of public spending that maximizes the utility of a current resident is determined by a weighted average of the net marginal benefit to the resident and the net marginal benefit to a prospective buyer of the resident's house. This implies that "the preferences of an individual who does not yet reside in the community are reflected in the voter's ideal g and thus in the choice he makes in the voting booth." (p. 457) This also implies that property value maximization only leads to the first-best outcome if the marginal valuation of the owner and the prospective buyer are equal. If current owners and future owners have difference preferences, then utility maximization and property value maximization are not equivalent. In related work,

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[13] See Brueckner (1995) and Helsley and Strange (1995) for complementary models of the impacts of growth controls on housing prices, and Katz and Rosen (1987) for evidence.

Wildasin and Wilson (1996) show that imperfect mobility can severe the tie between property value maximization and welfare maximization by giving communities an incentive to overtax less mobile workers. Sprunger and Wilson (1998) present a model with resident property owners in which imperfect mobility and uncertainty about the productivity and objectives of local governments cause the benefits of durable local public goods to be imperfectly capitalized into property values. They show that this can lead to either over- or under-provision.[14]

2.3. Profits

Entrepreneurial incentives play several interesting roles in the process of local policy formation. First, at a normative level, Stiglitz (1977) and Bewley (1981) argue that efficiency in a system of local governments may require the active participation of "entrepreneurial" governments or land developers. Bewley (1981) shows, through a series of examples, that mobile but myopic voters, who by assumption do not consider how their migration choices impact economic conditions elsewhere in the economy, may have no incentive to leave inefficient communities. Under these conditions, efficiency may require that governments take actions to attract or repel residents. Bewley considers several objectives that such entrepreneurial governments might pursue, including maximizing population, maximizing land values, and maximizing the government budget surplus. Following Henderson (1974), Stiglitz (1977, p. 295) notes that land developers

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[14] Epple and Romer (1991) also consider the implications of capitalization for voting behavior in their model of multicommunity democracy and redistribution. In particular, they show that if non-myopic voters are homeowners rather than renters, then housing demand will depend on the possibility of capital gains associated with changes in local policy. This will change the slope of a voter's indifference curves in (g,p) space (generally causing them to become flatter), which implies that "an owner with a given endowed income will prefer a lower level of redistributive taxation than a renter with the same income." (p. 844)

are natural candidates to perform this active role: "The 'developer' plays a central role in this formulation [achieving efficient equilibria]. Essentially, the private developer can do anything that a centralized government can do, and, hence, if there are 'inefficiencies' he can eliminate them."

Second, at a positive level, the provision of infrastructure, public services and amenities by land or housing developers is an important part of the process of community formation. This is especially true in the case of so-called "private governments," as discussed in Section 4. Consequently, and following Henderson (1980), many models of community formation are based on the private provision and finance of a public good by a profit maximizing developer.[15] In these models, the policy preferences of residents are expressed through the land market, and the developer translates these expressions into a collective choice via profit maximization. As discussed below, the analysis tends to focus on how competition between developers, or more generally market structure, impacts the efficiency of the resulting equilibrium.[16] Third, and closely related, models of "profit maximizing government" (Sonstelie and Portney (1978), Epple and Zelenitz (1981)) assume that local policies are chosen by a city manager or bureaucrat to maximize the excess of tax revenue over the costs of public good provision.

To develop the basic ideas, following Helsley and Strange (1994), consider a system of monocentric community sites, where each site is owned by separate developer.

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[15] There are a number of formal similarities between models of local policy formation based on profit maximization and models based on property value maximization. For example, if one interprets the absentee landowners in the basic Brueckner (1979) model of property value maximization as a single land developer, then the developer's profit is proportional to aggregate land value in (2.6).

[16] Many of the results in this literature originated in the literature on profit maximizing clubs (Scotchmer (1985ab)). Club models typically admit more general pricing policies. For example, a club might charge both a membership fee and a per use price for the club's common facilities. Henderson and Thisse (1999, 2001), in a series of papers on the nature of small numbers competition in multi-community models, bridge the gap between developer and club models by considering optimal non-linear pricing strategies for a land developer.

The number of active developers, or the number of occupied sites, is denoted by M. For simplicity, suppose that each site is a long, narrow strip of land of width φ, and that land in each community is differentiated only by its distance from employment, concentrated at the eastern edge of the strip. [17] Assume that the opportunity cost of urban land is zero.

There are $\overline{N}$ residents in the region, and the population of a community is denoted by N. Residents are identical and perfectly mobile, and move between communities to maximize utility. There are three goods in the model: a local public good g, land consumption l, and a numeraire x. Assuming that land consumption is exogenously fixed at one unit, and that the utility function is quasi-linear, the utility of a resident may be written as $U(g) + x$, where $U(\cdot)$ is increasing and strictly concave, and land consumption has been suppressed. The budget constraint of a resident living at distance z from the employment center is $x + r(z) + tz \leq y$, where $r(z)$ is land rent, t is commuting cost, and y is income, which consists of exogenous labor income w and an equal share of the profits of all developers.

If U* is the equilibrium utility level in the system, then the bid rent function for land in the community is $r(z) = y + U(g) - tz - U^*$. The market clearing condition for land implies that the boundary of a community z* satisfies $z^* = N/\varphi$. Then the boundary rent condition $r(z^*) = 0$ implies $r(z) = t(z^* - z) = t((N/\varphi) - z)$. Using the budget to substitute for x in the utility function and in turn substituting for $r(z)$ implies that the utility of a resident can be written as

$$V(g,N) = y + U(g) - tN/\varphi. \tag{2.8}$$

The profit of a developer equals aggregate differential land rent less the costs of

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[17] This specification of the geography is not essential, but does simplify the strategic interactions in the model. Somewhat surprisingly, the "shape" of a community matters in this context because it influences the curvature of a developer's best response function. See Helsley and Strange (1994) for details.

public good provision,

$$\pi(g,N) = (t/2)(N^2/\varphi) - C(g), \tag{2.9}$$

where the cost function $C(g)$ is increasing and convex. Incorporating the income from land development into (2.8) yields

$$V(g,N) = w + U(g) - C(g)/N - (tN)/(2\varphi), \tag{2.10}$$

where each resident is assumed to receive an equal share of the profits of all developers.

The efficient allocation maximizes (2.10) with respect to g and N. The first-order conditions for this problem imply $NU'(g) = C'(g)$, the Samuelson condition for efficient provision of the public good, and $\pi(g,N) = 0$. The latter condition, which implies that aggregate land rent equals the cost of public good provision, is an instance of the Henry George theorem (Stiglitz (1977), Arnott (1979)). Whether such an efficient allocation exists depends in part on whether the aggregate population is an integer multiple of the efficient city size. If it is not, then there is a remainder of consumers who cannot be accommodated in a community of efficient size, and a first-best allocation does not exist.

The equilibrium is a Nash equilibrium in public good levels, where each developer chooses g to maximize his profit, subject to the equilibrium location decisions of residents, and taking the choices of other developers as fixed. In what follows, we focus on the symmetric equilibrium. Letting g_i represent the public good level chosen by developer i, and g_0 represent the conjectured public good level chosen by the other (M – 1) developers, the migration or equal utility condition is $V(g_i,N_i) = V(g_0,(\overline{N} - N_i)/(M - 1))$. This implicitly defines the population of community i as a function of g_i and g_0:

$$N_i(g_i, g_0) = \frac{\overline{N}}{M} + \frac{\varphi}{t} \frac{M-1}{M}(U(g_i) - U(g_0)). \tag{2.11}$$

Thus, the population of community i is increasing in g_i, and decreasing in the level of the public good provided by developer i's rivals.

Developer i's problem is to choose g_i to maximize $\pi(g_i, N_i(g_i, g_0))$. The first-order condition for this problem implies

$$\frac{M-1}{M} N_i U'(g_i) - C'(g_i) = 0. \tag{2.12}$$

Thus, with a finite number of active developers, each provides too little of the local public good, relative to the first-best allocation. Underprovision arises from the strategic interactions between the communities, and in particular, from the pecuniary externality identified by Scotchmer (1985a, 1986). An increase in g_i attracts residents from other communities, increasing utility there. However, this contribution to welfare is ignored by an individual developer. The symmetric equilibrium population of each community equals $\overline{N}/M$ from (2.11).

As the population of the region and the number of active developers increases, maintaining the symmetric equilibrium size of each community at $\overline{N}/M$, (2.12) implies that the level of public good provision in each community rises. In the limit, where the population and the number of active developers are arbitrarily large, equilibrium public good provision satisfies the Samuelson rule, and is therefore efficient. Intuitively, in a

very large economy, changes in the level of the public good provided by any one

developer have infinitesimal impacts on utility in other communities, and the pecuniary

externality disappears. This in turn implies that the population of each community

approaches the first-best optimal population in the limit, and that the profit of every

active developer approaches zero. Thus, under competitive conditions, the policies that

arise from the actions of profit maximizing land developers are efficient.[18] [19]

(2.12) and (2.11) implicitly define the reaction function of developer i, $g_i(g_0)$,

where

$$\frac{dg_i}{dg_0} = -\frac{1}{\Delta}\frac{M-1}{M}U'(g_i)\frac{\partial N_i}{\partial g_0} < 0, \tag{2.13}$$

and $\Delta < 0$ by the second-order condition for the developer's profit maximization

program. Thus, the public good levels chosen by developers are strategic substitutes.

This means that if one developer chooses a higher level of the public good, it is

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[18] There are two ways to formulate the competitive hypothesis with profit maximizing developers. The first approach is utility taking, where the level of utility available in other jurisdictions is taken as fixed in the equilibrium program. In the model outlined in this subsection, developers take strategies rather than utilities as fixed. However, in the limit, that is under competitive conditions, strategy taking and utility taking are equivalent. The second approach, due to Scotchmer and Wooders (1986) and Berglas and Pines (1980) (see also Scotchmer (1994)), is price taking. In this case there is a schedule that relates the price of land (or the wage for workers) in a jurisdiction to its fiscal policies. This fixed price schedule is an analogue to a system of prices that consumers face in a competitive market for a private good. The price taking hypothesis implies that fiscal policies in one jurisdiction do not affect fiscal policies or land prices in other jurisdictions. This implies that utility in other jurisdictions is also unaffected. Thus, utility taking and price taking are equivalent in a competitive environment. Recent applications of the price taking methodology include Pines (1991) and Brueckner (2000).

[19] Scotchmer (1994) notes that developer models can fairly be criticized for being much too centralized. Helsley and Strange (1997) present a model in which there are endogenous organizational limits on the ability of developers to provide public goods.

maximizing for his rivals to choose a lower level. This implies that in a dynamic game where one developer has an opportunity to commit to a level of public good provision in advance of his rivals, the leader will choose to provide a higher level of g, and thereby capture a larger share of the regional population. Helsley and Strange (1994) show that under some conditions the leader in this dynamic development game will overprovide the public good. Further, it may be in the leader's interest to choose a level of provision that deters entry by other developers, and thus prevents the formation of other communities.

The desirable welfare properties of equilibria in models with competitive land developers stand in contrast to the analysis of "profit maximizing governments" in Epple and Zelenitz (1981). Anticipating the literatures on Leviathan models of government and jurisdictional competition, they ask if competition between an arbitrarily large number of budget surplus maximizing, or rent seeking, jurisdictions can lead to an efficient allocation of resources in the local public sector.[20] In their model, each community chooses a property tax rate and a level of spending to maximize the difference between tax revenues and the costs of public goods. Residents, who consume a local public good, housing and a numeraire, are identical and perfectly mobile, but have no direct political voice in the determination of tax and spending policies.

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[20] Brennan and Buchanan (1977, 1980) popularized the Leviathan or budget maximizing view of local government, and discussed the possibility that jurisdictional competition might have a disciplinary effect. Studies of the relationship between local decentralization and the size of government include Oates (1985), Nelson (1987), Eberts and Gronberg (1990) and Anderson and Van Den Berg (1998). Most models of jurisdictional competition and rent seeking are based in the tax competition literature. See Wilson (1999) for a review, and Edwards and Keen (1996), Rauscher (1998), and Wrede (1998, 2001), Brueckner (2000) and Perroni and Scharf (2001) for recent theoretical developments.

Costless migration implies that each jurisdiction must provide the same level of utility in equilibrium. This in turn implies that housing prices must adjust to compensate for differences in tax and spending packages. For example, an increase in the tax rate in one jurisdiction causes housing prices there to fall, and causes housing prices in other jurisdictions to increase to restore equal utility. The magnitude of the changes depend on the demand and supply elasticities of housing and on the number of jurisdictions. As discussed above, as the number of jurisdictions increases, the impact of an increase in the tax rate in one jurisdiction on prices elsewhere diminishes; in the limit, as the number of jurisdictions approaches infinity, the effect is zero. This implies that, in the limit, housing prices in the home jurisdiction must change to completely offset the impact of a tax change there.

Maximizing the budget surplus subject to the housing market equilibrium discussed above, and letting the number of jurisdictions approach infinity, leads to two results. First, provision of the public good is second-best efficient (reflecting the distortionary effects of the property tax) and, second, tax revenues exceed public service costs. The latter result implies that there is a type of fiscal exploitation even when the number of jurisdictions is very large.

Henderson (1985) shows that the exploitation result does not hold if community boundaries are flexible, or more generally, if landowners and developers have an active role in the model. More specifically, he shows that with an active land market -- so that the price of land is equalized across communities in equilibrium -- the "bad politics" or positive profit outcome is not possible. Landowners will refuse assimilation by communities that attempt to expropriate a portion of their land rents. Epple and Romer

(1989) argue that as an empirical matter, the key is whether land is commonly removed from jurisdictions (through "detachments"), and they argue that it is not. They also note (as does Henderson) that with flexible boundaries we would not expect to observe capitalization of fiscal differentials within metropolitan areas.

2.4.   Complex politics

Several authors have recently considered multi-community models with more complex specifications of the local political process. Hoyt (1999) presents a model of lobbying and public spending in a closed system of communities. The model has three components. The first is a model of the impacts of local tax and spending policies, in the spirit of Epple and Zelenitz (1981) and Henderson (1985), but with heterogeneous community sizes. Hoyt shows that the impact of a change in taxes or public spending on housing prices is smaller for a large jurisdiction.[21] The intuition is that the policies of a large jurisdiction have a discrete impact on the system-wide utility level in the metropolitan area, which weakens capitalization. So, for example, a large jurisdiction can essentially export some of a tax increase to smaller jurisdictions by reducing the system wide utility level in the city. In contrast, for a small jurisdiction, the system wide utility level is essentially fixed, and consequently a change in tax policy is fully capitalized into property values.

The second component is a reduced form model of political competition in which an incumbent maximizes the expected surplus from holding office, consisting of current and expected future rents. The latter depend on the probability of reelection and through

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[21] Brasington (2001) provides empirical support for this result. He shows, based on a sample of housing sales in Ohio in 1991, that differences in school quality and crime rates are capitalized into housing prices, but that these effects are smaller in jurisdictions that contain a larger share of the metropolitan area population.

this on the effort (political monitoring) that voters undertake to remove the incumbent from office. The probability of remaining in office, and hence the probability of earning future rents, is assumed to be increasing in the level of the public good and decreasing in the property tax rate and monitoring effort. The third component involves residents, who are assumed to choose the level of political monitoring to maximize land value net of effort cost.

The key result is that the optimal level of political monitoring decreases with community size. Hoyt summarizes the result as follows: "In larger cities, residents have less incentive to put effort into the political process because the cost of 'bad' local politics is not as costly as it is in small cities. This is because of the incomplete capitalization of government policies into property values." (p. 167) A larger level of political monitoring in a small community will result in lower tax rates and higher public service levels. In this way, the greater incentive for monitoring in a small city improves the operation of the political system there. Of course, in the limit, if all communities become small, then the system will become open, and the differential impacts of monitoring on housing prices will disappear.

Caplan (2001) is also concerned with imperfect politics in a multicommunity environment. The innovation in this paper is the introduction of a model of imperfect electoral competition into a model of an urban area with many communities and a mobile population. In models of electoral competition with exogenous rents from holding office, the political equilibrium typically involves both parties adopting the preferred policy of the median voter (Downs (1957)). However, if candidates represent different "ideologies," or have some other exogenous characteristic that is important to voters, and voters have heterogeneous ideological preferences, then the median voter may no longer be decisive. Candidates have an incentive to adopt policies that will appeal to voters with ideological preferences that more closely match their characteristics. Further, in a model in which politicians with ideologies derive utility from endogenous rents, and voters have

heterogeneous ideological preferences, electoral competition may not eliminate rents in equilibrium (Persson and Tabellini (2000), Sections 3.4 and 4.3).

Caplan considers a model with many localities, each containing two parties or candidates who care both about the level of rents they receive and about the public good level that is chosen. Parties are elected by simple majority vote. Each locality has a fixed supply of housing, and consequently capitalization is perfect. Households have heterogeneous demands for the public good and ideological preferences in the sense that their utility is higher if their preferred party is in power, ceteris paribus.

The political equilibrium features the preferred party choosing a level of rents that exactly offsets the ideological preferences of the median voter. That is, the preferred party sets the level of rents so that the median voter is just indifferent between the preferred party and the alternative. Since the consequences of imperfections in the electoral system (a positive level of rents in equilibrium) are fully capitalized into property values, it is impossible for landowners to avoid the costs of rent seeking by moving. This implies that mobility cannot discipline rent seeking in this model. Of course, Henderson's (1985) critique of fiscal exploitation in multi-community models with fixed boundaries applies here as well. This form of "bad politics" would presumably also be tempered by the actions of active landowners and developers.

3. Local political institutions

Economic models of local government generally suppress the role of political institutions. As noted in Section 2, the local political process is usually treated as an idealized form of majority rule in which residents choose policies directly through open agenda elections, and the political equilibrium within a community corresponds to the most preferred policy of the median voter. This institutionless view of local government

is the basis of the large empirical literature on the demand for local public goods

(Borcherding and Deacon (1972), Bergstrom and Goodman (1973), Rubinfeld (1987)),

and is generally supported studies of local expenditures (Inman (1978), Turnbull and

Djoundourian (1994)).

However, most local policy choices are not made directly by residents.[22][23] The

vast majority of cities are governed by a local executive (a mayor or city manager) and a

local legislature, the city council. This section examines how these institutions affect

policy outcomes. We describe the political institutions that are most common in North

American cities, examine political economy models of the operation of these and similar

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[22] In the U.S., local budget referenda are probably the most important exception.
However, Romer and Rosenthal (1979) show that a budget maximizing bureaucrat who
has the ability to specify a "reversion" level of spending in a budget referendum, the level
to which spending reverts if the proposal is defeated, will choose a reversion level that
causes voters to approve spending in excess of the most preferred level of the median
voter (see Rosenthal (1990) for a review). Romer and Rosenthal (1982) find limited
support for this "agenda setter" model in school district referenda in Oregon. More
recently Rosenthal and Munley (1992) find that school spending in New York State is
sensitive to the requirement that all non-city school districts hold one budget referendum
each year. Banks (1993) presents a signaling model in which both the preferred and
revision policies are private information, and discusses earlier, related models with one-
sided private information. Rothstein (1994) finds support for such a modified agenda
setter model in expenditure and voting patterns in a sample of Michigan communities.
[23] Some smaller communities, primarily in New England, are governed by a particular
type of direct democracy called an "open town meeting." In these communities, every
eligible voter is able to "attend, speak and vote on all local municipal issues." (Fahey
(1998), p. 431). The open town meeting form of local government presumably involves
higher decision costs (including the costs of gathering information, debating issues, and
voting), and lower agency and monitoring costs than representative forms (Buchanan and
Tullock (1962), Sass (1991, 1992)). In addition, open town meetings are apparently
subject to relatively easy capture by local interest groups, particularly those representing
public employees (Santerre (1993), Mehay and Gonzalez (1994)). However, Deller and
Chicoine (1993) present results from a property value maximization test of allocative
efficiency for a sample of Maine communities, and find no evidence of differences in
efficiency between direct and representative local government forms. Fahey (1998)
shows, not surprisingly, that larger and more rapidly growing communities are less likely
to retain the open town meeting form.

institutions, and review recent evidence about the importance of institutional differences and details. Since there are relatively few formal economic models of urban institutions, we will proceed in part by drawing analogies between local institutions and institutions at higher levels of government.

3.1. The institutions and their consequences

According to the International City/Council Management Association (ICMA), 43.7% of U.S. municipalities with populations over 2,500 were governed by the combination of a mayor and a city council in 2000, while 48.3% were governed by the combination of a city council and a city manager.[24] Thus, 90% of U.S. municipalities were governed at least in part by a city council in 2000. Council members may be elected "at-large," that is, from the entire city, or by wards or districts within the city. Some cities adopt a mixed system, in which the council contains both at-large and ward representatives. Welch (1990) notes that 63% of U.S. city councils were composed of representatives elected entirely at-large in the early 1970's and that 15% of councils had both at-large and ward representatives at that time. By 1988, the percentage of councils that relied solely on at-large elections declined to 47%, while the percentage with a mixed membership rose to 40%. According to Welch, the decline of at-large city councils was in part a response to the under-representation of minorities under this institution (see also Southwick (1997)).

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[24] Under the council-manager form, the city manager makes some high-level personnel decisions, executes contracts on behalf of the city, prepares the city budget for council approval, and enforces city laws.

The power of the executive office varies across U.S. cities. Mayors (or their offices) are traditionally classified as being either "strong" or "weak." Strong mayors have broad powers, including a veto over some city council decisions. Strong mayors also prepare the city's budget, and have hiring and firing authority over the heads of city departments. In weak mayor systems, most executive and legislative authority rests with the city council; the mayor performs largely ceremonial and organizational functions. Strong mayors are generally elected independently from members of the city council, and are more common in mayor-council systems. Baqir (2002), based on a sample of roughly 2,000 U.S. municipalities in 1990, reports that 98% of mayors in mayor-council systems were independently elected, compared to 65% of mayors in council-manager systems.

Strong mayors are generally associated with fiscal discipline, and there is some support for this view in other branches in the political economics literature. For example, the literature on comparative politics suggests that presidential systems have greater accountability to voters and less collusion within and between the branches of government than parliamentary systems (Persson, Roland and Tabellini (1997, 1998, 2000)). Persson, Roland and Tabellini (2000) show that presidential systems have lower levels of government spending as a share of national product. Inman and Fitts (1990) show that "strong" presidents (those with "independent political strength," identified from a survey of historians) were associated with lower levels of federal spending in the U.S. over the 1795-1988 period. Baqir (2002) suggests that a strong mayor may have a similar disciplinary effect on local government spending. She finds support for this analogy in her study of the relationship between city council size and spending in U.S. cities. This issue is discussed in detail below.

Many studies of local political institutions in North America examine the impacts of the reform movement of the early 20th century. The reform movement brought a number of changes in local government structure that were allegedly designed to limit the exercise of private interest and patronage in city politics and promote the pursuit of public interests and professional management.[25] Some of the specific institutional changes that followed included the introduction of at-large and non-partisan elections for city council (a change that, as noted above, has since been partially reversed), the council-manager form of local government, civil service exams as a basis for appointment and promotion in the bureaucracy, and, in some areas, the replacement of the mayor-council form with a group of city "commissioners," each of whom had executive and legislative responsibility for a different city department.

Early studies of reform governments (e.g., Booms (1966)) expressed the hope that managerial expertise and autonomy in personnel matters could lead to lower costs for the delivery of local public services, and in particular, lower labor costs for municipal governments. However, subsequent empirical studies provide little support for this view. Morgan and Pelissero (1980) found that public expenditure levels and patterns in U.S. cities were largely unaffected by the adoption of city managers, at-large representation, and non-partisan elections. Deno and Mehay (1987) found no evidence of lower costs or wages in communities that adopted the council-manager form. Davis and Hayes (1993) found that the efficiency of police departments in Illinois was unaffected by the presence or absence of a professional city manager. Zax (1990) argued that the net effect of the

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[25] An alternative, and more sinister view, is that the large corporations that emerged in the Progressive era used the reform movement as a means of directing resources toward public investments that encouraged economic growth, particularly growth in manufacturing employment. See Rauch (1995, p. 971), and the references given there.

movement toward at-large elections was to decrease the influence of neighborhood and partisan constituencies and increase the relative influence of municipal employees. His analysis suggests that municipal employment and compensation levels are higher in cities with nonpartisan, at-large elections for city council members.

The most compelling study of the reform movement in the recent economics literature is Rauch (1995). Rauch's hypothesis is that by creating a population of career bureaucrats in city government, the reform movement put in place incentives that encouraged investment in infrastructure and other "long-gestation-period" projects. Rauch views the relationship between the city council and the bureaucracy as a principal-agent problem. Before reform, the agent, that is, the bureaucracy, is assumed to act as a political appointee who shares the council's immediate focus on retaining office. After reform, the bureaucracy is professionalized, and the agent is assumed to have some job security and therefore a longer time horizon. The agent may then use his "powers of information collection and expenditure oversight," in combination with costly or imperfect monitoring by the principal to direct resources toward longer-term projects that may further the agent's career. The implication is that this type of reform should increase the share of expenditures devoted to investment, as opposed to current public consumption. Using a panel of 144 cities over 23 years, Rauch regresses the infrastructure share of municipal expenditure on dummy variables for the use of civil service exams, the presence of a city manager, and the adoption of a commission form of local government. After accounting for the inertia generated by the durability of infrastructure investment, use of the civil service is found to have a positive impact on the share of expenditure devoted to infrastructure. Interestingly, in the cases where they are

statistically significant, the presence of a city manager and the adoption of a commission form of government are both associated with lower levels of infrastructure spending.

3.2.   The common pool problem in city councils

City councils are, in effect, local legislatures. One way to model the operation of a city council is by analogy with models of other legislative institutions. In that spirit, imagine a city council in which each councilor represents a well-defined local constituency. If councilors are elected by ward or district, then the constituencies will be geographic, as in most national, state and provincial legislatures. Councilors elected at-large may have non-geographic constituencies that are defined by a common ideology or policy initiative (Langbein, Crewson and Brasher (1996)). Suppose that each councilor is motivated by holding office and that this gives her an incentive to pursue programs and policies that provide net benefits to her constituents.[26] It is generally assumed that the policies and programs that are chosen by legislatures are "distributive" in the sense that their costs are more widely distributed than their benefits (Lowi (1964), Weingast, Shepsle and Johnsen (1981)). For example, benefits may be restricted to a particular district or group, while the supporting tax payments are made by residents of the entire city. Spending and tax choices are made by a majority vote of council members.

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[26] Weingast, Shepsle and Johnsen (1981,1984) argue that politicians have an incentive to count the resource costs of geographically earmarked programs as benefits. They refer to this as the "Robert Moses" effect: "pecuniary gains in the form of increased jobs, profits, and local tax revenues go to named individuals, firms and localities from whom the legislator may claim credit and exact tribute." (p. 648) Such "political cost-accounting" will obviously encourage individual representatives to support higher than efficient levels of public spending. For more about Robert Moses and his many effects, see Caro (1974).

The literature on legislative decision making discusses a number of issues that relate to the efficiency of the policy choices that will emerge in this context. First, there is an incentive for "minimum winning coalitions" within the legislature to form for the purpose of approving distributive policies (Riker (1962)). A minimum winning coalition is the smallest set of legislators that can guarantee passage of a proposal under majority voting. If proposals or projects have spillover costs and benefits, as distributive policies generally do, then the exclusion of the interests of delegates outside of a winning coalition will lead to inefficient choices. Second, minimum winning coalitions should be highly unstable, since excluded delegates have strong incentives to alter the coalition structure. Each member of the legislature faces some probability that he or she will be excluded from the minimum winning coalition for any particular policy proposal. Third, Weingast, Shepsle and Johnsen (1981), Shepsle and Weingast (1981, 1984), and others suggest that the resulting uncertainty helps explain the practice of "universalism," in which the size of coalitions and the set of approved projects exceed the minimum winning size. In its extreme form, universalism involves a "norm of reciprocity" in which each delegate supports the project of every other, and so a project for every delegate or constituency is approved.

More formally, following Persson and Tabellini (2000, Section 7.1), imagine that there are M seats on the city council and that the fixed population of each constituency is N. Thus, the aggregate population of the city is MN. If council members are elected by district or ward, so the constituencies are geographic, then the assumption of fixed constituencies implies that the population is immobile. Suppose that all residents are identical and, as in subsection 2.3, have quasi-linear preferences of the form $U(g) + x$,

where g is now per capita consumption of a publicly provided good, and x is the

numeraire. All residents have the same exogenous income y. Public services are

financed through lump sum taxes that balance the city's budget. Each councilor is

assumed to be a perfect representative of his or her constituent group.

Taking utilitarianism as a normative benchmark, efficient provision of public

services in this symmetric setting maximizes aggregate utility $M(U(g) + x)$ subject to the

resource constraint $MN(y - x - g) = 0$. The first-order condition for this problem implies

$U'(g) = 1$: the marginal benefit of the public service should equal its marginal cost in

every constituency. Represent this efficient level of provision by g^*.

In contrast, under extreme universalism, or with decentralized provision and

centralized finance, each delegate chooses a level of the public service to maximize the

utility of a constituent, taking the levels chosen by other delegates as fixed. Letting g^0

represent the conjectured level chosen by others, the balanced budget requirement implies

that the lump sum tax τ for any group satisfies $\tau M = g + (M - 1)g^0$. Thus, an individual

delegate chooses g to maximize

$$y - \frac{g + (M - 1)g^0}{M} + U(g). \tag{3.1}$$

The first-order condition for this problem implies $U'(g) = 1/M$. Each member of the

legislature perceives that they pay only a fraction 1/M of the costs of the public services

that they acquire. This is known as the common pool problem. Letting g^U represent the

level of provision under this extreme form of universalism, the concavity of $U(\cdot)$ implies

$g^U > g^*$. The common pool problem thus leads to overprovision. Persson and Tabellini

(2000, p. 163) summarize the nature of the distortion as follows: "The problem here lies in the collective choice procedure, in which the tax rate is residually determined once all spending decisions have been made in a decentralized fashion. Concentration of benefits and dispersion of costs lead to excessive spending when such spending is residually financed out of a common pool of tax revenue."

The first-order condition for g^U implies

$$\frac{dg^U}{dM} = -\frac{1}{MU''(g)} > 0 \qquad (3.2)$$

by concavity. Thus, the level of overprovision increases as the constituencies become smaller, ceteris paribus. Finally, letting $G^U = Mg^U$ represent aggregate spending, we have

$$\frac{dG^U}{dM} = g^U + M\frac{dg^U}{dM} > 0. \qquad (3.3)$$

This is an instance of Weingast, Shepsle and Johnsen's (1981) "law of 1/n:" aggregate spending, and therefore the inefficiency of excessive spending, increases with the number of constituencies or the size of the legislature.

This implication of the common pool problem seems to be supported by the evidence. Langbein, Crewson and Brasher (1996), based on a sample of 192 cities in 1980, all of which have a council-manager form of government and a weak mayor, find that local government expenditure per capita is positively related to the number of elected members of the city council. Baqir (2002) finds that the size of U.S. local governments

(measured by expenditures or employment per capita or expenditures as a share of total income) increases with the size of the city council. Baqir also finds that expenditures (per capita or as a share of total income) are not significantly different in councils where a majority of members are elected at-large, but that local government employment per capita is lower when at-large councilors are in the majority. However, evaluated at the sample means, employment per capita is actually higher where a majority of councilors are elected at large. This is consistent with the hypothesis that at-large councilors serve their (non-geographic) constituencies in much the same manner that ward councilors serve the interests of their wards. The positive relationship between the size of government and size of the council is unaffected by the presence of at-large elections. Baqir also examines the impact of a strong city executive, and finds that expenditures do not increase with council size when the city has a strong mayor with the power to veto city council decisions. As noted above, this is consistent with recent models and results from the literature on comparative politics.

3.3. Equilibrium models of distributive politics

The dominant approach to modeling distributive politics is contained in the literature on legislative bargaining (Baron and Ferejohn (1989), Baron (1991)). These are game theoretic models in which decisions are made by majority voting subject to a set of rules that govern the introduction and adjudication of proposals. For example, Lockwood (2002) focuses on how cost and benefit spillovers between constituencies determine the set of (discrete) projects that are funded under majority rule. He considers a two-stage proposal and voting game (extending Ferejohn, Fiorina and McKelvey (1987)). In the

first stage, delegates simultaneously propose sets of projects to be funded. In the second stage, delegates vote sequentially on permutations of the set of proposals where in the last round the surviving proposal is put against the status quo of no funded projects. The political equilibrium outcome consists of the set of projects that are approved in a subgame-perfect equilibrium. The key result is that, under some conditions, the set of funded projects is determined entirely by spillovers. More specifically, Lockwood presents conditions under which there is a unique political equilibrium outcome, and shows that it may take one of two forms. If all projects generate net negative spillovers, and there are an odd number M projects in total, then the (M + 1)/2 least harmful projects are funded. Otherwise the set of funded projects corresponds to the set of projects that generate positive net spillovers.

Besley and Coate (1999) develop a two-stage model of legislative policy choice that examines how distributive politics influences public good provision and the choice of representatives. They consider two communities with fixed populations, where residents within each community are differentiated in terms of their preference for a local public good. More specifically, the preferences of a resident of type λ in community i are given by

$$u(\lambda, x, g_i, g_{-i}) = (1 - \lambda)\ln x + \lambda[(1 - \kappa)\ln g_i + \kappa \ln g_{-i}], \tag{3.4}$$

where x is the numeraire, g_i is the level of the public good provided in i, g_{-i} is the level provided in the other community, and $\kappa \in [0,1/2]$ indexes the degree of spillovers. In community i, λ_i is continuously distributed over [0,1]. All residents have the same income y. The cost of one unit of either public good is $c > 0$.

To begin, consider the "decentralized" case in which local policies are chosen by a representative elected from the community (a "citizen candidate," Osborne and Slivinski (1996), Besley and Coate (1997)) by majority vote. The representative for

community i chooses g_i, subject to its finance by a head tax that balances the local budget. In the second stage, the representative of community i implements the policy that maximizes her utility

$$u(\lambda_i, y - cg_i, g_i, g_{-i}) = (1 - \lambda_i)\ln y - cg_i + \lambda[(1 - \kappa)\ln g_i + \kappa\ln g_{-i}]. \tag{3.5}$$

The maximizing policy is $g_i^*(\lambda_i) = [\lambda_i(1 - \kappa)y/((1 - \lambda_i\kappa)c)]$. Composing the policy vector $(g_1^*(\lambda_1), g_2^*(\lambda_2))$ into (3.5) gives an expression for indirect utility that depends only on the types of the representatives in the two communities. These policy or candidate preference functions are single-peaked, implying that, in the first stage, each community chooses a citizen of the median type to be its representative. Thus, under decentralization, the median voter hypothesis holds.

Now suppose that each community elects a representative to the a city council, and that the council determines public good provision in both communities, subject to finance by a uniform head tax that balances the city's budget. Suppose further that power on the council is randomly allocated to one of the representatives. Let μ be the probability that the representative of community i is in power. Then, in the second stage, the representative of community i will choose the policy vector (g_i, g_{-i}) to maximize expected utility

$$\mu u(\lambda_i, y - c(g_i + g_{-i})/2, g_i, g_{-i}) + (1 - \mu)u(\lambda_{-i}, y - c(g_i + g_{-i})/2, g_i, g_{-i}). \tag{3.6}$$

Besley and Coate argue that μ parameterizes the nature of decision making within the legislature. If $\mu = 1/2$, then the policy outcome maximizes the sum of the utilities of the representatives, which corresponds loosely to the universalism norm discussed above. In contrast, if $\mu = 1$, then the policy outcome maximizes the utility of the smallest possible coalition, which consists of the representative in power.

In the second stage, voters in each community choose representatives anticipating how the outcome will influence the council's policy choice in stage one. The key result is that citizens now have an incentive to vote strategically. In particular, they must consider how their vote will influence the policies that will be chosen when their representative is not in power on the council. Besley and Coate show that the median voter in each community will now prefer that her representative have a type or preference for the public good that is higher than her own. Larger spillovers (a larger value for κ) and less legislative cooperation (a smaller μ) reduce the divergence between equilibrium type of the delegate and the type of the median voter. Thus, under centralization, the median voter hypothesis fails.

4.   Private government

Private governments are voluntary, exclusive organizations that supplement services provided by the public sector. There are two broad classes of private governments. Residential private governments, sometimes called residential community associations (RCAs), common interest developments (CIDs), or homeowner associations (HOAs), exist to further the interests of residential property owners. Commercial private governments, sometimes called business improvement districts (BIDs) or business investment areas (BIAs), exist to further the interests of their member firms. Private governments are highly controversial. Garreau (1991) labels them "shadow governments," and argues that they are undemocratic, discriminatory, and operate outside of the constitutional restrictions that public governments face. This section examines the implications of private government for the provision of public services and regulation, their impact on the welfare of members and non-members, and the ability of potential competition from a private government to discipline rent seeking in the public sector.

Residential private governments are an increasingly important component of housing markets and local government systems in North America. Garreau (1991, p. 189) estimates that there may have been as many as 130,000 RCAs in the U.S. in 1988. McKenzie (1996) reports that the number of CIDs in the US grew from a few hundred in 1960 to 150,000 in 1993 and that they then housed 32 million people.[27] As of 2002, the Community Associations Institute (an industry trade association) maintains that there are 231,000 RCAs in the U.S. housing 57 million Americans. The 2001 American Housing Survey from the U.S. Bureau of the Census reports that 8.9% of all households indicated that they paid community association fees in 2001. For new housing, the figure was 28%. Residential private governments provide security and sanitation services, and manage and maintain common facilities, including recreational facilities and infrastructure. They also regulate property use and individual conduct through covenants, codes and restrictions in property deeds.

There are fewer commercial private governments, but their impacts are also substantial. Pack (1992) estimates that there were 400 BIDs in the U.S. in 1992, while Mitchell's (2001) survey found 404 independently managed BIDs in the U.S. in 1999. BIDs typically provide security, marketing and sanitation services. Mitchell reports that 94% of BIDs engage in marketing, 85% provide maintenance and sanitation services, and 68% provide security. Mitchell's survey also found that 88% of BIDs engaged in some form of policy advocacy, like lobbying governments on behalf of business interests. BIDs have become a key component of downtown revitalization strategies in many, if not most, major North American cities.

Private governments have five salient characteristics (Helsley and Strange (1998)). First, they are voluntary in the sense that they are formed by firms and

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[27] Private governments have a surprisingly long history. Reichman (1976) notes that private agreements for the use and maintenance of public facilities were used in England in 1743, and that the first private government was established in the U.S. in 1844.

households who are dissatisfied with the services provided by the public sector. Second, they are exclusive in the sense that they provide services only to their members. Third, they are part of a hierarchy of governments, and their members continue to receive and pay for services provided by the traditional public sector. Fourth, they are self financing in the sense that they balance their budgets using fees and charges collected from members. Fifth, they are strategic: their activities interact with those of traditional governments.

There appear to be two primitive economic forces behind the growth of private government. The first is heterogeneity in demand. Restrictions on the number of communities, the difficulty of detaching land from existing communities, and the costs of moving all contribute to a community structure in which a good deal of demand heterogeneity survives the Tiebout sorting mechanism. Further, fiduciary and constitutional responsibilities often force local governments to service their entire populations with "one size fits all policies." Targeted provision of local public goods is not unheard of (local redistributive programs are certainly targeted), but it is rare. The net result is that some, perhaps most, residents find that the level of public services provided in their community does not exactly match their preferences. Private government allows high demand consumers to supplement public provision.

There also appear to be significant cost differences between public and private provision. Wolfe's (1993) meta survey of the relative costs of public and private provision for 43 services ranging from airlines to weather forecasting finds that private provision is generally less costly. Wilson (1989, p. 350) commenting on his own survey of the evidence notes that "The cost of water, street cleaning, ship maintenance, housing construction, school bus operation, and railroad track repair were all lower when done by private firms rather than government agencies." Lopez-de-Silanes, Schleifer and Vishny (1997) note that private contractors use fewer employees and pay them lower wages and benefits than government agencies do.

4.1. Supplementary provision

Helsley and Strange (1998) focus on the strategic interaction between a private government and the public sector. The actors in the model are a population of heterogeneous consumers, who may be firms or households, a private government, and the traditional public sector. Strategic interaction arises through a two stage game. In stage 1, the public sector decides whether or not a private government will be allowed to form, and collects a fee from members to cover formation costs. In stage 2, the public sector and the private government choose provision levels, and consumers choose whether or not to join. The private government has narrow objectives in the sense that it is only concerned with the welfare of members. The public sector is concerned with the welfare of both members and nonmembers. We will consider a model of private government with a Leviathan public sector in the sequel.

The net benefit of collective good level G to a consumer of type θ is

$$\pi(G,\theta,p) = \theta f(G) - cG - p, \tag{4.1}$$

where θ indexes the value that the consumer places on G, cG is per capita cost and p is the membership price (0 for nonmembers). Note that provision is financed through user fees in this model, and that the per capita cost of the collective good is a constant. θ is distributed over the closed support $[\underline{\theta},\overline{\theta}]$ according to a continuous distribution H(θ). The preferred level of spending for a type θ consumer, $G(\theta) = f'^{-1}(c/\theta)$, is increasing in θ. The level of public provision is denoted by g, and the level of private provision is denoted by γ. Helsley and Strange assume that these services are perfect substitutes: a member of the private government consumes $g + \gamma$ in total.

In the absence of a private government, the welfare maximizing choice for the public sector is $g^0 = G(E[\theta])$, where $E[\cdot]$ is the expectations operator. In this model, the public sector provides the level that is preferred by the average resident of the community. With a private government, there are three equilibrium conditions. First, consumers join the private government when it is in their interest to do so. These choices determining θ^*, the identity of the marginal member. Second, the public sector chooses g taking γ and θ^* as fixed. Third, the private government chooses γ taking g and θ^* as fixed. All these choices must be mutually consistent in equilibrium.

The resulting maximizing provision levels are $g^1 = G(E[\theta|\theta < \theta^*])$ for the public sector, and $\gamma^1 = G(E[\theta|\theta \geq \theta^*]) - g^1$ for the private government. Note that $g^1 + \gamma^1 = G(E[\theta|\theta \geq \theta^*])$, the level preferred by the average member. Then since $G(\theta)$ is increasing, and $E[\theta|\theta < \theta^*] < E[\theta] < E[\theta|\theta \geq \theta^*]$, we have $g^1 < g^0 < g^1 + \gamma^1$. The public sector responds to the existence of a private government by reducing its provision of the collective good. Thus, there is "strategic downloading" of public spending in equilibrium.

The welfare effects of private government are interesting. First, the marginal member is always worse off with a private government (he faces a choice between consuming too much of the collective good and consuming too little), so the private government does not effect a Pareto improvement. Further, as in models of individual supplements to a collective good (Epple and Romano (1996), Gouveia (1997)), the equilibrium has an "ends against the middle" quality. High demanders are better off since their consumption of the collective good rises, and low demanders are better off since their consumption of the collective good falls. However, as noted above, the marginal member, and by continuity consumers near the marginal member, are worse off.

4.2.   Supplementary regulation

Private governments engage in a variety regulatory practices. Activities that have been prohibited by the covenants, codes and restrictions that accompany membership in a CID include "flying the flag, delivering newspapers, parking pickup trucks in the driveway, kissing outside the front door, using one's own back door too much, building fences, painting the exterior certain colors, having pets, working from one's home, marrying people below a certain age, and even having children." (McKenzie 1996, p. 4) Although these regulations seem oppressive, they have survived the test of the marketplace. CIDs appear to provide a higher level of amenities than less regulated, public developments.

Helsley and Strange (2000) present a model of local government and social interactions that captures some of the regulatory fervor of residential private governments. The model features a population of heterogeneous agents who belong to groups, where each agent takes an action that impacts the welfare of other group members. In this model, social interactions arise from contributions to group quality, a collective good. There are two groups, an exclusive group and the remainder. The extent of secession, the size of the exclusive group, is endogenous. Group quality A_G is given by the average value of individual actions taken by group members.

The utility of a type θ agent is $U(\theta,a,A_G) = y + u(\theta,a,A_G) - ka$ where k is the cost per unit of individual action a, and θ is distributed via $H(\theta)$ on a closed support. Under these conditions, the maximizing individual action $a(\theta,A_G)$ is increasing in θ. Secession is modeled as the bifurcation of the population into two groups, where all agents above type θ^* join the private government.

The private government sets a minimum action $\underline{a}$ that is required of all members. When this minimum action is relatively large, the regulation causes some individuals to choose not to join the exclusive group. Of course there are other ways of accomplishing exclusion in such a model. If θ is observable, a manager could exclude low contributors directly. Alternatively, the group could impose a membership fee. However, regulation

dominates pricing in this setting, since it both excludes low value consumers, and directly increases group quality. The quality of both groups increases in θ*, and the quality of the exclusive group increases with the level of the minimum action a.

The equilibrium is modeled as a game in which individual actions, secession and regulation occur simultaneously. There are several key results. First, all members of the low group are made worse off by secession, due to its negative impact on group quality. Thus it is not surprising that this type of secession is controversial. Second, although it is possible that some secession may be efficient, the level of secession is excessive in equilibrium. There is a migration externality associated with secession in this model (de Bartolome (1990)): an individual who joins the exclusive group decreases the quality of both groups – she was the highest contributor in the low group and is now the lowest (perhaps regulated) contributor in the high group. Consequently equilibrium membership decisions are inefficient. Third, this implies that it would be desirable to further increase the level of regulation as a means to reduce equilibrium high group membership. This is interesting because the regulatory activities of private governments are usually met with hostility. However, this analysis shows that the many Draconian regulations that these institutions impose may be useful second-best instruments.

It is also interesting to consider other objectives for the high group. Many CIDs are established by land developers who govern the organization until the community is complete and largely occupied. If the level of regulation is chosen to maximize profit, the developer will choose a to maximize the willingness to pay of the marginal member. This will lead to a lower level of regulation, ceteris paribus. However, the size of the exclusive group may be greater or smaller under profit maximization, depending on how the effects of market power compare with the migration externality discussed earlier. Of course, there is also an element of democracy to private governance in this context. Homeowner associations are typically governed by a board elected from the association's members. If there is direct voting over alternative policies, the preferences of the median

member should determine policy choices. Depending on the distribution of types, there may be too much or too little regulation with democratic incentives.

4.3. Potential competition

Helsley and Strange (2000) examine whether the threat of competition from a private government can discipline a Leviathan public sector. The paper considers four issues: (1) how competition between a private government and the public sector influences the provision of a public service, (2) the role of political activism in private government formation, (3) how potential competition from a private government may contribute to public sector reform, and (4) how the public sector responds to the threat of entry by a private government.

There are two types of consumers in the model, high and low demanders, where only high demanders join the private government. This paper, unlike those summarized above, does not consider equilibrium membership decisions. There are two institutions, the public sector and a private government, and they have different incentives and different provision costs. The private government maximizes the welfare of members. The public sector is concerned with both the welfare of the aggregate population and with the perquisites of public office, represented by the level of public provision. Thus, the public sector in this model engages in rent seeking. Each institution chooses a level of provision to maximize its objective taking the choice of the other as given. The analysis focuses on the characteristics of the resulting Nash equilibrium.

The indirect utility of a member is

$$v_M = v(g + \gamma) - (c + r)g - c\gamma, \tag{4.2}$$

where $v(\cdot)$ is increasing and strictly concave, g is the level of public provision, γ is the level of private provision, c is private provision cost per unit and r is the public sector's cost disadvantage. The indirect utility of a nonmember is

$$v_N = \theta v(g) - (c + r)g, \tag{4.3}$$

where $0 < \theta < 1$. Nonmembers place a lower value on the public service, ceteris paribus.

The public sector's objective is to choose g to maximize

$$\Omega = \omega W + (1 - \omega)g, \tag{4.4}$$

treating γ as fixed. In (4.4), W is aggregate welfare, $W = Mv_M + Nv_N$, where M and N are the fixed numbers of members and nonmembers, respectively, and ω is the weight that is given to aggregate welfare in the public sector's objective. The first order condition for this problem,

$$Mv'(g + \gamma) + N\theta v'(g) = (M + N)(c + r) - \frac{1 - \omega}{\omega}, \tag{4.5}$$

indicates that g is chosen so that the aggregate marginal benefit of public provision equals the aggregate marginal cost minus an adjustment that reflects bureaucratic rent seeking. Higher public sector costs (higher r) lead to a lower level of public spending, while stronger expense preferences (lower ω) lead to a higher level of public spending, other things being equal.

The private government chooses γ to maximize $W_M = Mv_M$ treating g as fixed. The first order condition for this problem implies

$$v'(g + \gamma) = c. \tag{4.6}$$

(4.6) indicates that the private government chooses γ so that the marginal benefit of the public service to a member is equal to the marginal cost.

(4.5) and (4.6) implicitly define the reaction functions of the public sector $g(\gamma)$ and the private government $\gamma(g)$, respectively. The slopes of these reaction functions are

$$\frac{dg}{d\gamma} = -\frac{Mv''(g + \gamma)}{Mv''(g + \gamma) + N\theta v''(g)} \in (-1,0), \tag{4.7}$$

and

$$\frac{d\gamma}{dg} = -1. \tag{4.8}$$

Thus, public and private provision are strategic substitutes in this model.

Let g^0 represent the level of public provision if the private government does not form, and let g^1 and γ^1 represent the equilibrium levels of public and private provision if the private government forms (see Figure 4.1). Assume that that $g^1 > 0$: the private government never completely crowds out public spending in equilibrium. This seems realistic. Even though private provision is less costly, there may be constitutional or legislative constraints that prevent the public sector from completely withdrawing from the market. In this simple framework, it can be shown that an interior equilibrium exists provided certain boundary conditions on the reaction functions are satisfied, and that such an equilibrium features:

$$g^1 + \gamma^1 > g^0 > g^1. \tag{4.9}$$

Thus, at an interior equilibrium, the private government causes a reduction in public provision. Once again, the public sector's best response to the existence of a private supplement is to effectively download some its spending. However, the private supplement more than compensates for the reduction in public spending: consumption by high type consumers rises.

However, if $g(0) \geq \gamma(0)$, then there is no room in the market for a private supplement: the public sector is providing more of the public service than even the high type consumers want. As a result, the best response of the private government is to provide $\gamma = 0$. This shows that if the bureaucrat gives little weight to the welfare of the population, so rent seeking is relatively strong, then public provision may be so large that a supplementary private government would not choose a positive provision level.

To examine private government formation, consider the following three stage game. In Stage 1, the public sector chooses g. In stage 2, members engage in political activism that may cause a private government to form. In stage 3, if the private government is active, it chooses γ. Suppose that there is a fixed cost to activism for members as a group, and that activism is undertaken provided the increase in member utility associated with the private government is larger than an individual's share of the activism cost. If the private government reduces the welfare of nonmembers, then activism can be inefficient in this model. In fact, if the benefits to members are large enough, a private government may form even when this reduces aggregate welfare.

In stage 1, the public sector chooses g anticipating how this will impact activism, private government formation and private provision. There are essentially two cases. First, if a private government does not form, then the public sector should choose the g that is optimal for $\gamma = 0$, namely g^0. On the other hand, if a private government forms, the public sector should choose g to maximize Ω assuming that γ follows the private government's reaction function $\gamma(g)$. In this model, the solution to this problem is γ^1, the

level that was chosen in the simultaneous move provision game. This outcome (which is obviously model specific) simplifies the examination of potential competition.

Figure 4.2 illustrates the public sector's attitudes toward entry in this model. There are four cases or regions. For small values of ω rent seeking is so strong, and consequently public provision is so large, that there is no room for a private government. Thus, in the region labeled B, entry is blockaded. At the other extreme, for high values of ω, entry may be inevitable. This occurs if the payoff to activism is positive even when the public sector provides g^0, and is represented by the region I. Third, it is possible that the public sector leaves room for a private government to produce, but activism costs are such that the payoff to activism is negative, and so a private government does not form. We say that entry is "politically blockaded" in this case (region PB). Finally, and most interesting, if the parameters are such that entry is neither inevitable nor politically blockaded, then the public sector has a strategic choice: choose g^0 and prevent entry, or choose g^1 and accommodate it (region SR, for "strategic region").

This analysis shows that potential entry can have a very different effect on a public sector incumbent than it would have on a private firm. If there is little efficiency gain from private government, or if the public sector has strong expense preferences, it will, under some conditions, choose a high level of provision to deter entry. However, if the gain from private provision is large or if expense preferences are weak, the public sector will choose a low level of provision and welcome entry. This practice of strategic entry accommodation is entirely different than the strategic entry deterrence that is common in models with a private sector incumbent (Dixit (1980), Tirole (1988)). There is another, more sobering, point that deserves emphasis here. Since entry is blockaded when expense preferences are high, potential competition is completely ineffective in this model in precisely the circumstances where we might think it is most important.

4.4.   Gated communities

The most extreme form of private government is the gated community, a walled development that is designed to improve public safety by limiting public access. This type of development appears to be growing very rapidly in North America. The New York Times has reported that 4,000,000 people lived in gated communities in the U.S. in 1995. An article in the Washington Post put the number of gated residents in California at 500,000 in 1994 (see Helsley and Strange (1999) for these and other related references). The 2001 American Housing Survey, from the US Bureau of the Census, reports that 6.6% of all households, and 14% those in new units (less than 4 years old) indicated that they live an area where "*community* access is secured with walls or fences." The percentage of houses that are gated by this definition is highest in the West (12.1%), and lowest in the Midwest (2.3%). Interestingly, within urban areas, the corresponding percentages are 8.5% for central cities, and 7.4% for suburbs.

Helsley and Strange (1999) analyze gating in a system of communities, using a model that incorporates an explicit micro model of the market for crime. In this model, communities are controlled by developers who choose levels of gating to maximize profit, defined as revenue from land sales minus gating costs. Revenues depend on the level of crime in the community through capitalization, and the number of criminals and their target choices are endogenous. Since gating makes a community a less attractive target, it impacts the spatial distribution of crime in the urban area.

The payoff to crime in community i is

$$v_i = b(n_i) - g_i, \qquad\qquad (4.10)$$

where n_i is the number of active criminals in the community, and g_i is the level of "gating," defined to include patrolling and other activities whose level can be varied. The

"booty" function b(·) is decreasing due to congestion in criminal opportunities. The criminal labor market is closed in the sense that the payoff to criminal activity is endogenously determined by the interaction between aggregate criminal payoffs (the demand for crime) and an aggregate supply function of criminals. The supply function reflects an implicit career choice between crime and legitimate employment.

The essence of this model can be illustrated in a few simple diagrams. Figure 4.3 shows the equilibrium level of crime in two communities in the absence of gating. Criminal mobility equalizes v_i across the communities, and the aggregate market clearing condition determines the common equilibrium criminal payoff v^*. Figure 4.4 shows the impact of gating by community 1. This lowers the criminal payoff in community 1 and reduces the amount of crime there, ceteris paribus. However, this reduction in the aggregate "demand" for crime causes the equilibrium criminal payoff to fall, which leads to an increase in the level of crime in community 2 (the community can now support more criminals, since the payoff each must earn is lower), but decreases the aggregate level of crime in the metropolitan area. Thus, there is both diversion and deterrence. Gating diverts some crime to other, less protected areas, and discourages criminal activity overall by making crime less attractive relative to other "occupations."[28]

Helsley and Strange (1999) use this micro model of crime as the first stage of game in which developers choose levels of gating to maximize profits. Gating expenditures may be strategic complements or strategic substitutes in this model, depending on the behavior of the criminal payoff function. This may help explain both the explosive growth of gating and its apparent geographic concentration. If gating expenditures are strategic complements, and choices are made sequentially, then there

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[28] LaCour-Little and Malpezzi (2001), in one of the few empirical studies of private government, found that homeowner associations, private streets and gating were associated with higher housing prices in St. Louis over the 1979-1988 period. The combination of a homeowner association and a gated street increased sales prices by roughly 26% in this sample.

will be a second mover advantage. In that case, it pays to wait to develop and then respond to the gating choices of others by taking even more aggressive protection measures. A key result in this paper is that, because of the diversionary externality illustrated above, the level of gating is excessive in equilibrium. Also, if there is a certain amount of exogenous crime an a community, and if there are multiple equilibria in the crime market, then gating can contribute to the problem of "tipping." A community can be pushed from a low-crime equilibrium to a high-crime equilibrium by of the diversionary effects of gating in other communities.

5.   Conclusions

The conceptual literature in the intersection of urban economics and politics is dominated by models of the provision of local public goods by communities with mobile residents. One of the interesting features of this literature is that it considers a number of different mechanisms for making collective choices within a community, including majority voting, the maximization of property values, and the maximization of the profits from land development. However, each of these approaches largely suppresses the institutions of local government. This is a serious shortcoming: the study of local economic and political institutions has much to add to our understanding of the process of local policy formation. Viewing the city council as a legislature introduces distributive politics, legislative coalitions and bargaining, universalism, and the common pool problem into the study of the provision of local public goods. Recent evidence suggests that these and other institutional issues have important impacts on local fiscal and regulatory policies. Models of private government focus on how the public sector responds to private provision and the threat of entry by new institutions, both of which

are likely to have important impacts on policy outcomes.

There is much work to be done in this area. The micro-political foundations of the property value maximization hypothesis are weak. Existing models that are based on profit maximizing developers generally endow property developers with unreasonable powers. There is a need for empirical research to help select among the various models of community decision making. There is also a need for closer examination of the institutional details of local representative political bodies, to help determine how far the analogy between city councils and other types of legislatures can or should be taken. Models of private government should be expanded to include more than two institutions and competition between them. There could be free entry of private governments, or many communities with incumbent public sectors, or both. It also seems natural to examine the consequences of residential private government in a model with a housing market. Finally, there is an obvious need for empirical studies of the impacts of private government on public sector spending patterns and housing prices.

Another way for the nascent field of urban political economics to develop would be to articulate models that combine key elements from the paradigms outlined above. The obvious starting point, and one that is mentioned by Besley and Coate (1999), might be the development of a multi-community model with a representative political institution. Each community could elect a citizen candidate to the city council, which would then make policy choices. The population would presumably be mobile, and so the impacts of policies on utility would be capitalized into property values. Of course, in this setting, the common pool problem would be magnified by the relationship between the policy variables and the tax base. Under uniform property taxation, communities that

are net beneficiaries of public spending will have lower liabilities due to capitalization.

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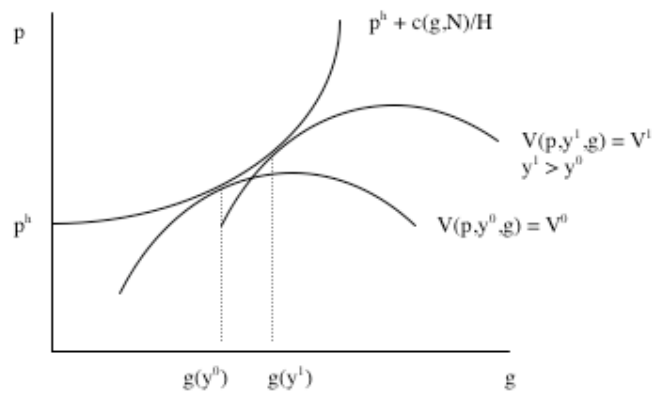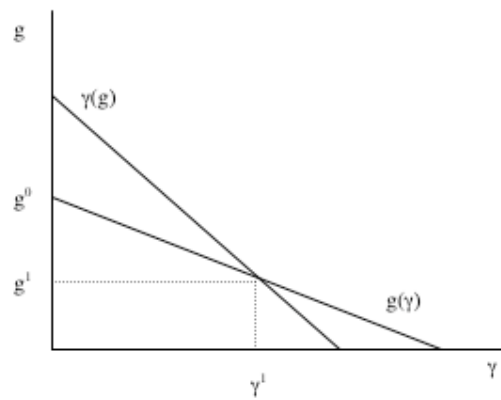
Figure 2.1: Preferred policies under myopia

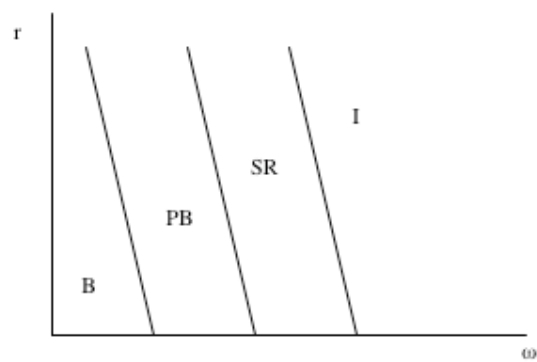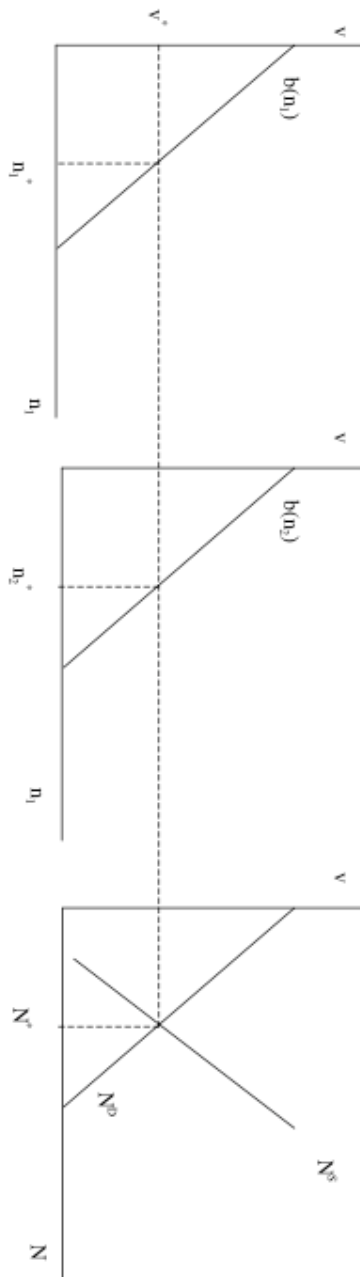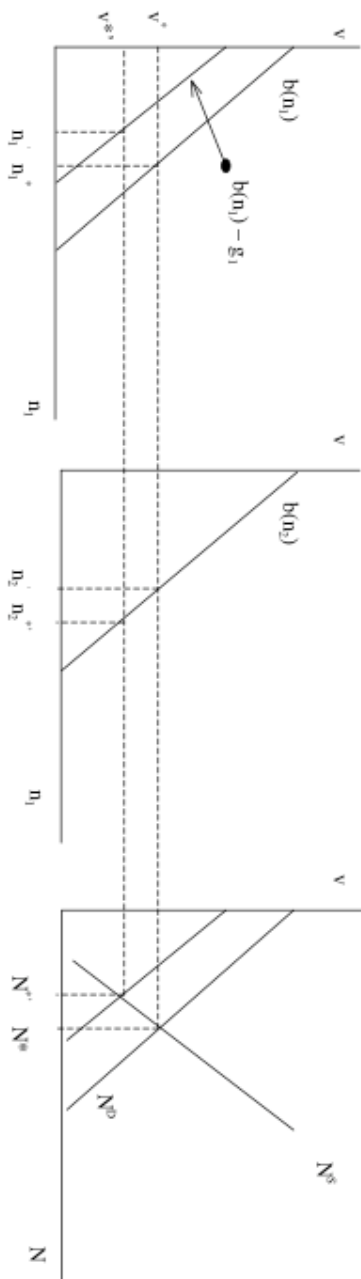Figure 4.1: Equilibrium provision

Figure 4.2: Entry

Figure 4.3: Equilibrium crime

Figure 4.4: Gating and equilibrium crime