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AGGLOMERAMA

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Agglomerama

Lee Anne Fennell*

The world's population is rapidly becoming urbanized, and in a matter of decades will be overwhelmingly so.¹ Already, over eighty percent of the U.S. population dwells in urban areas.² The forces that explain these trends, which can be placed under the general rubric of agglomeration economies,³ present a newly pressing challenge for students of commons dilemmas. How can urban space, and the property rights that structure it, be organized in ways that will foster and capture the positive externalities produced by proximity among people and land uses, while controlling the negative spillovers produced by that same proximity?

The problem is a tricky one. Because the raw ingredients of collaboration and interaction—people, businesses, products, services, venues—take up space and time, congestion vies with agglomeration

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1. See U.N. DEP'T OF ECON. & SOC. AFFAIRS, POPULATION DIV., WORLD URBANIZATION PROSPECTS, THE 2014 REVISION, HIGHLIGHTS, at 1, U.N. Doc. ST/ESA/SER.A/352 (2014), available at <http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf> (reporting that “54 per cent of the world’s population resid[es] in urban areas in 2014” and that “by 2050, 66 per cent of the world’s population is projected to be urban.”); Michael Batty, Commentary, *When All the World’s a City*, 43 ENV'T & PLAN. A 765, 767–78 (2011) (predicting that if current trends continue, “the entire world will be urbanised by 2092”).

2. *Growth in Urban Population Outpaces Rest of Nation*, U.S. CENSUS BUREAU (Mar. 26, 2012), http://www.census.gov/newsroom/releases/archives/2010_census/cb12-50.html (reporting, based on data from the 2010 Census, that “[u]rban areas—defined as densely developed residential, commercial and other nonresidential areas—now account for 80.7 percent of the U.S. population, up from 79.0 percent in 2000”). In 1790, the figure was 5.1 percent, although there have been some intervening changes in the Census Bureau’s definition of “urban.” See *Population: 1790 to 1990: United States, Urban and Rural*, U.S. CENSUS BUREAU, <http://www.census.gov/population/censusdata/table-4.pdf> (last visited Sept. 9, 2014); see also *History: Urban and Rural Areas*, U.S. CENSUS BUREAU, http://www.census.gov/history/www/programs/geography/urban_and_rural_areas.html (last visited Sept. 9, 2014) (detailing definitional changes).

3. See *infra* Part I.A.1.

benefits within cities.⁴ It is not simply a case of “the more the merrier”;⁵ each additional participant can add value only by burning up scarce inputs—including space. Brilliant thoughts that might be added together without apparent limit suddenly run into hard constraints when they must be delivered in human form, given all that is necessary to house and propel and sustain human beings as they interact. Likewise, the complementarities offered by agglomerations of shops, entertainment establishments, and restaurants are limited by the physical space that each consumes—space that can be managed and shrunk with clever layout and transportation solutions,⁶ but that nonetheless pushes back hard against the advantages of adding more energy and variety to a district.⁷ Meanwhile, heterogeneous households and businesses asymmetrically generate and absorb the negative and positive externalities that are interwoven through urban life.⁸

Urban interaction space can be conceptualized as a type of commons.⁹ It presents the threat of overcrowding or overharvesting, but

4. The negative aspects of agglomeration are sometimes referred to in the literature as “agglomeration diseconomies,” although I will primarily use the word “congestion” very broadly to refer to these negative effects. *See infra* Part I.A.2; *see also* David Schleicher, *The City as a Law and Economic Subject*, 2010 U. ILL. L. REV. 1507, 1528–29 (2010) (noting the “catch-all” way in which the term “congestion” is used and suggesting the term “negative agglomerations”).

5. *See, e.g.*, Carol M. Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 768 (1986) (explaining that increasing returns to scale can produce what amounts to “the reverse of the ‘tragedy of the commons’: it is a ‘comedy of the commons,’ as is so felicitously expressed in the phrase, ‘the more the merrier’”).

6. *See, e.g.*, Gideon Parchomovsky & Peter Siegelman, *Cities, Property, and Positive Externalities*, 54 WM. & MARY L. REV. 211, 251–52 (2012) (discussing “vertical malls” like Water Tower Place in Chicago).

7. I will use the term “energy” throughout the piece in a nontechnical way to refer to the vibrancy or vitality of an area, which produce its agglomeration benefits. Earlier work has used similar terms to get at this idea. *See, e.g.*, Casey Dougal et al., *Urban Vibrancy and Corporate Growth 2* (Nat’l Bureau of Econ. Research, Working Paper No. 20350, 2014), *available at* <http://www.nber.org/papers/w20350> (using the term “vibrancy” to capture “the endogenous interactions of the people living in the city . . . that influence knowledge diffusion between a city’s workers, technology spillovers between neighboring firms, or consumption externalities between its residents”).

8. *See infra* Part II (discussing heterogeneity).

9. That urban areas embody and embed common-pool resources is well recognized. For example, some recent work has focused on how to manage access to congestible or degradable resources such as urban public parks or shared spatial elements. *See, e.g.*, Sheila R. Foster, *Collective Action and the Urban Commons*, 87 NOTRE DAME L. REV. 57 (2011); Nicole Stelle Garnett, *Managing the Urban Commons*, 160 U. PA. L. REV. 1995 (2012); *see also* Benjamin Davy, *Polyrational Property: Rules for the Many Uses of Land*, 8 INT’L J. COMMONS 472, 475 (2014) (addressing the “spatial commons,” defined as “the shared land uses typical of cities and other human settlements”); Bradley C. Karkkainen, *Zoning: A Reply to the Critics*, 10 J. LAND USE AND ENVIRON. L. 45, 68–69 (1994) (discussing the “neighborhood commons”). Other

it also poses the risk of undercultivation if it fails to attract parties who are well suited to generate agglomeration benefits.¹⁰ The method for rationing access to prime urban space should, therefore, select not only for the value that users place on locating in particular spots, but also for those users' agglomeration-friendly and congestion-mitigating traits. What is being rationed is not just access to the consumption opportunities that particular urban districts offer, but also access to a (rivalrous) production platform for generating the very agglomeration economies that make those consumption opportunities so valuable. The challenge is to assemble participants together whose joint consumption and production activities will maximize social value.

Cities thus embed a particularly interesting type of collective action problem, which I will refer to here as a "participant assembly problem." Economists have studied many similarly structured problems. Some notable examples include concert and event ticket pricing that is designed to attract enthusiastic audiences,¹¹ shopping mall leasing practices that account for asymmetric spillovers between anchor and smaller stores,¹² local government services like schooling and safety for which residents represent an important input,¹³ and differential pricing in higher education to assemble a desired mix of students.¹⁴ In these cases and more, the characteristics of users or customers are inputs into the quality of a good,¹⁵ complicating the problem of rationing access through

scholars have turned a spotlight on infrastructure elements like roads and mass transit that are interlaced through private holdings but that themselves elude private ownership. See, e.g., Yochai Benkler, *Commons and Growth: The Essential Role of Open Commons in Market Economies*, 80 U. CHI. L. REV. 1499 (2013) (reviewing BRETT FRISCHMANN, *INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES* (2012)). My discussion focuses primarily on distortions in location choices, a topic distinct from these other inquiries, but one which carries implications for them (and vice versa).

10. See Rose, *supra* note 5, at 769 (noting that in contexts like festivals "participants need encouragement to join these activities, where their participation produces beneficial 'externalities' for other participants").

11. See *infra* note 127 and accompanying text.

12. These leasing practices have been expressly invoked as a potential model for addressing urban spillovers. See Parchomovsky & Siegelman, *supra* note 6; B. Peter Pashigian & Eric D. Gould, *Internalizing Externalities: The Pricing of Space in Shopping Malls*, 41 J.L. & ECON. 115, 140–41 (1998).

13. See, e.g., Robert M. Schwab & Wallace E. Oates, *Community Composition and the Provision of Local Public Goods: A Normative Analysis*, 44 J. PUB. ECON. 217 (1991); Wallace E. Oates, *The Use of Local Zoning Ordinances to Regulate Population Flows and the Quality of Local Services*, in *ESSAYS IN LABOR MARKET ANALYSIS* 201 (Orley C. Ashenfelter & Wallace E. Oates eds., 1977).

14. See, e.g., Michael Rothschild & Lawrence J. White, *The Analytics of the Pricing of Higher Education and Other Services in Which the Customers Are Inputs*, 103 J. POL. ECON. 573 (1995).

15. See, e.g., *id.*

ordinary market (or market-mimicking) measures. Despite some worthy recent attempts to grapple with the issue of optimizing agglomeration spillovers in cities,¹⁶ the legal literature lacks a solid account of the participant assembly problems that emerge within urban areas and how they might be resolved. In this essay, I make a start at exploring that issue.¹⁷

The analysis proceeds in three Parts. Part I specifies the nature of the commons problem that agglomeration and its evil twin, congestion, together present within urban areas. Part II focuses on the significance of heterogeneity among economic actors and recasts the challenge as one of participant assembly. Part III surveys a set of strategies that have been pursued or might be pursued to grapple with these problems. The emerging significance of urban agglomeration requires the law to think flexibly and creatively about the problem of co-location in its assignment and refinement of property rights.

I. URBAN INTERACTION SPACE AS A COMMONS

A city is not a single common-pool resource, but rather comprises multiple overlapping resources that interact with private holdings and that residents, visitors, firms, commuters, tourists, and others access, exploit, produce, and regenerate in varying combinations. This Part focuses on one set of decisions that profoundly influences the dynamics of these multiple commons: the location choices of firms and households.¹⁸ When economic actors—firms and households—occupy private property in urban areas, the locations they choose serve as platforms for accessing (and controlling access to) a composite urban

16. See, e.g., Daniel B. Rodriguez & David Schleicher, *The Location Market*, 19 GEO. MASON L. REV. 637 (2012).

17. Agglomeration benefits come in many forms and exist at a variety of scales, from block-level to regional. See, e.g., id. at 638; Pierre-Phillippe Combes & Laurent Gobillon, *The Empirics of Agglomeration Economics* in 5 *Handbook of Regional and Urban Economics* 46-47 (Gilles Duranton et al., eds, forthcoming 2015) available at <http://ssrn.com/abstract=2505370>; see also infra Part I.A.1. I focus primarily here on relatively small-scale urban settings—prime urban districts—where space is constrained even if the metropolitan area or the city itself can expand outward. Accordingly, my analysis does not address factors that bear on the overall growth paths of cities, such as mountains or bodies of water that present natural barriers to expansion, although these features can influence the prevalence of good substitutes for a given urban district.

18. By location choices, I mean decisions to possess and occupy real property in a fixed location on an ongoing (more than short-term) basis, typically through ownership of a leasehold or fee interest. Shorter-term occupancy of spaces by hotel guests, homeless people, hospital patients, and so on also represent interesting location choices that bear on the overall urban fabric, but these will be addressed here only indirectly through the decisions made by the owners and operators of the properties that they inhabit.

resource that I will term “interaction space.” The amount of value that urban interaction space can generate depends on who can access it, both as consumers of the space and as contributors to its quality—whether for good or ill. Location choices determine access to interaction space but, due to externalized costs and benefits, do not fully price in the effects of that access.

Section A examines the externalized costs and benefits that flow from locating within urban areas—both positive agglomeration benefits and negative congestion costs. Section B explores the dilemmas these externalities can produce.

A. Agglomeration and Congestion

The densities and interdependencies that characterize urban life yield both positive and negative externalities. The former are often associated with the benefits of agglomeration (agglomeration economies), while the latter are typically associated with the idea of congestion (agglomeration diseconomies). The tradeoffs between these two types of impacts have been the subject of economic treatments of city formation and growth.¹⁹ Here, I focus on how these two types of externalities might distort the location choices of firms and households.

1. Agglomeration

The benefits of agglomeration—the clustering together of firms and households—have long been recognized,²⁰ but legal scholarship has recently begun to engage agglomeration economics in a more direct and sustained way.²¹ Various enumerations of the benefits flowing from

19. See, e.g., Luís M.A. Bettencourt, *The Origins of Scaling in Cities*, 340 SCIENCE, June 21, 2013, at 1438; Jeffrey C. Brinkman, *Congestion, Agglomeration, and the Structure of Cities* (Fed. Reserve Bank of Phila., Working Paper No. 13-25, 2013), available at <http://philadelphiafed.org/research-and-data/publications/working-papers/2013/wp13-25.pdf>.

20. The legal literature has sometimes referred to these benefits by other names or in somewhat different ways than has the economics literature. For example, Carol Rose examined the benefits of certain forms of widespread collective participation (such as in markets and dances) through the lens of the commons. Rose, *supra* note 5. Her focus on increasing returns to scale and the positive externalities of participation is very much in line with the notion of agglomeration benefits, though she does not use that term. See *id.* at 766–71; see also Schleicher, *supra* note 4, at 1510 & n.14 (discussing legal literature addressing agglomeration and related ideas); Benkler, *supra* note 9, at 1511–18 (discussing Rose’s contributions and their connections to later work on the public domain and infrastructure commons).

21. See, e.g., Schleicher, *supra* note 4, at 1510 & n.14; see generally *id.*; Parchomovsky & Siegelman, *supra* note 6; Rodriguez & Schleicher, *supra* note 16.

clustering have appeared in the literature, many of which use the work of Alfred Marshall as a starting point²² and emphasize such factors as knowledge spillovers among firms, labor-market matching, and supply linkages.²³ One influential taxonomy uses the broad categories of “sharing, matching, and learning mechanisms.”²⁴ Parties in close proximity with each other are able to share indivisible resources (as well as risk) and mutually benefit from shared access to urban variety and diversity.²⁵ Proximity also enables actors to match up with each other in labor and other markets²⁶ and learn from each other.²⁷ Perhaps the most intuitive agglomeration benefit is the reduction in transportation costs produced by proximity. Indeed, Edward Glaeser boils down the benefits of agglomeration to the single idea of reducing transportation costs—for “goods, people and ideas.”²⁸

The most economically significant manifestations of these benefits can shift over time as technology changes.²⁹ But whether the advantages

22. ALFRED MARSHALL, PRINCIPLES OF ECONOMICS IV.X.7–13 §3 (8th ed. 1920), available at <http://www.econlib.org/library/Marshall/marP.html>.

23. See Gilles Duranton & Diego Puga, *Micro-Foundations of Urban Agglomeration Economies*, in 4 HANDBOOK OF REGIONAL AND URBAN ECONOMICS 2063, 2066 (2004); see also J. Vernon Henderson, *Urban Scale Economies*, in HANDBOOK OF URBAN STUDIES 243, 243–48 (Ronan Paddison ed., 2001) (identifying Marshall’s work with the categories of “[i]nformation spillovers,” “[l]abour market externalities,” and “[u]rban diversity and Adam Smith specialization”); Schleicher, *supra* note 4, at 1516 (identifying Marshall’s work with “three effects”: “reduced transportation costs for goods,” “insurance and specialization gains from large labor and consumption markets,” and “information spillovers.”).

24. Duranton & Puga, *supra* note 23, at 2066 (emphasis omitted); see Combes & Gobillon, *supra* note 17, at 2 (citing Duranton and Puga’s schema as “the currently most used typology”).

25. See Duranton & Puga, *supra* note 23 at 2067–86 (analyzing sharing mechanisms).

26. See *id.* at 2086–98 (analyzing matching mechanisms). Although studies of agglomeration economies often focus on labor market matching, urban areas also facilitate the matching of people into relationships, social organizations, and so on. See, e.g., Schleicher, *supra* note 4, at 1521–23. The specialization and diversity in an urban area, including its shopping and entertainment districts, also match customers more quickly and precisely with the goods and services they prefer. See *id.* at 1522.

27. See Duranton & Puga, *supra* note 23, at 2098–2109 (analyzing learning mechanisms).

28. EDWARD L. GLAESER, CITIES, AGGLOMERATION, AND SPATIAL EQUILIBRIUM 6–8, 117 (2008).

29. For example, some scholars have suggested that cities have become less important as sites of production as the spatial constraints on production have loosened, and that their importance now turns on their role as sites of consumption. See, e.g., Edward L. Glaeser, Jed Kolko & Albert Saiz, *Consumers and Cities*, in THE CITY AS AN ENTERTAINMENT MACHINE 135 (Terry Nichols Clark ed., 2011). On this account, the ability for cities to conveniently provide a wide array of niche goods and (especially) nonportable services and experiences becomes relatively more important than the ability of the city to economize on trips to and from the workplace. See *id.* at 136 (observing that “restaurants, theaters, and an attractive mix of social partners are hard to transport and are therefore local goods”); see also MARSHALL, *supra* note 22, at IV.X.14 § 4 (observing that reductions in transportation costs enable firms to buy distant goods but also “tend[] to bring skilled artisans to ply their crafts near to the consumers who will purchase their wares”);

take the form of deep labor markets, long-tailed retail diversification, convenient shopping districts, exciting nightlife, opportunities for relationship matching, or specialized knowledge basins, real economic value is produced by the co-location of people and firms within urban areas. The magnitude and nature of these gains will be sensitive to the relative spatial placement of households, firms, and various land uses within the urban envelope. Not all landowners are capable of producing the level of agglomeration benefits that is optimal for a given location. Hence, it is not only necessary for landowners to “do the right thing” in a given space, but also for them to “occupy the right spaces”—and stay away from spaces where their contributions will be suboptimal.³⁰

2. Congestion

Congestion is the flip side of agglomeration. Its existence illuminates the type of good agglomeration benefits really are. As a first cut, we might say that congestion keeps agglomeration from being a pure public good—a resource that is both nonexcludable and nonrival.³¹ Rather, congestion makes agglomeration benefits rivalrous or “subtractable,” even as exclusion from those benefits remains difficult—in other words, a common-pool resource.³² Like Hardin’s prototypical pasture, urban space is “open to all” and subject to overgrazing.³³ But that is not the full story. Agglomeration benefits are not depleted by individuals literally consuming or degrading them in the manner of a cow eating and trampling grass. Rather, the depletion occurs in two other ways.

The first involves people jostling for a good position in the urban interaction space. To receive agglomeration benefits, one must occupy a

Parchomovsky & Siegelman, *supra* note 6, at 242 (focusing on the transportation cost savings that become available when shoppers are able to bundle their shopping trips for multiple items).

30. It is well recognized that land use conflicts are sometimes best solved by one party—and not necessarily the one engaging in the more intensive use—staying away. *See, e.g.*, *Ind. Harbor Belt R.R. Co. v Am. Cyanamid Co.*, 916 F.2d 1174, 1181 (7th Cir. 1990) (Posner, J.) (“Brutal though it may seem to say it, the inappropriate use to which land is being put in the Blue Island yard and neighborhood may be, not the transportation of hazardous chemicals, but residential living. The analogy is to building your home between the runways at O’Hare.”). It can also be inefficient for parties to co-locate even when their land uses are perfectly compatible, if the co-location forecloses a different co-location that would yield greater benefits.

31. *See, e.g.*, RICHARD CORNES & TODD SANDLER, *THE THEORY OF EXTERNALITIES, PUBLIC GOODS, AND CLUB GOODS* 6–7 (1986).

32. *See, e.g.*, ELINOR OSTROM, *UNDERSTANDING INSTITUTIONAL DIVERSITY* 23–24 & fig.1.3 (2005).

33. Garrett Hardin, *The Tragedy of the Commons*, 162 *SCIENCE* 1243, 1244 (1968).

location that affords access to them. This interaction space is degraded when too many people try to occupy it at once, even if the agglomeration benefits themselves are unaffected.³⁴ Think of a free open-air concert. If too many people crowd near the stage, the listening and viewing zone may become unpleasantly crowded. The music itself is unaffected, but getting into a position to consume this nonrival good requires occupying physical space, which is rival. Agglomeration benefits, then, might be viewed as nonrival goods that are strictly complementary to the rival common-pool resource of well-positioned space.

Second, congestion elicits responses that can impede the production of agglomeration benefits. Before purely physical or engineering capacity constraints are reached, the negative effects of congestion will typically prompt collective action that rations access to the interaction space, turning it into at least a partially excludable resource.³⁵ But unless the method of rationing access is well calibrated to allow in the right number and type of participants, agglomeration economies may suffer. For example, a predominance of large-lot zoning can limit the number of people who can enter a municipality for purposes of consuming its goods and services, but it also limits the number of people who will be on hand to add to the life of the community.

Heterogeneity among potential participants creates additional difficulties. When space is tightly limited, every inclusion implies an exclusion—one that will impact both the consumption and production sides of the urban agglomeration equation. Ideally, prime urban space for generating agglomeration benefits would be matched to its most valuable use, taking into account the congestion impacts inflicted and suffered by that use. The fact that not all of the effects of locational choices are internalized to the chooser, however, presents an interesting collective action problem.

34. In the urban context, an interaction space represents a congestible resource-appropriation environment within which nonrival agglomeration benefits can be enjoyed. *Cf.* Lee Anne Fennell, *Common Interest Tragedies*, 98 NW. U. L. REV. 907, 922–24 (2004) (noting that although a “fixed-pot” resource is not diminished by commoners competing over it, there can still be losses in the linked “resource-appropriation environment”).

35. If the excludability is complete enough, the agglomeration benefits may resemble a club good. For description and analysis of club goods, see James M. Buchanan, *An Economic Theory of Clubs*, 32 *ECONOMICA* 125 (1965). *See also* OSTRUM, *supra* note 32, at 23–24 fig. 1.3 (using the term “toll goods” for resources combining relatively easy exclusion with low subtractability).

B. Locating Dilemmas

To understand the nature of the dilemma produced by location decisions, we can start by examining where and how private payoffs and social payoffs diverge.

1. Mixed ownership and incentive misalignments

Tragedies of the commons come in two basic flavors: overuse (e.g., overgrazing a pasture) and underinvestment (e.g., shirking on a communal farm).³⁶ Both problems arise from a misalignment between privately owned elements (cows and labor) and commonly owned elements (pastures and crops).³⁷ People make decisions that simultaneously affect both the commonly owned and individually owned elements, but because they experience all of the payoffs associated with the private holdings and only a fraction of the payoffs of the common holdings, these decisions may be skewed. The resulting incentive misalignment can be readily modeled as a two-person Prisoner's Dilemma in which each party has an incentive to defect (add too many cattle, for example), regardless of what the other person does.³⁸ This tragic result is far from inevitable for a number of reasons that have been well rehearsed in the literature.³⁹ Nonetheless, the standard fable provides a conceptual starting point for thinking about how private and social payoffs pull apart.

The city analog to placing an additional cow on the commons is the decision to locate one's firm or household, along with the privately owned structure that contains it, in a particular position within an urban

36. Nothing turns on this distinction, however, and it is often possible to characterize a given situation in both ways. See Fennell, *supra* note 34, at 917 (observing that a dirty carpet in the common room of a house could be characterized either as stemming from overuse of the carpet while wearing muddy shoes or underinvestment in shoe-cleaning or carpet-cleaning efforts).

37. See, e.g., *id.* at 916; Armen A. Alchian & Harold Demsetz, *The Property Right Paradigm*, 33 J. ECON. HIST. 16, 22–23 (1973) (noting problematic potential of “incongruity between ownership opportunities”); Lee Anne Fennell, *Commons, Anticommons, Semicommons*, in RESEARCH HANDBOOK ON THE ECONOMICS OF PROPERTY LAW 35, 37–38 n.16 (Kenneth Ayotte & Henry E. Smith eds., 2011) (discussing tragedy as a function of an abutment between private and common ownership elements, and citing related literature).

38. See, e.g., ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 3–5 (1990).

39. See *id.* at 58–102 (describing self-governed common-pool resources that have endured for long periods of time); see also Fennell, *supra* note 37, at 35–36 (discussing literature).

area.⁴⁰ Such structures and their operations, like grazing cattle, draw sustenance from, and visit impacts upon, the surrounding community. Does the city then become “overgrazed”? Not necessarily. As Carol Rose explained in *The Comedy of the Commons*, there are aspects of city life—marketplaces, communication, celebration—that gain energy and value from an abundance of participants.⁴¹ Instead of resembling cattle that only degrade the commons with their trampling and grazing, economic actors who locate themselves within a city operate more like an especially talented variety of cattle who, by virtue of their proximity to each other, can cause manna to rain down from heaven for everyone—even as they also trample and graze.

Thus, some of the returns from urban locational decisions are privately captured by the locating actors and some are diffused through the community through parallels to manna (agglomeration benefits) and trampling (congestion costs).⁴² The relationship among these payoff streams bears on firm and household decisions about where to locate—and determines whether and how those decisions will be distorted.

2. *Privately captured returns: Of buckets and spoons*

First, consider a firm’s or household’s privately captured returns. These returns can stem either from the owner’s activities on her property or from her choice of location, which exposes her to negative and positive spillovers from outside her property. I have previously characterized property as a “leaky bucket of gambles” that aims, albeit imperfectly, to collect inputs made by the owner and deliver back to her the associated outcomes.⁴³ In an agrarian context, the relationship is captured by the idea of reaping what one sows, where enforceable property boundaries do a reasonable job of containing both inputs and outcomes. As we move to metropolitan settings, however, an increasingly

40. It might seem that one is not making any decision at all about the placement of the structure one occupies if one moves into an existing building. However, by occupying the structure for one’s intended purpose, it is as if one is effectively continuing to locate the structure there over time insofar as one’s own occupancy stands as an impediment to the repurposing, demolition, or rearrangement of the structure in question.

41. Rose, *supra* note 5; see also *supra* Part I.A.1 (discussing agglomeration benefits).

42. Although I use the term “congestion costs” as a shorthand, not all costs associated with locational choices take the form of physical crowdedness. Pockets of low-density space that must be traversed in order for parties to interact and secure agglomeration benefits also serve to “congest” the relevant urban landscape, even though they may make the area feel less rather than more crowded.

43. Lee Anne Fennell, *Property and Half-Torts*, 116 YALE L.J. 1400, 1405, 1442–43 (2007).

large proportion of the value associated with property has nothing to do with what the owner is doing on or with the property; rather, it depends on where the property is located relative to other users and uses (as mediated by land use controls and augmented by governmental provision of infrastructure and public goods).⁴⁴ Thus, the outcomes of the gambles any given owner takes with respect to her property are increasingly in the hands of other parties.

Private property continues to serve as a locus for making and collecting on investments that are made on-site, but many of the privately captured payoffs it generates stem from its location rather than from any behavior on the part of the owner. Real property, by virtue of the spatial position it occupies relative to other uses and users, serves as a kind of spoon for collecting the positive benefits of agglomeration. The value of what is scooped up depends not just on who is co-located nearby, but also on how the owner's uses interact with those co-located uses. However, just as only so many spoons can be inserted into a communal bowl of ice cream before the dessert-eating experience starts to degrade,⁴⁵ the agglomeration-scooping capacity of property is rival and subject to congestion. Each economic actor that locates in a given interaction space depletes the physical area available to others who might similarly wish to enjoy agglomeration benefits.

Of course, as the reference to congestion suggests, part of what the property scoops up comprises negative rather than positive effects of proximity to other uses and users. Where these negative elements dominate, the property's location may be more like a sponge that passively picks up externalities than a spoon that actively seeks to capture them. Every economic actor would prefer that others absorb the negative impacts of neighboring uses, but wishes to be located in such a manner as to benefit from the positive impacts.

3. Dispersed impacts: Sloshes and sparks

Consider next the impacts that are not captured by a given owner, but that are instead diffused to others in the area, becoming part of the locational payoffs that nearby others enjoy (or suffer). Some of these

44. By the same token, her activities as an owner are likely to have increasingly significant cross-boundary impacts on those around her, for better or worse.

45. See Carol M. Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1, 6 (using an ice cream cone as example of individual resource, whereas "a milkshake might allow two consumers, if they are friendly").

dispersed impacts are literal spillovers from specific behaviors that owners engage in on their properties. A factory that makes widgets or chocolate will have impacts, negative or positive, on multiple neighbors by virtue of dust or odors put into the air that flow over the property lines. These are “sloshes” (even if microscopic or aesthetic) from the owner’s bucket of gambles. Spillovers of this nature are discouraged by the law; one can be made to pay for harms affecting one’s neighbors, but one cannot generally collect payment for benefits conferred on them.⁴⁶ This asymmetry exists for good reason: it creates incentives for economic actors to keep the impacts of their operations within their own boundaries and to avoid substituting forced transactions for consensual ones.⁴⁷

Other impacts flow cumulatively or synergistically from the combined interactions of businesses, enterprises, and households. For example, each proximate commercial shop contributes to a “shopping district” and each art gallery contributes to the “gallery district” simply by virtue of its existence and possession of certain functional and qualitative attributes. Similarly, a “tech corridor” or “eclectic neighborhood” depends in significant part on the cumulative characteristics of the enterprises and residents, respectively. Impacts in this category are not unintended sloshes from a discrete on-site enterprise but rather are “sparks” that can come together to produce local public goods (or bads), depending on who and what else is in the vicinity. If there is nothing nearby to “catch fire,” the impact is never experienced.⁴⁸

46. See, e.g., Ariel Porat, *Private Production of Public Goods: Liability for Unrequested Benefits*, 108 MICH. L. REV. 189, 195–98 (2009); Scott Hershovitz, *Two Models of Tort (and Takings)*, 92 VA. L. REV. 1147, 1157–59 (2006); Saul Levmore, *Explaining Restitution*, 71 VA. L. REV. 65 (1985). Where one cannot collect for positive externalities conferred on others, one has less incentive to engage in the activity that generates those spillovers. This does not mean, however, that parties will always refrain from activities that generate positive benefits for others; they would be expected to engage in them if their internalized returns are high enough to justify the activity. In such cases, the positive externalities are Pareto-irrelevant ones. See text accompanying notes 54–58, *infra*.

47. See, e.g., Fennell, *supra* note 43, at 1450–52; Giuseppe Dari-Mattiacci, *Negative Liability*, 38 J. LEGAL STUD. 21, 25 (2009) (“[A]llowing a party to collect for benefits voluntarily conferred would encourage, rather than discourage, the voluntarily bypassing of the market.”). For other potential explanations of the limits on restitution, including the law’s attempt to identify the “better bargainer,” see Levmore, *supra* note 46, at 68–81.

48. This is of course true of traditional nuisance-like spillovers as well, as Coase famously observed in pointing out the reciprocal nature of land use incompatibilities. See R.H. Coase, *The Problem of Social Cost*, 3 J. L. ECON. 1, 2 (1960). The insight is captured well in the maxim “it takes two to tort.” See, e.g., Saul Levmore, *Self-Assessed Valuation Systems for Tort and Other Law*, 68 VA. L. REV. 771, 822 (1982).

Where the effects are positive, there is a social interest in promoting the mix of conditions and participants that foster them.

As with actual sparks that can contribute to destructive fires or productive combustion, mixing activity within an interaction space can produce negative as well as positive synergies. Under the general rubric of congestion we can place a variety of negatives, from crime and juvenile delinquency, to low-level increases in incivility and jostling, to issues like pollution and traffic snarls. While some of these effects may be easy to connect to particular land uses (and therefore are more slosh-like), many arise through cumulative and often nonlinear effects among many uses in an urban area.

The interactions between internalized and externalized payoffs create potential distortions in behavior, including the initial decision about where to locate. Every household or firm will wish to position itself to maximize the net positive inputs into its own private income and consumption stream that it can derive from the commonly owned elements that surround it.⁴⁹ At the same time, each household or firm will be largely indifferent to the magnitude or sign of its own contributions to the collective. The next section considers whether and how these incentive misalignments are likely to matter.

C. Plentitude and Irrelevance

In the city, the tragedy of the commons and the comedy of the commons come together—at least potentially. Locating in the city may mean imposing costs on others, but staying out of the city may deprive others of the benefits of interaction. Which story will be the dominant one depends on what is plentiful and what is in short supply. If interaction space is plentiful, the need for interacting parties (and the associated “energy” or vibrancy) becomes the focus. If interacting parties are plentiful relative to the available interaction space, however, then congestion becomes salient and the situation takes on the cast of an overgrazing tragedy. The two scenarios both carry the potential for tragedy: one through underprovision of an energy-producing input (human capital) and the other through overgrazing of another input

49. For a helpful recent discussion of the ubiquity of commonly owned elements interwoven through private property arrangements, see generally Benkler, *supra* note 9. In addition to infrastructure, however, the agglomeration economies that are produced and the overall atmosphere that produces it are part of the urban commons.

essential to the production of a city's energy (space). Because both inputs are necessary to the alchemy that takes place within a city, the undersupply of one and the overdrawing of the other are both problematic.

These two problems could conceivably appear together (an uncomfortably crowded city that is nonetheless bereft of any useful activity). But often the pressure of one of these problems causes the other to fade out of view, at least temporarily. Consider a shrinking city that is losing population and investment. Underprovision of the kind of dynamic agglomerations that spark growth is the pressing problem. Interaction space, while strictly necessary to carry out any plan of revitalization, may not be in any immediate danger of being overgrazed. It is, for the moment at least, a plenteous good.⁵⁰ The fact that space may be consumed by economic actors without regard for the effects on others is of no consequence because it is not currently scarce. But, importantly, its plentitude is an artifact of the tragedy of underprovision that is taking center stage. Conversely, once congestion becomes a concern, the overuse of space (and related resources) may become the focal point, while the need to induce optimal human capital contributions takes a back seat. Overcorrections may undo not just the congestion but the underlying (positive) cause of it.⁵¹

At other times, both inputs—space and human capital—may be sufficiently plenteous in supply as to present a “comic” scenario in which the commons is less a site of strife than a platform that enables actors to freely enjoy and produce reciprocal spillovers that generate increasing returns to scale—“the more the merrier.”⁵² Even within the comic narrative, there may be some need to encourage participation.⁵³ However, positive externalities of the sort historically generated through participation in markets, festivals, and other interactive arenas may have required little encouragement. Each actor reciprocally gleaned roughly as much from others as she contributed to others through her

50. See Rose, *supra* note 5, at 717–18 (discussing plenteous goods).

51. The result may resemble a Yogi Berra quip: “No one goes there anymore; it’s too crowded.” For an analysis of Berra’s comment in the context of overcrowded taverns, see Matthew Yglesias, *The Economics of Nobody Goes There Anymore, It’s Too Crowded*, SLATE (Aug. 8, 2012) http://www.slate.com/blogs/moneybox/2012/08/08/the_economics_of_nobody_goes_there_anymore_it_s_too_crowded.html.

52. Rose, *supra* note 5, at 768.

53. *Id.* at 769.

participation—and, importantly, was typically contributing and gleaning through the very same discrete action in the commons, so that gleaning could not be unbundled from contributing.

These points connect tightly to an important distinction between Pareto-relevant and Pareto-irrelevant externalities, which James Buchanan and William Stubblebine explored in a groundbreaking (but still insufficiently appreciated) article.⁵⁴ An externality that is irrelevant to Pareto-efficiency is one whose continued existence (that is, the fact that the costs or benefits in question have not been internalized to the actor who produces it) does not alter the behavior of the actor. A factory that pollutes heedless of its neighbors, but that would go on polluting at the same level even if it were forced to pay for the harm to its neighbors, is producing an irrelevant negative externality. Likewise, a gardener who makes her garden as beautiful for her own pleasure as she would make it if her neighbors were forced to pay for all the spillover benefits they receive is producing an irrelevant positive externality.

External effects are often irrelevant to efficiency because the actor would behave no differently if she were to internalize those effects. In the case of a negative externality like crowding, perhaps she would still glean enough from being present in a given location to make it worth her while even if she had to pay full freight for the costs her presence imposes on others. In the case of a positive externality like contributions to a city's overall vitality, it may again be the case that the actor would behave no differently even if those effects were internalized because her private payoff schedule aligns sufficiently with the social optimum. A comedy of the commons story does not mean that externalities are absent, but rather that they are (at least largely) irrelevant to efficiency.⁵⁵

The fact that externalities are irrelevant to efficiency in one time and place does not mean they will remain so forever.⁵⁶ Resources such as urban parks that appear nonrival (plenteous) at one level of use can become rival (congestible) above that level.⁵⁷ Likewise, contributions to

54. James M. Buchanan & W. Craig Stubblebine, *Externality*, 29 *ECONOMICA*, 371 (1962).

55. Public subsidies in the form of infrastructure or guaranteed access may have worked very well historically in bringing participants to the point where self-interest would justify actions with positive spillovers. See Rose, *supra* note 5, at 770 (discussing how public choices about roads and waterways encouraged commerce).

56. See Harold Demsetz, *Toward a Theory of Property Rights*, 57 *AM. ECON. REV.* (Papers and Proceedings) 347 (1967) (observing that changes in the value of resources can cause property rights to emerge, where it becomes worthwhile to bear the costs of defining and enforcing them).

57. See, e.g., Sheila Foster, *Collective Action and the Urban Commons*, 87 *NOTRE DAME L. REV.*

a common enterprise that flow freely under one set of circumstances can dry up without much warning.⁵⁸ Urbanization may well have turned positive interactions that were mostly self-perpetuating affairs in the past into far more economically significant, heterogeneous, and fragile phenomena, while bringing the problems of congestion to the forefront.

II. HETEROGENEITY IN THE COMMONS

The prototypical commons tragedy assumes homogeneity among the players: all cattle are standard issue and deliver equal benefits to their owners and visit equal harms upon the commons. In an urban context, we must contend not only with a mix of positive and negative externalities but also with great heterogeneity among actors in their ability to generate, magnify, absorb, and deflect these impacts. Because participants in a commons are both producers and consumers, the characteristics and behaviors of the participants influence the nature of their joint product.⁵⁹ Product degradation can occur not just through outright crowding, but also as a result of the opportunity costs of having suboptimal contributors in place, whether they are actually putting bads into the commons or simply failing to contribute as much as another participant would.⁶⁰

Section A offers a stylized look at heterogeneity by considering the significance of variation along two dimensions: capacity to generate urban vitality or “energy” and contributions to congestion or “clog.” Section B explains why existing market structures and self-selection do not resolve the participant assembly problem that urban interaction space presents. Section C notes the complications that arise when location decisions have impacts at multiple scales (e.g., both within and between

57, 59 (2011) (explaining that overuse can turn an initially nonrival resource like a park into a rivalrous one); Carol M. Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1, 6–7 (1991) (describing the congestion point for goods that are plentiful up to a certain consumption level but congestible above that level).

58. See, e.g., THOMAS C. SCHELLING, MICROMOTIVES AND MACROBEHAVIOR 91–92 (1978) (describing how the dynamics of interdependent choice can unravel collective projects, and giving the example of a “dying seminar”).

59. See text accompanying notes 11–15; see also Lee Anne Fennell, *Beyond Exit and Voice: User Participation in the Production of Local Public Goods*, 80 TEX. L. REV. 1 (2001).

60. See, e.g., Ronit Levine-Schnur, *Agreements Between Local Governments and Private Entrepreneurs as a Means for Urban Development* 43–54, 157–66 (August 2014) (unpublished dissertation on file with author) (discussing differential contributions to and draws from urban surpluses made by different actors and the possibility of taking these into account in bargains over development rights).

municipalities).

A. Energy Versus Clog

Both agglomeration benefits (“energy”) and congestion costs (“clog”) rise as additional economic actors are added to an urban area. But these benefits and costs do not rise at the same rate. Agglomeration produces increasing returns to scale, at least within a certain range. At some point, however, the increasing marginal costs of congestion catch up with agglomeration benefits. If all economic actors were equivalent and fungible, we would simply add more actors to an area until the marginal congestion costs thereby generated were just equal to the marginal agglomeration benefits produced. But because economic actors are not fungible, the particular combination of actors determines how many is too many. The optimizing mix of actors will also vary over time due to the availability of co-locators and the surrounding social and economic conditions.

Introducing heterogeneity among actors along just two dimensions reveals important aspects of the problem. Suppose there are four types of economic actors (either firms or households) who might locate within a given urban area, classifiable based on their ability and propensity to contribute to agglomeration economies (energy) and congestion costs (clog).

Table 1:
Heterogeneous Actors

	Low Clog	High Clog
High Energy	Buzz Builders	Massive Movers
Low Energy	Lackluster Lites	Space-Eating Slugs

Energy, as used here, stands in for a wide range of synergies and agglomeration economies associated with proximity. Clog represents a constraint on the ability to use proximity to generate and consume energy. Obvious clogs include dead space that must be traversed, uncomfortably crowded conditions, and other hassles that must be endured to partake of the energy within an urban space.

As shown in Table 1, the intersection of these two characteristics give us two extremes: desirable “buzz builders” who contribute a great deal to the city’s energy while generating very little clog and “space-eating slugs” who contribute a great deal to clog and very little to urban energy. An example of the former might be an exciting new high tech

firm that employs many creative workers but does not demand a large physical plant, while an example of the latter might be a large surface parking lot that is mostly underutilized. Table 1 also includes two intermediate cases: “lackluster lites,” who have little impact on a city’s energy or its congestion (here, consider apartment residents who rarely leave the building), and “massive movers,” who have large impacts on both (think big box stores, amusement parks, stadiums, and large industrial plants).⁶¹

Private decisions about location (as shaped by public policy and land use regulations) can make the difference between a lively urban area filled with buzz builders and a domain of space-eating slugs. Increasing one’s energy quotient and reducing one’s contributions to clog are both costly. More fundamentally, not all actors are equally equipped to play each of the roles in Table 1. Indeed, it may be impossible for some households or firms to reduce their clog footprint or increase their energy quotient. But as long as the private payoff remains attractive, such actors will continue to locate in places that could generate more value if occupied by an actor with a different energy-to-clog ratio.

There is a great deal that Table 1’s simplification leaves out. Perhaps most significantly, the ability of an economic actor to contribute to energy or to produce clog is not an immutable fact but rather depends on what other actors and uses are nearby. Nonetheless, even the highly stylized presentation of heterogeneity developed here will help to illustrate why existing markets for urban interaction space are incomplete.

B. Assembly Failures

We might initially wonder why we cannot rely on markets to assemble urban participants optimally, just as we usually rely on markets to channel other goods and services to their highest valuers.⁶² For now, let us assume that actors are making location decisions independently, without any formal or informal mechanisms for coordinating their

61. Within the microcosm of a shopping mall, anchor stores would be the “massive movers.” See Eric D. Gould et al., *Contracts, Externalities, and Incentives in Shopping Malls*, 87 REV. ECON. & STAT. 411, 411 (2005) (explaining that in a typical mall, anchor stores “are responsible for attracting most of the consumer traffic to the mall” and “[o]n average, . . . occupy over 58% of the total leasable space in the mall”).

62. The idea of a “location market” was helpfully explored in Rodriguez & Schleicher, *supra* note 16.

choices.⁶³ If there were no interaction effects among co-locating firms and households, these independent decisions would work well: The person who paid the most for a given parcel would be the one who enjoyed its attributes the most or had the skills to derive the most profit from those attributes. Thus, a parcel containing an isolated cabin and a grove of trees would be purchased by the person who enjoyed viewing the trees the most, liked the cabin's design the most, or could most profitably turn trees into products like fence posts and tables.

However, the primary defining attribute of any parcel is its location relative to other land uses and land users, not just the objects or amenities that the parcel itself contains or provides. In the urban context, this factor takes on overwhelming significance.⁶⁴ We might expect the benefits and detriments of proximity to co-locators to get capitalized into the value of the property and become part of the package that parties bid against each other to acquire.⁶⁵ Uncertainty about the magnitude and valence of those impacts might be an issue, but land use controls can help to stabilize expectations,⁶⁶ even if they do so imperfectly.⁶⁷

Expected impacts do more than influence property values; they also generate selection effects. Thus, other things equal, we might expect urban areas to be populated by economic actors who are most resilient to negative externalities in the area and most benefited by positive externalities. For example, households without children who are not as concerned about low-level criminality and who especially enjoy

63. Of course, a number of potential coordination mechanisms do exist, some of which will be addressed below. See Rodriguez & Schleicher, *supra* note 16, at 658-62; *infra* Part III.

64. Indeed, at a broad level, the overwhelming significance of this factor is an important explanation for urbanization itself. See, e.g., GLAESER, *supra* note 28, at 5 ("Agglomeration economies are the catchall explanation for why cities can be so productive and why so many people flock to urban areas.").

65. See, e.g., WILLIAM A. FISCHER, THE HOMEVOTER HYPOTHESIS 6-7 (2001) (discussing capitalization of local amenities and services into home prices).

66. See, e.g., LEE ANNE FENNELL, THE UNBOUNDED HOME 39-44 (2009) (discussing land use controls as "product stabilizers"); Michelle J. White & Donald Wittman, *Optimal Spatial Location Under Pollution: Liability Rules and Zoning*, 10 J. LEGAL STUD. 249, 266 (1981) (explaining how zoning "shifts the burden of forecasting future land-use patterns" and thereby "reduces uncertainty").

67. For one thing, such controls are subject to political change, including piecemeal adjustments attained through ad hoc bargains. Whether the prevalence of such changes is a feature or a bug is the subject of debate. See, e.g., Roderick M. Hills & David Schleicher, *City Replanning*, 20-36 (Aug. 9, 2014) (manuscript) (George Mason Univ. Law and Econ. Research Paper Series 14-32), available at <http://ssrn.com/abstract=2477125> (discussing and challenging favorable views of piecemeal, ad hoc bargaining over land use regulation).

proximity to restaurants and nightclubs will be willing to outbid households who feel the negative effects of urbanity more sharply and who are relatively less appreciative of its charms. Likewise, firms that can benefit from knowledge spillovers or foot traffic associated with neighboring firms will have more to gain from locating near others, and those whose customers do not mind crowds and difficult parking will have less to lose from congestion. All of these preferences will be reflected in the amounts that parties are willing to pay for the location.

Yet we cannot fully rely on markets and sorting to generate optimal agglomerations.⁶⁸ This is so even if we set aside potential distortions arising from land use controls.⁶⁹ The problem is this: the party who is the high bidder for the location in question will herself generate a stream of negative and positive externalities by virtue of her location choice. The cash price that she pays for the location will be either augmented or degraded by what she does or does not bring to the table in terms of negative and positive spillovers—that is, whether her specific land use operates as a buzz builder, a space-eating slug, or something in between. If cash prices were the sole basis for allocating urban locations, a buzz builder who would add a large premium in kind to the community could be outbid by a space-eating slug for a prime spot in urban interaction space.⁷⁰

To be sure, such a distortion would not occur if the propensity to add positive externalities to an area were tightly correlated with one's own valuation of that area—if, to use the terminology above, only a buzz builder could thrive in spots where buzz building would be valuable. In that case, being the high bidder based on one's own valuation would offer a good proxy for being the best contributor to the area. Such correlations are sometimes quite plausible. For example, it has been suggested that a high tech firm's "absorptive capacity"—its ability to benefit from the research and development (R&D) efforts of other firms—may depend on its own spillover-producing R&D efforts.⁷¹

68. For distinct but related critiques, see *id.* at 34–36 (suggesting sorting is an incomplete response to excessive land use regulation); Schleicher, *supra* note 4 at 1535–45 (noting tension between sorting and agglomeration).

69. Land use controls structure and limit the "location market," and there is little reason to expect that they do so optimally. See generally Rodriguez & Schleicher, *supra* note 16.

70. Government policies, including land use controls, also play a major role in regulating access to urban locations, as do various forms of private action. See generally *id.*; *infra* Part III.

71. Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 269 (2007) (footnote omitted) (suggesting that "investments in R&D may increase a firm's capacity to absorb

Similarly, perhaps households who enjoy crowds and excitement and therefore seek out urban residential areas are the very same people who are best positioned to contribute ideas and creativity to the commons. But the opposite might also be true. For example, a wealthy middle-aged couple might wish to soak up the hip ambience of a trendy neighborhood but might do little or nothing to help maintain the neighborhood's hipness against the influx of moneyed, unhip people such as themselves. Meanwhile, other people who would be excellent contributors in terms of ideas and creativity may flee clogged conditions for ones more conducive to their particular style of working.

In sum, the characteristics that cause particular economic actors to derive the most value from a given location may or may not be the same characteristics that would lead them to contribute the most value to that location. Here, as in other commons situations, there is a potential mismatch between the privately owned element (access to a given location) and the commonly owned one (the overall urban atmosphere).⁷² The share of the commons that one's private location affords cannot be properly priced unless the price accounts for the benefits or detriments that the locating party will herself be adding or deducting in kind by virtue of locating there.

While the failure to account for the locator's own impacts may be the most fundamental source of market failure, other factors also drive a wedge between the social payoffs from a given location choice and the locator's expected private payoffs. Instead of choosing immobile attributes (e.g., a cabin and trees) that are confined within a given parcel of land, an actor who chooses an urban location is choosing a set of neighbors and prospective neighbors whose identities and activities lie outside the chooser's control and cannot be reliably predicted.⁷³ Significantly, she recognizes each new in-mover, like she herself, will not internalize all the impacts that are generated by the location choice.

spillovers from competitors and/or other industries altogether," providing "an incentive to develop 'absorptive capacity' for inevitable spillovers by investing in R&D"); *see also* Rodriguez & Schleicher, *supra* note 16, at 651 (observing that only select groups are well-positioned to capture certain kinds of spillovers, and giving the example of a lobbyist who would provide useful spillovers to another lobbyist but would be "a bore" to most others).

72. *See supra* Part I.B.1.

73. *See, e.g.,* Lee Anne Fennell, *Crowdsourcing Land Use*, 78 BROOKLYN L. REV. 385, 388–402 (2013) (discussing various "informational shortfalls" about land uses and users, and some ways they might be mitigated); Thomas C. Schelling, *Dynamic Models of Segregation*, 1 J. MATH. SOC. 143, 145 (1971) ("To choose a neighborhood is to choose neighbors.").

In addition to directly adjacent parcels that may literally produce cross-boundary spillovers for a given actor, more distantly located economic actors will also influence a given locator's payoffs. Even if expected values can be calculated, risk-averse actors may underbid for locations where property values are expected to exhibit high levels of variation.

Future governmental decisions as well as future private decisions can add uncertainty. The value of land to an economic actor depends crucially on whether her preferred uses of the land are (or will be) both (a) legally permitted, and (b) practically possible given the land use rights given to others. A legal restriction could rule out a preferred use, but so too could a conflicting nearby use that is (or becomes) legally permissible. For example, keeping livestock might become impermissible as a city expands (which could thwart the expectations of ranchers) or keeping livestock might remain permissible through a "right to farm" act (which could thwart the expectations of those planning residential development nearby).⁷⁴ Government restrictions on land use can narrow the uncertainty associated with the behavior of private actors, but they can also introduce new uncertainties associated with the effects of government action—and inaction.⁷⁵

Finally, I have assumed to this point that there is an active "bidding" process that stands ready to move property into the hands of higher valuers (even if those valuations are distorted in the ways already suggested). But property rights that are physically rooted and perpetual in duration can impede the movement of resources into higher valued uses. Local property owners have a monopoly on their particular parts of the urban scape—one that may become especially significant where a shift to a larger scale of use (like a large development project) would add value.⁷⁶ The possibility of strategic behavior among potential sellers in an effort to glean more surplus from an assembly effort presents familiar holdout problems that can impede movement of property to a more valuable use.⁷⁷

74. See, e.g., ELLICKSON ET AL., *LAND USE CONTROLS* 547 (4th ed. 2013) (describing right-to-farm legislation, which protects those with ongoing agricultural operations against nuisance actions under specified circumstances).

75. See, e.g., Christopher Serkin, *Passive Takings: The State's Affirmative Duty to Protect Property*, 113 MICH. L. REV. 345 (2014).

76. See, e.g., Michael Heller & Rick Hills, *Land Assembly Districts*, 121 HARV. L. REV. 1465, 1473 (2008) (observing that land assembly situations turn existing owners into "monopoly suppliers").

77. This is, of course, a primary justification for eminent domain. See, e.g., Thomas W. Merrill, *The Economics of Public Use*, 72 CORNELL L. REV. 61 (1986).

C. Multi-Jurisdictional Locational Choice

Another complication associated with heterogeneity involves the patterns in which economic actors—households and firms—array themselves across jurisdictions within a metropolitan area.⁷⁸ These choices generate gains and losses for the choosers as well as for society at large. Because of the ways in which choices combine to generate negative and positive agglomeration effects, locational choices within urban areas are a positive-sum game—not a zero-sum proposition in which each gain to City A is perfectly balanced out by a loss to Suburb B, and vice versa. This would be true even in the absence of heterogeneity as long as adding participants to a given subarea produces nonlinear returns. But heterogeneity makes the problem more complicated and raises the stakes associated with solving it; it is no longer a matter of just managing numbers across jurisdictions, but also of optimizing along other dimensions.

I have written elsewhere about some of the dynamics and interdependencies that characterize choices among jurisdictions within a metropolitan area, and I will not revisit those points in detail here.⁷⁹ But it is worth emphasizing that there are two sets of opportunity costs associated with each locational choice. First, each locating firm or household occupies rival interaction space that keeps some other firm or household out of that space. Second, each locating firm or household, by placing its locational investment *here* and not *there*, is removing from the metropolitan pattern the alternative locational investment that it could have made. Thus, getting economic actors into the places where they can do the most good means keeping them out places where they will block better contributors or squander their own contributions.

The problems are too complex to untangle here, but raising the issue of multiple jurisdictions does suggest two things. First, some degree of mitigation may be in the picture even when location decisions are

78. Households and firms make choices between metropolitan areas as well. Although I am not focusing on those choices here, similar dynamics keep intermetropolitan choices from being zero-sum. *See, e.g.,* Paul Krugman, Op-Ed., *Wrong Way Nation*, N.Y. TIMES, Aug. 24, 2014, <http://www.nytimes.com/2014/08/25/opinion/paul-krugman-wrong-way-nation.html> (arguing that households relocating to the south and west are doing so because of affordable housing, not because of better opportunities, and that housing policy should enable them to stay in the northeast and in California where their productivity would be higher).

79. *See* FENNELL, *supra* note 66; Fennell, *supra* note 59; Lee Anne Fennell, *Properties of Concentration*, 73 U. CHI. L. REV. 1227 (2006).

distorted. Household A is priced out of its most socially valuable spot in the center city, perhaps, but makes outstanding contributions in the suburban neighborhood where it eventually locates. Even though there is a social loss, the loss is not complete because Household A still locates somewhere in the metro area and is still contributing to the urban agglomeration, even at a lower level.

Second, as this example suggests, there may be interesting distributive effects that flow from inefficient location decisions. Thus, having high-energy households like Household A scattered among the hinterlands could produce benefits for those who would never be competitive to locate in the central city in an undistorted market. This is true even if we posit that the hinterlands gain less from Household A than the core city would. Maximizing agglomeration benefits across a system may produce a harmful stratification that is somewhat mitigated by the location “errors” an imperfect system produces.

In the balance of the piece, I will focus not on the difficult question of how best to arrange economic units within a metropolitan area, but rather on how existing tools fail to grapple with smaller-scale agglomeration economies—and how new tools might do a better job. Once we know how law and policy can meaningfully alter the agglomeration landscape, questions about larger-scale agglomeration patterns can be more usefully addressed.

III. PURSUING PARTICIPANT ASSEMBLY

Urban areas comprise a conjoined set: (1) a congestible resource (interaction space) that is subject to overharvest, and (2) a strictly complementary public good (web of agglomeration benefits) that is subject to underinvestment. Dodging tragedies of overharvesting and underinvestment depends crucially on the characteristics and capacities of economic actors who are assembled together in the interaction space, and not just on their day-to-day behaviors.⁸⁰ Solving the commons

80. Both location choices and behavioral choices matter to externalities. *Cf.* Gould et al., *supra* note 61, at 419 (explaining that in the shopping mall context, “[e]xternalities are generated not only by the presence of certain stores, but also by the actions the stores take, such as advertising, maintaining cleanliness, courtesy, and product variety.”). Both can be affected by land use controls. *See, e.g.,* FENNEL, *supra* note 66, at 123–26 (distinguishing “compliance effects” of land use restrictions from “membership effects” that determine who locates in the community); Michael J. Pogodzinski & Tim R. Sass, *The Economic Theory of Zoning: A Critical Review*, 66 LAND ECON. 294, 295 (1990) (distinguishing “direct” effects of land use controls from those generated by mobility). However, because location decisions are a necessary predicate to behavioral decisions in the presence of heterogeneity, the former are my primary

problems playing out within cities, therefore, requires going beyond mere crowd control or regulation to tackle the intricate task of optimally assembling participants.

I have already suggested why market-assisted self-selection cannot achieve optimal participant assembly on its own.⁸¹ Section A explains why existing land use controls are not very good at solving participant assembly problems as they exist in urban areas. Section B considers a range of strategies that might be able to better harness urban energy while controlling clog.

A. Shortfalls in Traditional Land Use Controls

Scholars have recently criticized land use law for focusing almost exclusively on negative externalities and neglecting positive externalities.⁸² This critique requires refinement. In fact, the line between negative and positive externalities is illusory, since nearly every impact can be characterized in either way. Pigou's work offers a classic example: when discussing smoke pollution, which might seem like an obvious negative externality,⁸³ Pigou observed how keeping one's chimney from emitting smoke conferred a positive externality.⁸⁴ And while it is indeed unusual for the law to require those who benefit from a spillover to fork over payment for it,⁸⁵ the law very commonly mandates actions that can be readily understood as requiring parties to reciprocally confer benefits on each other.⁸⁶

Consider, for example, zoning provisions that restrict land use in a given area to residential housing on lots of a certain size or that require

focus here.

81. See *supra* Part II.B.

82. See, e.g., Parchomovsky & Siegelman, *supra* note 6, at 223–30.

83. See *id.* at 220–21 (citing Pigou in discussing significance of negative externalities in law and economics).

84. A.C. PIGOU, *THE ECONOMICS OF WELFARE* 160–61 (1920) (noting that “resources devoted to the prevention of smoke from factory chimneys” represent “uncompensated services” while the smoke itself “inflicts a heavy uncharged loss on the community”); see also Coase, *supra* note 48, at 35 (1960) (discussing Pigou’s characterization of those who keep their chimneys from smoking as “render[ing] services for which they receive no payment”); James E. Krier, *The Tragedy of the Commons, Part Two*, 15 *HARV. J.L. & PUB. POL’Y* 325, 325 n.3 (1992) (discussing Pigou’s view of pollution control as generating a positive externality).

85. See *supra* note 46 and accompanying text.

86. For discussion of some other ways that the law addresses positive externalities outside of restitution, see Dari-Mattiacci, *supra* note 47, at 49–54.

setbacks and minimum spacing between buildings. By complying with these restrictions, each landowner contributes in kind to a collective result.⁸⁷ Similarly, design requirements may aim to improve the appearance of an area, or residential community covenants may require homeowners to provide (or fund the provision of) lawn care, fence maintenance, and the like. All of these examples and many more could be characterized as addressing negative externalities (the ones that would flow from building too close to the lot line or using lower quality facade materials, for example), but they can also readily be characterized as mandating acts that confer positive externalities on others.

The real problem with standard land use controls relates not to the distinction between positive and negative externalities, which is largely a matter of framing, but rather to the way that these controls typically operate. Traditional land use controls are primarily designed to control cross-boundary spillovers from on-parcel activities—what I termed “sloshes” in the earlier discussion.⁸⁸ They do so by directly addressing what can, must, and must not be done on the owned parcel. Presumed incompatible uses are banned wholesale in particular zones (as by separating industrial and residential uses), and specific behaviors expected to produce spillovers (like burning trash or keeping too many pets) are regulated at a finer grain.

Moreover, with some exceptions to be discussed below,⁸⁹ land use controls address spillovers by applying categorically across a particular zone, neighborhood, or district. This works well in keeping everyone within the area up to a particular standard, but there is a limit to how much can realistically be demanded in terms of positive contributions from residents and businesses. Requiring that everyone use premium building materials is one thing, but creating a culture in which ideas flow freely across firms is another. Still harder is ensuring that the participants attracted to particular locations have the sorts of shareable ideas that will combine in ways that generate value.

To return to the earlier terminology, “sloshes” are easy for land use controls to address, but “sparks” are not. Sparks are harder to reach because their impact and magnitude depend on the contributions—and

87. See, e.g., Davy, *supra* note 9, at 481–83 (discussing the significance of space in front of and between buildings); Karkkainen, *supra* note 9, at 68–69 (noting features of the neighborhood commons, including “the physical environment”).

88. See *supra* Part I.B.3

89. See *infra* Part III.B.3.

hence in part on the characteristics—of other actors who are nearby in time and space. Sparks thus represent contingent contributions to public goods or bads—the energy of a vibrant city or the pall of a dangerous or depressed one. Because these public goods or bads may have a “lumpy” production function—requiring a “critical mass” to produce significant results—relatively small differences in inputs can make large differences in outputs, and vice versa.⁹⁰ Law enforcement efforts may attempt to break apart bad synergies (such as gangs) to leave room for good ones (such as play groups), but some of the more economically important positive externalities—creating a rich intellectual climate or a world class-music scene—cannot realistically be mandated.

It might seem that the answer lies in ever more restrictive and fine-grained zoning classifications that would ensure landowners are clustered together in groupings with other landowners who will contribute to particular agglomeration benefits. Even if governments had the necessary information to pursue such a strategy—a doubtful proposition—there remain two problems with this approach. The first is that the ability of a particular industry type to contribute to a metropolitan area’s agglomeration benefits will fluctuate over time. Focusing on just one use cuts against a diversification strategy.⁹¹ For example, designating a particular area of the city for automobile sales may ensure a critical mass of such uses and create fully reciprocal positive spillovers among them. But if the appetite for car-shopping wanes, those reciprocal spillovers will dwindle—and the space taken up by the entire cluster within the downtown area will begin to exert a negative impact (which is to say lack of a positive impact) on the surrounding properties.⁹²

A second problem with relying on zoning categories or similar sorting techniques to push together uses that emit reciprocal positive

90. See, e.g., THOMAS C. SCHELLING, MICROMOTIVES AND MACROBEHAVIOR, 91–110 (1978) (discussing the dynamics of a “critical mass”); Pamela Oliver et al., *A Theory of the Critical Mass. I. Interdependence, Group Heterogeneity, and the Production of Collective Action*, 91 AM. J. SOC. 522 (1985) (same); Michael Taylor & Hugh Ward, *Chickens, Whales, and Lumpy Goods: Alternative Models of Public-Goods Provision*, 30 POL. STUD. 350, 353 (1982) (discussing “lumpy” goods).

91. See, e.g., MARSHALL, *supra* note 22, at IV.X.12 §3 (discussing the risks of an area relying on a single industry and observing that this risk can be countered by developing “several distinct industries”); Henderson, *supra* note 23, at 246 (noting the insurance-like quality of diversification) (quoting E.M. HOOVER, *THE LOCATION OF ECONOMIC ACTIVITY* 288 (1948)).

92. Cf. *Billy Graham Evangelistic Ass’n v. City of Minneapolis*, 667 N.W.2d 117 (Minn. 2003) (upholding historic preservation designation for area described as the past “hub of the automotive sales district in Minneapolis”).

externalities is more fundamental: it effectively requires that claims on prime agglomeration space be paid for in kind with one's own similar agglomerative contributions. This tends toward a kind of "monoculture" that not only heightens the concern raised above but may also impede complementarities among different types of uses, and among firms and households of different sizes or different positions in their life cycles.⁹³ Although the question is an empirical one, it seems strange to think that an efficient market would specify that all bids for preferred locations must be made in kind by proffering one's own identical or similar use.⁹⁴

B. Alternative Strategies

If traditional land use controls perform poorly on the participant assembly task that is at the heart of agglomeration benefits, what might work better? The sections below consider some alternatives, ranging from minor modifications of existing approaches to more radical ways of restructuring property rights.

1. Supersizing

Could urban agglomerations be optimized by simply consolidating (much) more property in the hands of a single owner? A recent paper by Gideon Parchomovsky and Peter Siegelman suggests an affirmative answer.⁹⁵ Drawing on the model of shopping malls, Parchomovsky and Siegelman note the potential for a single owner to optimally manage positive spillovers among heterogeneous tenants by charging differential rents—less for an "anchor store" who brings in traffic, more for a small operation that benefits from the anchor's presence.⁹⁶ They recommend that local governments first condemn large blocks of land through eminent domain and then auction off the consolidated parcels to private

93. Empirical work investigating the impact of industry diversity on urban productivity has reached mixed results, depending on the measure of diversity employed. *See, e.g.*, Combes & Gobillon, *supra* note 17, at 61, 71-72 (reviewing studies). Regardless of exactly how industry diversity plays out citywide, however, there is reason to doubt the efficacy of a pervasive strategy of artificially constraining variety at small urban scales. *Cf.* JAMES C. SCOTT, *SEEING LIKE A STATE*, 11-22 (1998) (describing failures of tree monoculture).

94. *See generally* Rodriguez & Schleicher, *supra* note 16 (discussing how land use restrictions affect the "location market").

95. Parchomovsky & Siegelman, *supra* note 6.

96. *Id.* at 241-45.

parties to own and manage.⁹⁷ The proposal echoes in some respects a thought experiment that Peter Colwell once posed, in which he suggested that zoning would be unnecessary if parties were required to own very large tracts of land, such as a minimum of 640 acres.⁹⁸

At the level of theory, the single-owner test is a useful heuristic.⁹⁹ By asking how a single owner would resolve a given land use incompatibility if she owned all of the elements in the story (both the polluting factory and the polluted-upon neighborhood, say), we can derive the decisions that would obtain under zero-transaction-cost conditions.¹⁰⁰ It is a short logical step to the idea that supersizing ownership holdings could reduce land use conflicts and, most relevant to the discussion here, optimize positive interactions among complementary uses. But consolidating ownership in this way has a number of drawbacks.

First, although larger holdings do eliminate transaction costs in negotiating over spillovers by simply internalizing the whole operation, another set of problems emerges. Whether denominated as agency costs, management costs, internal transaction costs, or something else, the costs of internally managing the holdings of even the most talented “single owner” are likely to prove nontrivial.¹⁰¹ In the present context, one of the costs of internal management will be leaseholds, which themselves present moral hazard issues and introduce new problems of misaligned incentives.¹⁰² This does not mean that consolidation is necessarily the

97. *Id.* at 247–57. The authors also discuss the alternative of having the government retain ownership itself. *Id.* at 253–55.

98. Peter F. Colwell, *Tender Mercies: Efficient and Equitable Land Use Change*, 25 REAL EST. ECON. 525, 529 n.6 (1997). This approach assumes there would be some rules about what could occur near the edges of the property. *See id.* The purchase of large tracts of land is of course sometimes voluntarily sought in order to internalize positive externalities. *See* ELLICKSON ET AL., *supra* note 74, at 573 (recounting Disney Corporation’s decision, after its experience with Disneyland, to assemble a tract 100 times larger for Disney World).

99. *See, e.g.*, Richard A. Epstein, *Holdouts, Externalities, and the Single Owner: One More Salute to Ronald Coase*, 36 J.L. & ECON. 553, 556–57 (1993) (describing “the test of the ‘single owner’”).

100. *See id.*

101. *See, e.g.*, Coase, *supra* note 48, at 16; Fred S. McChesney, *Coase, Demsetz, and the Unending Externality Debate*, 26 CATO J. 179, 190–91 (2006).

102. *See, e.g.*, Derek K.Y. Chau, Michael Firth & Bin Srinidhi, *Leases with Purchase Options and Double Moral Hazard*, 33 J. BUS. FIN. & ACCT. 1390, 1391 (2006) (describing “double moral hazard” in leasehold arrangements, with misaligned incentives for both landlord and tenant); Edward L. Glaeser, *Rethinking the Federal Bias toward Homeownership*, 13:2 CITYSCAPE: J. POL’Y DEV. & RES. 5, 6 (2011) (suggesting ownership of a detached single-family dwelling is generally best held by the resident, because she “is in the best position to make investments”).

inefficient choice—we would need to know how these costs compare to the costs of working out externalities with others, or simply leaving them uninternalized—but it is not a magic bullet that eliminates all sources of conflict.

Second, consolidation of property holdings can produce a variety of social costs, including eroding competition and reducing the benefits of specialization.¹⁰³ Concentrating ownership may also mean forgoing the local knowledge that dispersed owners can collectively possess and employ.¹⁰⁴ In addition, a large block of land owned by one party may lack the diversity and eclecticism that arises organically from many separately owned interests, and hence may be less generative of positive benefits. In short, there are diseconomies of scale as well as economies of scale, and large property holdings may at times introduce as many problems as they solve. Whether this will be the case may depend in part on the scale at which single ownership is undertaken. Because agglomeration benefits are generated in a variety of ways at a variety of scales, it is possible that consolidated ownership could manage relatively small-scale micro-agglomerations¹⁰⁵ by locating a handful of complementary stores together, even if it could not cost-effectively manage larger-scale agglomerations within an urban area.

Another drawback of the supersized ownership approach relates to the start-up costs involved. Parchomovsky and Siegelman contemplate the use of eminent domain to acquire sufficiently large tracts of land to be managed in this manner.¹⁰⁶ Eminent domain is costly and not always politically feasible, even where it is legally available.¹⁰⁷ Yet the alternative of privately assembling land may be prohibitively costly.¹⁰⁸

103. See YORAM BARZEL, *ECONOMIC ANALYSIS OF PROPERTY RIGHTS* 51–52 (2d ed. 1997).

104. See Thomas W. Merrill, *The Property Strategy*, 160 U. PA. L. REV. 2061, 2094 (2012) (“If only a small number of people own property, then the property strategy loses its advantage of tapping into dispersed local knowledge.”). Merrill notes a number of other disadvantages of concentrated ownership as well, including dampened incentives and fewer checks against concentrated power. *Id.*

105. See Rodriguez & Schleicher, *supra* note 16, at 647 (distinguishing agglomeration effects that operate at the regional level from “microagglomerations” at the scale of groups of stores or residents).

106. Parchomovsky & Siegelman, *supra* note 6, at 218.

107. Consider in this connection the tremendous popular backlash that followed the decision in *Kelo v. City of New London*, 545 U.S. 469 (2005), which upheld the exercise of eminent domain against a public use challenge.

108. This is an empirical question. For one take on the question, see Daniel B. Kelly, *The “Public Use” Requirement in Eminent Domain: A Rationale Based on Secret Purchases and Private Influence*, 92 CORNELL L. REV. 1, 18–24 (2006) (suggesting private assembly may often be possible, given the ability of private parties to assemble land secretly using buying agents).

Holdout problems that impede land assembly might be addressed through more fundamental revisions in property rights, as discussed below.¹⁰⁹ But as things stand, there are significant practical impediments to undertaking an ownership consolidation strategy on a broad scale.

An alternative to supersizing actual ownership would be to devise a mechanism that would entwine the fates of neighboring economic actors. Fleshing out the forms that this approach might take is too large a task to take on here, but one possible model might make use of derivative instruments keyed to the market outcomes that are enjoyed or suffered by surrounding owners. Suppose, for example, that a local government zoned a particular district as an “interaction zone” and required all businesses locating within it to hold derivative instruments indexed to the stock prices of co-locating businesses and to the property values of nearby residences.¹¹⁰ Businesses that expected to have net positive impacts on their neighbors would have an extra incentive to locate in such a zone, while those who would derive benefits from others without contributing positively to the area would effectively pay a premium for locating there. The result might be an assembly pattern that is closer to what a single owner would produce, without the associated drawbacks of consolidated ownership.

2. *Paying for buzz*

Where it is possible to identify a particular economic actor who produces asymmetric benefits for neighbors, a different strategy is possible—that of directly charging nearby parties for the benefits that they receive. In general, the law does not require payments from those who receive gratuitous benefits from others, apart from a few narrow

109. See *supra* Part II.B.5.

110. A great number of operational details and safeguards would have to be hammered out, from determining appropriate stakes, to preventing parties from hedging the risk associated with the required stakes, to ensuring that the approach did not produce or perpetuate discriminatory behavior or patterns. The idea of requiring stakes as a way of aligning incentives is not wholly unprecedented. See, e.g., David M. Schizer, *Executives and Hedging: The Fragile Legal Foundation of Incentive Compatibility*, 100 COLUM. L. REV. 440 (2000) (discussing potential of stock options in executive compensation to produce incentive compatibility where hedging is absent); see also Gideon Parchomovsky & Endre Stavang, *The Environmental Option*, 99 MINN. L. REV. (forthcoming 2014) available at http://www.cree.uio.no/publications/2013_3/Stavang_The_Environmental_Option_CREE_WP3_2013.pdf (proposing a model in which large companies might be required to take a stake in “green” enterprises); Lee Anne Fennell & Julie A. Roin, *Controlling Residential Stakes*, 77 U. CHI. L. REV. 143, 174–75 (2010) (describing a model in which neighboring jurisdictions would share risk by buying instruments indexed to each other’s property values).

categories of restitution.¹¹¹ Ariel Porat argues for an Expanded Duty of Restitution (EDR) that would require payments from those who receive unrequested benefits in a broader set of circumstances.¹¹² If such payments were mandatory, the argument runs, then more activities that produce positive externalities would be encouraged.

Whatever merits such an idea might have in cases where a single actor engages in a discrete act that produces plainly valuable benefits for identifiable others, it is unlikely to offer much traction in addressing urban agglomerations.¹¹³ Perhaps the most promising urban application would be where a unique economic entity such as an entertainment venue nonreciprocally generates benefits for the surrounding community that, for practical reasons, cannot be internalized. But courts have shown themselves unwilling to provide such venues with recourse against even those near neighbors who purposefully capture spillovers for commercial gain. In an 1886 case, for example, the Michigan Supreme Court rejected the Detroit Base-Ball Club's claim for injunctive relief against a neighbor who erected viewing stands that allowed his customers to observe games without paying admission.¹¹⁴ A similar scenario was presented in an Australian case, *Victoria Park Racing & Recreation Grounds Co. v. Taylor*.¹¹⁵ There, the High Court rejected the idea of "property in a spectacle" and declined to enjoin radio broadcasts carried out from premises overlooking an open-air horse racing facility.¹¹⁶

The law is understandably reluctant to allow an enterprise that has failed to contain its own spillovers to restrict what nearby landowners can do with those spillovers. Line-drawing and measurement problems

111. See *supra* note 46 and accompanying text.

112. Porat, *supra* note 46, at 205–14.

113. Porat places a number of limits on the domain of his proposed EDR so that it would not apply in, inter alia, categories of cases where the risk of overvaluation or costs of enforcement are unduly high. See *id.* at 226. Presumably these conditions would rule out the use of the EDR to sort out complex urban agglomeration benefits, although Porat does discuss applying EDR in instances in which the acts of one party increase the property value of another. See *e.g.*, *id.* at 191 (providing an example in which a property owner will not construct a park that would also benefit his neighbors unless the neighbors cover some of the costs).

114. *Detroit Base-Ball Club v. Deppert*, 27 N.W. 856, 858 (Mich. 1886); see also ELLICKSON ET AL., *supra* note 74, at 572–73 (noting the general inability of landowners to recover for positive externalities they create).

115. (1937) 58 C.L.R. 479 (Austl.); see Kevin Gray, *Property in Thin Air*, 50 CAMBRIDGE L.J. 252 *passim* (1991) (examining connections between property theory and the analysis in *Victoria Park Racing*).

116. See *Victoria Park Racing*, 58 C.L.R. at 492-97 (Latham, C.J.); see also Gray, *supra* note 115, at 268.

abound. Urban areas contain elaborate webs of interdependencies that confound causal inferences about who benefited (or harmed) whom.¹¹⁷ Rarely will there be just one “anchor tenant” who provides vast nonreciprocal benefits in roughly equal measure to all surrounding owners. Instead, there will likely be a series of unique uses that not only emit different levels of positive and negative externalities but are also enjoyed by nearby landowners at varying levels, and are reciprocated in varying and greatly unequal degrees by those surrounding owners. A more intricate system of payments for positive and negative externalities could be imagined, although finding a workable way to administer it would be highly challenging.¹¹⁸ At some point, however, the opportunity costs of foregone agglomerations may be large enough to justify the considerable costs of attempting to pin down and compensate for certain asymmetric impacts.¹¹⁹

3. Differential pricing

Another way local governments could address agglomeration costs and benefits would be by applying differential pricing to land uses and land users. Differential pricing is a common mechanism where participant assembly is important. Consider, for example, its use in higher education to bring together a desired mix of students—some students are charged full freight, while others receive various amounts in scholarships, stipends, and other assistance that allows them to attend at reduced or even negative prices.¹²⁰

Land use authorities already have access to what amounts to differential pricing to the extent that they are free to strike individualized bargains with landowners about land uses.¹²¹ Their ability to do so is

117. In *Detroit Base-Ball Club*, for example, the defendant contended that the neighboring ball field had also interfered with the quiet use of his land. 27 N.W. at 857.

118. See T. Nicolaus Tideman, *Integrating Land-Value Taxation with the Internalization of Spatial Externalities*, 66 LAND ECON. 341, 341 (1990) (“An ideal system would not only match the external benefit or cost [of a landowner’s activities] with a subsidy or tax, but would also collect money to finance the subsidies, and distribute the proceeds of the taxes collected, according to the impacts of the externalities.”).

119. See Demsetz, *supra* note 56.

120. See, e.g., Rothschild & White, *supra* note 14.

121. These deals generally fall under the general rubric of land use exactions or impact fees. See, e.g., Vicki Been, “Exit” as a Constraint on Land Use Exactions: Rethinking the Unconstitutional Conditions Doctrine, 91 COLUM. L. REV. 473, 478–83 (1991). Such devices might be viewed as charging for the negative impacts that the use will inflict on the surrounding community or as collecting for the positive benefits that existing infrastructure will provide. See *id.* at 482–83.

arguably impeded, however, by the doctrinal limits on bargaining laid out in *Nollan* and *Dolan*, and recently (and quite confusingly) reinforced and extended in *Koontz*.¹²² The selective determination of development “prices” based on each landowner’s contributions to agglomeration benefits may be especially hard to square with doctrine.¹²³ Perhaps the growing significance of agglomeration economies to economic value will eventually create pressure to relax the doctrine, however, permitting more value-enhancing trades.¹²⁴ Other ways of effectively altering prices include using eminent domain to allow certain projects to go forward and offering tax breaks to particular parties.¹²⁵

Sometimes differential pricing occurs not by explicitly setting a

122. *Nollan v. California Coastal Comm’n*, 483 U.S. 825 (1987), required an “essential nexus” between the exaction and the rationale for the land use restriction that was lifted in exchange for it. *Dolan v. City of Tigard*, 512 U.S. 374 (1994), added the requirement of “rough proportionality” between the impacts that the land use restriction would control and the exaction. *Koontz v. St. Johns River Water Management Dist.*, 133 S. Ct. 2586 (2013), held that these limits apply to monetary exactions as well as physical ones, and that the prohibition extends to bargaining efforts that do not actually result in any money or land changing hands. It is unclear to what extent these limits have actually blocked desired deals, as opposed to simply channeling them (at some positive cost) to repeat players or through particular procedural hoops. See, e.g., David A. Dana, *Land Use Regulation in an Age of Heightened Scrutiny*, 75 N.C. L. REV. 1243, 1286–99 (1997) (positing that exactions restrictions will benefit repeat players who can be trusted not to sue); FISCHER, *supra* note 65, at 67 (suggesting developers will choose to pay—or “donate”—rather than litigate). The expanded domain of heightened scrutiny ushered in by *Koontz* may also matter less in practice than anticipated, depending on the remedies that are applied (an issue the Supreme Court did not decide). See Rick Hills, *Koontz’s Unintelligible Takings Rule: Can Remedial Equivocation Save the Court from a Doctrinal Quagmire?* PRAWFSBLAWG (June 25, 2013, 3:41 PM), <http://prawfsblawg.blogs.com/prawfsblawg/2013/06/koontzs-unintelligible-takings-rule-can-remedial-equivocation-make-up-for-an-incoherent-substantive-.html>.

123. *Koontz* left open precisely how the monetary exactions subject to heightened scrutiny under *Nollan* and *Dolan* would be distinguished from ordinary taxes and fees. One possibility would be to apply heightened scrutiny only to adjudicative types of exactions imposed on a case-by-case basis, and not to legislatively imposed exactions. See *Koontz*, 133 S. Ct. at 2608 (Kagan, J., dissenting) (noting this possible distinction, which some state courts have embraced). Even if this refinement were adopted, however, it would not help to facilitate the kind of price discrimination contemplated in the text, unless good proxies for contributions to agglomeration could be built into a legislatively enacted schedule of fees. For related discussions see, for example, Hills & Schleicher, *supra* note 67 at 53–59; Levine-Schnur, *supra* note 60, at 162–60 (discussing factors that might be evaluated in an “urban impact assessment” to determine contributions and suggesting ways in which discretion might be calibrated).

124. On the other hand, there may be substantial uncertainty about the degree to which differential pricing carried out by a local governmental entity would produce the social optimum, given potential information and incentive problems.

125. See, e.g., David A. Dana, *Reframing Eminent Domain: Unsupported Advocacy, Ambiguous Economics, and the Case for a New Public Use Test*, 32 VT. L. REV. 129 (2007) (explaining how eminent domain lowers land assembly costs for developers, and noting other methods, such as subsidies, for similarly reducing the cost of development).

variety of monetary prices for different participants, but implicitly by setting in-kind conditions that are cheaper or more expensive for certain categories of participants to fulfill. Consider in this connection the requirements under the Homestead Act, which made living on and working the land for a period of time a condition of perfecting title.¹²⁶ Similarly, concert ticket pricing typically combines a below-market-clearing price with an in-kind charge—standing in a queue. If those who are willing to stand in a queue are, on average, better audience members than those who are simply willing to pay a higher price, the two-part pricing will work better at participant assembly than a market-clearing price.¹²⁷

Similar approaches might be attempted in urban contexts. For example, certain neighborhoods by virtue of their “edginess” may screen out certain populations while attracting others. Although this often happens in an unplanned manner, governments can intentionally embed uses and amenities that will produce self-selection effects, or allow developers to do so.¹²⁸ To take a small-scale example, simply removing parking facilities from a beach area will have an impact on the number and type of beachgoers, and the activities that they undertake.¹²⁹

126. See Susan Rose-Ackerman, *Inalienability and the Theory of Property Rights*, 85 COLUM. L. REV. 931, 960–61 (1985) (discussing self-selection in the context of the Homestead Acts).

127. See, e.g., Lutz-Alexander Busch & Phil Curry, *Ticket Pricing and the Impression of Excess Demand*, 111 ECON. LETTERS 40 (2011) (presenting a two-part pricing model for event tickets in which fans of higher quality have a lower cost of lining up, allowing the line-up to perform a quality-screening function); Allan C. DeSerpa, *To Err Is Rational: A Theory of Excess Demand for Tickets*, 15 MANAGERIAL & DECISION ECON. 511, 515–17 (1994) (presenting a concert pricing model in which “the highest-demand buyers in terms of money price will generally not be the ‘best audience’ in their own estimation”).

128. See GARY S. BECKER & KEVIN M. MURPHY, *SOCIAL ECONOMICS: MARKET BEHAVIOR IN A SOCIAL ENVIRONMENT* 72 (2000) (noting the possibility that governments use amenity choice to shape demographics); Lior Jacob Strahilevitz, *Exclusionary Amenities in Residential Communities*, 92 VA. L. REV. 437 (2006) (discussing the use of “exclusionary amenities” in private residential communities). Some of the strategies Richard Florida proposed for attracting and retaining the “creative class” would fall in this category as well. See generally RICHARD FLORIDA, *THE RISE OF THE CREATIVE CLASS* (2002). Florida’s thesis has been the subject of significant criticism. See, e.g., Michele Hoyman & Christopher Faricy, *It Takes a Village: A Test of the Creative Class, Social Capital, and Human Capital Theories*, 44 URB. AFF. REV. 311, 329 (2009) (finding no relationship between the presence of a creative class and “job growth, growth in wages, or absolute levels of wages” and finding a negative correlation between measures of the creative class and other economic measures); Jamie Peck, *Struggling with the Creative Class*, 29 INT’L J. URB. & REG’L RESEARCH 740 (2005) (discussing and critiquing Florida’s thesis). As these critiques suggest, the ability of communities to successfully pursue agglomeration benefits through strategies aimed at selection effects would depend on their having good empirical information about the impacts of those strategies.

129. Scarce parking would weed out visitors who prefer to drive, and might reduce the spontaneous

Requiring that beachgoers make it to the beach by walking or biking imposes an in-kind tax that automatically filters the population; it might produce a beach full of people who are more fit, on average, than if the beach is made accessible by private automobile. But such requirements might also produce an underutilized beach under some plausible assumptions.

If the goal is not just to prevent overcrowding but to produce optimal usage of an area and to make it a locus of interesting interactions, then too few users (of the right sort) is as bad as too many.¹³⁰ Whatever filters are put in place to control access must not be so stringent as to stymie production of the shared experience, nor so loose as to degrade its quality. It is also essential to ensure that such approaches do not become back-door mechanisms for discrimination along forbidden dimensions.¹³¹ Giving close attention to in-kind pricing can both open up new possibilities and reveal the ways in which such strategies are already (perhaps unwittingly) being employed. Awareness of these approaches is especially important given normative concerns about certain incarnations of them.

4. *Revising zoning*

Traditional Euclidian zoning, the type in use in nearly all communities above a certain size, operates by specifying uses that are permitted in particular zones, and banning all others.¹³² This approach

formation of crowds. Likewise, increasing the proportion of people who arrive by bicycle or mass transit, and who therefore cannot conveniently carry tents, grills, and other bulky items, may change the activities and average length of time spent at the beach. These issues have come to the forefront in a recent debate over reducing parking at a popular Chicago beach, a move considered following a large illegal concert held there. See John Keilman, *Architect's Montrose Beach Plan Would Sacrifice Parking*, CHI. TRIB., July 23, 2014, available at <http://www.chicagotribune.com/news/local/breaking/chi-montrose-beach-improvement-plan-20140723-story.html>. The intentional manipulation of amenities to exclude populations from public beaches has at times taken reprehensible forms. See ROBERT A. CARO: THE POWER BROKER: ROBERT MOSES AND THE FALL OF NEW YORK 318-19 (1974) (describing Robert Moses's efforts to exclude low-income and African-American families from Jones Beach by, among other things, limiting public transportation to the beach and charging high parking fees); see also LIOR JACOB STRAHILEVITZ, INFORMATION AND EXCLUSION 193-95 (2011) (discussing Moses's exclusionary tactics).

130. See, e.g., MICHAEL HELLER, THE GRIDLOCK ECONOMY 32-37 (2008) (discussing the problem of underuse in connection with the anticommons); Rose, *supra* note 5 at 769 (noting the need to encourage certain forms of participation).

131. See, e.g., BECKER & MURPHY, *supra* note 128, at 72; STRAHILEVITZ, *supra* note 129; Strahilevitz, *supra* note 128.

132. The zoning scheme upheld in *Euclid v. Ambler Realty*, 272 U.S. 365 (1926), was cumulative in nature: each successive zoning category allowed increasingly intensive uses, but continued to permit the

does not deal well with the challenges of agglomeration. But other forms of zoning might carry more promise in this regard. Performance zoning focuses not on uses but rather on their impacts, such as certain decibel readings or pollutant concentrations detected outside the owned parcel.¹³³ While usually considered in the context of negative externalities like noise or emissions, performance zoning would be interesting to consider in the context of positive externalities.

Suppose, for example, that cameras or other technologies could determine the number of trips on foot to a given store from outside of a fixed radius of, say, a couple blocks. In a “high foot traffic” zone, new uses might be permitted only if they can guarantee (say by posting a bond) that they will draw a certain amount of foot traffic into the area on average, over a particular span of time. In areas where only a few stores are likely to serve as “magnets” that draw in foot traffic, designating entire zones might not be desirable; instead, special exceptions for larger or denser uses might be granted to those willing and able to meet this output target.

As another example, suppose that knowledge spillovers comprise the primary desired agglomeration benefits. Here, zoning might specify that uses locating in the area have a certain minimum average number of employees on site each workday, thereby discouraging companies from adopting liberal work-from-home policies. More intrusively, targets could even be set for such matters as employees consuming meals in the immediate area, perhaps through a subsidy program.¹³⁴ Such

less intensive uses that were allowed in the more exclusive zoning categories. Modern zoning is often noncumulative, generating mutually exclusive realms for different uses. *See, e.g.*, DUKEMINIER ET AL., PROPERTY 979 (8th ed. 2014) (distinguishing cumulative from noncumulative zoning). The choice between cumulative and noncumulative zoning could carry significant implications for agglomeration economies. *See* Roderick M. Hills, Jr. & David N. Schleicher, *The Steep Costs of Using Noncumulative Zoning to Preserve Land for Urban Manufacturing*, 77 U. CHI. L. REV. 249, 262–67 (2010).

133. *See, e.g.*, JANE JACOBS, DARK AGE AHEAD, 153–57 (2004) (discussing a “performance code” focused on impacts); DOUGLAS R. PORTER ET AL., FLEXIBLE ZONING: HOW IT WORKS 11 (1988) (explaining how performance zoning in pure form focuses solely on impacts rather than uses); Frederick W. Acker, Note, *Performance Zoning*, 67 NOTRE DAME L. REV. 363 (1991) (discussing rationales for and types of performance zoning). Performance zoning has not been widely used to date, which can likely be attributed to monitoring difficulties. It is possible that technological advances could be harnessed to make the use of performance zoning more viable. *See, e.g.*, Lee Anne Fennell, *Crowdsourcing Land Use*, 78 BROOK. L. REV. 385, 391–96 (2013).

134. Subsidized meals are a very common way to encourage interaction. *See, e.g.*, *Prospective Students, Academic Culture*, THE UNIVERSITY OF CHICAGO LAW SCHOOL, <http://www.law.uchicago.edu/prospective/academicculture> (last visited Oct. 15, 2014) (“Learning through lunch is a tradition at Chicago.”).

performance standards would be easier to meet for firms whose business model involves on-site employees. Although it would not necessarily attract the companies that would contain the highest quality community contributors, it would at least ensure that some of the ingredients for interaction—workers—are present.

Similarly, some communities have attempted to use covenants or zoning to restrict residential occupancy to those who will be present on a relatively long-term basis.¹³⁵ Presumably, such restrictions are motivated by views about the positive and negative spillovers produced by properties that are mostly left vacant or that experience high turnover as compared with those that are continuously occupied by the same parties.

Drawing on the discussion above, zoning might also seek to more directly address energy/clog ratios, perhaps through scoring systems that examine factors like traffic impacts, foot traffic, commuting and parking patterns of the workers, and so on, in conjunction with the space requirements of the use. Particular uses that are thought to be especially important to the city's life can also be directly encouraged, as some communities have done in setting aside housing for artists.¹³⁶ Transect zoning represents a somewhat similar idea: it focuses on the types of buildings that will appear in different areas of a city, letting land use follow form rather than the other way around.¹³⁷ But building forms are at best a rough proxy for the kinds of considerations that are most important to agglomeration economies and diseconomies; a better approach would be to focus directly on the latter—if local governments can determine what they are and how to advance them.

5. *Rethinking everlasting, rooted estates*

135. See, e.g., Natalie Sherman, *Weekly Rentals in Ocean City May Be Outlawed*, BALT. SUN, Aug. 16, 2014, available at http://articles.baltimoresun.com/2014-08-16/business/bs-bz-ocean-city-rentals-20140816_1-short-term-rentals-weekly-rentals-planning-and-zoning-commission; TOWN OF NANTUCKET, MASS. ZONING CODE § 139-2(A)(5) (2009), available at <http://ecode360.com/11471475> (requiring that occupancy of accessory apartments “be limited to natural persons domiciled in the Town of Nantucket year round and that the dwelling may not be offered for nor used for seasonal occupancy”).

136. See, e.g., *ArtistSpace Housing*, BOSTON REDEVELOPMENT AUTHORITY, <http://www.bostonredevelopmentauthority.org/housing/artist-housing/artistspace-housing-overview> (last visited Oct. 15, 2014).

137. See Nicole Stelle Garnett, *Redeeming Transect Zoning*, 78 BROOK. L. REV. 571, 575–76 (2013) (explaining that “transect zoning permits a wide variety of land uses throughout a community, so long as these uses are carried out in buildings that are appropriate in size and design to the zone where they are located”) (footnote omitted).

A final set of ideas, which I am developing further in separate work, strikes at the heart of existing property forms. The assumption that property rights must be granted in physically rooted locations and be perpetual in length should be rethought in light of the sea change that has transpired over recent centuries in how property generates value. Building optional forms of impermanence and portability into tenure forms could offer important new avenues for restructuring property rights.

Consider first the possibility of a less permanent estate that would (unlike a leasehold) embody the other features of full ownership, but that would be expressly “callable” by the government after a certain period of time.¹³⁸ Already, governments hold call options insofar as eminent domain can truncate rights of private landowners. Creating estates that are impermanent by design and enabling local governments to designate areas in which these callable estates will be located would provide a great deal more flexibility. It would also enable parties to sort into more or less permanent property rights arrangements, depending on their preferences. By making redevelopment easier in certain areas, such an approach would be expected to reduce resort to eminent domain in other areas.

A second idea would loosen the usual assumption that real property interests must be tied to a particular physical location. Suppose, for example, that parties in urban areas could purchase “floating estates” of a particular value, with particular attributes, on the understanding that their property interest might be physically moved to a different location within a defined zone at some later time, with relocation costs covered.

As unusual as this may sound, there are antecedents. Land readjustment, although not well-known in the United States, has been used in other countries to accomplish something very similar to this idea.¹³⁹ Instead of simply condemning private property through eminent

138. Such a property interest could take the form of a fee simple subject to executory limitation. See, e.g., DUKEMINIER ET AL., PROPERTY 290–92 (8th ed. 2014) (defining and describing these estates). The trigger conditions for the executory interest might be tied to certain economic or social indicators that suggest the appropriateness of redevelopment, to the passage of a certain amount of time, or both. Such an approach could work entirely within existing tenure forms, consistent with the *numerus clausus* principle. See, e.g., Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 26 (2000).

139. See, e.g., Yu-Hung Hong, *Assembling Land for Urban Development: Issues and Opportunities*, in ANALYZING LAND READJUSTMENT: ECONOMICS, LAW, AND COLLECTIVE ACTION 3, 23–24 (Yu-Hung Hong & Barrie Needham eds., 2007) (describing reallocation methods). Although approaches vary

domain, land readjustment displaces parties from their original locations but grants them equally valuable land parcels in the redeveloped area or shares in the enterprises that their displacement made possible. Acceptance for this approach might be higher if, instead of simply placing all landowners at risk of such a land swap, parties could choose to purchase land that would be subject to such an arrangement in the future. Again, the goal would be to increase both security and flexibility by enabling people to opt into arrangements that diverge from the traditional rooted, perpetual fee simple.

CONCLUSION

Agglomeration economies are already central to how property generates value, and will become even more important going forward. Urbanization has fundamentally changed the way in which property is used, and has dramatically increased the degree of interdependence among land users and land uses. It is important that commons scholars begin unpacking the nature of the dilemmas that this global trend has created and start finding ways to adapt existing property tools—or invent new ones—to address these new challenges. I hope this essay offers a step in that direction.

considerably, the basic idea can be illustrated by imagining a low-density residential neighborhood that would be more valuable if it were replaced with a higher-density mixed-use development. The area might be razed and redeveloped with higher-density residences, shops, and green space. Each former resident might then receive a smaller residential site in the new development, but because of the effects of the new development, it would be of equal or greater value than the property she was initially required to give up. For more background on this approach and its many variations, see generally ANALYZING LAND READJUSTMENT, *supra*; George W. Liebmann, *Land Readjustment for America: A Proposal for a Statute*, 32 URB. LAW. 1 (2000).

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