

STREAMING PROPERTY

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ABSTRACT—People acquire property rights in objects and real estate in order to capture the stream of services that these assets can provide over time. The thing or parcel itself is merely a delivery mechanism, a way of packaging and protecting rights to that value stream. And, significantly, these assets cannot stream services to anyone without a set of facilitating conditions and complementary goods, such as public infrastructure, that do not lie within the asset owner’s individual control. This Essay argues that we can gain fresh traction on inequality by recasting property as service streams rather than as owned things. Doing so emphasizes the costs of structuring property entitlements in ways that monopolize or squander streams of services. It also reveals new opportunities to repackage valuable service streams into asset-like formats to create durable and flexible claims on resources. Finally, a focus on services directs fresh attention to what people actually want and need from resources over time—a dynamic inquiry whose answer encompasses the spatial and ecological services that are now of overwhelming importance.

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INTRODUCTION

We often think of property as solid and static—an owned object or piece of land, a *thing* with enduring heft and weight.¹ But property’s value comes from the services that these assets can provide—or *stream*—to users over time.² Water rights offer an especially literal illustration of this point,³ but it is also true of all real and personal property, from books and blenders to laptops and land.⁴ People seek residential services from their homes, computing and entertainment services from their devices, and transportation services from their cars. Things are merely delivery mechanisms, akin to a platter or a firehose. When property rhetoric fixates on ownership of physical assets, it mistakes the container for the content, the package for the product.

Making things stand in for streams might seem like a harmless synecdoche or a useful mental shortcut.⁵ But it obscures a central truth about

¹ A thing-centered understanding of property has been embraced by academics as well as laypeople. See, e.g., Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691 (2012); *infra* notes 56–58 and accompanying text (noting the appeal of conceptualizing property in terms of things).

² I am not the first to suggest this way of understanding resources. See, e.g., JULIAN L. SIMON, THE ULTIMATE RESOURCE 2, at 580–81 (Princeton Univ. Press rev. ed. 1996) (“[T]he appropriate way for us to think about extracting resources is not in physical units, pounds of copper or acres of farmland, but rather in the services we get from these resources—the electrical transmission capacity of copper, or the food values and gastronomic enjoyment the farmland provides.”); *infra* notes 14–19 and accompanying text (citing related ideas).

³ Although water rights are allocated in different ways in different parts of the United States, the case law recognizes that these rights are valued for the flow of benefits they provide to users. See, e.g., Eddy v. Simpson, 3 Cal. 249, 252 (1853) (“[T]he right of property in water is *usufructuary*, and consists not so much of the fluid itself as the advantage of its use.”); Eric R. Claeys, *Property, Concepts, and Functions*, 60 B.C. L. REV. 1, 33 (2019) (identifying the unifying principle that “water rights needed to be structured as seemed likely to facilitate the beneficial use of water”).

⁴ Although this Essay does not directly address intellectual property, such intangible goods often enable tangible goods, such as consumer electronics, to stream benefits.

⁵ For the related idea that property’s structure represents a “shortcut” designed to simplify the information environment, see Smith, *supra* note 1, at 1692–94.

property: resources can only stream services if certain complementary goods, services, and conditions are present. Modern electronics provide obvious examples: they have value only to the extent that producers or other nonowners continue to pour functionality and content into them.⁶ But similar points can be made about low-tech personal property and real estate as well. For instance, the ability of urban land to stream valuable services to residents or firms depends on local infrastructure as well as on regulatory permissions that determine how owners can segment and structure space. As this example suggests, access to many such complements is politically mediated.⁷ Focusing on the objects and parcels themselves diverts attention away from these collective choices about complements, their distributive significance, and the central role they play in delivering—or blocking—streams of value.

This Essay argues that we can gain fresh traction on resource inequality by shifting from the dominant “property-as-thing-ownership” (PATO) paradigm⁸ to a revised “property-as-service-streams” (PASS) conceptualization. This shift foregrounds the fact that asset owners depend on complements, including publicly supplied goods and services, to activate or enhance particular service streams. Highways, for instance, make it feasible for owners to stream residential services from more remote locations—but often at significant social cost.⁹ At the same time, owners

⁶ See Chris Jay Hoofnagle, Aniket Kesari & Aaron Perzanowski, *The Tethered Economy*, 87 GEO. WASH. L. REV. 783, 787–802 (2019) (discussing the ways in which consumers remain dependent on sellers after purchase for the continuing usefulness of their goods).

⁷ This is most clearly true in the case of publicly provided goods and services. But even the availability of complements that are privately purchased, like electricity and internet access, depends on regulatory and other policy choices. See Yochai Benkler, *Commons and Growth: The Essential Role of Open Commons in Market Economies*, 80 U. CHI. L. REV. 1499, 1534–38 (2013) (reviewing BRETT M. FRISCHMANN, *INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES* (2012)).

⁸ Property theorists have extensively discussed and critiqued this paradigm. See, e.g., Thomas C. Grey, *The Disintegration of Property*, in *PROPERTY: NOMOS XXII* 69, 71–73 (J. Roland Pennock & John W. Chapman eds., 1980) (criticizing “meanings of ‘property’ in law that cling to their origin in the thing-ownership conception”). While much academic debate centers on the relative merits of a thing-ownership model compared with a bundle-of-rights vision of property, the contrast I draw here focuses not on the decomposibility of property rights but rather on the production processes for property’s benefits. My use of PATO as a shorthand is not meant to suggest that thing-based accounts are monolithic or simplistic. For instance, Smith’s influential theory contains a highly sophisticated and nuanced understanding of how “things” might be defined and conceptualized. See Smith, *supra* note 1, at 1703.

⁹ See David Schleicher, *How Land Use Law Impedes Transportation Innovation*, in *EVIDENCE AND INNOVATION IN HOUSING LAW AND POLICY* 38, 39 (Lee Anne Fennell & Benjamin J. Keys eds., 2017) (observing that automobiles, combined with publicly funded roads, “allowed people and firms to spread outward across a region, creating new opportunities for suburban life”); Barbara L. Bezdek, *To Attain “the Just Rewards of So Much Struggle”: Local-Resident Equity Participation in Urban Revitalization*, 35 HOFSTRA L. REV. 37, 51–53 (2006) (discussing transportation policy, including highways, as subsidies for suburbanites); Mason Gaffney, *The Synergistic City: Its Potentials, Hindrances, and Fulfillment*, 3 REAL ESTATE ISSUES 36, 45 (1978) (discussing the polluting effects of sprawl and the problem of adding open space that “has to be traversed” in central areas).

have neither the incentive nor the ability to optimize the service streams produced by their resources if they do not also own or control the necessary complementary entitlements, such as the right to develop higher density housing in an urban setting.¹⁰ By emphasizing how decisions about complements can both embed and mask distributive choices, PASS recasts the case for making ownership more equitable.

Reframing property in terms of streaming services also carries some important implications for how academics and policymakers might approach inequality. First, the PASS perspective emphasizes that property rights may be structured in ways that squander or block streams of services. For example, a well-located urban plot that is ideally suited for housing continuously spouts a geyser of potential residential services, but if it is zoned for nothing but a single-family home, only a comparative cupful of that value may be captured. Neither the parcel owner nor the regulatory bodies that restrict her uses bears the full opportunity cost of this arrangement. Shifting attention from allocating ownership of the parcel to improving its yield of services can spur creative entitlement redesign that consolidates or coordinates control over complementary resources.

Second, understanding asset ownership as a politically contingent claim on a stream of services highlights the converse possibility of repackaging contingent service streams into asset-like formats to create durable and flexible claims on resources.¹¹ Recognizing that even the most well-established forms of asset ownership share precisely the same contingent reliance on politics as any form of “new” property erases the assumed priority of the former and enables the latter to be formulated more robustly *as* property interests. The ability to toggle the framing of resource arrangements from stream to asset and back again can be crucial to achieving social goals in a world in which PATO carries tremendous political and psychological clout.

¹⁰ Land use regulations strictly control housing development in many U.S. cities, preventing landowners from responding to increased housing demand by adding supply. *See, e.g.*, Edward Glaeser & Joseph Gyourko, *The Economic Implications of Housing Supply*, 32 J. ECON. PERSPS. 3, 3–5 (2018) (discussing the costs and distributive effects of restrictions on residential development, which raise housing prices above production costs in the most economically productive cities); Joseph Gyourko & Raven Molloy, *Regulation and Housing Supply*, in 5B HANDBOOK OF REGIONAL AND URBAN ECONOMICS 1289, 1294 (Gilles Duranton et al. eds., 2015) (“[R]ecent empirically oriented research suggests that the overall efficiency losses from binding constraints on residential development could be quite large.” (citations omitted)).

¹¹ The idea that reliance can form around streams of benefits in a manner that resembles property claims has a longstanding but tenuous foothold in property theory. A primary catalyst in this regard was Charles A. Reich, *The New Property*, 73 YALE L.J. 733 (1964). For more recent takes on this theme, see, for example, Joseph William Singer, *The Reliance Interest in Property*, 40 STAN. L. REV. 611, 621–23 (1988); and David A. Super, *A New New Property*, 113 COLUM. L. REV. 1773, 1868–78 (2013).

Third, a focus on services directs attention to what people actually want and need from resources over time—a dynamic inquiry. In the face of expanding urbanization and environmental challenges, two categories of services have taken on overwhelming significance: the spatial services produced by real property within our cities,¹² and the ecological services that natural resources can provide.¹³ Real estate within metropolitan areas is primarily valued not for any characteristics of the land itself, but rather for its position relative to other uses and users. Natural resources and patterns of land use (or nonuse) can similarly produce environmental services only when they are present in particular combinations and at an appropriate scale. To generate these kinds of services, and to do so in a way that is sensitive to issues of inequality and injustice, property rights must be significantly recalibrated away from stasis and toward flexible reconfigurability.

This Essay proceeds in two Parts. Part I presents the idea of property as service streams that depend not just on owned assets but also on their politically mediated complements. This reconceptualization alters how we think about property’s distributive effects. Part II turns to some further implications of this recharacterization for the pursuit of equity through property.

I. PROPERTY AS SERVICE STREAMS

The property-as-thing-ownership (PATO) view is intuitively appealing and culturally dominant. But PATO fosters two foundational errors about

¹² Spatial services, as I use the term here, refers to land’s capacity to provide people with the benefits associated with physical proximity to other users and uses. These benefits, often termed “agglomeration economies” or “agglomeration benefits,” include reduced transportation costs, the mutual learning and sharing of ideas that comes from interaction, and the greater matching potential associated with thicker labor and product markets. *See, e.g.*, David Schleicher, *The City as a Law and Economic Subject*, 2010 U. ILL. L. REV. 1507, 1515–28 (examining categories of agglomeration benefits, following a schema developed by Alfred Marshall); *see also* M.A. Qadeer, *The Nature of Urban Land*, 40 AM. J. ECON. & SOCIO. 165, 170–72 (1981) (observing that urban land is more appropriately characterized as “space” and explaining how its value stems from its interdependence with complementary uses).

¹³ The framework of “ecosystem services” seeks to delineate and quantify the value that natural resources can provide to people. *See, e.g.*, J.B. Ruhl, *In Defense of Ecosystem Services*, 32 PACE ENV’T L. REV. 306, 309 (2015) (“[T]he core theme of the ecosystem services framework is that these benefits are valuable to humans.”). Seminal works developing this framework included NATURE’S SERVICES: SOCIETAL DEPENDENCE ON NATURAL ECOSYSTEMS (Gretchen C. Daily ed., 1997); and Robert Costanza et al., *The Value of the World’s Ecosystem Services and Natural Capital*, 387 NATURE 253 (1997). An influential taxonomy, the Millennium Ecosystem Assessment, identifies four channels through which ecosystems benefit people, including “provisioning services” (e.g., food), “regulating services” (e.g., flood control), “cultural services” (e.g., recreation), and “supporting services” (which make the other streams of services possible). *See* Ruhl, *supra*, at 309 (citing WALTER V. REID ET AL., MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: SYNTHESIS, at vi (José Sarukhán et al. eds., 2005), <https://www.millenniumassessment.org/documents/document.356.aspx.pdf> [<https://perma.cc/4GYA-BHLMJ>]).

property and how it works. First, it leads people to conflate the tangible vehicles that deliver valuable services (things) with the valuable services themselves. Second, treating things as the essence of property leads people to ignore many of the other inputs that enable (or that could enable) those assets to stream services.

In this Part, I discuss how the property-as-service-streams (PASS) conceptualization addresses both of these shortfalls. Section I.A outlines the move of treating valuable streams of services, whether realized or not, as the true object of interest for property law and theory. Section I.B turns to the politically contingent complements that make (or could make) these streams of value possible, and considers what it would mean to render them—and their distributive implications—visible.

A. *Things and Streams*

Thinking about resources in terms of the services they provide is not a new idea. The literature on ecosystem services offers one set of examples.¹⁴ Likewise, scholarship on the sharing economy¹⁵ redirects attention from the ownership of things (such as cars) to access to service streams (such as on-demand rides).¹⁶ Other scholarship makes related points. Julian Simon observes that “[a]s economists or as consumers we are interested, not in the resources themselves, but in the particular services that resources yield.”¹⁷ James Gibson’s theory of “affordances” likewise shifts attention from “surfaces” and “objects” to the benefits and opportunities that resources afford people or animals.¹⁸ And Kelvin Lancaster’s innovations in consumer

¹⁴ See *supra* note 13. Scholarship on ecosystem services has surged in recent decades, in law as well as in other fields. See J.B. Ruhl & James Salzman, *The Law and Policy Beginnings of Ecosystem Services*, 22 J. LAND USE & ENV’T L. 157, 161 (2007).

¹⁵ Although the term “sharing economy” has been criticized, it is commonly used in the United States to refer to business models, usually supported by digital platforms, that divvy up goods and services among consumers in more fine-grained ways. See, e.g., Nestor M. Davidson & John J. Infranca, *The Sharing Economy as an Urban Phenomenon*, 34 YALE L. & POL’Y REV. 215, 216 & n.1 (2016).

¹⁶ See, e.g., Shelly Kreiczer-Levy, *Share, Own, Access*, 36 YALE L. & POL’Y REV. 155, 182–88 (2017) (discussing new models of resource access that do not rely on ownership); Kellen Zale, *Sharing Property*, 87 U. COLO. L. REV. 501, 533–35 (2016) (noting the sharing economy’s “emphasis on providing users with access to, rather than ownership of, property”); see also Lee Anne Fennell, *Fee Simple Obsolete*, 91 N.Y.U. L. REV. 1457, 1496 (2016) (observing that access to resources can be, and increasingly is, accomplished through means other than traditional ownership).

¹⁷ SIMON, *supra* note 2, at 61. For more on Simon’s views, see Peter J. Boettke & Christopher J. Coyne, *The Economic Logic Behind the Ultimate Resource* (Geo. Mason Univ. Dep’t of Econ., Working Paper No. 21-17, 2021), <http://ssrn.com/a=3857155> [<https://perma.cc/5547-VSSP>].

¹⁸ JAMES J. GIBSON, *The Theory of Affordances*, in PERCEIVING, ACTING, AND KNOWING: TOWARD AN ECOLOGICAL PSYCHOLOGY 67 (Robert Shaw & John Bransford eds., 1977). For example, certain objects afford “wielding” while others afford “trace making.” *Id.* at 74–75 (emphasis omitted). The

theory involved “breaking away from the traditional approach that goods are the direct objects of utility and, instead, supposing that it is the properties or characteristics of the goods from which utility is derived.”¹⁹

The idea that we value things because of what they can do for us might seem obvious and uncontroversial. Indeed, the PATO vision is fully compatible with this observation: things feature prominently in that account not for their own sake, but rather because people are interested in using them.²⁰ Where PATO differs from PASS is in the assumptions that it makes about how the benefit streams that flow from resources are generated and optimized.

PATO structures resource use by defining and protecting domains—things—and delegating their management to people designated as owners.²¹ Owners are free to curate, cultivate, and consume services by virtue of their control of the resource, which acts as a kind of envelope or catchment for benefit production. The owner has the right incentives to manage what is hers, the story runs, since she will personally enjoy (or suffer) the results.²² This framing implies that noninterference—enforced through boundary exclusion or otherwise—is the central input that the law must supply to induce owners to optimize their resource streams.²³

The PATO model thus understates the deeply interdependent processes through which modern property generates value. Property owners today do

affordances an object offers may depend on the presence of supporting conditions or services. For instance, a mailbox “affords letter-mailing to a letter-writing human in a community with a postal system.” *Id.* at 78.

¹⁹ Kelvin J. Lancaster, *A New Approach to Consumer Theory*, 74 J. POL. ECON. 132, 133 (1966).

²⁰ See, e.g., Smith, *supra* note 1, at 1704 (observing that “the ends in property relate to people’s interests in using things”); see also J. E. PENNER, *THE IDEA OF PROPERTY IN LAW* 71 (1997) (maintaining that “the right to property is a right to exclude others from things which is grounded by the interest we have in the use of things” (emphasis omitted)).

²¹ See, e.g., Henry E. Smith, Response, *Mind the Gap: The Indirect Relation Between Ends and Means in American Property Law*, 94 CORNELL L. REV. 959, 964 (2009) (“[P]roperty’s core is a right to things against the world, which is a rough first cut at dealing with a wide, indefinite, and open-ended set of problems by delegating decisions over the use of property to owners who have better information about it.”). Although Smith makes clear that this delegation to owners is “rebuttable” and that the prerogatives of ownership can yield to important societal interests, *id.* at 964–65, this caveat does not emphasize the degree to which owners need *more* than their delegated sphere of control to realize streams of benefits.

²² See Thomas W. Merrill, *Property as Modularity*, 125 HARV. L. REV. F. 151, 162 (2012) (“Property is like a profit-sharing plan in which 100% of the profits go to the individual profit center, or an incentive compensation scheme in which 100% of the compensation is in stock options.”).

²³ The principle of noninterference is most clearly captured by the simple “keep out” or “keep off” command that is associated with property’s “exclusion strategy.” See, e.g., Henry E. Smith, *Exclusion and Property Rules in the Law of Nuisance*, 90 VA. L. REV. 965, 978–79, 990 (2004). Property law does not rely exclusively on exclusion; it also employs a “governance strategy” to address cross-boundary impacts at a finer grain. See *id.* at 979–80. Nonetheless, the content of that governance is often concerned with addressing interference with an owner’s uses, as in nuisance law. See *id.* at 992–93.

not, by and large, hold isolated, self-contained pieces of property into which they alone feed inputs and from which they alone extract outputs.²⁴ Instead, they own pieces of larger value-production engines that generate various streams of services for themselves and others, and that can be fed, activated, blocked, or diverted by the acts of many other actors.²⁵

Urban land is a prime example. Think of a single-family home on a large lot in a major city. Its value and the services that it can deliver to its occupants depend not only on what the owner does (or fails to do) to maintain the place, but also on innumerable off-parcel decisions by other public and private actors—neighbors, local businesses, school and park districts, zoning and transit authorities, and many more.²⁶ This reality drives a wedge between the owner’s individual decisions and the services that the home delivers, which include not just shelter and privacy, but also a particular neighborhood environment, access to a set of local public goods and services, and proximate opportunities for work, school, transportation, shopping, recreation, and socializing.²⁷ The homeowner’s lack of direct personal control over the content and value of this benefit stream, and the resulting impact on her home’s investment value, carries important implications for her political participation.²⁸ Asset ownership, even when coupled with noninterference, is insufficient to safeguard the owner’s desired stream of residential benefits.

Where PATO concerns itself with how law defines and protects things as containers for owners’ endeavors, PASS looks to see what benefits these resources are streaming. This move shifts our attention from the control of things to the production of services. It pushes us to ask questions about the forces—both within and beyond the owner’s control—that enable or inhibit the services the resource is now streaming or that it might be capable of streaming. Those questions are largely suppressed in a PATO conceptualization, in which property’s primary task is to secure owners a

²⁴ See Gaffney, *supra* note 9, at 58 (“Self-containment within the city is a contradiction.”).

²⁵ See, e.g., Fennell, *supra* note 16, at 1495–96 (observing that the consumption stream associated with rights in land “is fed and diverted by acts undertaken by many parties both on and off the parcel”).

²⁶ See LEE ANNE FENNEL, *THE UNBOUNDED HOME: PROPERTY VALUES BEYOND PROPERTY LINES* 25–26 (2009) (noting the degree to which a home’s meaning and value depend on off-site factors).

²⁷ See *id.* at 26–30; Lee Anne Fennell, *Property in Housing*, 12 *ACADEMIA SINICA L.J.* 31, 34–36 (2013) (describing the components of the housing bundle).

²⁸ See WILLIAM A. FISCHER, *THE HOMEVOTER HYPOTHESIS: HOW HOME VALUES INFLUENCE LOCAL GOVERNMENT TAXATION, SCHOOL FINANCE, AND LAND-USE POLICIES* 1–18 (2001) (arguing that the dominance of the home in homeowners’ portfolios drives their political participation, given their inability to insure against property value loss).

zone of noninterference in which to pursue their various (unspecified) ends.²⁹ Delegating the specifics of resource use to an owner may still be a useful strategy, but that does not make service streams a matter of societal indifference, especially when the polity's fingerprints are all over the taps that determine what services resources can stream, and to whom.³⁰

To critique PATO is not to suggest that ownership claims on resources or objects are irrelevant. Thing ownership can be understood as a kind of transferable subscription, good for the life of the object, to whatever services the object is actually able to stream. The option to consume or otherwise employ those services, which persists throughout the entire period of ownership, strongly shapes how property is experienced by owners. Yet, importantly, the value of this option is not entirely under the owner's control. Just like the value one derives from a subscription to a periodical depends on the content that authors and editors supply over time, so too one's actual benefits from a given object or parcel depend on the ongoing inputs that others provide. Ownership, by this account, amounts to an enduring stake in as-yet-unproduced benefit streams.

Like other stakeholders, owners have an intense interest in the decisions that help their assets generate returns for them.³¹ This makes ownership political as well as personal, and makes property a matter of public law rather than just a private law subject.³² PASS can better account for these public and political aspects of ownership than can PATO, which conceptually foregrounds and ring-fences the privately owned asset as if it were a self-contained factory for producing benefits. The next Section examines the way in which collective choices about complements—including but not limited to noninterference—shape ownership.

B. Complements and Politics

The PATO vision focuses on the owner's right to control objects and assets, primarily through exclusion. Yet this exclusion-backed control can,

²⁹ Indeed, property's opacity is deemed to be a feature, not a bug—one that simplifies the information environment for nonowners, who need not know what an owner is doing on her property to obey the simple command to stay off. *See, e.g.,* Henry E. Smith, *Community and Custom in Property*, 10 THEORETICAL INQUIRIES L. 5, 16–18 (2009).

³⁰ *See supra* note 7 and accompanying text.

³¹ This point is perhaps most obvious in the case of homeownership, in which the value of one's claim is largely determined by the acts of others, and one's stake typically represents an outsized share of one's personal wealth. *See generally* FISCHER, *supra* note 28.

³² *See, e.g.,* Lee Anne Fennell, *Property as the Law of Complements*, in RESEARCH HANDBOOK ON PRIVATE LAW THEORY 155, 156 (Hanoch Dagan & Benjamin C. Zipursky, eds., 2020) (noting that property is a matter of both public and private law); Roderick M. Hills, Jr. & David Schleicher, *Planning an Affordable City*, 101 IOWA L. REV. 91, 134–35 (2015) (calling for greater integration of property's public and private law facets).

at most, preserve the physical integrity of the object or parcel; it cannot enable or protect the flow of services that the owner cares about. Dominion over resources only seems to do these things if we take for granted the provision of a set of complementary goods and services that lie outside the owner's individual control. These complements are often the product of political choices with unacknowledged distributive consequences. One category of complements—noninterference—hides in plain sight within the structure of property rights.³³ But owners also continually make affirmative claims on their communities in order to enjoy resource streams.³⁴

Owned assets—even quite mundane ones—rely on a batch of complements to stream beneficial services. For example, a toaster can provide toasting services only if there is electricity available to power it, a stretch of countertop to support it, and a medium like bread to carry out the toasting on.³⁵ A bed or bedroll provides sleeping services only if one also has access to enough real estate to situate it in a reasonably horizontal position, an ambient noise level low enough to permit sleep, and suitable weather protection.³⁶ A car provides a stream of transportation services, but only if there are roads available on which to drive it, gas stations (or charging stations) for powering it, a place to put it when not in use, a driver with sufficient skill to pilot it, and a regulatory regime that supports all of this activity.

We do not think about these necessary complements if regular access to them is a presumptive feature of the context in which one acquires a given asset; they disappear into the background, like the air we breathe. Nonetheless, law and policy are constantly supplying them, or the means to obtain them. Conversely, if essential complements are persistently and continually absent, they *also* disappear, preventing us from even imagining

³³ See *supra* note 23 and accompanying text. There is no inconsistency between viewing noninterference as a complement to asset possession and understanding it as integral to ownership itself. As Henry Smith has observed, property rights are designed to group together complementary attributes in the hands of an owner. See, e.g., Henry E. Smith, *Economics of Property Law*, in 2 THE OXFORD HANDBOOK OF LAW AND ECONOMICS: PRIVATE AND COMMERCIAL LAW 148, 153 (Francesco Parisi ed., 2017).

³⁴ Not only must property rights be affirmatively enforced through the coercive power of the state, their value also depends on a wide array of publicly provided goods and services. Scholars have noted the connections between these points and tax policy. See, e.g., STEPHEN HOLMES & CASS R. SUNSTEIN, *THE COST OF RIGHTS: WHY LIBERTY DEPENDS ON TAXES* 59–66 (1999) (examining the dependence of property rights on taxes); LIAM MURPHY & THOMAS NAGEL, *THE MYTH OF OWNERSHIP: TAXES AND JUSTICE* 8–10 (2002) (emphasizing the role of the tax system in constructing property rights).

³⁵ See, e.g., Benkler, *supra* note 7, at 1534–38 (detailing the many interactions with commons resources and infrastructure that a typical Wall Street trader would face in an average day, including using electricity to make her morning toast).

³⁶ See Jeremy Waldron, *Homelessness and the Issue of Freedom*, 39 UCLA L. REV. 295, 296 (1991) (noting the need to access real property in order to carry out basic human functions, including sleeping).

the alternatives that they might activate. PASS directs attention to missing as well as omnipresent complements and makes manifest the expectations that law generates with respect to them—as well as the often politically constructed and contingent nature of those expectations.

Consider the expectations regarding the right to exclude that are central to popular understandings of real property. Although reflexively assumed to have a long and august lineage, the idea that ownership entails the right to wholly exclude everyone else has little basis in historical fact.³⁷ Exclusion and other forms of enforced noninterference amount to political decisions to supply what are often quite socially costly complements to an owner's assets.³⁸ To assert that these are fundamental attributes of ownership merely begs the question; the extent to which they are part of property's standard operating equipment is itself a political judgment. These complements may be ones that society is justified in providing in particular contexts, but that conclusion should not simply be assumed, nor the costs of doing so ignored.

Of course, legally enforced noninterference is only partially provided through exclusion rights in property boundaries.³⁹ It also takes the form of direct restrictions on the activities of other people, including other property owners. These limitations secure complements for certain uses that property owners wish to undertake. Zoning, for example, transfers to the community some of the property rights previously held by individual owners.⁴⁰ It provides a complement to, say, quiet residential living that saves private owners the cost of self-supplying that complement by buying up large amounts of buffer space or cutting deals with everyone within earshot, viewshed, and smelling distance.

³⁷ See Bethany R. Berger, *Eliding Original Understanding in Cedar Point Nursery v. Hassid*, 34 YALE J.L. & HUMANS. (forthcoming 2022) (manuscript at 3), <https://ssrn.com/a=3926372> [<https://perma.cc/4PYL-FVK8>] (referencing “the numerous and robust rights to enter private property recognized in early American law”). The idea that property ownership entails “total exclusion,” as William Blackstone hyperbolically put it, was not something that even Blackstone believed, as many scholars have pointed out. See, e.g., FORREST McDONALD, *NOVUS ORDO SECLORUM: THE INTELLECTUAL ORIGINS OF THE CONSTITUTION* 13 (1985); Thomas W. Merrill & Henry E. Smith, *What Happened to Property in Law and Economics?*, 111 YALE L.J. 357, 361 (2001); Carol M. Rose, *Canons of Property Talk, or, Blackstone's Anxiety*, 108 YALE L.J. 601, 602 (1998); Berger, *supra*, at 9–11.

³⁸ See, e.g., HOLMES & SUNSTEIN, *supra* note 34, at 61 (“Property rights are costly to enforce.”); Abraham Bell & Gideon Parchomovsky, *The Case for Imperfect Enforcement of Property Rights*, 160 U. PA. L. REV. 1927, 1929 (2012) (emphasizing the moral hazard that may accompany public enforcement of property rights).

³⁹ See, e.g., Smith, *supra* note 23, at 979–80 (discussing “governance” as an alternative strategy to exclusion).

⁴⁰ Zoning thus creates “collective property rights” that are held by the community, rather than by individual landowners. ROBERT H. NELSON, *ZONING AND PROPERTY RIGHTS: AN ANALYSIS OF THE AMERICAN SYSTEM OF LAND-USE REGULATION* 1, 15–18 (1977).

Such a regulatory intervention presumably grants homeowners something that they value: the complement of peace and quiet, which allows them to stream a certain quality of residential life. But restrictions on land use also deprive owners of regulatory complements that would enable them to stream more dense uses from their properties, such as a duplex or apartment building in an area zoned for single-family homes. These restrictions also alter the political calculus for supplying public goods that would complement different uses. For instance, convenient and welcoming public parks serve as complements to small dwelling units that lack yards of their own, but because they are also substitutes for backyards that are incorporated into owned residences, they are likely to be undersupplied in regulatory regimes that are oriented around supporting single-family residences on large plots of land.

Thus, claims to things often translate into political claims to the complements that enable those assets to stream value—a fact that the PATO view both downplays and implicitly depends upon. Because people tend to equate possession of a resource container with a right to enjoy the stream of benefits that the resource can produce, container possession occupies an outsized role both in setting expectations and in creating the political will to fulfill them. That linkage can present both difficulties and opportunities for addressing inequality. During the COVID-19 pandemic, for example, political will coalesced around efforts (imperfect though they have been) to keep tenants from being evicted from their homes.⁴¹

Recognizing the role that control of assets plays in generating expectations and solidifying political power is important from two perspectives. First, it demonstrates how access to resources can leverage claims on the complements that enable those resources to stream benefits. Second, it lays bare the distributive consequences of this practice and provides a blueprint for addressing them. Channeling the power of physical assets by putting resource containers into the hands of more people is one approach; repackaging streams of benefits into asset-like formats is another. Changing our understanding of entitlements to one aligned with PASS illuminates these and other possibilities.

⁴¹ Responses included eviction moratoria and emergency rental assistance. *See, e.g.*, Temporary Halt in Residential Evictions to Prevent the Further Spread of COVID-19, 85 Fed. Reg. 55,292 (Sept. 4, 2020); *Emergency Rental Assistance Program*, U.S. DEP'T OF THE TREASURY, <https://home.treasury.gov/policy-issues/coronavirus/assistance-for-state-local-and-tribal-governments/emergency-rental-assistance-program> [<https://perma.cc/4EH6-FYST>]; *COVID-19 and Changing Eviction Policies Around the Nation*, EVICTION LAB (Mar. 19, 2020), <https://evictionlab.org/covid-eviction-policies/> [<https://perma.cc/G8F3-JMZZ>] (collecting information on federal, state, and local policies).

II. IMPLICATIONS FOR INEQUALITY

The discussion to this point has suggested that it is both conceptually useful and normatively significant to understand property in terms of the services that resources provide. In this Part, I consider three implications of the PASS reframing for addressing inequality through property law. The first relates to the opportunity costs of blocking or squandering streams of resource services. The second involves the relationship between streams and assets, and the potential work that toggling between these modalities might perform. The third speaks to the evolving and plural nature of resource services, and the need for property systems to adapt in order to capture the most valuable service streams.

A. Blocked and Squandered Streams

Think again of a single-family home on a large lot in a booming city. We have already noted that the value of the residential services this property provides depends on many decisions and conditions occurring outside of the parcel. But another problem becomes apparent once we turn our attention to the parcel of land itself. A well-located urban parcel could supply premium spatial services—that is, proximity to the most productive workplaces and to other amenities—to multiple households, not just one, if the single-family home were replaced with multifamily housing. The spatial services associated with this plot can be visualized as an open fire hydrant that is gushing out a powerful stream while the owner stands by with a paper cup, capturing a tiny share of those services with her single-family dwelling. Yet the opportunity costs of this arrangement are never directly experienced by anyone who has the power to alter it.⁴²

That observation might seem surprising: after all, property's architecture is meant to induce the owner to optimize or suffer the consequences. Conventionally understood, land ownership confers on owners the right to freely choose among land uses, selecting the one that maximizes returns. But this is an oversimplification. In nearly all sizable cities in the United States, zoning restrictions withdraw a necessary complement—regulatory permission—to engage in many land uses; private covenants may further restrict the owner's available alternatives. Beyond that, many uses would require a larger scale of ownership than can feasibly be assembled or a smaller scale of ownership than is possible given existing infrastructure. For example, subdividing a large tract into many small lots

⁴² See James Buchanan, *The Economics and Ethics of Idleness*, 60 AM. J. ECON. & SOCIO. 181, 191 (2001) (observing that “perhaps the most serious distortions in incentives are to be located in the failure of effective decision-makers on resource use to be confronted with relevant opportunity costs”).

might require not only regulatory approvals but also changes to streets, sewers, or the water supply that would require the buy-in of other actors. Even devoting one's property to conservation may seem pointless unless one's holdings are large or one can coordinate with owners of other parcels to create a contiguous habitat patch or a linear wildlife corridor.⁴³

In short, no individual property owner can optimize her property's service stream on her own. For one thing, her parcel is typically just one small part of a larger pattern of potentially complementary land uses that would gain value in combination. Some of the services that land provides depend on attributes and features of the land itself (habitat, shade, water) or on its position relative to other (relatively) fixed features (a hilltop for viewing the surrounding valley, or an ocean-view lot). But many other services depend only on a given parcel's spatial positioning relative to other uses and amenities that are themselves mutually dependent on *their* relative positioning. This makes a great deal of land use, especially in urban areas, a matter of co-location.⁴⁴ And co-location, by definition, depends on private or collective decisions beyond those of the individual landowner.

Collective decisions also limit the prospects for spatial optimization on the parcel itself. If an owner's lot is legally restricted to single-family use, for example, she lacks the right to develop housing at higher densities. Nor is she typically clamoring for it in the political arena. With her single-family home in place, she benefits from the artificial constraints on housing supply that the government imposes when it withholds the right to develop from her neighbors. The parties who lose out—the families who cannot locate in the city because there is no affordable housing—are not part of the local political picture and have no way to coordinate with each other.⁴⁵

The story is a familiar one, but it is often cast as a conflict between incumbent residents and newcomers. Yet seeing that incumbent owners

⁴³ The value of the habitat services that conserved land can provide depends in part on its shape, size, and contiguity. See, e.g., Jonathan Remy Nash, *Trading Species: A New Direction for Habitat Trading Programs*, 32 COLUM. J. ENV'T L. 1, 20–25 (2007); Lynne Gilbert-Norton, Ryan Wilson, John R. Stevens & Karen H. Beard, *A Meta-Analytic Review of Corridor Effectiveness*, 24 CONSERVATION BIOLOGY 660, 667 (2010).

⁴⁴ See Lee Anne Fennell, *Co-Location, Co-Location, Co-Location: Land Use and Housing Priorities Reimagined*, 39 VT. L. REV. 925, 925–28 (2015); Lior Jacob Strahilevitz, *Co-Location Covenants*, U. CHI. L. REV. ONLINE (Mar. 30, 2020), <https://lawreviewblog.uchicago.edu/2020/03/30/co-location-covenants-by-lior-jacob-strahilevitz/> [<https://perma.cc/7UV3-CD2C>] (noting “the interdependence of residential location choices” and proposing a “co-location covenant” as a mechanism for inducing mobility in certain contexts).

⁴⁵ See Roderick M. Hills, Jr. & David Schleicher, *Building Coalitions Out of Thin Air: Transferable Development Rights and “Constituency Effects” in Land Use Law*, 12 J. LEGAL ANALYSIS 79, 108–12 (2020) (characterizing these political dynamics as “constituency effects” and describing their impacts on land development).

actually lack a complementary good that could lead them to a different conclusion about the best use of their own land—i.e., development rights—revises this account.⁴⁶ Changes in zoning laws now afoot in some jurisdictions have made inroads into the dominance of the single-family home not by simply allowing nearby development to be unilaterally imposed by others, but by actually granting single-family homeowners the reciprocal right to develop their own properties more intensively. For instance, recent legislation in Oregon allows duplexes and certain other multifamily housing units on lots previously zoned for single-family homes.⁴⁷ Now there is an opportunity cost for the single-family homeowner who currently captures only a fraction of the spatial services that her lot can legally provide. The spewing hydrant has become visible.

Owners may still have too little incentive to optimize the services their properties generate. But, counterintuitively, some of the problems of property inequality might be best addressed not by blaming incumbents for their efforts in the political arena to secure complements to their existing uses, but by granting them complements that would enable them to alter those existing uses. A similar point has been made in the context of parking on public streets adjacent to private property: owners might behave better in stewarding this resource if they were granted explicit rights to control the parking (and to benefit from renting the space to others) than when they have only informal *de facto* rights that lead them to behave territorially.⁴⁸ Addressing exclusionary zoning by “going big” through regional governance that sidesteps local politics is often proposed, but another strategy would be to “go small” by granting stakes to the landowners themselves and their immediate neighbors.⁴⁹

⁴⁶ See SAMUEL HUGHES & BEN SOUTHWOOD, POL’Y EXCH., STRONG SUBURBS: ENABLING STREETS TO CONTROL THEIR OWN DEVELOPMENT 23 (2021), <https://policyexchange.org.uk/wp-content/uploads/Strong-Suburbs.pdf> [<https://perma.cc/6ND6-EKRR>] (describing as “profoundly mistaken” the view that “the interests of those who already own homes are fundamentally opposed to the interests of those who do not” and ascribing this mistaken belief to “a defective system, which excludes existing communities from the benefits of development while imposing on them its adverse effects”).

⁴⁷ H.B. 2001, 80th Leg. Assemb., Reg. Sess. § 2 (Or. 2019). For analysis of the bill’s success, see Michael Andersen, *Eight Ingredients for a State-Level Zoning Reform: Lessons from Oregon’s House Bill 2001* (Lincoln Inst. of Land Pol’y, Working Paper No. WP21MA2, 2021), <https://www.lincolinst.edu/publications/working-papers/eight-ingredients-state-level-zoning-reform> [<https://perma.cc/S663-WE6H>].

⁴⁸ See DONALD C. SHOUP, THE HIGH COST OF FREE PARKING 434–40 (2005).

⁴⁹ See, e.g., HUGHES & SOUTHWOOD, *supra* note 46, at 21 (proposing “allowing streets to agree by supermajority on design rules to allow buildings with more storeys that use more of their plots” (emphasis omitted)); *id.* at 38–61 (offering a detailed version of this proposal); JOHN MYERS, HYPERLOCAL ZONING: ENABLING GROWTH BY BLOCK AND BY STREET 5 (2021), <https://www.manhattan-institute.org/hyperlocal-zoning-enabling-growth-block-and-street> [<https://perma.cc/LYL7-6FAS>] (“If

Solving the problem of blocked and squandered resource service streams requires more than aligning incentives to develop individual plots of land. The ability of resources to stream useful services depends on how those resources are combined and configured at larger scales. For instance, making the most of an urban area often requires assembling complementary uses at the block, neighborhood, or community level. Legal restrictions are not the only obstacles in the picture, although they are ubiquitous and highly consequential ones. The separate private ownership stakes of multiple landowners can also serve as an impediment to the resource services that might be provided by a larger scale or differently configured development.⁵⁰

The costs of current arrangements are not just misallocated but effectively rendered invisible by our current framing of property rights, which does not reflect the ongoing consumption associated with holding property idle, or in less beneficial uses.⁵¹ A PASS reframing can make those costs visible.⁵² To be clear, optimizing property service streams does not mean using all property at maximum intensity in all contexts. The resource services that produce the most value might be ecosystem services of various kinds, which are best streamed by leaving land unused.⁵³ The goal is to create incentives to turn the land into the best service provider it can be.⁵⁴

broad upzoning often fails because the area across which the decision is made encompasses enough people who will likely not benefit from it, the solution is to allow for more localized decision making.”); see also Roderick M. Hills, Jr. & Shitong Qiao, *Land Options for Housing: How New Property Rights Can Break Old Land Monopolies* 70–72 (N.Y. Univ. Sch. of L., Working Paper No. 22-11, 2022), <http://ssrn.com/abstract=4021239> [<https://perma.cc/53AV-9TSC>] (discussing proposals for localized zoning waivers and the challenges of scaling them up). In other words, countering NIMBYism *could* involve granting homeowners more, not less, control over their own (actual) backyards.

⁵⁰ Such dispersed ownership structures have been associated with “anticommons” problems. See, e.g., Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 623, 667–69 (1998) (describing “anticommons property” and discussing its origins in a “thought experiment” introduced by Frank Michelman).

⁵¹ See, e.g., Mason Gaffney, *Land as a Distinctive Factor of Production*, in LAND AND TAXATION 39, 86 (Nicolaus Tideman ed., 1994) (noting the consumption associated with a landowner “preempting the time-slot from others”); Nate Ela, *Property and the Problem of Disuse*, 100 WASH. U. L. REV. (forthcoming) (manuscript at 7–14), <https://papers.ssrn.com/a=4066799> [<https://perma.cc/BTY7-4R8Z>] (observing that property theory overlooks the problem of disuse when it treats nonuse as just another use); see also Oskar Liivak & Eduardo M. Peñalver, *The Right Not to Use in Property and Patent Law*, 98 CORNELL L. REV. 1437, 1455–68 (2013) (noting limits on and justifications for the right not to use one’s property).

⁵² Such visibility can, in turn, support changes in law and norms. See Ela, *supra* note 51, at 33 (“Articulating the social interest in putting things to use lays a basis for the claim that it is anti-social to leave resources disused—and that owners should be obliged not to do so.”). Notably, water rights, which involve literal streams, can be lost through nonuse. See Liivak & Peñalver, *supra* note 51, at 1457–58.

⁵³ See *supra* note 13.

⁵⁴ Of course, what that means may change over time. See *infra* Section II.C.

B. *Toggling Between Solids and Streams*

Reconceptualizing property in terms of the services that resources provide—that is, adopting the PASS view—can transform how we understand both property and inequality. But PATO retains “a grip on the popular imagination,”⁵⁵ one that is psychological and social as well as political.⁵⁶ Thing ownership resonates even with sophisticated property scholars. Michael Heller and James Salzman, for example, worry that a move from owning objects to streaming services will cause us to “lose touch with our neighbors and communities” and “lose aspects of our personhood, [including] a connection with the sacred that many people experience through old-fashioned ownership.”⁵⁷ And Henry Smith has famously advocated viewing property as “the law of things,” pushing back against those who would dismiss thing ownership as an overly simplistic vision of property.⁵⁸

How, then, can streaming compete with the ineffable appeal of owning objects and even actual pieces of the world?⁵⁹ What this Essay hopes to demonstrate is that there is really no choice to be made between owning and streaming—all human value ultimately comes down to streaming resource services, whether or not there is an owned object in the picture. To be sure, one way to maintain and enrich a given service stream is to hold onto the same object for a long time so that its services are fine-tuned to one’s specifications and always at the ready when needed. An owner of a home, car, or kitchen appliance learns all its special quirks and features, can modify it to suit her particular needs, and can seamlessly return to it again and again without facing a learning curve each time. But sustained possession of a given object is not the only way to achieve these objectives. For example, new forms of personalization that make settings, preferences, and interfaces

⁵⁵ Heller, *supra* note 50, at 661.

⁵⁶ See, e.g., BRUCE A. ACKERMAN, PRIVATE PROPERTY AND THE CONSTITUTION 97–103 (1977) (discussing thing-based lay notions of property ownership and how they are impacted by socialization); see also STEPHANIE M. STERN & DAPHNA LEWINSOHN-ZAMIR, THE PSYCHOLOGY OF PROPERTY LAW 9–10 (2020) (discussing research on “psychological ownership”); Jon L. Pierce, Tatiana Kostova & Kurt T. Dirks, *The State of Psychological Ownership: Integrating and Extending a Century of Research*, 7 REV. GEN. PSYCH. 84, 97–100 (2003) (examining cultural influences on the psychological experience of ownership).

⁵⁷ MICHAEL HELLER & JAMES SALZMAN, MINE! HOW THE HIDDEN RULES OF OWNERSHIP CONTROL OUR LIVES 272 (2021).

⁵⁸ Smith, *supra* note 1, at 1691–92; Henry E. Smith, *The Thing About Exclusion*, 3 BRIGHAM-KANNER PROP. RTS. CONF. J. 95, 113–17 (2014).

⁵⁹ See Smith, *supra* note 1, at 1702 (explaining that property’s “exclusion strategy defines a chunk of the world — a thing — under the owner’s control”); Grey, *supra* note 8, at 73–74 (observing that, historically, “property conceived as the control of a piece of the material world by a single individual meant freedom and equality of status”).

portable across objects could make a durable claim on a particular thing less necessary.⁶⁰ Likewise, the ready availability of a given resource service can be assured through pooled resources that can be tapped on demand, if markets are thick and efficient enough to make access reliable and seamless.⁶¹

In short, turning our attention to service streams lets us find multiple ways to fulfill the true object of property—arranging resources to meet human needs. Yet, what if one of those human needs is an engrained desire to own *things*? The previous point, that everything comes down to service streams, does not answer this concern. But it does suggest something very interesting: that our ordinary understandings of property already manage to conceptually transform service streams into what we celebrate as “ownership.” This odd everyday alchemy allows an object or chunk of real estate to stand in for the full set of claims required to enable the asset to stream useful benefits. If we can make this move, then it also seems feasible to synthesize durably ownable “things” out of service streams.⁶²

Redescribing property as service streams demonstrates that service streams can, and do, constitute property—traditional property no less than “new” property.⁶³ Ownership represents a claim on those streams that has historically been, but need not be, anchored by permanent rights to a physical object. That anchoring, far from being essential, obscures inequities, cost misalignments, and waste, as the last Section detailed. Unbundling durable claims from asset ownership, or redesigning entitlements to introduce more fluidity into property holdings, will change what ownership means. Yet casting these changes as consistent with rather than hostile to the idea of ownership is not only possible but likely essential as a political matter.⁶⁴ The

⁶⁰ See, e.g., Lee Anne Fennell, *Property Beyond Exclusion*, 61 WM. & MARY L. REV. 521, 558–60 (2019) (discussing the possibility that technology might reduce the benefits of long-term ownership for goods like cars, and giving the example of “portable profiles that auto-adjust the seats and mirrors and instantly reconfigure touchscreen-based controls to match our preferred arrangement”).

⁶¹ See, e.g., ALVIN E. ROTH, WHO GETS WHAT—AND WHY 101–06 (2015) (noting the role of transaction speed in thickening markets); Davidson & Infranca, *supra* note 15, at 225–32 (examining how urban environments can facilitate more efficient matching through proximity).

⁶² For the malleability of property ownership perceptions and their susceptibility to framing effects, see generally Jonathan Remy Nash & Stephanie M. Stern, *Property Frames*, 87 WASH. U. L. REV. 449 (2010) (showing in an experimental setting that the sense of ownership of a laptop could be weakened by switching from a “discrete-asset” frame to a “bundle-of-rights” frame and by warning participants in advance about possible future limitations on their rights in the laptop).

⁶³ See *supra* note 11.

⁶⁴ Similar considerations may have influenced the way in which Henry George framed his land tax, which he described at some points as equating to public or common ownership of land: “Let the individuals who now hold it still retain, if they want to, possession of what they are pleased to call *their* land. Let them continue to call it *their* land.” HENRY GEORGE, *PROGRESS AND POVERTY* 403 (1912); see

idea of ownership is flexible enough to extend to claims on resource streams that lack enduring connections to specific physical objects.

Further, understanding *inequality* in terms of access to service streams (rather than in terms of assets) opens up new ways of conceptualizing what greater equality might look like and how it might be structured. For instance, improving access to a stable flow of residential services may be a better benchmark for success than increasing the rate of homeownership. Even so, packaging access to services in the form of assets remains psychologically and politically important. Thus, pursuing equity through property requires understanding not only how access streams are currently (imperfectly) embodied in owned assets but also how service streams might be reconfigured into new property forms capable of being durably owned. In other words, we need to see behind the thingness of assets to appreciate what services they are capable of providing, without losing sight of (and while finding ways to replicate) whatever it is that makes thing ownership seem so compelling. We need to see the substantive equivalences that exist between different ways of framing service claims and become adept at toggling between them.⁶⁵

Individuals are not the only ones who gravitate toward thing ownership; governments do as well, with significant implications for social policy. A concrete example appears in recent work by Noah Kazis examining state and local housing assistance. Kazis observes that although the federal government uses both project-based and tenant-based (voucher) strategies, states and cities almost exclusively use project-based assistance.⁶⁶ In his telling, subnational governments prefer buying things (buildings) to taking on streams of obligations (vouchers) because the former represents a tangible, up-front commitment capable of weathering fiscal cycles.⁶⁷ As he explains, “The durability of housing allows subnational governments to

John Pullen, *Henry George's Land Reform: The Distinction Between Private Ownership and Private Possession*, 60 AM. J. ECON. & SOCIO. 547 (2001) (discussing a variety of possible interpretations of George's views and the potential role of politics in his choice of framing).

⁶⁵ Jonathan Nash and Stephanie Stern discuss using framing to weaken a sense of ownership in order to pave the way for socially valuable regulation. See Nash & Stern, *supra* note 62, at 457–59. The discussion here makes the converse point, that casting certain service flows as owned assets can increase the degree to which their holders, and society at large, understand them as granting durable and enforceable claims.

⁶⁶ Noah M. Kazis, *The Failed Federalism of Affordable Housing: Why States Don't Use Vouchers*, 120 MICH. L. REV. (forthcoming 2022) (manuscript at 3, 19–28), <https://ssrn.com/a=3914946> [<https://perma.cc/5BKC-N4NL>].

⁶⁷ *Id.* at 36.

smooth out, and lock in, the provision of affordable housing over the fiscal cycle.”⁶⁸

Kazis views this prioritization of project-based assistance as both a “pathology of federalism” and “a savvy adaptation” to political realities on the part of states.⁶⁹ It also underscores the need for creativity in designing mechanisms that would open up a larger slate of housing assistance alternatives. Here, we might consider how to confer on households a portable entitlement to be adequately housed that is durable, tangible, and enforceable.⁷⁰ Properly designed and framed, such an entitlement could work exactly like a hard unit of housing in granting people access to an ongoing stream of residential services—and committing the government to keeping the tap open.

The role of government-supplied complements in activating *all* residential service streams bears emphasis here. From tax policies like the mortgage interest deduction, to transit and other infrastructure choices, to development decisions that determine whether fresh food will be readily available in a given neighborhood,⁷¹ the government influences the value of everyone’s residential service streams. Distributive consequences flow from innumerable hidden subsidies and political decisions that interact with owner-occupied housing units, no less than from low-income “housing assistance.”⁷² Accordingly, we should not think of the home, the font of residential services, as limited to or exclusively defined by a specific piece of housing stock. Instead, a useful notion of home must attend to the demands of co-location and encompass proximate complementary uses and amenities.

This shift in perspective suggests a radically revised understanding of “homeownership”—one that is more inclusive, flexible, and descriptively accurate than an ownership claim over a physical housing unit. Charles Reich ended *The New Property* with a call for a “Homestead Act for rootless twentieth century man.”⁷³ Now well into a twenty-first century marked less

⁶⁸ *Id.* at 37. Project-based housing is also a more visible and salient way to deliver assistance in a world where most eligible families receive no housing assistance at all. *See id.* at 47 (“It is easier to notice the new affordable housing complex than the difference between a ten-year voucher waitlist and an eleven-year waitlist.”).

⁶⁹ *Id.* at 6, 39.

⁷⁰ *See id.* at 51 (“[S]tates’ current approach to rental assistance makes clear that an *entitlement* to tenant-based assistance is warranted.”).

⁷¹ I thank a participant in the Symposium for a question raising this example.

⁷² For an overview of federal low-income housing assistance, which provides benefits to only roughly one in four eligible families, see Robert Collinson, Ingrid Gould Ellen & Jens Ludwig, *Reforming Housing Assistance*, 686 ANNALS AM. ACAD. POL. & SOC. SCI. 250, 251–53, 270 (2019).

⁷³ Reich, *supra* note 11, at 787.

by rootlessness than by undue stickiness in land uses and housing arrangements,⁷⁴ the core problems of racial and economic injustice and their stultifying effects on human potential remain with us. Ownership, reconceived as service streams, offers a way forward. We should strive to become a nation of homeowners, but not in the sense usually intended by that phrase. Instead, we should seek to become a nation of what we might call “home rights holders”—people who own secure rights to robust residential streams conducive to human flourishing, ones that need not be anchored to occupant-owned pieces of real estate in fixed geospatial locations.⁷⁵

C. Changing Streams

Thinking about property in terms of the services that assets provide has a further implication: it highlights the fact that the services people want and need from resources can change over time. This is especially true in the case of land, which is capable of providing a seemingly endless array of possible services. Yet because landowners lack the complements necessary to initiate and execute many changes in their property’s service flows, land often remains mired in suboptimal existing uses. The resulting inertia represents a major source of opportunity costs, which often go unacknowledged. To do better would require not just recognizing the more valuable uses that land might provide, but also giving those who manage the land’s services both the right incentives and some coordinating mechanism capable of putting together all the pieces—ownership interests, regulatory permissions, and public goods—that are necessary to bring those more valuable uses about. As long as property is viewed in terms of ownership of objects, these forgone service flows are difficult to spot, much less address.

Today, two categories of resource services are especially important and either chronically undersupplied or at continual risk of being so: the spatial services that land can provide in urban areas, and the ecosystem services that natural resources can provide.⁷⁶ Both depend on the supply of politically contingent complements. A model of property that fragments control over whether these services can be provided—and, indeed, whether their absence will even be noticed—cannot respond to our most pressing modern

⁷⁴ See David Schleicher, *Stuck! The Law and Economics of Residential Stagnation*, 127 YALE L.J. 78, 81–83, 114–17 (2017).

⁷⁵ A new term is necessary because “homeownership,” despite its aptness, has a specific and longstanding meaning that cannot be readily revised. Nonetheless, we could begin to use the phrasing of “house ownership” or “housing unit ownership” to designate fee ownership of real property, leaving room for the idea that owning rights to a *home*—a durable claim on residential services—need not entail owning land or a physical structure.

⁷⁶ See *supra* notes 12–13 and accompanying text.

challenges. Those challenges include climate change and problems of habitat and species loss, on the one hand, and problems of housing unaffordability, inequality, and unremediated historic injustice, on the other. Neither set of problems can be solved without rethinking how real property and other natural resources deliver services.

The ecosystem services approach attempts to make clearer the opportunity cost associated with different forms of environmental degradation by placing the value that conservation efforts could provide on a par with other productive activities undertaken using land and other natural resources.⁷⁷ Ecotourism offers one potential channel through which conservation efforts might generate economic returns capable of competing with extractive uses.⁷⁸ But the idea extends more broadly. We can view landowners as potential cultivators not only of traditional agricultural crops like bushels of potatoes or bales of hay, but also of specific, ecologically beneficial outputs like gallons of clean water or discrete units of species preservation.⁷⁹

Owners cannot be expected to make optimal resource choices if markets reward them for only some of the services that their assets can produce, such as those associated with extractive industries, and not others that are of equal or greater societal value. One approach involves finding a way to pay people for *all* of the valuable outputs that their land can produce. On the other side of the ledger, landowners might be charged for the full costs of the resource decisions they make.⁸⁰ These approaches can be combined. For example, one

⁷⁷ See, e.g., HELLER & SALZMAN, *supra* note 57, at 241–46 (discussing programs that pay landowners for providing various ecological services, including clean water and habitat preservation).

⁷⁸ See Ruhl, *supra* note 13, at 309 (listing cultural services, including recreation, as a category of ecosystem services). Of course, there are plenty of ways that ecotourism can go awry. See, e.g., J. Edward Taylor, George A. Dyer, Micki Stewart, Antonio Yunez-Naude & Sergio Ardila, *The Economics of Ecotourism: A Galápagos Islands Economy-Wide Perspective*, 51 ECON. DEV. & CULTURAL CHANGE 977, 993 (2003) (observing that “tourism may create incentives either to conserve or to exploit the natural resource base” and concluding that their “findings point to difficult trade-offs between the objectives of preserving fragile ecosystems and insuring the participation of locals in the economic benefits of nature tourism”).

⁷⁹ See, e.g., HELLER & SALZMAN, *supra* note 57, at 244 (“We don’t think twice about paying for potatoes or coal attached to land, so why not pay farmers for improved water quality?”); Donald L. Hey & Paul G. Heltne, *Thinking Like a River: A Riverine National Park for the Upper Mississippi River*, 68 ECOLOGICAL ENG’G 8, 12 (2014) (describing an environmental approach called “‘nutrient farming’ because of its analogies to conventional farming: rather than growing corn or soy beans on the floodplain, the nutrient farmer ‘grows’ native wetland biotic systems . . . ‘harvests’ nitrogen [and] phosphorous, and detoxifies other contaminants”).

⁸⁰ These are two sides of the same coin. A resource choice with unwanted impacts on others might be framed in terms of failing to provide a positive externality, or, alternatively, in terms of generating a negative externality. See, e.g., A. C. PIGOU, *THE ECONOMICS OF WELFARE* 184 (4th ed. 1932) (observing that “resources devoted to the prevention of smoke from factory chimneys” provide an “uncompensated

proposed approach to preservation, “nutrient farming,” would involve new markets that could, for example, charge corn farmers for the fertilizer runoff they produce by requiring them to purchase “nitrogen credits” from other farmers who cultivate wetlands.⁸¹

There are some difficulties operationalizing this approach. As already noted, there may be issues of scale that require assembling resources from multiple owners. Moreover, the many parties who benefit from ecological goods are typically widely dispersed and much harder to collect from than purchasers of corn or potatoes.⁸² In addition to new forms of ownership capable of recognizing compensable rights in ecological service streams, then, we also need innovative mechanisms for harnessing collective action.

A recent example of experimentation along these lines involved the preservation of habitat for the bobolink, a songbird whose nesting season overlaps with the haying season of farmers.⁸³ Because haying disrupts nesting, with catastrophic results for the next generation of bobolinks, a nonprofit group experimented with contracts that would pay the farmers to delay their haying.⁸⁴ The contracts were funded with different versions of “provision-point mechanisms” in which donors made contributions that would be returned unless they reached the threshold necessary to fund a particular contract with a given farmer.⁸⁵

The underprovision of spatial services in urban areas is a problem that is easier to solve in some ways and more difficult in others. Once landowners possess the right to develop their properties at higher densities, or to sell them to developers who will do so, market incentives should spur development in places where demand for scarce urban space exceeds supply. But obtaining the necessary rights to carry out this densification can be quite challenging,

service[.]” while the smoke itself “inflicts a heavy uncharged loss on the community”). Whether actors are paid for positive externalities, charged for negative ones, or some combination of the two, the goal is to make the differences in private payoffs track the differences in social payoffs. *See id.* at 183–203.

⁸¹ *See* Donald L. Hey, Laura S. Urban & Jill A. Kostel, *Nutrient Farming: The Business of Environmental Management*, 24 *ECOLOGICAL ENG'G* 279, 284–85 (2005).

⁸² Put another way, because ecological services are public goods, which are nonrival and nonexcludable, they are prone to free-rider problems. *See, e.g.*, RICHARD CORNES & TODD SANDLER, *THE THEORY OF EXTERNALITIES, PUBLIC GOODS, AND CLUB GOODS* 6–7 (1986) (outlining the characteristics of public goods); RUSSELL HARDIN, *COLLECTIVE ACTION* 20 (1982) (noting difficulties in getting people to pay for goods from which they cannot be excluded).

⁸³ *See* Stephen K. Swallow, Christopher M. Anderson & Emi Uchida, *The Bobolink Project: Selling Public Goods from Ecosystem Services Using Provision Point Mechanisms*, 143 *ECOLOGICAL ECON.* 236 (2018).

⁸⁴ *See id.* at 239, 242–45.

⁸⁵ *Id.* at 240; *see also* Ian Ayres, *Voluntary Taxation and Beyond: The Promise of Social-Contracting Voting Mechanisms*, 19 *AM. L. & ECON. REV.* 1, 4–5 (2017) (discussing this example and other uses of provision-point mechanisms); Julia Y. Lee, *Gaining Assurances*, 2012 *WIS. L. REV.* 1137, 1147–58 (examining a variety of contingent contracting mechanisms).

because it requires assembling the necessary regulatory complements. That, in turn, requires overcoming the objections of other landowners who might prefer lower density, as well as those of renters and other stakeholders who fear neighborhood change. Complicating matters further, proposed development often draws fire from those alleging that it will harm environmental interests.⁸⁶

Mechanisms for sharing the gains from enhanced resource service flows can help address some of these problems.⁸⁷ More foundational changes in the nature of property holdings could do even more.⁸⁸ But the problems are genuinely difficult ones. The central point worth emphasizing, however, is that the most valuable services that our resources are capable of providing to us are likely to change over time. We cannot make the best use of the resources we have unless we are in a position to both recognize those services and marshal the forms of collective action necessary to bring them about as conditions change. This requires an understanding of property that is nimble and adaptive, one that is actively devoted to optimizing service streams.

How can we improve property's adaptability to meet new challenges? Importantly, the answer is *not* to hold large blocks of real property in reserve as a precautionary measure. Not only is it impossible to know what scale of land use will work best in the future,⁸⁹ it is quite ambiguous whether larger or smaller pieces would be more conducive to any given shift in uses. For example, even if we knew a larger scale use would be optimal in the future,

⁸⁶ For example, allegations of state environmental law violations were the basis for a recent lawsuit against the City of Minneapolis's new land use plan, Minneapolis 2040, which eliminates exclusively single-family zones and permits denser development. *See State ex rel. Smart Growth Minneapolis v. City of Minneapolis*, 954 N.W.2d 584, 586–87 (Minn. 2021) (holding that the complaint's allegations of environmental impacts were sufficient to survive a motion to dismiss). Likewise, the implementation of a state law permitting lot splitting (and hence denser development) was put on hold in Woodside, California after concerns were raised about the impact on mountain lion habitat. *See* Angela Swartz, *Woodside Freezes SB 9 Projects, Citing an Exemption for Mountain Lion Habitats*, ALMANAC (Feb. 2, 2022, 10:25 AM), <https://www.almanacnews.com/news/2022/02/02/woodside-freezes-sb-9-projects-with-town-citing-exemption-for-mountain-lion-habitats> [<https://perma.cc/2ERM-2SQA>]. For an examination of the history of coalitions between homeowners and environmental groups in opposing development, see generally William A. Fischel, *The Rise of the Homevoters: How the Growth Machine Was Subverted by OPEC and Earth Day*, in EVIDENCE AND INNOVATION IN HOUSING LAW AND POLICY, *supra* note 9, at 13.

⁸⁷ *See, e.g.*, Hills & Schleicher, *supra* note 45, at 108–17 (examining how transferable development rights might be used to build coalitions supportive of new housing development); Lee Anne Fennell & Julie A. Roin, *Controlling Residential Stakes*, 77 U. CHI. L. REV. 143, 152–71 (2010) (exploring ways to adjust the stakes that homeowners and renters hold in community changes in order to better align their incentives regarding development).

⁸⁸ *See generally* Fennell, *supra* note 16 (discussing the shortcomings of fee simple ownership and proposing new alternatives).

⁸⁹ Larissa Katz, *Red Tape and Gridlock*, 23 CANADIAN J.L. & JURIS. 99, 120–21 (2010) (noting our inability to identify a resource's "ideal use" in advance).

it might be easier for that later configuration to do without a few tiny pieces (assuming perfect contiguity is not necessary or multiple pathways are possible) than it would be to obtain the unanimous cooperation of even a relatively small number of landowners whose larger pieces are all absolutely essential.⁹⁰

Nonetheless, individual landowners may attempt to future-proof their plans by amassing precautionary holdings, a kind of hoarding that spurs others to do likewise and increases the stickiness of land markets.⁹¹ As Mason Gaffney explains, “The composite result of individuals buying for future contingent need is that the market in raw land is turned to glue.”⁹² People rarely hoard ordinary consumption goods in this manner; rather than attempt to create their own storehouses, people simply go to the grocery store periodically and buy what they need as they need it.⁹³ Yet durable goods and real estate alike can be conceptualized as a stockpiling solution that keeps a necessary resource continually on hand. Owning complementary goods that are essential to one’s own production processes is a well-recognized way to stave off hold-up problems.⁹⁴ It is not surprising to see it used as a preemptive solution to potential holdout problems relating to land assembly.

But holding land out of the market for an extended period is enormously costly to society, because it means depriving other people, on a continuing basis, of the opportunity to obtain essential complements to their ongoing projects.⁹⁵ And these costs, which cash out in diminished societal flexibility, are not fully charged to the owner.⁹⁶ It is a little like leaving open a spigot all

⁹⁰ See Lee Anne Fennell, *Lumpy Property*, 160 U. PA. L. REV. 1955, 1970–71 (2012).

⁹¹ See Gaffney, *supra* note 51, at 77 (“When anyone buys and holds for his own future expansion, everyone has to: it is a positive feedback loop of possessiveness run wild.”).

⁹² *Id.* at 78.

⁹³ *Id.* (providing the grocery store analogy). Instances of hoarding do occur occasionally in other markets in response to particular threats or pressures that generate panic—but they are generally regarded as anomalous and regrettable, and not the way that markets are designed to work. For additional discussion of the problem of resource hoarding, see generally Shi-Ling Hsu, *Climate Change, Inequality, and Hoarding* (Feb. 13, 2020) (unpublished manuscript), <https://ssrn.com/abstract=3454913> [<https://perma.cc/PL6X-L7MK>].

⁹⁴ See generally Sanford J. Grossman & Oliver D. Hart, *The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration*, 94 J. POL. ECON. 691 (1986); Oliver Hart & John Moore, *Property Rights and the Nature of the Firm*, 98 J. POL. ECON. 1119 (1990).

⁹⁵ See Gaffney, *supra* note 51, at 78 (“Timely subdivision may be foregone in anticipation of future assembly problems, skipping an entire generation of optimal land use.”); see also LEE ANNE FENNELL, *SLICES AND LUMPS: DIVISION AND AGGREGATION IN LAW AND LIFE* 42–44 (2019) (observing that whatever option value might come from keeping property configured in larger tracts than are currently optimal must be weighed against the lost opportunities of doing so).

⁹⁶ See T. Nicolaus Tideman, *Integrating Land-Value Taxation with the Internalization of Spatial Externalities*, 66 LAND ECON. 341, 347 (1990) (noting the costs in forgone flexibility that landowners can impose). See generally Lee Anne Fennell, *Property and Precaution*, 4 J. TORT L. 1 (2011) (examining the ways in which property entitlements constrain societal flexibility, and exploring alternatives).

day long to save oneself the trouble of turning the tap back on later; meanwhile, the decreased water pressure diminishes everyone else's ability to derive value from the waterworks. For land to reliably stream the most useful services to people, markets in land must themselves be fluid, keeping enough land in enough places "on tap" to meet evolving needs.⁹⁷

How can we achieve this? The answer again comes down to recognizing the opportunity costs of present arrangements and bringing them to bear on parties who are in a position to do something about them. Tax policy offers one route for charging people for the costs of the decisions that they make with regard to resources.⁹⁸ Another tack would involve changes in ownership structure and entitlement design, so that ownership does not come bundled with perpetual veto rights over a specific physical location.⁹⁹

I have written elsewhere about the ossifying effects of fee simple ownership, which extends forward in perpetuity.¹⁰⁰ The PASS view brings the costs of property ossification to the foreground by emphasizing the ways in which misconfiguration can impede service flows. Shifting from PATO to PASS encourages an explicit recognition of property's fluidity—its dynamic and active quality, and its capacity to shape-shift as what we seek from it changes. There is an important perceptual adjustment that comes from moving from solid to liquid metaphors for property.¹⁰¹ Carol Rose once asked what it would mean for property theory if water, not land, were "our chief symbol for property."¹⁰² Jeanne Schroeder also describes property in fluid terms, observing that "[l]iquid property can take on the form of whatever bottle it is poured into, and contemporary property can be reconfigured to fill new legal functions."¹⁰³ Property, on this view, is a lively and even slippery force that interacts continually with law and the

⁹⁷ Gaffney, *supra* note 51, at 78 ("A good land market would . . . keep land on tap for the contingent needs of all, greatly lowering aggregate needs.")

⁹⁸ See, e.g., Buchanan, *supra* note 42, at 190–91 (observing that "[t]he landowner . . . impose[s] costs on others in the economy as he withdraws land from the production of marketable value" and discussing the role of tax policy in aligning incentives). Henry George's land tax, in which well-used land is taxed no more than vacant land, is one way of trying to bring the opportunity costs of underutilization to bear. See *id.* at 182, 187–88; see also Gaffney, *supra* note 9, at 59 ("Taxing land values lubricates the market by making it more costly to hold land in reserve.")

⁹⁹ See, e.g., Fennell, *supra* note 16, at 1480–94 (outlining some approaches to revising the temporal scope and geographic fixity of property rights).

¹⁰⁰ See *id.* at 1468–79 (assessing the architecture of the fee simple and its failure to adapt adequately to changing conditions).

¹⁰¹ See, e.g., Péter D. Szigeti, *A Sketch of Ecological Property: Toward a Law of Biogeochemical Cycles*, 51 ENV'T L. 41, 48 (2021) (urging a shift to understanding property in terms of cycles and flows).

¹⁰² Carol M. Rose, *Property as the Keystone Right?*, 71 NOTRE DAME L. REV. 329, 351 (1996).

¹⁰³ Jeanne L. Schroeder, *Death and Transfiguration: The Myth that the U.C.C. Killed "Property,"* 69 TEMP. L. REV. 1281, 1340 (1996).

environment; it is not a static chunk of the world lodged impassively in an owner's account.

Finding ways to support changes in resource use and scale has never been more important. Thinking about property's value in terms of its capacity to stream services can help make the case for building in reconfigurability. There is indeed something arresting about people's longstanding ties to their land, and something important about the ability to stand on one's rights and say "no" to a proposed change. But making the costs of inflexibility visible while securing meaningful independence to individuals through means other than perpetual control of a particular hunk of earth will allow property to serve us—all of us—better.

CONCLUSION

How can property, a doctrinal field associated with entrenchment and inertia, address a modern problem like inequality? This Essay has suggested that reconceiving property in terms of the services that resources provide is an important first step. The shift in perspective from things to streams makes clear that owned objects or parcels—things—do not provide these services on their own, but rather do so only in the presence of certain complementary goods, services, and conditions. Because these complements are politically mediated and highly contingent, the streams themselves must be understood not as inherent incidents of ownership but rather as artifacts of collective judgments. And these judgments, which determine how and to whom resources can stream services, have important distributive consequences.

Recognizing that value comes from service streams rather than from ownership alone carries a number of important implications that inform the way property can approach inequality. First, owners can block and squander service streams that otherwise might produce more value. The fact that these streams are selectively fed and diverted by public choices makes them more than a matter of private prerogative. Second, the inexorable pull of ownership helps to explain not only why objects are allowed to stand in for service streams in the popular imagination, but also why it might make sense to frame service streams in ownership terms. Third, the resource services that provide the most value to people shift and change over time. By focusing on optimizing streams rather than allocating objects, property can prioritize the reconfigurability necessary to advance human well-being.

