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Inequality in the Sharing Economy

Gregory M. Stein[†]

INTRODUCTION

This article examines the extent to which the rise of the sharing economy may exacerbate existing inequality. It describes the sharing economy and its frequent use of dynamic pricing as a means of allocating scarce resources. It then focuses on three types of commodities—necessities, inelastic goods and services, and public goods and services—and discusses why the dynamic pricing of these three types of commodities raises the greatest inequality concerns. The article concludes by asking whether some type of intervention is warranted and examines the advantages and drawbacks of government action, action by the private sector, or no action at all.

Consumers and providers both benefit from the recent rise of the sharing economy. Consumers can access a wider range of goods and services on an as-needed basis and no longer need to own a smaller number of costly assets that sit unused most of the time. Providers can engage in profitable short-term ventures, working on their own schedules and enjoying many new opportunities to supplement their income.

The sharing economy has exploded as a result of technological advances, particularly the pervasiveness of powerful pocket-sized supercomputers and the ability of intermediaries to process vast amounts of factual information instantaneously. When a prospective rider requests a pick-up from a ride-sharing service, that information is processed by a server that alerts nearby

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drivers, calculates a price dynamically based on ever-shifting supply and demand, and relays pickup information to the requester's smartphone within seconds. As demand for rides surges—when a thunderstorm begins or the Super Bowl ends—the algorithm enables prices to increase correspondingly. While prospective customers might view these sudden spikes as price gouging, the intermediary claims to be practicing capitalism in its purest form by pricing the commodity dynamically.¹ Supply and demand curves always cross somewhere, and the middleman earns its commission by performing its matchmaking services and determining the equilibrium price in real time.

Surge pricing is a dramatic change from the method of establishing charges that prevailed before the advent of smartphones and high-speed data management. Taxi rates are frequently set by a public authority and are calculated almost entirely based on distance traveled and time elapsed, with little effort at pricing rides dynamically in response to shifts in demand.² In addition, some jurisdictions limit the number of taxis that can be on the road.³ At busy times, then, demand for taxis at the fixed price will dramatically outstrip supply, particularly in cities that cap the number of taxis.⁴ In these settings, only those who are both fortunate and capable of paying the fixed price will

¹ This article generally uses the term “commodity” when the subject of a transaction may be either a good or a service. Goods and services are sometimes subject to different legal treatment, as, for example, under Article 2 of the Uniform Commercial Code. See U.C.C. § 2-102 (AM. LAW INST. & UNIF. LAW COMM'N 1977) (limiting application of U.C.C. Article 2 to “transactions in goods”); Stacy-Ann Elvy, *Hybrid Transactions and the INTERNET of Things: Goods, Services, or Software?*, 74 WASH. & LEE L. REV. 77, 104–24 (2017) (discussing uncertainties in the applicability of Article 2 to transactions involving both goods and services).

² See, e.g., N.Y.C. Taxi & Limousine Comm'n, *Taxi Fare*, NYC.GOV, <https://www1.nyc.gov/site/tlc/passengers/taxi-fare.page> [<https://perma.cc/J7JM-JNVC>] (setting forth taxi fares in and around New York City). There are modest exceptions to this statement, such as rush-hour and evening surcharges. *Id.* These added costs are nothing more than rudimentary versions of dynamic pricing. Because they are fixed and not floating, they do not reflect the precise supply and demand at the moment the passenger boards the taxi. Rather, they are rough estimates as to how much demand tends to increase or supply tends to decrease under very specific, predictably recurring conditions.

³ The City of New York, for example, with a population of just under 8.4 million people, plus hundreds of thousands of tourists and daytime commuters, has authorized only 13,587 taxi medallions. See N.Y.C. Dep't of City Planning, *Population – Current and Projected Populations*, NYC.GOV, <https://www1.nyc.gov/site/planning/data-maps/nyc-population/current-future-populations.page> [<https://perma.cc/G5FS-UKU9>]; NYC Taxi & Limousine Comm'n, *Yellow Cab*, NYC.GOV, <https://www1.nyc.gov/site/tlc/businesses/yellow-cab.page> [<https://perma.cc/72DZ-KEWY>].

⁴ Even if off-duty drivers decide to return to work during a thunderstorm, the price will remain fixed. The regulated market allows for increases in supply, but only up to the total number of taxi medallions, and does not permit increases in price.

be able to garner one of the inadequate number of taxis.⁵ In other words, there is a shortage of a necessary service, and the limited available supply is distributed more or less randomly among those who are willing and able to pay.⁶ Everyone else in need of transportation must employ substitutes, by paying for an alternative type of auto ride,⁷ renting a car, hopping on a bus or a subway train, or using one's own two feet. These second-choice alternatives are presumably more costly either in price or inconvenience—walking during a rainstorm is only a partial substitute for remaining dry—and less affluent people are priced out of some portions of the market.⁸

Other service providers, such as sports and entertainment venues, are less subject to regulation, but still largely adhere to archaic pricing models. For instance, prices for movies, concerts, and sporting events have historically been fixed, with price differentials typically based solely on the location of the seat and perhaps the day of the week or time of the year. More recently, some of these providers have begun to dip their toes into the water of dynamic pricing.⁹ Hotels and—especially—commercial airlines have been more advanced in adjusting prices based on how well rooms and seats are selling.¹⁰ But hotel efforts at dynamic pricing seem amateurish and rudimentary in comparison to, say, a typical ride-sharing service, while airline pricing structures are so complex, with so many seat and price categories, that they are difficult to parse. Airlines also face unique security concerns that have led to limits on the transferability of tickets. Many hotel and

⁵ Drivers might also be tempted to impose unauthorized surcharges or to force passengers to share cars with strangers, in effect scalping their own driving services by illegally increasing their take.

⁶ The reverse is also true: During times of excess supply, the price must remain fixed and drivers must be fortunate to find passengers. Those passengers who could afford a taxi only at a lower price are out of luck, even though drivers might be willing to charge less at these times.

⁷ If a ride-sharing company is competing with the medallion taxis, the uptick in demand for taxis will raise prices for ride-shares, which are a close substitute. Some people will opt for the shared-ride alternative, but those who cannot afford the suddenly increased surge price will be unable to. As demand increases, so does the price, which makes this option unaffordable for some.

⁸ For a similar analysis of the allocation of public curbside parking, see Vanessa Casado Pérez, *The Street View of Property*, 70 HASTINGS L.J. 367, 375–78 (2019) (comparing finding a parking spot to capturing a wild animal).

⁹ Some baseball teams, for example, now adjust their ticket prices based on the quality of the opponent. See, e.g., *Red Sox Single Game Ticket Pricing*, MLB.COM, <https://www.mlb.com/redsox/tickets/single-game-tickets/seating-pricing> [<https://perma.cc/YC8E-R5EN>] (identifying five different “tiers” of Boston Red Sox tickets, with prices depending on the visiting team—sorry, Brewers fans!—and the day of the week).

¹⁰ See Tom Chitty, *This Is How Airlines Price Tickets*, CNBC (Aug. 3, 2018), <https://www.cnbc.com/2018/08/03/how-do-airlines-price-seat-tickets.html> [<https://perma.cc/A4GW-WSU2>] (“[W]hat seems random is actually airlines’ dynamic pricing, using a strategy called airline revenue management.”).

airline patrons also have weeks of advance notice in which to monitor prices before making, and sometimes modifying, a purchase, while hailing a local car ride is typically a spur of the moment decision of lower import.

In other words, if a service has a fixed price, such as a taxi fare established by regulation, and purchasers have little time for or interest in employing alternatives, then it is distributed primarily on the basis of chance, such as happening to be standing where a taxi discharges its previous passenger.¹¹ When demand outstrips supply, the shortage will force those who are not fortunate enough to secure a taxi to seek out less desirable options.¹² By contrast, if the service is priced dynamically based on ever-changing supply and demand, such as an Uber ride, a last-minute airline ticket, a street-vendor umbrella in Manhattan, or bottled water after a hurricane, then the price keeps rising until demand drops to the point of supply, and the element of chance is replaced by willingness and ability to pay.¹³ The cost of a dynamically priced good or service is highest when demand is high or supply is low.

This phenomenon is not limited to amenities provided by the private market. The city of San Francisco now uses surge pricing for on-street public parking.¹⁴ London, Stockholm, and Singapore restrict access to their busiest center-city streets

¹¹ There are exceptions to this statement as well. Taxi drivers may prefer passengers who are taking longer trips, which means a reduction in down time without a paying customer, or passengers traveling to livelier neighborhoods, where they may be more likely to pick up a return fare. They may also favor white passengers over passengers of color. See, e.g., Shelby Steele, *Hailing While Black*, TIME (July 30, 2001), <http://content.time.com/time/magazine/article/0,9171,1000422,00.html> [<https://perma.cc/8R9Q-BLZ6>] (“I know I can survive the racial profiling of a cabby. What makes me most nervous is the anxiety that I have wrongly estimated the degree of racism in American life.”); see also Gillian B. White, *Uber and Lyft Drivers Are Failing Black Riders*, ATLANTIC (Oct. 31, 2016), <https://www.theatlantic.com/business/archive/2016/10/uber-lyft-and-the-false-promise-of-fair-rides/506000> [<https://perma.cc/B9VZ-3L6P>] (describing a recent study of Uber and Lyft finding that “black riders faced longer wait times and more frequent cancellations than white riders” and that riders with “black-sounding names” were more likely to face cancellation).

¹² In the short run, they may consult a subway map, while in the long run, they may lobby for the licensing of more taxis.

¹³ For similar reasons, UPS recently instituted surge pricing for deliveries on particularly busy days, such as Black Friday. See Paul Ziobro, *UPS to Add Delivery Surcharges for Black Friday, Christmas Orders*, WALL STREET J. (June 19, 2017), <https://www.wsj.com/articles/ups-to-add-delivery-surcharges-for-black-friday-christmas-orders-1497883509> [<https://perma.cc/AA66-LFDU>].

¹⁴ *How It Works*, SFPARK, <http://sfpark.org/how-it-works> [<https://perma.cc/JC R6-KAMH>] (“SFPark uses demand-responsive pricing to open up parking spaces on each block and reduce circling and double-parking. Rates may vary by block, time of day and day of week.”). See generally DONALD SHOUP, THE HIGH COST OF FREE PARKING xxi–xxiv (2005) (describing San Francisco’s rationale).

during the workday by employing congestion pricing.¹⁵ At their most extreme, these programs increase or decrease fares for road usage based on time and traffic.¹⁶ Some toll roads charge higher prices during peak travel times,¹⁷ and others make lower-traffic lanes available to those willing to pay an upcharge.¹⁸

Do these features of the sharing economy increase existing inequality? The fact that affluent people can afford higher-quality goods and better service is not news, and the fairness or unfairness of economic inequality is not the subject of this article.¹⁹ But commodities formerly had a fixed price that allowed prospective purchasers to budget their money and plan future purchases. Sharing-economy prices are more fluid, which means that goods and services become more costly as they become more essential. This creates greater uncertainty for prospective purchasers, particularly those of more modest means.²⁰

Technological advances exacerbate this problem. Computing power is consistently increasing,²¹ and most adults today carry a powerful mini-computer in their pocket or purse.²² This increases efficiency by allowing for the better use of resources that might otherwise be wasted and permits more precise pricing.²³ But if the

¹⁵ Christina Anderson et al., *3 Far-Flung Cities Offer Clues to Unsnarling Manhattan's Streets*, N.Y. TIMES (Feb. 26, 2018), <https://www.nytimes.com/2018/02/26/nyregion/congestion-pricing-new-york.html> [<https://perma.cc/E8X9-TY4>].

¹⁶ *Id.* (comparing Singapore's and Stockholm's approaches).

¹⁷ *See, e.g., 66 Express Lanes Inside the Beltway*, VA. DEPT' TRANSP., http://www.66expresslanes.org/about_the_lanes/default.asp [<https://perma.cc/Q9NL-B5XY>] ("How Do The Lanes Work? . . . Roadway sensors will monitor traffic volumes. Toll prices will adjust to manage demand for the lanes and keep traffic free-flowing. When there's more traffic, prices will be higher. When there's less traffic, prices will be lower.")

¹⁸ *I-85 Express Lanes (HOT Lanes)*, GA. DEPT' PUB. SAFETY, <https://dps.georgia.gov/i-85-express-lanes-hot-lanes> [<https://perma.cc/75BW-FWPE>] ("Vehicles with fewer than three occupants, including solo drivers, will be able to choose whether to use the general purpose lanes or pay for a more reliable trip in the Express Lanes.")

¹⁹ For an interesting discussion of the degree to which inequality may be biologically inherited, see Lucy A. Jewel, *The Biology of Inequality*, 95 DENV. L. REV. 609, 612 (2018) ("[E]nvironmentally mediated biological effects can . . . be passed down from one generation to the next . . .").

²⁰ *See* Orly Lobel, *The Law of the Platform*, 101 MINN. L. REV. 87, 104 (2016) (noting, in a section entitled, "The Platform Economy: Romantic Utopia or Nightmare Dystopia?," that the platform economy can be hailed either "as the anti-corporate utopian answer to twentieth-century discontentment or an accelerated path to further injustice and inequality").

²¹ Moore's Law, which holds that computing power will continue to double every two years, has held true for nearly fifty years. MOORE'S LAW, www.moorelaw.org [<https://perma.cc/LHJ9-LYN2>].

²² "[A]n iPhone [has] more computing power than all of NASA had during the Apollo days . . ." David Grossman, *How Do NASA's Apollo Computers Stack Up to an iPhone?*, POPULAR MECHANICS (Mar. 13, 2017), <https://www.popularmechanics.com/space/moon-mars/a25655/nasa-computer-iphone-comparison/> [<https://perma.cc/N9E8-LQQ7>].

²³ "A consistent finding across all our counterfactual analyses is that peer-to-peer markets improve consumer welfare. Increases in surplus grow with the fraction of the population that has access to the marketplace and the fraction of supply and demand

resource is both scarce and surge-priced, its cost increases during shortages and rationing is now based on price rather than on chance. Instead of allocating the good based on a ration coupon or good fortune we instead distribute it on the basis of how much prospective buyers can pay.²⁴

When surge pricing is in effect, the charges for finite private commodities, such as lodging, and finite public commodities, such as space for your vehicle on a crowded highway, are less predictable and more prone to spikes. Demand-based pricing systems leave the most price-sensitive consumers less able to procure certain goods and services, some of which are essential, and less able to plan ahead. These pricing impacts may also affect substitutes for the good: There is evidence that an increase in home-sharing via platforms such as Airbnb leads to higher rents and purchase prices for homes.²⁵ As property owners shift to leasing their units to transient occupants via sharing platforms, where they can sometimes earn far more,²⁶ fewer units will be available for permanent residents and prices will rise.²⁷ Residential units are limited, and it is slow and costly to add housing stock.²⁸ But it is also possible that the rise in home-sharing will induce property owners to reuse their existing stock more efficiently, renovating

requests that are fulfilled.” Samuel Fraiberger & Arun Sundararajan, *Peer-to-Peer Rental Markets in the Sharing Economy* 4 (Sept. 10, 2017) (unpublished manuscript), <http://ssrn.com/abstract=2574337> [<https://perma.cc/AH73-YAKR>].

²⁴ This phenomenon, too, is nothing new: During wartime, ration coupons may be resold illegally on secondary markets. A form of scalping takes place, and the market economy defeats well-intentioned efforts to regulate it. But technological advances further enable these practices.

²⁵ Dayne Lee, Note, *How Airbnb Short-Term Rentals Exacerbate Los Angeles’s Affordable Housing Crisis: Analysis and Policy Recommendations*, 10 HARV. L. & POL’Y REV. 229, 234–40 (2016).

²⁶ See, e.g., Zoe Greenberg, *New York City Looks to Crack Down on Airbnb Amid Housing Crisis*, N.Y. TIMES (July 18, 2018), <https://www.nytimes.com/2018/07/18/nyregion/new-york-city-airbnb-crackdown.html?action=click&module=In%20Other%20News&pgtype=Homepage&action=click&module=News&pgtype=Homepage> [<https://perma.cc/2H8G-965U>] (discussing a proposed New York City law that would “prevent landlords and tenants from illegally renting out apartments for a few days at a time to tourists, a phenomenon that the city says has aggravated the housing crisis by making short-term rentals more profitable than long-term leases”).

²⁷ See Kyle Barron et al., *The Effect of Home-Sharing on House Prices and Rents: Evidence from Airbnb* (Jan. 23, 2020) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3006832 [<https://perma.cc/9ZAS-WC5P>].

²⁸ See Candace Jackson, *The New American Dream Home Is One You Never Have to Leave*, N.Y. TIMES (Oct. 13, 2018), <https://www.nytimes.com/2018/10/13/opinion/sunday/real-estate-housing-market-dream-home.html> [<https://perma.cc/8VUY-NM8Y>] (describing new home designs that include separable portions that can be let out on a sporadic basis).

unused or dilapidated units and renting out bedrooms that might otherwise sit idle.²⁹

There are several possible responses to mismatches such as these. One solution is to prohibit surge pricing, as taxi commissions historically have done and as many states used to do with respect to ticket scalping.³⁰ Market pressures limit the effectiveness of this approach at times of peak demand, and illegal ticket scalping was common and hard to police when such rules were in effect.³¹ The private market has attempted to address this problem: Ticketmaster, for example, has experimented with paperless ticketing that makes it difficult to resell at a profit,³² though consumer response has been overwhelmingly negative.³³ Bruce Springsteen took a different approach, setting prices for his recent Broadway show at considerably less than the market would have borne,³⁴ and Kid Rock makes a small number of tickets available at a very modest price.³⁵ Efforts such as these may be doomed to fail. The Super Bowl made five hundred of the least desirable seats available by lottery one year at a bargain rate of \$600. Sixty percent of those tickets were resold within twenty-four hours, some for as much as \$2,000.³⁶

The producers of *Hamilton*, by contrast, have raised box-office prices to the market rate, capturing the full value of the license for the party that created it rather than for an intermediary reseller.³⁷ This solves the scalping problem, but

²⁹ See Erez Aloni, *Capturing Excess in the On-Demand Economy*, 39 U. HAW. L. REV. 315, 316–17 (2017) (distinguishing between sharing that makes use of excess capacity and more traditional commercial activity that does not).

³⁰ See Gregory M. Stein, *Will Ticket Scalpers Meet the Same Fate as Spinal Tap Drummers? The Sale and Resale of Concert and Sports Tickets*, 42 PEPP. L. REV. 1, 20–21 (2014).

³¹ Cf. *id.* at 42–45 (discussing more recent government efforts).

³² *Id.* at 37–40.

³³ *Id.* at 37.

³⁴ Tickets sold initially for \$75 to \$850 but were available on resale websites for as much as \$9,999. Neil Irwin, *Why Surge Prices Make Us So Mad: What Springsteen, Home Depot and a Nobel Winner Know*, N.Y. TIMES (Oct. 14, 2017), <https://www.nytimes.com/2017/10/14/upshot/why-surge-prices-make-us-so-mad-what-springsteen-home-depot-and-a-nobel-winner-know.html?smprod=nytcore-ipad&smid=nytcore-ipad-share> [<https://perma.cc/W5EK-HZSL>] (“[O]ne view of the Springsteen approach is that it is economically irrational. But another is that it is part of a long-term relationship between a performer and his fans.”).

³⁵ Stein, *supra* note 30, at 7–8.

³⁶ Matthew Futterman, *NFL to Charge New York Prices*, WALL STREET J. (Sept. 17, 2013), http://online.wsj.com/article/SB10001424127887324665604579079424146436620.html?mod=wsj_valetbottom_email [<https://perma.cc/5BVA-JLZL>].

³⁷ Michael Paulson, *‘Hamilton’ Raises Ticket Prices: The Best Seats Will Now Cost \$849*, N.Y. TIMES (June 8, 2016), <https://www.nytimes.com/2016/06/09/theater/hamilton-raises-ticket-prices-the-best-seats-will-now-cost-849.html> [<https://perma.cc/RYG5-LTSH>] (describing this as “part of a broader effort to stanch the loss of tens of millions of dollars in potential revenue to scalpers”). The article goes on to note, “A New York Times analysis suggests that resellers are making \$60 million per year on ‘Hamilton’ tickets—money that does not go to the show’s producers, creators or

only by making the ticket exceedingly expensive to the first purchaser and pricing many prospective patrons out of the market from the outset.³⁸ To the extent that restrictions on scalping fail, due either to market pressures or technological work-arounds, the price rises and the producer or intermediary earns more.³⁹ Those unwilling or unable to pay the higher price cannot enjoy the now-costlier service.⁴⁰

Another response to inadequate supply is to offer alternative services to those unable to afford the market price of the primary service. This is particularly important for goods and services that are essential or nearly essential and for commodities traditionally provided by the public sector. Cities can provide mass transit options to those unable to afford the surge price for ride-sharing services.⁴¹ Government can provide monetary or in-kind support to those who cannot afford essential services, as it does with nutritional assistance, housing vouchers, and health care subsidies.

The alternative services might even be funded by part of the fee paid for the primary service, as when highway tolls, gasoline taxes, parking fees, or revenues from congestion-priced streets are used to pay for mass transit improvements.⁴² In this way, users fortunate enough to enjoy the more desirable good or service, who contribute to the shortage, subsidize users of the less desirable substitute. But those who are willing and able to pay the market rate, including the surge rate, may resent subsidizing those who cannot and do not, particularly if more and more users cease to benefit from the public alternative.⁴³ If yesterday's more

employees." *Id.* Note that information on the box office price is not available from the primary source (the box office), which displays only prices for resales; tickets issued by the box office appear to sell out instantly.

³⁸ *Id.* Even *Hamilton* makes a small number of tickets available by lottery for \$10 shortly before each performance. *Ham4Ham Lottery*, HAMILTON MUSICAL, <https://hamiltonmusical.com/lottery/> [<https://perma.cc/8ZEQ-RWFZ>].

³⁹ In settings such as *Hamilton* tickets, the shortage is caused by the fact that supply is incapable of meeting demand.

⁴⁰ Or they may choose to enjoy the ticket themselves while foregoing the potential gain from reselling it.

⁴¹ This option is financially viable only in places with sufficient population density to sustain these public alternatives.

⁴² *See, e.g.*, Emma G. Fitzsimmons, *Uber Hit With Cap as New York City Takes Lead in Crackdown*, N.Y. TIMES (Aug. 8, 2018), <https://www.nytimes.com/2018/08/08/nyregion/uber-vote-city-council-cap.html> [<https://perma.cc/P52C-LG7Z>] (“[New York] Gov. Andrew M. Cuomo, who controls the subway, has said he will push for congestion pricing during the next state legislative session to help pay for an ambitious, multibillion dollar overhaul plan for the subway.”).

⁴³ *See, e.g.*, Emma G. Fitzsimmons, *Subway Ridership Dropped Again in New York as Passengers Flee to Uber*, N.Y. TIMES (Aug. 1, 2018), <https://www.nytimes.com/2018/08/01/nyregion/subway-ridership-nyc-metro.html> [<https://perma.cc/MKZ3-ZTJM>] (“[R]idership dropped for the second year in a row as passengers flee the system for Uber and other ride-hailing services, draining the transit system of badly needed revenue.”);

affluent subway commuters become tomorrow's Lyft passengers, they will oppose surcharges on Lyft rides to support the subway they no longer use.⁴⁴

This article examines whether the rapid growth of the sharing economy, and its concomitant increased use of dynamic pricing, will compound the amount of inequality our economic system already fosters. It argues that, depending on the types of goods or services in question, different levels of market intervention might be necessary to protect those who are negatively affected by increased prices. Part I of this article describes the sharing economy in brief, defines some basic terms, discusses why the sharing economy has blossomed, describes the dynamic pricing that is widely used by sharing platforms, and asks whether this is the fairest method of allocating scarce goods. Part II focuses on necessities, inelastic goods and services, and public goods and services, and discusses why the dynamic pricing of these three types of commodities raises the greatest inequality concerns. Part III turns to the short- and long-run effects of the rapid transition to a sharing economy, examining how less affluent people are likely to fare at first and then later on, as these changes become more firmly woven into the fabric of the economy. Finally, Part IV asks whether some type of intervention is warranted and examines the advantages and drawbacks of government action, action by the private sector, or no action at all.

I. THE SHARING ECONOMY

This Part reviews the characteristics of the sharing economy and discusses the associated rise in the use of dynamic pricing for scarce goods. Next, it describes the benefits of the sharing economy and the ways in which those benefits account for its growth. Finally, it explores some likely future developments in the sharing economy.

A. *Terminology and Characteristics*

The sharing economy—also referred to as the platform, gig, peer-to-peer, access, or on-demand economy—is somewhat

Tracey Lindeman, *Ride-Hailing Is Deepening Social and Economic Inequity in the US*, VICE: MOTHERBOARD (Feb. 10, 2018), https://motherboard.vice.com/en_us/article/wj4n8q/uber-lyft-are-making-public-transit-worse-ridesharing-cities [<https://perma.cc/L6RM-U PRD>] (noting that “the growth of individualized transportation options is cannibalizing public transit—and without good, reliable, vast public transit networks, we’ll never have social and economic equity”).

⁴⁴ See *id.*

of a misnomer.⁴⁵ “Share” is defined as “to participate in, use, or experience in common.”⁴⁶ The word may connote bestowing something without consideration,⁴⁷ as when a child shares their candy with a classmate, where it would be unusual to expect payment.⁴⁸ By contrast, few transactions in the new sharing economy lack consideration.⁴⁹ Widespread use of the term “sharing” within the industry may, at some level, be intended to discourage regulation of the industry.⁵⁰ Former U.S. Secretary of Labor Robert Reich has even labeled the sharing economy the “share-the-scrap” economy.⁵¹

A more accurate name for this new economy might be the “leasing” or, perhaps, “subleasing” or “licensing” economy.⁵² Short-term transactions such as beach rentals used to be brokered by real estate agents and were cumbersome to arrange via phone, fax, and snail mail.⁵³ But Airbnb, founded only in 2008, had more than four

⁴⁵ See Ryan Calo & Alex Rosenblat, *The Taking Economy: Uber, Information, and Power*, 117 COLUM. L. REV. 1623, 1634 (2017) (discussing the vagueness of the term); see also Steven Greenhouse, *The Whatchamacallit Economy*, N.Y. TIMES (Dec. 16, 2016), <https://www.nytimes.com/2016/12/16/opinion/the-whatchamacallit-economy.html?emc=eta1> [<https://perma.cc/LQ2Q-RREK>] (listing several alternative names and discussing the weaknesses and inaccuracies of each).

⁴⁶ AMERICAN HERITAGE DICTIONARY 1127 (2d ed. 1982).

⁴⁷ For examples of new sharing platforms that operate without consideration, see Dave Fagundes, *Why Less Property Is More: Inclusion, Dispossession, & Subjective Well-Being*, 103 IOWA L. REV. 1361, 1383–84 (2018) (giving examples of gratuitous sharing and arguing that these types of transactions can increase subjective happiness).

⁴⁸ Some readers may recall the public service announcement (and earworm) “It’s Nice to Share,” which encouraged children to share. United Church of Christ & The Episcopal Church, *It’s Nice to Share*, YOUTUBE (Nov. 19, 2008), <https://www.youtube.com/watch?v=a3HeyqXESOG> [<https://perma.cc/GC9R-9PEQ>].

⁴⁹ See U.S. FED. TRADE COMM’N, THE “SHARING” ECONOMY: ISSUES FACING PLATFORMS, PARTICIPANTS, AND REGULATORS 10–11 (Nov. 2016), https://www.ftc.gov/system/files/documents/reports/sharing-economy-issues-facing-platforms-participants-regulators-federal-trade-commission-staff/p151200_ftc_staff_report_on_the_sharing_economy.pdf [<https://perma.cc/K4PK-29QS>] [hereinafter FTC, THE “SHARING” ECONOMY].

⁵⁰ See Natasha Singer, *Twisting Words to Make ‘Sharing’ Apps Seem Selfless*, N.Y. TIMES (Aug. 8, 2015), <https://www.nytimes.com/2015/08/09/technology/twisting-words-to-make-sharing-apps-seem-selfless.html> [<https://perma.cc/WDN6-37QM>] (“Against the backdrop of possible regulation, egalitarian-sounding words like ‘sharing’ and ‘partner’ distance start-ups, linguistically at least, from the traditionally regulated industries they seek to displace.”).

⁵¹ Robert Reich, *The Share-the-Scraps Economy*, ROBERTREICH.ORG (Feb. 2, 2015), <http://robertreich.org/post/109894095095> [<https://perma.cc/YH34-TY94>] (“The big money goes to the corporations that own the software. The scraps go to the on-demand workers.”).

⁵² Recognizing the individualized nature of providing and procuring services in the sharing economy, one scholar has suggested calling it the “go-it-alone economy.” Daniel J. Hemel, *Pooling and Unpooling in the Uber Economy*, 2017 U. CHI. LEGAL F. 265, 286.

⁵³ See, e.g., Kellen Zale, *When Everything Is Small: The Regulatory Challenge of Scale in the Sharing Economy*, 53 SAN DIEGO L. REV. 949, 977 (2016) (“While many of the underlying activities occurring in the sharing economy, such as home-sharing and ride-hailing, have existed long before the emergence of Uber and Airbnb, transaction costs previously limited such activities to an ad-hoc or informal basis or within close-knit communities.”).

million listings for short-term stays as of August 2017,⁵⁴ stays that can be booked in seconds with neither the landlord nor the tenant ever having direct contact with another human being.⁵⁵ Those who provide strangers a ride in their car or a bed in their spare room are little more than very short-term landlords or licensors.⁵⁶ New technology and platforms make leases of extremely short duration far more feasible than in the past;⁵⁷ a shared ride, despite the closeness of the setting, might last only five or ten minutes.⁵⁸ We are familiar with residential terms of years, and an Airbnb stay is similar in all but duration.⁵⁹

Some observers, however, argue that the platform economy is a new paradigm.⁶⁰ In this view, the sharing economy falls somewhere between a traditional capitalist model and a new variation of that system that demands a different regulatory approach.⁶¹ Notwithstanding the imprecision of the

⁵⁴ Airbnb has more than seven million listings worldwide. *Airbnb Fast Facts*, AIRBNB (2019), <https://news.airbnb.com/fast-facts/> [<https://perma.cc/JEU2-DATL>]. By contrast, the Hilton family of brands claims to be “one of the largest hospitality companies in the world,” with more than 950,000 rooms. *About Us*, HILTON, <https://www.hilton.com/en/corporate/> [<https://perma.cc/S39J-WHXK>].

⁵⁵ Zale, *supra* note 53, at 977 (“[C]ompanies like Airbnb and Uber facilitate these connections almost instantaneously.”).

⁵⁶ Cf. Walter Isaacson, *How Uber and Airbnb Became Poster Children for the Disruption Economy*, N.Y. TIMES (June 19, 2017), <https://www.nytimes.com/2017/06/19/books/review/wild-ride-adam-lashinsky-uber-airbnb.html> [<https://perma.cc/E8AN-XGF A>] (arguing that the sharing economy can “allow people to make human connections in an era that has become much more institutionalized”).

⁵⁷ Sharing was not unheard of even before the smartphone revolution. Before the advent of laptop computers, it was common for owners of large mainframes to allow users the option to share time with other users, either for a fee or gratuitously. See Yochai Benkler, *Sharing Nicely: On Shareable Goods and the Emergence of Sharing as a Modality of Economic Production*, 114 YALE L.J. 273, 289–96 (2004).

⁵⁸ See Naomi Schoenbaum, *Intimacy and Equality in the Sharing Economy*, in THE CAMBRIDGE HANDBOOK OF THE LAW OF THE SHARING ECONOMY 459, 459–60 (Nestor Davidson et al. eds., 2018) (noting how fears of discrimination have led sharing platforms to make transactions more anonymous and observing that this transition has costs of its own).

⁵⁹ State law typically treats hotel stays and residential leases differently. See, e.g., UNIF. RESIDENTIAL LANDLORD & TENANT ACT § 1.202(4) (UNIF. LAW COMM’N 1974) (excluding transient hotel or motel occupancy from the coverage of the Act). Some short-term arrangements are construed as licenses under state law. JOHN E. CRIBBET & CORWIN W. JOHNSON, PRINCIPLES OF THE LAW OF PROPERTY 240 (3d ed. 1989) (distinguishing leases from licenses and citing cases, while conceding that some of these issues are not completely settled). Hotel stays and licenses share many, but not all, of the characteristics of leases.

⁶⁰ Professor Rashmi Dyal-Chand argues that the platform economy is more of a European-style coordinated market. Rashmi Dyal-Chand, *Regulating Sharing: The Sharing Economy as an Alternative Capitalist System*, 90 TUL. L. REV. 241, 278–88 (2015) (drawing parallels with Germany); cf. John Infranca, *Intermediary Institutions and the Sharing Economy*, 90 TUL. L. REV. ONLINE 29, 31 (2016) (noting that, unlike traditional companies, “[sharing] companies frequently do not own key assets or internalize core functions”).

⁶¹ Dyal-Chand, *supra* note 60, at 247 (“[T]he conceptual failure to understand the sharing economy as a different kind of market is the primary cause of regulatory failure in this arena.”).

terms, this article will employ the phrases “sharing economy” and “platform economy.”⁶²

Rating systems have enhanced the popularity of sharing platforms.⁶³ Reputational rankings that appear reliable allow participants to interact more comfortably with complete strangers, providing a level of trust and consumer protection.⁶⁴ “Do you want a stranger staying in your home? No. But would you like Michelle who went to Harvard, works in a bank, and has a five-star rating as a guest on Airbnb? Sure!”⁶⁵

This is true despite some readily apparent weaknesses in the rating systems many sharing economy companies have adopted.⁶⁶ Rating systems may fall prey to behavioral and psychological biases and are subject to manipulation by users.⁶⁷ “In general, we believe that users are likely overstating the accuracy of the ratings and reputational data on these sites.”⁶⁸ Rating systems also risk amplifying racial and gender discrimination,⁶⁹ a concern that extends to ratings by both consumers and providers.⁷⁰

⁶² Sharing intermediaries do create one new type of property, namely the data that the platform collects. See Julie E. Cohen, *Law for the Platform Economy*, 51 U.C. DAVIS L. REV. 133, 156 (2017) (describing the “de facto propretization” of the data that users give up in exchange for access to the platform).

⁶³ Rating systems allow both customers and providers the opportunity to exercise their voice. This reduces the need to exit the system and induces users to behave well so they can continue to enjoy the service in the future. See generally ALBERT O. HIRSCHMAN, EXIT, VOICE, AND LOYALTY: RESPONSES TO DECLINE IN FIRMS, ORGANIZATIONS, AND STATES 30 (1970) (“[D]issatisfied consumers . . . , rather than just go over to the competition, can ‘kick up a fuss’ and thereby force improved quality or service upon delinquent management.”).

⁶⁴ See Adam Thierer et al., *How the Internet, the Sharing Economy, and Reputational Feedback Mechanisms Solve the “Lemons Problem,”* 70 U. MIAMI L. REV. 830, 873–76 (2016) (arguing that reputational rankings make regulation less necessary).

⁶⁵ THOMAS L. FRIEDMAN, THANK YOU FOR BEING LATE: AN OPTIMIST’S GUIDE TO THRIVING IN THE AGE OF ACCELERATIONS 118 (2016) (quoting Airbnb cofounder Brian Chesky).

⁶⁶ See Benjamin G. Edelman & Damien Geradin, *Efficiencies and Regulatory Shortcuts: How Should We Regulate Companies Like Airbnb and Uber?*, 19 STAN. TECH. L. REV. 293, 316–17 (2016) (noting that reviewers are reluctant to give low ratings because they find it unpleasant or fear retaliation and that the most satisfied customers are the ones most likely to submit reviews).

⁶⁷ See Abbey Stemler, *Feedback Loop Failure: Implications for the Self-Regulation of the Sharing Economy*, 18 MINN. J.L. SCI. & TECH. 673, 688–98 (2017) (discussing several problems exhibited by rating systems); *Why Consumers Systematically Give Inflated Grades for Poor Service*, NPR: HIDDEN BRAIN (Jan. 8, 2019), <https://www.npr.org/2019/01/08/683144150/why-consumers-systematically-give-inflated-grades-for-poor-service> [<https://perma.cc/PZW2-PUS4>] (same).

⁶⁸ Juliet B. Schor, *Does the Sharing Economy Increase Inequality Within the Eighty Percent?: Findings from a Qualitative Study of Platform Providers*, 10 CAMBRIDGE J. REGIONS ECON. & SOC’Y 263, 268 (2017).

⁶⁹ See Arianne Renan Barzilay & Anat Ben-David, *Platform Inequality: Gender in the Gig-Economy*, 47 SETON HALL L. REV. 393, 427–29 (2017) (examining whether the sharing economy has given rise to a new form of gender discrimination).

⁷⁰ See, e.g., Katharine T. Bartlett & Mitu Gulati, *Discrimination by Customers*, 102 IOWA L. REV. 223, 224 (2016) (“Another study . . . revealed that Airbnb guests are willing to pay non-black hosts approximately 12% more than black hosts for comparable properties”); Nancy Leong, *New Economy, Old Biases*, 100 MINN. L. REV. 2153, 2154

However, one study found that ratings may serve to counter stereotyping that would otherwise occur.⁷¹

Intermediaries, such as travel agents and real estate brokers, have long existed and have been paid for their matchmaking work. Sharing economy intermediaries similarly receive commissions for their services, and the market leaders have been tremendously successful.⁷² These companies simultaneously amass information that can be used or sold for other purposes, thereby “leverag[ing] pervasive connectivity in order to facilitate trusted transactions between strangers on digital platforms.”⁷³ As of late 2015, the market value of Uber and Airbnb, each less than ten years old, had climbed as high as \$62.5 billion and \$25.5 billion, respectively.⁷⁴ Sharing platforms are now available for a wide range of goods and services, including home repair, cooking, usage of tools, and arts and crafts.⁷⁵ One scholar has proposed a sharing market for the right to roam on the private land of others.⁷⁶

The pervasiveness of leasehold arrangements in today’s sharing economy reveals that today’s consumers are more comfortable as tenants than their parents were, with rates of home and auto ownership dropping among younger adults.⁷⁷ The use of

(2016) (“[C]ertain features specific to the sharing economy actually *increase* the potential racial discrimination, both in a one-off encounter and over time.”).

⁷¹ Ruomeng Cui et al., *Reducing Discrimination with Reviews in the Sharing Economy: Evidence from Field Experiments on Airbnb*, MGMT. SCI., Aug. 2019, at 11, <https://doi.org/10.1287/mnsc.2018.3273> [<https://perma.cc/9JSM-RGCC>] (“[W]ith a positive review, racial discrimination is significantly attenuated: white and African American guests receive nonstatistically distinguishable acceptance rates . . .”).

⁷² They are also the source of much public fascination. One comedian has referred to Uber as “hitchhiking with your phone.” PMML: The Ass’n for Packaging & Processing Techs., *Sebastian Maniscalco - Uber Skit*, YOUTUBE, at 0:47-0:51 (May 23, 2018), https://www.youtube.com/watch?v=t_PsVW2F6WQ [<https://perma.cc/K8U8-526R>].

⁷³ Calo & Rosenblat, *supra* note 45, at 1670.

⁷⁴ FTC, THE “SHARING” ECONOMY, *supra* note 49, at 12.

⁷⁵ See, e.g., *Services*, TASKRABBIT, <https://www.taskrabbit.com/services> [<https://perma.cc/BT7W-U3QE>] (home contracting and repair tasks); *How it Works*, MEALSHARING, https://www.mealsharing.com/how_it_works [<https://perma.cc/B227-PDML>] (home cooked meals around the world).

⁷⁶ See Donald J. Kochan, *The Market to Roam: Using Sharing Economy Platforms for Expanding Roaming Access to Land Resources*, 59 NAT. RESOURCES J. 89, 92 (2019).

⁷⁷ See Laurie S. Goodman & Christopher Mayer, *Homeownership and the American Dream*, 32 J. ECON. PERSP. 31, 36 (2018), https://www.urban.org/sites/default/files/publication/96221/homeownership_and_the_american_dream_0.pdf [<https://perma.cc/D8N5-L9A5>] (providing homeownership data for different age groups over time); JOINT CTR. FOR HOUS. STUDIES OF HARV. UNIV., THE STATE OF THE NATION’S HOUSING 2017, at 21 (2017), https://www.jchs.harvard.edu/sites/default/files/harvard_jchs_state_of_the_nations_housing_2017.pdf [<https://perma.cc/HBM5-SGAS>] (discussing possible reasons for the drop in homeownership rates among adults under thirty-five); Melissa Etehad & Rob Nikolewski, *Millennials and Car Ownership? It’s Complicated*, L.A. TIMES (Dec. 23, 2016, 5:00 AM), <http://www.latimes.com/business/autos/la-fi-hy-millennials-cars-20161223-story.html#> [<https://perma.cc/6GKC-PFF8>] (offering a variety of reasons why millennials are less likely than older people to purchase cars).

leasehold terminology concedes a higher degree of transiency.⁷⁸ But it also acknowledges that more people wish to lease a greater number of goods and services for shorter periods of time rather than owning a smaller number of them permanently.⁷⁹ Access matters more than ownership to these consumers, who appear less inclined to define their personhood by the assets they own.⁸⁰ This description of the platform economy presupposes two small-time operators, such as an apartment dweller with an extra room and a visitor who wishes to stay for a few days, along with an intermediary that connects them.

A variation of this sharing model includes numerous users who sporadically consume goods or services that are owned as a fleet. Previously, rather than purchasing a car, an occasional driver might rent one as needed on a daily or weekly basis from Hertz or Avis.⁸¹ Today that occasional driver can pay a monthly fee to Zipcar, which allows the member to use a vehicle as needed in exchange for an hourly fee.⁸² In this setting, there is no need for a go-between, since we are not linking two small-timers. The provider is in the full-time business of sharing, much like a traditional rental company, but once again with leases of shorter duration than were common in the past. Providers such as this can be legally structured in a variety of ways, including as corporations, limited liability companies, partnerships, trusts, or cooperatives.⁸³

⁷⁸ See Jimmie Lenz, *How Millennials Are Affecting the Price of Your Home*, CONVERSATION (May 20, 2019, 7:10 AM), <https://theconversation.com/how-millennials-are-affecting-the-price-of-your-home-115830> [<https://perma.cc/697X-CXX4>] (“[Y]ounger Americans are buying homes far less often than their elders’ generations did, and that puts a large sector of the U.S. economy at risk.”).

⁷⁹ See, e.g., Sam Sanders, *The Affluent Homeless: A Sleeping Pod, A Hired Desk and A Handful of Clothes*, NPR (Apr. 23, 2019, 11:02 AM), <https://www.npr.org/2019/04/23/715107132/the-affluent-homeless-a-sleeping-pod-a-hired-desk-and-a-handful-of-clothes> [<https://perma.cc/D5VA-F5GP>].

⁸⁰ Shelly Kreichzer-Levy, *Property Without Personhood*, 47 SETON HALL L. REV. 771, 792 (2017) (“As opposed to the vision of property as shaping and reflecting personhood, access is a choice to use without attachment. Its primary function as an alternative to ownership is to allow fluidity and the ability to experiment.” (footnotes omitted)).

⁸¹ A newer version of this model looks more like Uber for small-time car renters, in which an owner simply leases their owned auto to someone else, with an app serving as intermediary. Peter Holley, *Airbnb for Cars Is Here. And the Rental Car Giants Are Not Happy*, WASH. POST (Mar. 30, 2018), https://www.washingtonpost.com/news/innovations/wp/2018/03/30/airbnb-for-cars-is-here-and-the-rental-car-giants-are-not-happy/?utm_term=.3889a405d0b5 [<https://perma.cc/L64J-ZS9S>] (noting efforts by traditional auto rental companies and airports to prevent the growth of these new rental models).

⁸² See *Pricing*, ZIPCAR, <https://www.zipcar.com/pricing> [<https://perma.cc/U5G7-T56J>]. Shelley Kreichzer-Levy focuses on this new economy’s emphasis on access rather than ownership. See Shelley Kreichzer-Levy, *Share, Own, Access*, 36 YALE L. & POLY REV. 155, 157 (2017) (“Millennials own less property than previous generations, and they prefer flexibility, availability, and choice over the stability and permanence associated with ownership.” (footnote omitted)).

⁸³ Large timeshare developers such as Marriott, which previously sold weekly slices that were similar to time-delimited condominiums, have more recently moved toward

The term “sharing” is deceptive in one sense, for the so-called sharing economy is an anti-sharing economy in some ways.⁸⁴ People who previously would allow their friends to crash in their spare bedroom may have evolved into home-sharing landlords. This gives them a sharper understanding of the precise dollar value of that room and may make them less inclined to give it away.⁸⁵ They are still sharing the bedroom in the dictionary sense of the word, but they have a more commodified view of their real estate and may be less inclined to part with it gratuitously.⁸⁶ At the same time, one who shares their home with a paying stranger is more apt to form some type of social bond with their customer than a hotel operator would.⁸⁷

The sharing economy appears at first glance to be leading to considerable disintermediation.⁸⁸ Travelers, for example, can book home-shares and ride-shares on their smartphones, greatly reducing the need for travel agents. However, the individuals and companies that formerly served in these roles have often been replaced by platforms, just as yesterday’s grizzled ticket scalper has become today’s StubHub. These new platforms profit from their matchmaking services.⁸⁹ While information is being stored, processed, and shared more easily than in the past, it is not clear that fewer transactions employ intermediaries.⁹⁰ These

the trust and cooperative models. See Arthur O. Spaulding, Jr. et al., *Time Share Today – Will It Work for Your Project?*, ACREL PAPERS, Spring 2018, at 71, 73–80 (comparing various possible ownership structures).

⁸⁴ Cf. Bronwen Morgan, *The Sharing Economy*, 14 ANN. REV. L. & SOC. SCI. 351, 362 (2018) (“[W]hat is at stake most centrally in sharing economy developments is not so much the regulatory ambiguity that has resulted but the possibility of excavating or unearthing an alternative vision of market exchange.”).

⁸⁵ See Schor, *supra* note 68, at 264 (“A related critique is that selling slivers of one’s life (room, car, time, attention) is a commodification of daily life that will undermine genuine social connection and solidarity.” (citation omitted)).

⁸⁶ See Nestor M. Davidson & John J. Infranca, *The Sharing Economy as an Urban Phenomenon*, 34 YALE L. & POL’Y REV. 215, 267–68 (2016) (expressing concern about the potential loss of informality and bonding benefits).

⁸⁷ *Id.* at 267–68; see also Dyal-Chand, *supra* note 60, at 255 (“[A] philosophy of social connection and reward imbues the marketing of services and products in the sharing economy.”).

⁸⁸ See Fagundes, *supra* note 47, at 1385–86 (suggesting that dealing directly with service providers rather than with intermediaries may increase subjective well-being).

⁸⁹ The scalper, of course, purchases the tickets and risks being unable to resell them; the online ticket service, by contrast, is simply a listing agency that bears far lower risk. That online intermediary may provide other services, however, such as information about prices for other tickets to the same event, the ability to transfer tickets electronically, and guarantees of ticket authenticity. Moreover, those who are uncomfortable negotiating prices with experienced strangers may prefer dealing with an impersonal website. See Stein, *supra* note 30, at 18–19.

⁹⁰ See Cohen, *supra* note 62, at 135 (“[P]latforms do not enter or expand markets; they replace (and rematerialize) them.”).

newer intermediaries may disappear themselves, as blockchain alternatives develop.⁹¹

Note that if we define our terms loosely enough, nearly every commodity can be construed as being part of the sharing economy. Airline tickets once again serve as a good example. While I may fly more miles in a year than I drive, I drive most of those miles in my own automobile while I am unlikely ever to own a plane. In some sense, then, my United Airlines ticket is a plane share, not terribly different from a Via share. By that rationale, wine served by the glass in a restaurant can be denominated a “bottle share,” with the restaurant serving as a clearinghouse for five unrelated people who wish to purchase part of a moderately perishable item. Similarly, buying a 2x4 at Lowe’s could be considered a “tree share,” and so on.

My goal in this article is not to delineate the boundaries of the sharing economy. In some sense, the very existence of a market economy means that many commercial exchanges are sharing transactions of a sort. But there is little doubt that certain assets used to be considered commodities that you either owned or did not own. Today, with the advent of smart technologies, those same assets can be co-owned in a variety of different manners and legal structures that previously were impractical or unimaginable. Those who used to own may now be satisfied with access as needed.⁹² And the same technology that makes this type of collaborative consumption feasible also allows for more of these goods and services to be priced dynamically.⁹³

B. *Scarcity and Dynamic Pricing*

One aspect of the sharing economy—dynamic pricing—is particularly important to the question of inequality. A price is dynamic if it reflects supply and demand at any given moment, with the price shifting immediately upon changes in either.⁹⁴

⁹¹ For example, Ridecoin turns Uber’s model “on its head by extracting the middleman and replacing him with a decentralized cryptocurrency. By bringing ride sharing onto the blockchain, we will allow riders and drivers to negotiate directly with one another. This will have the effect of lowering costs while putting control back where it belongs” *Reserve Your Ridecoin Shares on Start Engine*, FAIR RIDE, <https://www.fairride.com/> [<https://perma.cc/2TE6-XXMH>].

⁹² See Lee Anne Fennell, *Fee Simple Obsolete*, 91 N.Y.U. L. REV. 1457, 1496 (2016) (“Access to resources, not the ownership of things, is increasingly becoming the coin of the realm.”).

⁹³ See *infra* Section I.B.

⁹⁴ See, e.g., *How to Estimate a Lyft Ride’s Cost*, LYFT, <https://help.lyft.com/hc/en-us/articles/115013080308-How-to-estimate-a-Lyft-ride-s-cost> [<https://perma.cc/6WQE-DNDR>] (“[P]rices for rides are dynamically calculated based on a variety of factors including route, time of day, ride type, number of available drivers, current demand for rides, and any local fees or surcharges.”).

Dynamic pricing existed long before the advent of the modern sharing economy, most notably in securities markets. But the technological leaps that have made the sharing economy feasible also make dynamic pricing far more common.

Dynamic pricing may be nothing more than the pricing system any capitalist economy would have used all along had it been technically feasible. People have always price-shopped, but the logistics of doing so made it more likely that someone would shop around for a car than for the fuel to put in its tank. Now, your navigation app can tell you the price at every nearby gas station and you can decide how far out of your way you are willing to travel to save a few cents per gallon. Prices find their equilibrium more rapidly and accurately than in the past, and shoppers have quicker access to more complete data.⁹⁵

Sharing and dynamic pricing need not occur together, but they often go hand-in-hand and there has been a recent uptick in the prevalence of both. Dynamic pricing can exist without sharing, as the airline ticket illustration demonstrates.⁹⁶ Similarly, sharing can exist without dynamic pricing: Home shares are typically listed at a fixed price that does not change very much with demand.⁹⁷ However, sharing platforms often employ dynamic pricing. As a result, surge pricing is increasingly used for products that previously had fixed prices.⁹⁸ Uber uses surge pricing even though taxi services typically do not, despite the fact that the two services are largely

⁹⁵ One app examines prices on offer from competing ride-sharing companies so that a user can comparison-shop without using multiple apps. Mark Stricherz, *Yay Yo Plans \$50 Million Offer for All-in-One Ride-Hailing Services App*, CQ ROLL CALL (Dec. 22, 2016), 2016 WL 7404179 (“Its app will be the ‘first single-sign-on solution for the growing ride-sharing and transportation economy,’ the ride-and-limousine sharing equivalent to Kayak.com for hotels, flights and cars, according to the [SEC] filing.”). This should lead to meta-dynamic pricing, as dynamically-priced Uber adjusts its prices to compete with dynamically-priced Lyft.

⁹⁶ See *supra* note 10 and accompanying text.

⁹⁷ The owner is free to lower the price as the date approaches, to entice prospective users before the good expires and can no longer be sold. But home-sharing rates usually do not change by the minute, in contrast with ride-sharing rates. In addition, popular seasons may cost more than other times of the year, but those price differentials are posted in advance and may not vary much after that. In fact, one online coach suggests that more Airbnb landlords shift to a dynamic pricing model. Nathan Rice, *5 Things Airbnb Hosts Need to Know About Dynamic Pricing*, AIRBNB COURSE (Jan. 7, 2019), <https://theairbnbcourse.com/5-things-airbnb-hosts-need-to-know-about-dynamic-pricing/> [<https://perma.cc/R3DP-WW3G>].

⁹⁸ Ride-share customers probably make their decisions based largely on price. Ride shares are more fungible than home shares, and the purchaser of a ride share is unlikely to inspect the vehicle before summoning the car, most likely reasoning that one ride—unlike one beach rental—is as good as another. Ride-sharing companies do, however, provide drivers and prospective purchasers with user reviews of each other, unlike medallion taxi services. See, e.g., *How to Use the Uber App*, UBER, <https://www.uber.com/about/how-does-uber-work/> [<https://perma.cc/3WYH-T6G9>] (“At the end of each trip, drivers and riders can rate each other from 1 to 5 stars. Riders also have the option to give the driver compliments and a tip directly in the app.”).

interchangeable.⁹⁹ The same technological developments that make sharing more popular also make dynamic pricing more feasible.¹⁰⁰

Moreover, a chief focus of this article is goods that are both scarce and necessary.¹⁰¹ As the platform economy matures and continues to employ dynamic pricing, more and more scarce goods likely will be surge-priced, with cost serving as the signal that separates purchasers from non-purchasers. The pricing of these products will become more volatile and less predictable: It is harder to know the price of a commodity that changes every minute than one that changes every week. Purchasing decisions thus will become more challenging, particularly for those with constrained resources.

Some commodities, such as securities traded on financial markets, have long been priced dynamically. Centuries before computer algorithms and smartphones became widespread, human traders devised sophisticated dynamic pricing techniques for these transactions, including transfers of shares and trading in options and futures. These markets allowed for easy interaction between strangers and also provided opportunities for hedging and insurance. Once again, technology has expanded what can be accomplished. Yesterday's shouting traders have been replaced by automated trading programs that execute transactions in milliseconds, which means that trading volumes can be much higher than in the past.¹⁰² And the range of goods and services that are bought and sold in this manner has expanded rapidly and has transitioned from fungible commodities, such as corporate shares, to more unique services, such as a ride from Point A to Point B.

It is easy to see how that model could grow further in the sharing economy. A farmer has long been able to sell October wheat on a futures market during the prior March, to avoid potentially devastating price uncertainty and to know that the sale price will be adequate to repay crop production financing.¹⁰³ Now, a rider could potentially purchase an Uber ride in advance through a ride-sharing futures app or through Uber itself. Rather than worrying that rain or heavy demand could cause the price of a ride to increase just when she needs it, the user of "Uber future" could purchase the ride now, at a fixed price that presumably includes the estimated future price plus a small

⁹⁹ See *supra* notes 2–8 and accompanying text.

¹⁰⁰ See Ziobro, *supra* note 13 and accompanying text.

¹⁰¹ See *infra* Section II.A.

¹⁰² MICHAEL LEWIS, FLASH BOYS: A WALL STREET REVOLT 9–10 (2014) (calculating the trading value of a millisecond).

¹⁰³ See CHICAGO SRW WHEAT FUTURES QUOTES, CME GROUP, <https://www.cmegroup.com/trading/agricultural/grain-and-oilseed/wheat.html> [<https://perma.cc/XF3X-GLEE>].

insurance premium. The passenger commits to paying that price now, knowing that if prices later increase, she has locked in the lower cost.¹⁰⁴ The driver knows that he has a committed passenger at that hour, even though the price may prove to be lower than he otherwise might have commanded. The sharing economy benefits many people in a variety of ways, which helps to explain its recent rapid growth.¹⁰⁵

C. *How the Benefits of the Sharing Economy Explain Its Growth to Date and Its Likely Future Expansion*

There are obvious technological reasons why the platform economy has been able to grow so rapidly during the past decade. But market participants have also become more comfortable with occupancy and use rights of shorter duration. Automobile owners familiar with renting a car while traveling can readily comprehend using a Zipcar for an hour.¹⁰⁶ This seems to be particularly true for younger consumers, who may be the earliest adopters of the necessary technology.¹⁰⁷

The platform economy also allows for lifestyle improvements, both for the short-term landlord and the short-term tenant. It is now feasible for two or more people to share the ownership of costly assets such as motor vehicles through a variety of different legal structures. A commuter who needs an auto only occasionally may be better off hiring an Uber driver sporadically than owning a car that spends most of its time parked. A prospective car buyer who cannot quite swing the monthly payment may finally be able to take the leap or afford a higher-quality auto by working as an Uber driver two weekends per month. Neither of these drivers may need or be

¹⁰⁴ Even if the price does not look like a bargain, the purchaser locks in that price and avoids volatility and uncertainty.

¹⁰⁵ See generally RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 62 (8th ed. 2011) (discussing the functions of a futures market).

¹⁰⁶ Sadly, some users employ sharing economy assets as low-cost alternatives to costly necessities. See, e.g., Austin Frakt, *Uber, Lyft and the Urgency of Saving Money on Ambulances*, N.Y. TIMES (Oct. 1, 2018), <https://www.nytimes.com/2018/10/01/upshot/uber-lyft-and-the-urgency-of-saving-money-on-ambulances.html> [<https://perma.cc/STW6-C5RH>] (noting how some people now use ride-sharing services as cheaper alternatives to ambulances). But see BILL BROWDER, RED NOTICE 96 (2015) (“I soon learned that an ambulance stopping to pick up a fare in Moscow wasn’t unusual. Every vehicle was a potential taxi . . . [E]veryone was so desperate for money that any and all would take fares.”).

¹⁰⁷ See, e.g., GOLDMAN SACHS ASSET MGMT., *INVESTING IN THE MILLENNIAL EFFECT 2* (Sept. 2016), <https://www.gsam.com/content/dam/gsam/pdfs/common/en/public/articles/global-equity-outlook/investing-in-the-millennial-effect.pdf?sa=n&rd=n> [<https://perma.cc/SYD2-R4GJ>] (“Many Millennials have shown a preference for access over ownership. This is in stark contrast to prior generations, who were more focused on home and auto ownership.”).

able to afford one hundred percent of a car, but the sharing platform allows them to split the cost and benefit of one vehicle, perhaps unequally, to the advantage of both.

The sharing economy thus allows market participants to acquire smaller and smaller slices of more and more goods, accessing these assets when needed rather than owning them. Instead of building a new bedroom but having to forego a car, the market participant who desires each commodity some of the time may be able to afford both by collaboratively consuming each of them on a shared basis. This access-as-needed model might have developed even without dynamic pricing, but the same algorithms that facilitate the dispersed ownership of costly assets also allow for the dynamic pricing of ownership slices. Price-conscious consumers can buy or sell only when they like the price.

These sharing arrangements also reduce waste and help the environment, at least in some cases. The two market participants just described may now require the manufacture of one car instead of two, which will lead to reductions in auto manufacturing, and perhaps fuel consumption, traffic, and total vehicle use.¹⁰⁸ Thus, as more people share ownership of goods in different ways, consumers of more modest means are able to enjoy goods and services they previously could not, and the environment may also benefit.¹⁰⁹

It is probable that a steadily increasing number of goods and services will be priced in the future in the same way that airline tickets are priced today, with algorithms pairing up

¹⁰⁸ If two parties share the ownership of a vehicle in the manner described, then they consume only half the raw materials they would have needed to produce two cars, at least initially. But this may or may not reduce the actual number of miles driven, so it is more difficult to predict whether fuel consumption and road traffic will drop. If it turns out that each co-owner drives the same number of miles they would have driven had they each owned a car, then total fuel consumption and road traffic remain the same, though they may be redistributed to off-peak times of day. Moreover, if the vehicle lasts the same number of road miles, it will need to be replaced sooner than it would have if the two owners had each bought their own car at the outset. More likely, though, the co-owners will save or pool resources at least some of the time—perhaps by driving together, perhaps by foregoing a ride altogether when the other co-owner is using the vehicle—and the sharing arrangement will result in some reduction in negative environmental impact.

¹⁰⁹ One can imagine an economy that develops in the opposite direction, with common ownership evolving into short-term leasehold arrangements and then gradually toward fee simple ownership. A farmer on a collective is permitted to retain a portion of this year's crops for personal use or sale, then later is allowed to rent a small plot for a growing season, and later still is permitted to rent land for a longer term or buy it in fee simple. That imaginary economy is not terribly different from that of post-1949 China, which, from a very different starting point, has come more and more to resemble modern Western economies. This is a move from collective ownership toward sharing, reaching the same destination from the other direction. See GREGORY M. STEIN, MODERN CHINESE REAL ESTATE LAW: PROPERTY DEVELOPMENT IN AN EVOLVING LEGAL SYSTEM 1–23 (2012) (providing a summary of the background and history of Chinese real estate law).

buyers and sellers at constantly shifting prices.¹¹⁰ These computer programs will also retain masses of information about their customers and will use this information to become increasingly predictive. Amazon already pairs its products with related merchandise that prior purchasers have also bought, a feature poised to expand greatly and become more personalized.

An increasing variety of items will be priced a la carte. Sellers may establish a base price, as airlines do for a basic seat, and offer numerous optional add-ons, such as checked baggage and extra legroom.¹¹¹ Prices for stripped-down versions of basic commodities could drop, while more luxurious alternatives will become increasingly costly for those willing and able to pay. End prices will become more disguised.¹¹²

More ominously, algorithms are only as good as the people who write their code.¹¹³ If the seller or the intermediary has more information than the buyer, that information may be used to disadvantage the buyer.¹¹⁴ This has always been true on a gross scale, but now prices may vary depending on the identity of the shopper and her personal history, as algorithms become more capable of assessing a particular buyer's level of necessity and ability to pay.¹¹⁵ Different Uber riders may pay different amounts for similar rides at the same time, a practice known as

¹¹⁰ This article intentionally leaves for another day and another author any discussion of items protected by government-sanctioned monopolies, such as the patents that protect pharmaceutical products.

¹¹¹ This arguably lowers the quality of the basic service, which “must be sufficiently degraded in order to make people want to pay to escape it.” Tim Wu, *Why Airlines Want to Make You Suffer*, NEW YORKER (Dec. 26, 2014), <https://www.newyorker.com/business/currency/airlines-want-you-to-suffer> [<https://perma.cc/EN2V-4KGB>].

¹¹² See Leslie Josephs, *Airlines' \$57 Billion Question: Is There Anything Left to Charge Passengers For?*, CNBC (Sept. 7, 2018), <https://www.cnbc.com/2018/09/06/airline-s-raise-baggage-change-and-seating-fees-as-fuel-prices-surge.html> [<https://perma.cc/3M-AA-ZJGM>] (noting that revenue from ancillary fees has more than doubled since 2010).

¹¹³ See CATHY O'NEIL, WEAPONS OF MATH DESTRUCTION: HOW BIG DATA INCREASES INEQUALITY AND THREATENS DEMOCRACY 223 (2016) (“Algorithmic processes embed values and ethics just as much as any human process; they only seem cleaner because they're better at hiding that fact.”).

¹¹⁴ See Calo & Rosenblat, *supra* note 45, at 1633 (“[T]he advantages of information and power that platforms like Uber possess over participants merit a deeper response from consumer protection law.”); *id.* at 1651 (“[W]hereas traditional marketers have been content to use what they know about consumers to match them with goods and services they might prefer, firms are increasingly using what they know to better persuade consumers—a practice known as persuasion profiling.”).

¹¹⁵ See, e.g., AARON PERZANOWSKI & JASON SCHULTZ, THE END OF OWNERSHIP: PERSONAL PROPERTY IN THE DIGITAL ECONOMY 77–81 (2016) (discussing price discrimination); Marshall Allen, *Health Insurers Are Vacuuming Up Details About You—and It Could Raise Your Rates*, PROPUBLICA (July 17, 2018, 5:00 AM), <https://www.propublica.org/article/health-insurers-are-vacuuming-up-details-about-you-and-it-could-raise-your-rates> [<https://perma.cc/6V8P-ATZ2>] (describing “[a] future in which everything you do—the things you buy, the food you eat, the time you spend watching TV—may help determine how much you pay for health insurance”).

dynamic price discrimination.¹¹⁶ If an algorithm can access your bank balance from your prior bill-paying activity and knows when your mother's seventy-fifth birthday will occur from your recent search for gifts, it can boost the price of your airline ticket accordingly.¹¹⁷ Similarly, an algorithm can factor in where a consumer is physically located, much as some chain stores might charge higher prices in lower-income neighborhoods, where residents have fewer transportation options.¹¹⁸ If the algorithm is linked to a competing vendor's algorithm, the two may collude.¹¹⁹

Much of the information that any algorithm possesses is proprietary.¹²⁰ This means that negotiations among market participants and government bodies could be based on unequal information.¹²¹ It will be difficult for governments to adopt appropriate regulations if they are operating with incomplete data.¹²² "Online businesses influence consumer behaviour by

¹¹⁶ Calo & Rosenblat, *supra* note 45, at 1658–59 (noting that there may be innocent technical explanations for these discrepancies).

¹¹⁷ "If it seems like someone might be willing to pay more than the reserve price, it makes sense to charge them more than someone who is careful about what they spend." Arwa Mahdawi, *Is Your Friend Getting a Cheaper Uber Fare than You Are?*, GUARDIAN (Apr. 13, 2018), <https://www.theguardian.com/commentisfree/2018/apr/13/uber-lyft-prices-personalized-data> [<https://perma.cc/LES4-4EWK>]. The article also notes that a behavioral scientist working for Uber determined that people with low phone batteries are willing to pay higher fares for rides. Other factors relevant to pricing "include the sort of credit card you use, where you live, the make of phone you're using, and your ride history." *Id.*

¹¹⁸ This example does not constitute dynamic price discrimination, in that it does not focus on the particular purchaser, but merely differential pricing. *But see* Stefano DellaVigna & Matthew Gentzkow, *Uniform Pricing in US Retail Chains* 1 (Nat'l Bureau of Econ. Research, Working Paper No. 23996, 2017), http://www.nber.org/papers/w23996?utm_campaign=ntw&utm_medium=email&utm_source=ntw [<https://perma.cc/WS3T-2YSE>] (arguing that retail chains employ uniform pricing from store to store even in settings in which they might vary prices based on differing consumer demographics and local levels of competition).

¹¹⁹ *See* Ariel Ezrachi & Maurice E. Stucke, *Artificial Intelligence & Collusion: When Computers Inhibit Competition*, 2017 U. ILL. L. REV. 1775, 1781–96 (describing four ways in which algorithms may collude).

¹²⁰ *See* Teresa Scassa, *Sharing Data in the Platform Economy: A Public Interest Argument for Access to Platform Data*, 50 U.B.C. L. REV. 1017, 1046 (2017) (noting that information gathered by sharing economy companies "are private, commercial data, and their 'owners' are justified in controlling who can access it and on what terms. Yet, . . . these are data about activities that have significant public impacts, and that rely upon business models that facilitate the evasion of existing regulatory frameworks"); *cf.* Hannah Bloch-Wehba, *Access to Algorithms*, 88 FORDHAM L. REV. (forthcoming 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3355776 [<https://perma.cc/UR6U-C7Z2>] (arguing for the use of the Freedom of Information Act and the First Amendment in cases involving algorithms used by government entities).

¹²¹ *See* O'NEIL, *supra* note 113, at 231 (noting "a more general trend in which data is privately owned and privately used to private ends of profit and influence, while the public is shut out of the process and told to behave well and trust the algorithms"); Schor, *supra* note 68, at 265, 277 n.1 (describing ways in which Airbnb and other platforms attempted to interfere with the author's interviews of service providers).

¹²² *See, e.g.*, Stephen R. Miller, *First Principles for Regulating the Sharing Economy*, 53 HARV. J. ON LEGIS. 147, 155 (2016) ("[E]conomists have long noted the importance of information to effective regulation.").

means of a wide range of technologies that determine *what* information is displayed and *how* and *when* it is displayed.”¹²³ This may lead one to question the validity of any contract that results.¹²⁴ At the furthest extreme, it is always possible that the sharing economy will fail financially, if the business model pursued by companies such as Uber is not viable over the long term.¹²⁵

II. DISTINCTIONS WITHIN THE SHARING ECONOMY

As the previous Part demonstrated, goods and services (or, more generically, “commodities”) may be shared and priced dynamically.¹²⁶ But different types of goods and services raise different fairness issues. This Part will distinguish among different varieties of commodities in an effort to determine which kinds raise particularly strong equity concerns. If the sharing economy turns out to increase inequality, some aspects of that increased inequality may be more worrisome than others.

In particular, this Part will distinguish between necessities and luxuries, between elastic items and inelastic items, and between public and private goods. Goods and services can fall in one place along one matrix and in a different place along another. For example, housing is an inelastic necessity that is largely provided by the private sector.¹²⁷ By contrast, transportation is a somewhat elastic¹²⁸ necessity that is funded to a significant degree by the public.¹²⁹ Even within a single pairing,

¹²³ See Eliza Mik, *The Erosion of Autonomy in Online Consumer Transactions*, 8 LAW INNOVATION & TECH. 1, 2 (2016).

¹²⁴ *Id.* at 3.

¹²⁵ See, e.g., Hubert Horan, *Will the Growth of Uber Increase Economic Welfare?*, 44 TRANSP. L.J. 33, 64–66, 102–05 (2017) (arguing that the business model pursued by Uber is not sustainable unless the company monopolizes its market, reduces payments to drivers, and raises prices to passengers).

¹²⁶ See Elvy, *supra* note 1, at 104–24.

¹²⁷ During the 2014–18 period, there were 119,730,128 households in the United States, and 63.8% of housing units were owner-occupied. *Quick Facts: United States*, U.S. CENSUS BUREAU, <https://www.census.gov/quickfacts/fact/table/US/HSD410217> [<https://perma.cc/9XN5-C489>]. In 2018, just under one million households lived in federal public housing and just under four million more received federal rental assistance. *United States Federal Rental Assistance Fact Sheets*, CTR. ON BUDGET & POL’Y PRIORITIES (Dec. 10, 2019), <https://www.cbpp.org/research/housing/federal-rental-assistance-fact-sheets#US> [<https://perma.cc/77NW-T987>].

¹²⁸ Motor vehicles are elastic. Manufacturers or common carriers can usually increase capacity, and someone who needs to purchase a car or a plane ticket on short notice can typically do so. Roadway infrastructure, by contrast, is inelastic. Thus, if there is an auto shortage, manufacturers can quickly fabricate more, but even a relatively simple repaving project can take months. For a classic story of the inelasticity of highway construction, see the Massachusetts state government webpage describing the history of Boston’s “Big Dig.” *The Big Dig: Project Background*, MASS.GOV, <https://www.mass.gov/info-details/the-big-dig-project-background> [<https://perma.cc/K2DA-9EKK>].

¹²⁹ Government funds a large portion of the cost of public transit. See CONG. RESEARCH SERV., R42706, FEDERAL PUBLIC TRANSPORTATION PROGRAM: IN BRIEF 4 (2020),

such as necessities versus luxuries, particular goods and services do not necessarily fall at a fixed spot: Transportation to work is more essential than transportation to a vacation, while transportation to the emergency room is the most essential of the three. In addition, transportation may be more of a concern in thinly populated areas, where the distances to be traveled are greater and alternatives such as buses and trains are less plentiful. Thus, transportation may be more of a necessity in some settings than in others, and placing a commodity along any of these three spectra can be highly contextual.

The point of this exercise is to determine the types of goods and services most likely to raise significant fairness issues and the specific settings in which they are most likely to raise those concerns. By focusing on particular commodities in particular scenarios, as opposed to all goods and services as an undifferentiated group, this Part will highlight the types of goods and services that raise the greatest concern that the rise of the sharing economy will increase inequality. If public or private intervention is warranted, these are the specific commodities for which such involvement may be most needed and the precise situations in which intervention may be the most essential.

A. *Necessities Versus Luxuries*

Commodities such as food, water, and health care are essential to life, and governments often take steps to ensure greater access to these items for all, no matter what an individual's financial status. Other goods may be important but not, strictly speaking, necessary. Housing may fall into this category, as it is possible to survive without it, just as early humans did. In today's modern economy, though, housing is a near-necessity, and those who are homeless certainly enjoy fewer opportunities and a far lower quality of life.

Other goods are necessities in some contexts but not others: Education in basic literacy is nearly essential to survival in today's economy, while a Juris Doctorate may be required for a legal career in most states but is completely unnecessary—

<https://fas.org/sgp/crs/misc/R42706.pdf> [<https://perma.cc/2D7M-PVXQ>] (presenting chart showing that user fares and other income covered only 25.9% of the total cost of public transportation in 2017, with federal, state, and local governments providing the balance). For private auto transit, the subsidies are less transparent, including items such as the cost of constructing and maintaining roadways and subsidies to auto manufacturers and energy producers. *See, e.g.*, Morgan Scarboro & Joseph Bishop-Henchman, *How Are Your State's Roads Funded?*, TAX FOUND. (July 13, 2017), <https://taxfoundation.org/state-road-funding-infrastructure-2017> [<https://perma.cc/M2P2-JLZ8>] (indicating sources of road funding on a state-by-state basis).

some might say antithetical!—to basic survival.¹³⁰ A transcontinental air flight may be a luxury if you want to take a vacation but a necessity to receive emergency medical treatment or to attend a family member's funeral. Internet access is a near-necessity when required as part of one's job but considerably less so for playing Fortnite. Other commodities are necessities for some and completely unnecessary for others: One person may not need insulin, while their neighbor will die without it, and a functioning heating system is far more indispensable in Alaska than in Hawaii. Still other items are highly desirable to one degree or another, though not strictly necessary. The human race survived before the invention of air conditioning, cable television, and smartphones, but the absence of these commodities today places those who lack them at a competitive disadvantage in other aspects of their lives, such as obtaining a better job, and will certainly make their lives less pleasant.

In addition, some commodities transition from one level of necessity to another over time. Landlines went from non-existent, to oddities, to luxury goods, and then to near-necessities in the space of just a few decades. They will likely return to non-existent in the coming years, just as substitutes for them become near-necessities. And others, such as reading glasses or mobility-assistance devices, may be necessities only at certain stages during one's life.

In short, some goods are necessities, others are extremely important to survival without technically being necessary to it, and others are relatively less important. Some goods may be essential to a higher lifestyle quality without being strictly necessary to survival. Some commodities may be necessities for some people but not others, while other goods and services may be necessary in some contexts or locations but not in others. During the course of a person's life, a commodity may be necessary at some points but not others. Thus, even if we can agree on a definition for the term "necessity," it is evident that goods and services are arrayed at various points along a spectrum and do not stay fixed in one place for all people at all times.

¹³⁰ See, e.g., Moriah Balingit, *Do Children Have a Right to Literacy? Attorneys Are Testing that Question*, WASH. POST (Aug. 13, 2018), https://www.washingtonpost.com/local/education/do-children-have-a-right-to-literacy-attorneys-are-testing-that-question/2018/08/13/926d0016-9042-11e8-8322-b5482bf5e0f5_story.html?utm_term=.0d051d783275 [<https://perma.cc/ABA8-CUVB>] (discussing a federal judge's holding that there is no constitutional right to "a defined, minimum level of education by which [a] child can attain literacy").

If we distribute scarce necessities solely on the basis of price, some people cannot afford them.¹³¹ But the person who lacks a true necessity will, by definition, be unable to survive without it. Someone must supply the difference between the price of a necessity and the maximum amount the poorest consumers can afford or must drive the price down by producing more of the commodity.¹³² In some cases, charities strive to make up this difference. But charities cannot meet all of this need themselves, they suffer from coordination problems, and they may insist that donees meet requirements—such as membership in a particular religious faith—that some needy recipients are unwilling to meet. That leaves other private actors or the government to fill the remaining gap. For some necessities, government does indeed strive to plug this hole.¹³³

Governments that seek to address shortages such as these can supply the goods themselves or can subsidize supply or demand. A government may decide to provide necessities or near-necessities at a loss, as with public housing. It may ensure that these goods can be purchased at a lower cost by providing direct subsidies, tax benefits, or zoning bonuses to those who supply them and requiring those suppliers to pass their savings along to qualifying consumers. Or a government may offer direct or indirect financial support on the demand side, in the form of cash or vouchers to needy consumers. These subsidies and payments are nothing more than transfers, with more affluent taxpayers contributing funding to support those less able to provide for their own needs.¹³⁴

If the government believes that everyone should be able to enjoy necessary commodities or should be required to purchase these items because they are essential to themselves or others, it may impose mandates in parallel with subsidies. Thus, wage-earners are required to contribute toward their retirement, drivers in many states must maintain minimum levels of automobile insurance, and many people of modest means receive only partial government subsidies for the cost of their basic nutrition, shelter, and health care. This approach also reduces

¹³¹ For an interesting and worrisome recent proposal, see Rebecca Beitsch, *Cranking Up the Cost: States Consider 'Surge Pricing' for Power*, GOVERNING (Feb. 19, 2019), <https://www.governing.com/topics/transportation-infrastructure/sl-states-power-surge-pricing.html> [<https://perma.cc/62V9-DJ67>].

¹³² See ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 36 (1988) (discussing the interactions among supply, demand, and price).

¹³³ See *infra* Section IV.B.1.

¹³⁴ This discussion can be extended to other expenses. See, e.g., Alec Schierenbeck, *The Constitutionality of Income-Based Fines*, 85 U. CHI. L. REV. 1869, 1870–71 (2018) (arguing that low-income offenders should pay lower fines than higher-income offenders).

moral hazard by preventing those who need or benefit from any particular program from fully externalizing the cost.¹³⁵

This is not to suggest that the government subsidizes or mandates only necessities or that every necessity is subsidized or mandated. Many Americans were forced to live without health insurance—and thus often without necessary health care—until recently, and a sizable number still do.¹³⁶ Moreover, the decision to expand health care coverage and guarantees during the Obama administration was and remains a heavily contested political issue. The uproar surrounding these policies will certainly discourage similar types of subsidy in the future. In addition, some approaches are more effective in meeting demand than others. But the federal and state governments, along with many non-governmental organizations, recognize in varying ways that some essential items should not be allocated purely on the basis of their free-market price.

As dynamic pricing becomes more prevalent, prices will become more volatile, shortages will cause the price of necessities to rise, and the gap between the market price and the maximum amount a needy consumer can afford may grow, especially at times of peak demand. With prices more quickly reflecting the constantly changing intersection between supply and demand curves, some buyers will discover that, just as they need a good most, its price peaks: In fact, that is how dynamic pricing is supposed to work. Even those consumers who can afford the commodity when they need it may not know that in advance. They may forego the item in the incorrect belief they cannot afford it, and they will experience higher levels of stress and uncertainty even if they ultimately obtain the item.

This usually proves to be a short-term problem, as the shortage induces prospective suppliers to provide more of the good and the shortage self-corrects. This assumes that the good is available, fails to reduce the suffering of those who must do without until the shortage is alleviated, and does nothing to ensure that everyone will be able to afford the new, somewhat lower equilibrium price. Even a temporary shortage may prove to be life-threateningly long in the case of true necessities such as potable water and food.

In these settings, the question becomes how to ration necessities until there is adequate quantity to meet demand. If

¹³⁵ See *infra* Part IV.

¹³⁶ “In 2018, 8.5 percent of people, or 27.5 million, did not have health insurance at any point during the year.” EDWARD R. BERCHICK ET AL., U.S. CENSUS BUREAU, P60-267, HEALTH INSURANCE COVERAGE IN THE UNITED STATES: 2018, at 2 (Nov. 2019).

prices adjust rapidly and dynamically, it is the least affluent members of society who will be unable to obtain essential commodities in the short run. Expanded use of dynamic pricing suggests that this combination of events will occur more frequently. When the market is under the greatest stress, the least affluent consumers will go without.

B. *Elastic Versus Inelastic Goods and Services*

Some goods are highly elastic, meaning that they (or close substitutes) can be supplied in greater quantities fairly quickly and easily.¹³⁷ Food and transportation often fall into this category, though not always.¹³⁸ Other goods are highly inelastic: Backup supplies are limited, there are few adequate substitutes, and obtaining more product will be slow, costly, or both. A housing shortage following a hurricane can be alleviated, but tarps, tents, and manufactured housing may have to suffice for years until permanent units slowly come online. If an earthquake collapses an essential roadway or bridge, auto traffic may have to take lengthy detours or be unable to reach destinations that previously were accessible.¹³⁹

The fact that a good is inelastic does not inevitably imply that it is a necessity: Some non-essential goods simply lack ready substitutes. The price of the grain quinoa has increased in recent years as its health benefits have become more widely understood, but quinoa is difficult to grow in large quantities.¹⁴⁰ Most Americans can live quite fulfilling lives without consuming

¹³⁷ “Elasticity of demand is a numerical measure of how responsive demand is to changes in price.” COOTER & ULEN, *supra* note 132, at 29.

¹³⁸ If an area experiences a temporary food shortage, supplies can often be shipped in from elsewhere. If a rainstorm causes a run on taxis, subways and buses may be able to fill the gap.

¹³⁹ A huge natural disaster that disrupts supply chains may lead to prolonged insufficiencies of inelastic goods and services that will be difficult to remediate, as residents of Puerto Rico learned after Hurricane Maria. *See, e.g.,* Katie Zezima, *FEMA to Stop Distributing Emergency Food and Water to Puerto Rico*, WASH. POST (Jan. 31, 2018), https://www.washingtonpost.com/national/fema-to-stop-distributing-emergency-food-and-water-to-puerto-rico/2018/01/30/e851e7b4-0602-11e8-8777-2a059f168dd2_story.html?utm_term=.5c75fd1cbf46 [<https://perma.cc/3TGB-YP53>] (“The announcement angered many who said they believe FEMA has not provided a sufficient response to an island where about one-third of residents still lack power and, in rural areas, have difficulty obtaining clean water and food.”).

¹⁴⁰ Lydia DePillis, *Quinoa Should Be Taking Over the World. This Is Why It Isn't*, WASH. POST (July 11, 2013), https://www.washingtonpost.com/news/wonk/wp/2013/07/11/quinoa-should-be-taking-over-the-world-this-is-why-it-isnt/?utm_term=.42ece1903223 [<https://perma.cc/85J4-ET2T>]; *see also* Beth Goulart, *Why Pecan Pies Have Gotten So Expensive: It's China's Fault*, SLATE (Nov. 26, 2013), <https://slate.com/human-interest/2013/11/pecan-prices-why-chinas-demand-has-made-thanksgiving-pies-more-expensive.html> [<https://perma.cc/8JX5-KPLJ>] (observing how Chinese demand has driven up the price for American pecans).

quinoa, as most did until a few years ago, and those who cannot afford this suddenly expensive grain likely will continue to survive by eating something else. Production is inelastic, but the good is not essential. Similarly, the fact that an elastic good can be procured or substituted rapidly does not always suggest that it is a luxury item. Many food items are essential but easy to supply in greater quantities when needed, and the market promptly alleviates shortages.

If demand for an inelastic good rises and stays high, prices will remain elevated because, by definition, new supplies or satisfactory substitutes cannot be provided quickly.¹⁴¹ By comparison, if demand for a more elastic good increases, new supplies will quickly become available, or consumers will make do with the next-best thing.¹⁴² The price may climb briefly, but the high elasticity means that supply will increase promptly and the price will fall back.

Thus, dynamic pricing has a self-correcting effect on the supply of highly elastic goods, and shortages and price surges will be short-lived. By contrast, dynamic pricing will have a far greater impact on the cost of inelastic goods. If demand increases and supply cannot, then the dynamic price shoots up and remains high. The price immediately tells the market to supply more of the commodity, but inelasticity means that new supply cannot meet the heightened demand. Moreover, if demand is generally erratic, prospective suppliers may be unwilling to undertake the long-term investment needed to provide higher quantities down the road. Those who need the product will endure high prices and considerable inconvenience.

If a shortage arises in a market with many off-duty Uber drivers, that may induce some drivers to give up leisure time—suddenly more costly in terms of foregone income—to transport passengers who are now prepared to pay higher prices.¹⁴³ Drivers of fixed-fare taxis will not be similarly induced, since they do not earn a thunderstorm premium, and the shortage will persist until the skies clear. The windfall for the Uber drivers, however, will be temporary, as the rising supply of drivers causes prices to slide back down until the supply and demand curves again reach

¹⁴¹ COOTER & ULEN, *supra* note 132, at 29–32.

¹⁴² *Id.*

¹⁴³ See James Surowiecki, *In Praise of Efficient Price Gouging*, MIT TECH. REV. (Aug. 19, 2014), <https://www.technologyreview.com/s/529961/in-praise-of-efficient-price-gouging/> [<https://perma.cc/J3WG-P24Y>] (quoting an Uber board member who noted that “when Uber first tested dynamic pricing in Boston in 2012, it was able to ‘increase on-the-road supply of drivers by 70 to 80 percent’”).

equilibrium.¹⁴⁴ Because the supply of ride-sharing drivers is elastic, supply, and then price, respond quickly when demand increases.¹⁴⁵

Contrast what happens if Interstate 66 outside of Washington, D.C., backs up during rush hour. A new road cannot suddenly appear. Demand will exceed supply, driving speeds will drop, and trips will take longer. There may be alternate routes or methods of transport, but those substitutes can probably absorb only a small part of the excess demand. Some drivers may search for less adequate substitutes, such as an earlier departure time or a teleconference in lieu of a face-to-face meeting. But if you need to get to or from Washington during rush hour, you have few options. This is why the Virginia Department of Transportation's experiment with dynamic pricing for single-occupant vehicles on that road has led to prices that have gone as high as \$47.50 for an auto trip of just ten miles.¹⁴⁶ The commodity—space on a crowded highway—is inelastic, and a surge in demand means that demand will exceed supply, supply cannot increase accordingly, and the direct or in-kind cost must rise.

As with necessity, elasticity is relative and depends on factors such as the existence of adequate substitutes. If you consider wheat to be an adequate substitute for quinoa, then you are in luck, as wheat is plentiful and cheap. If you must have quinoa and wheat simply will not do, then wheat is not a substitute and you must pay the higher price for quinoa or seek out a third grain. Similarly, a mid-sized city may see its housing stock increase every year by a few hundred units. That is sufficiently elastic when

¹⁴⁴ Airbnb lodgings are far more elastic than hotel rooms. A dwelling owner may decide to make the unit available only at peak times, when the high price makes it worthwhile, while a hotel ordinarily makes all rooms available on all nights. Thus, shared rooms can serve as a safety valve, providing extra capacity and dampening prices when demand is highest. See Chiara Farronato & Andrey Fradkin, *The Welfare Effects of Peer Entry in the Accommodation Market: The Case of Airbnb 3* (Nat'l Bureau of Econ. Research, Working Paper No. 24361, 2018) ("We validate this prediction by estimating a peer supply elasticity that is twice as high as hotels' elasticity.").

¹⁴⁵ This may be less true for extremely long trips, which tend to be less costly per mile. BlaBlaCar offers a long-distance ride-sharing service in a number of countries outside of the United States. *Click. Go. Together*, BLABLACAR, <https://www.blablacar.com/> [<https://perma.cc/JTZ2-ZJCD>]. See generally Benjamin Kemper, *Blablacar Is the Ride-Sharing App We Wish We Had in the U.S.*, CONDE NAST TRAVELER (Feb. 7, 2018), <https://www.cntraveler.com/story/blablacar-is-the-ride-sharing-app-we-wish-we-had-in-the-us> [<https://perma.cc/VRE2-FC96>] ("Blablacar, a French company that's been around since 2006, is a ride-share app that lets you carpool with someone traveling from, say, Madrid to San Sebastián or Mexico City to Oaxaca."); *id.* ("Blablacar prevents its drivers from making a profit by imposing strict limits on pricing.").

¹⁴⁶ See Luz Lazo, *Virginia to Tweak 66 Express Lanes Pricing to Address Tolls that Have Topped \$47*, WASH. POST (Apr. 30, 2018), https://www.washingtonpost.com/local/trafficandcommuting/virginia-to-tweak-66-express-lanes-pricing-to-address-tolls-that-have-topped-47/2018/04/30/70441ab8-4c88-11e8-84a0-458a1aa9ac0a_story.html?utm_term=.58edbb2c97fc [<https://perma.cc/5JKF-5AHF>].

population is increasing slowly but not if a hurricane suddenly destroys or damages thousands of existing units.¹⁴⁷

In addition, the elasticity of an item may change. If demand for automobiles swells unexpectedly, factories add third shifts to increase supply. But if the factory reaches peak capacity, or the skilled labor force is exhausted, or a necessary component is in short supply, or a trade war develops without warning, the elasticity of auto production can drop suddenly and the shortage will persist longer. Building a new factory or training additional skilled workers takes more time.

Inelastic goods do not necessarily exhibit volatile prices. Their prices may increase and remain high. In fact, their very inelasticity may reduce demand, and thus price. People considering moving to New York or San Francisco know that residential rental units are extremely costly and that increases in supply are highly constrained, a fact that may shift their focus to lower-rent cities. This, in turn, may slow further price increases in these already popular cities. Rents may increase steadily, but barring outside shocks, they are unlikely to jump up without warning. The very inelasticity of the product may serve to inhibit demand and moderate volatility.

C. *Public Versus Private Goods and Services*

Some goods and services are provided exclusively or primarily by the public sector. In some cases, there is no realistic alternative, as with the case of comprehensive national defense, the interstate highway system and the infrastructure for railway, shipping, and air travel. In other cases, there are economies of scale to collective provision of certain services. It might be possible for each user to generate a personal supply of electricity and water, but government entities (or heavily regulated private or quasi-private utilities) can provide plentiful, reliable, and less costly service.

The government may mandate participation in a national system to avoid free-rider problems. Social Security, health care, poverty-reduction programs, transportation, and national defense all fall into this category to some degree.¹⁴⁸ In other settings, such as education and the national park system, the commodity is a

¹⁴⁷ See, e.g., Jim Turner, *Florida Hurricane Damage Tops \$1.5 Billion*, ORLANDO SENTINEL (Dec. 16, 2016), <http://www.orlandosentinel.com/weather/hurricane/os-hurricane-damage-20161216-story.html> [<https://perma.cc/F75D-UK5Z>] (detailing Florida damage figures for hurricanes during one season).

¹⁴⁸ See POSNER, *supra* note 105, at 640 (“Whenever there are free-rider problems there is an economic argument for government intervention . . .”).

worthy but money-losing proposition, and the government subsidizes the provision of the good for the general public welfare.

Many people view types of goods and services as a public trust, in which the government provides the good or performs the service as a trustee on behalf of all citizens.¹⁴⁹ Educating children and protecting unique places are viewed as important functions that should not be entrusted entirely to private entities. The government serves in a fiduciary capacity when it supplies these commodities.

Most goods and services in the United States, however, are provided by private entities. For instance, most entertainment venues—national parks aside—are privately owned and controlled. There is likely to be only minimal backlash if Disney, a for-profit business with legal duties to its shareholders, raises admissions fees. If the National Park Service were to do the same at popular national parks, however, it might be perceived as inappropriate government profiteering at the expense of its own citizens.¹⁵⁰

Because facilities such as national parks are viewed as a public trust, there is a shared sense that they should be equally available to all. When access to national parks must be limited, it is often distributed by lottery rather than on the basis of price. For example, rooms at high-demand hotels in some parks become available on designated dates and are distributed at moderate prices to those who are fortunate enough to obtain access by phone or internet.¹⁵¹ The alternative model of raising the price to the equilibrium point would likely lead to intense public criticism. Where appropriate, a public good or service is simply made available to all on an equal basis, as with national defense, the interstate highway system, and public utility service.

None of the so-called public categories are purely public, and the distinction between public and private has become more fluid in recent decades. Commodities formerly considered public or mostly public, such as education, prison systems, and postal service, have been privatized to a much greater degree than

¹⁴⁹ See, e.g., Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 478–79, 560 (1970) (“[T]he function which the courts must perform . . . is to promote equality of political power for a disorganized and diffuse majority by remanding appropriate cases to the legislature after public opinion has been aroused.”).

¹⁵⁰ See Pérez, *supra* note 8, at 380–85 (discussing early cases challenging the validity of charging for parking on public roadways).

¹⁵¹ See, e.g., *Phantom Ranch Lottery Submission*, GRAND CANYON NAT’L PARK LODGES, https://secure.grandcanyonlodges.com/phantom-ranch-lottery?_ga=2.184572457.1071513622.1575929746-925608667.1575929746 [https://perma.cc/M8U7-SFQ3].

previously.¹⁵² Chicago has leased its on-street parking meters to a private entity.¹⁵³ Private communities today furnish many of the services that have traditionally been considered public, including roadways, recreational facilities, and security.¹⁵⁴ Some of the lodging and dining options in national parks are outsourced.¹⁵⁵ But there is probably considerable consensus among the citizenry as to what goods and services are considered public and should be available to all.

Once again, there are hybrids, which means that the distinction between public and private, as with the two other categories just discussed, is more of a continuum. Many utilities, and most cable television and internet providers, are privately owned but regulated in ways that are somewhat similar to public entities. Common carriers such as airlines are privately owned but heavily regulated. Social media platforms also are privately owned but likely to be regulated more like public utilities in the future. Some of these regulated commodities are necessities, or nearly so. And they are often industries in which economies of scale or first-mover advantages limit the amount of competition that is feasible. First-movers also benefit from the subsequent adoption—often at their own urging—of regulatory restrictions that did not impede them.¹⁵⁶ “The ‘start-up’ may not generally want regulation now, but you better believe that it’ll make the most of it once it is there.”¹⁵⁷

D. *Contrasting and Harmonizing These Three Matrices*

The previous three Sections have contrasted necessities with luxuries, elastic goods with inelastic goods, and public goods with private goods, noting all the while that these three

¹⁵² See, e.g., Laura I. Appleman, *Cashing in on Convicts: Privatization, Punishment, and the People*, 2018 UTAH L. REV. 579, 582–85 (summarizing the potential financial gains for private corrections companies).

¹⁵³ Andrew Stern, *Chicago Leases Parking Meters for \$1.16 Billion*, REUTERS (Dec. 2, 2008), <https://www.reuters.com/article/chicago-parkingmeters/chicago-leases-parking-meters-for-1-16-billion-idUSN0227950220081202> [<https://perma.cc/GH76-3BRN>] (describing a first-of-its-kind deal for the leasing of more than 36,000 parking spaces).

¹⁵⁴ ROBERT C. ELLICKSON ET AL., *LAND USE CONTROLS: CASES AND MATERIALS* 613–14 (4th ed. 2013) (discussing the functions of residential community associations).

¹⁵⁵ See, e.g., Reed Engle, *Park Concessions: Historic Privatization*, NAT’L PARK SERV.: SHENANDOAH NAT’L PARK, <https://www.nps.gov/articles/park-concessions-historic-privatization.htm> [<https://perma.cc/UAA4-X8DB>] (“Today we read a great deal about the outsourcing and privatization of governmental tasks. But for over 125 years the National Park Service has worked closely with private partners to provide for visitors’ needs.”).

¹⁵⁶ See, e.g., Lobel, *supra* note 20, at 161 (“[T]he most successful unicorn start-ups quickly become incumbents, and one way to prevent competition is to accept certain regulatory requirements that will prove more burdensome to newcomers.”).

¹⁵⁷ Ilya Shapiro & David McDonald, *Regulation Uber Alles: How Governments Hurt Workers and Consumers in the New New Economy*, 2017 U. CHI. LEGAL F. 461, 483.

pairs of polar extremes are actually points at opposing ends of an uninterrupted spectrum.¹⁵⁸ In some cases, it can be difficult to determine where a commodity falls along a given spectrum, and goods and services can shift over time, as do the matrices themselves. In addition, these three matrices are somewhat independent of each other, and the location of a good or service on one matrix does not necessarily predict where it will fall on the others. Some public goods are necessities, but others are not. Some public goods are highly inelastic, while others are more elastic. Thus, when examining any specific good or service, it is important to determine where it falls on each of the three matrices independently.

These three queries are nothing more than instruments that help us examine the more significant question of whether the sharing economy exacerbates inequality. The answer to that larger question in any given circumstance is likely to be highly nuanced rather than a simple “yes” or “no.” If an elastic luxury provided by the private market suddenly shoots up in price, we probably should not be concerned: The supply will increase quickly and temporary shortages will cause no harm. If an inelastic public necessity suddenly is in short supply, though, as might happen to one busy roadway while the only alternative route is under repair, then dynamically priced tolls on the surviving road are more worrisome. Many people have no choice but to use the public thoroughfare, there is no alternative on the horizon, and surge pricing will increase the unaffordability of the road.

There are some settings in which the platform economy and its regular use of surge pricing may increase inequality in a way that has long been tolerated and viewed as unobjectionable. Many goods range in quality from lavish to simply serviceable, and the fact that some people enjoy luxury cars while others scrape by with entry-level vehicles is not particularly troublesome, whether they are owned or shared. In other cases, the fact that a commodity can be sliced up into smaller units and sold rapidly at a constantly changing price may present inequality concerns that were not evident before. If, for example, the rapid growth of home-share listings causes the urban housing supply to shrink and fewer people can afford even the most minimal permanent accommodations, then the growth of the sharing economy is more worrisome and may merit a public or private response.¹⁵⁹

Similarly, if activities that are taxed locally, such as hotel stays, are supplanted by activities that may escape taxation,

¹⁵⁸ See *supra* Sections II.A–C.

¹⁵⁹ See *supra* notes 24–28 and accompanying text.

such as VRBO stays, governments will have less tax money available to provide public services. The many beneficiaries of these broad-based government services suffer so that a smaller number of VRBO patrons can enjoy less costly accommodations. In the case of home stays, this loss of a transfer payment from more affluent consumers to their less prosperous neighbors is particularly pernicious: Hotel taxes are imposed on transient visitors to charge them for public benefits they otherwise enjoy for free or below cost.¹⁶⁰

As the sharing economy expands, commodities that are necessities, inelastic, or public, or some combination of the three, raise the greatest concerns. As noted above, the market must provide sufficient necessities, it takes longer to expand the supply of inelastic commodities, and public goods and services should be available to all who desire them on terms that are generally equitable. The sharing economy makes more commodities more readily available to more comers, which sometimes increases scarcity, price, and the speed at which both arise. Dynamic pricing thus may price some would-be purchasers out of the market just when they need a product the most.

Finally, this entire discussion so far has assumed that all citizens are able to participate in these modern electronic markets. But some people cannot afford a smartphone or access to broadband internet, and some of those who can may not qualify for the credit card they need to purchase goods and services online.¹⁶¹ These are the same citizens who are least likely to be early adopters of new technology, suggesting that they will continue to fall further behind. Any discussion of the benefits and drawbacks of recent changes must address the ways in which non-participants in modern markets can be included without becoming further disadvantaged. If the sharing economy is increasing inequality, these are the people likely to lag the most.¹⁶²

¹⁶⁰ There is some evidence that the overall tourism sector seems to be growing and that home shares are not simply replacing hotel stays. *See, e.g.*, ARUN SUNDARARAJAN, *THE SHARING ECONOMY: THE END OF EMPLOYMENT AND THE RISE OF CROWD-BASED CAPITALISM* 121–23 (2016) (noting that the evidence is mixed but that short-term rental units are often located in neighborhoods with few hotel rooms, such as the outer boroughs of New York City); Lobel, *supra* note 20, at 114–15 (describing how the growth of Airbnb may have expanded the overall tourism industry). If this is true, then local governments are not losing existing funding but are failing to benefit from expansions.

¹⁶¹ *See* Ginia Bellafante, *How the Cashless Economy Shuts Out the Poor*, N.Y. TIMES (Dec. 6, 2018), <https://www.nytimes.com/2018/12/06/nyregion/how-the-cashless-economy-shuts-out-the-poor.html?action=click&module=News&pgtype=Homepage> [<https://perma.cc/W6J8-M4HG>].

¹⁶² *See* Schor, *supra* note 68, at 265 (“[P]latform activity is likely exacerbating inequality within the [bottom] 80% [of the population], shifting more income and opportunity to better-off households and providers.”); *id.* at 276 (noting that earning money

III. SHORT-RUN AND LONG-RUN EFFECTS OF THE SHARING ECONOMY

This Part will attempt to predict how the sharing economy might affect economic inequality in the short-run and in the long-run. Predictions are hazardous, particularly in an area in which technological breakthroughs can cause unforeseeable outcomes, and even the sharing economy itself was inconceivable just a few years ago. Nonetheless, this Part will attempt to illustrate some of the likely outcomes that future expansion of the sharing economy and increased use of dynamic pricing for goods and services might bring about.

A. *Short-Run Effects*

If demand for a commodity drops or supply increases, the equilibrium price will drop accordingly in the short run. This has always been true, but the growth of the platform economy and the increased use of dynamic pricing permit more accurate real-time valuation and allow consumers instant access to the knowledge that prices are lower. Less affluent people will now have access to commodities they did not previously recognize fell within their price range. The commodity may be available in last year's model, in an unpopular color, or at an off-peak time, but an imperfect good is usually better than no good, and if it is not, then the consumer will not buy it.¹⁶³ Thus, these price reductions should increase the well-being of those who can now obtain items they previously could not.

Differential pricing of less desirable near-substitutes also occurs in other contexts. Restaurants have long offered early-bird specials, happy hours, and, for that matter, lunch. In each case, they are trying to move a seat at a vacant table, which is a perishable commodity. If the restaurant fills a table between 4:45 and 5:45, it earns revenue that might otherwise have been lost. Of course, if the establishment offers this table at too low a price, a peak-time diner may opt for the less costly early meal,

through these platforms often requires that the provider already possess a valuable asset such as a nice home or car).

¹⁶³ This type of price drop has always existed, as patrons of the now-defunct Filene's Basement can attest. Filene's Basement not only offered odd styles and sizes at discounted prices, it also let the consumer know the dates on which future price drops would occur, thereby allowing the shopper to decide whether to pay the current reduced price or wait for the price to drop still further, at the risk that someone else might snap it up in the interim. See Martha Weinman Lear, *Remembering the Fever, and Fun, of the Basement*, N.Y. TIMES (Jan. 6, 2012), <https://www.nytimes.com/2012/01/08/fashion/farewell-to-filenes-basement.html> [<https://perma.cc/F7AT-768E>].

thereby costing the restaurant the difference in revenue if it cannot fill the now-available peak-time table. Restaurants must guess exactly what price will fill less desirable seats with new customers rather than bargain-hunting current patrons.¹⁶⁴

New algorithms and widespread use of smartphones permit a far greater array of goods and services to be priced differentially. The high-end Chicago restaurant Alinea presells all of its dinner seats online, with differential pricing for different days of the week, times of the evening, and number of courses.¹⁶⁵ Even the cheapest meal at Alinea can hardly be described as a bargain, but a ten-course meal late on a Wednesday priced at \$205 is a less costly substitute for an eighteen-course feast at 7:30 on a Saturday priced at \$360.¹⁶⁶

The growth of the sharing economy thus increases the speed at which less desirable goods become more readily obtainable by people of limited means, but also increases the speed at which more precious goods become available only to those of greater affluence. Just when a product becomes more desirable or less available, poorer people will become unable to afford it. People of limited means will be better able to acquire a greater abundance of less desirable goods and services but less able to procure more desirable commodities. What used to be a feature of a handful of products such as airline tickets is rapidly becoming an attribute of all aspects of our market economy.

The expanded reach of the sharing economy thus means that prices will become more volatile. Many people have experienced the frustration of having an airline seat disappear because the airline's pricing algorithm raises the price before the buyer clicks "Purchase." Because dynamic prices move in real time, purchasers will face more surprises and will be less able to plan purchases in advance. Consumers for whom minor price differences matter the most lose the ability to plan ahead, particularly for larger purchases. These attributes of the sharing

¹⁶⁴ De facto surge pricing is common at many restaurants on popular nights such as New Year's Eve and Valentine's Day.

Restaurants have long known that charging a fee for a reservation offends people's sensibilities—but that on a big night like New Year's Eve you can require everyone to eat an expensive fixed-price menu with lobster and filet. Diners will happily pay a surge price without thinking of it as such.

Irwin, *supra* note 34.

¹⁶⁵ *Book a Table*, ALINEA, <https://alinearestaurant.com/site/reservations-contact/> [<https://perma.cc/WGH8-QWUW>]. Diners must prepay for their meal when they book their reservation but can add alcoholic beverages at the time of the meal, thereby spreading the pain of the large check. *Id.*

¹⁶⁶ *See Alinea*, TOCK, <https://www.exploretock.com/alinea/> [<https://perma.cc/K64J-6Z93>] (comparing pricing options).

economy, once again, are of the greatest concern when the commodity in question is a necessity, inelastic, or public.¹⁶⁷

B. Long-Run Effects

If predicting short-run effects involves considerable guesswork, then predicting longer-run effects is even more perilous. But if we assume that the laws of economics and human behavior remain somewhat constant, we can make some tentative forecasts. Less affluent people may enjoy some long-run benefits as sharing becomes a greater portion of our economy. To the extent they may have been priced out of securing certain commodities due to inadequate supplies or sudden increases in demand in the short-term, the market should self-correct more quickly than before, as the high price telegraphs a message to suppliers to produce more goods. As new supplies enter the market, the price will drop. There will be price volatility along the way and sellers will price-discriminate as much as they can, but the market will continue to establish new and constantly shifting equilibria, and more rapidly than in the past. Less affluent consumers may ultimately benefit by obtaining the good, if more slowly.

This equilibrium is actually beneficial to less affluent people in two ways. First, as just noted, after a price jolt triggers an increase in supply, the cost will drop back down. Second, the temporarily enhanced demand will lead to an increase in jobs supplying this commodity.¹⁶⁸ Someone in the supply chain is meeting this newly increased demand, and that supplier may be an Uber driver or home-sharer who benefits financially by supplying a good that the market has suddenly requested at a favorable price. These workers will need to be nimble, though, as new information continuously causes shifts in other supply and demand curves. If the price of rides drops too much, that Uber driver may need to supplement her income by finding a different demand to meet.

Less affluent people thus benefit from dynamic pricing by supplying commodities that are newly scarce, thereby increasing their income in flexible ways, and by using this augmented income to afford more goods and services at favorable prices. They enjoy the fruits of their labors to the extent their growing budgets permit, suppliers gain by expanding their markets, and commodities that previously may have gone to waste can be

¹⁶⁷ See *supra* Part II.

¹⁶⁸ Professor Juliet Schor notes, however, that the platform economy allows white-collar workers to supplement their incomes by engaging in blue- and pink-collar work, which might exacerbate existing income inequality. See Schor, *supra* note 68, at 272–74.

enjoyed more efficiently.¹⁶⁹ This aids the economy overall and may also be friendlier to the environment.¹⁷⁰

The expansion of off-peak dynamic pricing may benefit less wealthy consumers in other ways. Uber now offers UberPool for budget-conscious riders, in which multiple passengers with different pick-up and drop-off locations share one vehicle for overlapping rides.¹⁷¹ These passengers enjoy slower service at a lower price, the driver benefits by collecting more in total fares, and fewer vehicles can provide transportation to an increased number of riders.¹⁷² The technology that gave birth to the sharing economy allows an amalgamation of luxury, middle-of-the-road, and third-tier services to co-exist and adapt to changing conditions flexibly. Improved algorithms can plan routes more efficiently than harried taxi dispatchers, and underserved communities enjoy improved service.¹⁷³

Not only do less affluent people benefit from new options that previously were non-existent or unaffordable, and not only can they sell more goods and services to others, they also may benefit by spending some of their new income on previously-out-of-reach luxury items. The monthly payments on a vehicle may have been unaffordable in the past, but their increased income from the sharing economy, perhaps earned by driving people around for a

¹⁶⁹ See, e.g., Miller, *supra* note 122, at 164 (“[T]he sheer volume of Airbnb rentals far surpasses any loss in market share seen by hotels.”).

¹⁷⁰ Note, though, that technology also allows for the more efficient use of underutilized roadways by those with navigation apps, to the consternation of people who live on those roads. See, e.g., Lisa W. Foderaro, *Navigation Apps Are Turning Quiet Neighborhoods into Traffic Nightmares*, N.Y. TIMES (Dec. 24, 2017), <https://www.nytimes.com/2017/12/24/nyregion/traffic-apps-gps-neighborhoods.html> [<https://perma.cc/UCY8-MC4G>].

¹⁷¹ See *UberPool: Together We Save*, UBER, <https://www.uber.com/us/en/ride/uberpool/> [<https://perma.cc/UCY8-MC4G>].

¹⁷² Professor Nicole Garnett has examined the prevalence of similar informal transportation arrangements in New York City’s outer boroughs. See Nicole Stelle Garnett, *The Road from Welfare to Work: Informal Transportation and the Urban Poor*, 38 HARV. J. ON LEGIS. 173, 182 (2001) (“[D]espite having shorter average commute distances, poor minority workers still spend significantly more time commuting to work than do more affluent white workers.”); *id.* at 198–217 (discussing the prevalence of informal private jitney services in New York and Miami); see also Gregory Scruggs, *Mass Movements, Mixed Results: Latin American Cities Lead the Way on Urban Transit—But Who Benefits?*, LINCOLN INST. LAND POL’Y: LANDLINES (July 2018), <https://www.lincolniust.edu/publications/articles/mass-movements-mixed-results> [<https://perma.cc/3DDM-XKSR>] (“[A] day laborer in Rio de Janeiro’s favelas can count on a shared van that serves his neighborhood when the city’s official bus system does not.”).

¹⁷³ See Jeffery C. Mays, *Uber Gains Civil Rights Allies Against New York’s Proposed Freeze: ‘It’s a Racial Issue,’* N.Y. TIMES (July 29, 2018), <https://www.nytimes.com/2018/07/29/nyregion/uber-cap-civil-rights.html> [<https://perma.cc/ELB2-U4AF>] (“Uber statistics, [a spokesman] said, show that ridership in neighborhoods such as East New York in Brooklyn and Kingsbridge in the Bronx had more than doubled since this time last year.”); Uber 2018, *Don’t Strand NYC*, YOUTUBE (July 25, 2018), <https://www.youtube.com/watch?v=nH3B2-vWIw0&feature=youtu.be> [<https://perma.cc/P7KR-H67N>] (Uber advertisement opposing proposed limits on Uber in New York City).

few hours a week, might now allow them to purchase that car. These consumers will enjoy new transportation options either by being someone else's automobile landlord for a few minutes or someone else's automobile tenant, and perhaps both.¹⁷⁴

As a result, every participant in the market will be in a position to own or rent a wider variety of goods and services, now available in exactly the size and configuration each party needs. People will enjoy greater access to the precise mix of goods and services they want and can acquire this more diverse package to the extent their budgets permit. If funds are tight, they still may be able to obtain less fancy models or off-peak services, which is usually better than not being able to afford anything.

The distinction that this Section draws with the previous one, between long-run and short-run effects, is somewhat illusory. The difference is one of timing, of course, but it is also a feedback loop of cause and effect: One event leads to an immediate response, and that response then causes a longer-run counter-response. Over time, the ripples on the pond gradually drop in amplitude and the market reaches its new equilibrium, until the next set of changes begins advancing through the system.

In the sharing economy, this process happens quickly. Information is disseminated almost instantaneously. Consumers and suppliers are in a position to evaluate new knowledge rapidly and to make economic decisions promptly. Delivery is immediate for goods such as e-books, and nearly so for others, with Amazon Prime now offering same-day delivery in some cities and testing Amazon Prime Air for delivery by drone.¹⁷⁵ Second-order effects become apparent far more rapidly than they used to.

All of this discussion ignores the effect that still newer technologies—some on the drawing board today, others impossible to imagine—will have on the economy. Some burgeoning developments are already beginning to have their impact, as we all try to anticipate how drones and autonomous vehicles will reshape our world. Still others seem to come out of the blue: The first iPhone was released on June 29, 2007, an economic cataclysm with enormous repercussions that most people could not have foreseen before that date.¹⁷⁶

¹⁷⁴ Even if this increase in sharing does not provide additional transportation options—perhaps each rider was managing to afford their own vehicle, if with some difficulty—it is certainly more efficient, as one car can now do the work that two or more used to.

¹⁷⁵ *Amazon Prime Air*, AMAZON, <https://www.amazon.com/Amazon-Prime-Air/b?ie=UTF8&node=8037720011> [<https://perma.cc/L9SF-2G5L>] (“We’re excited about Prime Air—a delivery system from Amazon designed to safely get packages to customers in 30 minutes or less using unmanned aerial vehicles, also called drones.”).

¹⁷⁶ WALTER ISAACSON, *STEVE JOBS* 474 (2011).

There is no reason to assume that the iPhone was the last major invention that will ever have this type of impact.¹⁷⁷ If anything, world-changing events such as this seem to arise more frequently than before.¹⁷⁸ Just as Alexander Graham Bell could not have imagined smartphones and Thomas Edison could not have imagined Spotify, who knows what Steve Jobs did not imagine?¹⁷⁹ And who knows what innovation is in the offing that will make Steve Jobs seem as far remote in the past as Bell and Edison seem today?¹⁸⁰

C. Transition Issues

We are in the early stages of transitioning to an economy that relies on access and sharing, and more and more people have become willing to lease assets and services in creative ways.¹⁸¹ A person may buy a home with the idea of letting it out for short periods of time or may buy an auto planning to transport passengers for even shorter increments.¹⁸² Conversely, someone with only sporadic needs for a home or auto may decide to access it for brief periods as needed even though they might never contemplate outright ownership.¹⁸³ This trend appears likely to continue, as people devise new ways of divvying up assets in ways that more closely correlate with their needs, desires, and budgets. Commodities will be shared cooperatively among multiple users, waste may be reduced, the environment

¹⁷⁷ Fifteen years ago, if someone had predicted the rapid increase in the use of unmanned aerial vehicles, they might have invested in a company that would allow Blockbuster to deliver videos to its customers rapidly by drone. In retrospect, that would have been a poor investment, as it overestimated the impact of one technological transformation while utterly failing to foresee another. See, e.g., Alex Horton, *Why Are You Still Here?: Inside the Last Blockbuster in America*, WASH. POST (July 16, 2018), https://www.washingtonpost.com/news/business/wp/2018/07/14/why-are-you-still-here-inside-the-last-blockbuster-left-in-america/?utm_term=.911b23135c84 [<https://perma.cc/BN83-GQ5T>] (“In 1989, a Blockbuster store opened every 17 hours, The Post’s Samantha Schmidt reported last year. But in the late 2000s, it seemed that the stores were closing at that same pace.”).

¹⁷⁸ See RAY KURZWEIL, *THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY* 35 (2005) (describing “[t]he ongoing acceleration of technology” and “the acceleration of the pace of and the exponential growth of the products of an evolutionary process”).

¹⁷⁹ See Kara Swisher, *Owning a Car Will Soon Be as Quaint as Owning a Horse*, N.Y. TIMES (Mar. 22, 2019), <https://www.nytimes.com/2019/03/22/opinion/end-of-cars-uber-lyft.html> [<https://perma.cc/6MVP-XFKU>].

¹⁸⁰ See FTC, *THE “SHARING” ECONOMY*, *supra* note 49, at 8 (“[T]he speed and unpredictability of this innovation will likely make it necessary to adjust regulation substantially as sharing economy markets develop, and therefore call[s] for flexibility in regulatory approaches and avoidance of preemptive regulation.”).

¹⁸¹ See *supra* notes 52–59 and accompanying text.

¹⁸² See *supra* notes 52–59 and accompanying text.

¹⁸³ See *supra* notes 77–80 and accompanying text.

might benefit, work schedules will become more flexible, and living standards should increase.¹⁸⁴

But rapid transformation of a market leads to displacement of those who assumed that the old method of doing business would not change so rapidly and unexpectedly. No one can safely assume that current conditions will persist forever, and people typically have no legal right to protection of their business expectations.¹⁸⁵ The sudden expansion of the sharing economy, however, and the fact that it emerged with so little forewarning, has shocked and harmed some market actors, sometimes with tragic results.¹⁸⁶ The sharing economy may create plenty of winners, but it causes other market participants to lose.

It is likely that the overall benefits of the sharing economy will be far greater than the losses and displacement it will create.¹⁸⁷ Those benefits, however, will not be distributed evenly. The fact that total gains may vastly exceed total losses will be little consolation to the driver who purchased a New York City taxi medallion in 2013 for \$1 million¹⁸⁸ and has watched its value plummet by roughly three-quarters.¹⁸⁹ Does someone—the government, the taxpayers, or the workers, passengers, and shareholders who benefit from the advent of ride-sharing—owe anything to that displaced medallion owner?¹⁹⁰

¹⁸⁴ See John O. McGinnis, *The Sharing Economy as an Equalizing Economy* 11–12 (Northwestern Univ. Pritzker Sch. of Law Pub. Law & Legal Theory No. 18-19, 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3225868 [<https://perma.cc/WC8N-XXN9>] (discussing non-monetary benefits that sharing economy jobs may provide).

¹⁸⁵ Cf. *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 124 (1978) (recognizing constitutional protection for “distinct investment-backed expectations” in certain circumstances).

¹⁸⁶ See, e.g., Ginia Bellafante, *A Driver’s Suicide Reveals the Dark Side of the Gig Economy*, N.Y. TIMES (Feb. 6, 2018), <https://www.nytimes.com/2018/02/06/nyregion/livery-driver-taxi-uber.html> [<https://perma.cc/69XA-SSU2>] (“On Monday morning, Doug Schifter, a livery driver in his early 60s, killed himself with a shotgun in front of City Hall in Lower Manhattan, having written a lengthy Facebook post several hours earlier laying out the structural cruelties that had left him in such dire circumstance.”).

¹⁸⁷ If this turns out not to be true, then the expansion of the sharing economy is an unfavorable development that the market will likely resist.

¹⁸⁸ In July 2013, four taxi medallions were sold for prices ranging from \$1,000,000 to \$1,050,000. N.Y.C. Taxi & Limousine Comm’n, *July 2013 Medallion Transfers*, NYC.GOV, http://home.nyc.gov/html/tlc/downloads/pdf/july_2013_medallion_transfers.pdf [<https://perma.cc/MQ84-VP6Z>].

¹⁸⁹ In July 2018, thirty-six medallions were sold, twenty-two of them via foreclosure. Setting aside the five that passed through estates without consideration, prices ranged between \$145,000 and \$360,000 except for two that appear to have sold for \$1,000,000 each. N.Y.C. Taxi & Limousine Comm’n, *July 2018 Medallion Sales Chart*, NYC.GOV, http://home.nyc.gov/html/tlc/downloads/pdf/july_2018_medallion_transfer_list.pdf [<https://perma.cc/TE67-UMRB>].

¹⁹⁰ See Winnie Hu, *Taxi Medallions, Once a Safe Investment, Now Drag Owners Into Debt*, N.Y. TIMES (Sept. 10, 2017), <https://www.nytimes.com/2017/09/10/nyregion/new-york-taxi-medallions-uber.html?action=click&module=Top%2520Stories&pgtype=Homepage> [<https://perma.cc/B7PD-HWX7>] (discussing the increasing number of foreclosures on taxi medallions).

Similar questions arose in the 1990s, when the United States was considering ratification of the North American Free Trade Agreement (NAFTA).¹⁹¹ That three-nation treaty was designed to create overall benefits, including fair competition, increased investment, and, presumably, lower-cost commodities, but would have uneven effects on particular industries and workers.¹⁹² For example, the increased availability of inexpensive goods from Mexico would reduce prices for all American shoppers but would have negative effects on the more concentrated group of people employed in the American-based industries that had previously manufactured those goods domestically.¹⁹³ That is what happened, although experts disagree about the causes.¹⁹⁴

Workers who believe they were displaced by this treaty, some of whom are still suffering financially, are likely supporters of President Trump's promise to pull the United States out of NAFTA.¹⁹⁵ The treaty functioned as designed but offered inadequate recompense to those who bore its economic brunt.¹⁹⁶ Had NAFTA's American beneficiaries transferred some of their gains to NAFTA's American victims, those who were better off still would have benefited, if somewhat less, while those who were worse off would have seen their suffering alleviated at least in part.¹⁹⁷ Instead, there was a net positive impact on the American economy, the winners won more than they otherwise might have, the losers lost rather than breaking even or coming out ahead, and a small group bore—and

¹⁹¹ See North American Free Trade Agreement, U.S.-Can.-Mex., Dec. 17, 1992, 32 I.L.M. 289 (1993).

¹⁹² *Id.* § 102 (Objectives).

¹⁹³ James McBride & Mohammed Aly Sergie, *NAFTA's Economic Impact*, COUNCIL ON FOREIGN REL. (Oct. 1, 2018), <https://www.cfr.org/backgroundunder/naftas-economic-impact> [<https://perma.cc/A7QM-QP6T>] (“[W]hile the costs are highly concentrated in specific industries like auto manufacturing, the benefits of a deal like NAFTA are distributed widely across society.”).

¹⁹⁴ See, e.g., *20 Years On, Debating Whether NAFTA Is Success Story or Damaging Policy*, PBS: NEWS HOUR (Feb. 20, 2014), <https://www.pbs.org/newshour/show/nafta-success-story-damaging-policy> [<https://perma.cc/5LXE-FZ3Q>] (transcript of televised debate between former U.S. Trade Representative Carla Hills and Director of Public Citizen Global Trade Watch Policy Group Lori Wallach).

¹⁹⁵ See Glenn Thrush, *Trump Says He Plans to Withdraw from NAFTA*, N.Y. TIMES (Dec. 2, 2018), <https://www.nytimes.com/2018/12/02/us/politics/trump-withdraw-nafta.html> [<https://perma.cc/FPA6-BU4N>].

¹⁹⁶ Cf. FRIEDMAN, *supra* note 65, at 329 (describing a type of wage insurance for workers in this position in which “displaced workers would receive a wage supplement amounting to half the gap between their current and previous earnings, up to an annual maximum of \$10,000”).

¹⁹⁷ This discussion focuses exclusively on domestic policy and intentionally disregards the numerous and very real benefits and losses to those in Mexico and Canada.

continues to bear—most of the burden of these changes and likely resents that fact.¹⁹⁸

The early signs from the sharing economy suggest that we have again embarked on a journey in which our economic system, red in tooth and claw, inflicts pain on those who happen to lose as a result of change. Many of those who suffer, not surprisingly, will be less affluent participants in our economic system who have little access to the levers of power, much like the factory workers whose jobs moved to Mexico following NAFTA.¹⁹⁹ The sharing economy may end up benefiting both Uber drivers and Uber passengers, but it will leave many taxi medallion holders behind. Even if these medallion holders move on to new jobs—perhaps as Uber drivers—they will forfeit much of the value of their costly medallions.

*Illinois Transportation Trade Association v. City of Chicago*²⁰⁰ is instructive. This case involved constitutional challenges by taxicab and livery service owners and operators to Chicago's adoption of an ordinance that holds ride-sharing services to more permissive standards for operation.²⁰¹ The plaintiffs argued, among other things, that the city had unconstitutionally taken their taxi medallions without just compensation, in violation of the Takings Clause.²⁰² Judge Posner, writing for a unanimous three-judge panel of the Seventh Circuit, shredded this argument, beginning by noting that “[p]roperty’ does not include a right to be free from competition.”²⁰³ His opinion leaves little doubt that Chicago bears no legal responsibility for the economic impact of its decision to regulate ride-sharing differently from taxi and livery services:

Indeed when new technologies, or new business methods, appear, a common result is the decline or even disappearance of the old. Were the old deemed to have a constitutional right to preclude the entry of the new into the markets of the old, economic progress might grind to

¹⁹⁸ For a useful comparison, see Paul Waldman, *A \$12 Billion Solution to a Political Problem of Trump's Own Making*, WASH. POST (July 24, 2018), https://www.washingtonpost.com/business/economy/white-house-readies-plan-for-12-billion-in-emergency-aid-to-farmers-caught-in-trumps-escalating-trade-war/2018/07/24/7bec9af4-8f4d-11e8-b769-e3fff17f0689_story.html?utm_term=.79b1a5a9f170 [<https://perma.cc/Z4PB-ZCSY>] (noting that “the new plan could revive debates about taxpayer-funded bailouts and the degree to which Trump’s trade strategy is leading to unforeseen costs”).

¹⁹⁹ For a thoughtful discussion of this issue authored soon after NAFTA’s adoption, see Fran Ansley, *Inclusive Boundaries and Other (Im)Possible Paths Toward Community Development in a Global World*, 50 U. PENN. L. REV. 353 (2001) (discussing plant closings in the Southeastern United States after NAFTA); *id.* at 389–405 (describing interactions between displaced American workers and the Mexican workers who displaced them).

²⁰⁰ *Illinois Transp. Trade Ass’n v. City of Chicago*, 839 F.3d 594 (7th Cir. 2016).

²⁰¹ *Id.* at 595–96.

²⁰² *Id.* at 596.

²⁰³ *Id.*

a halt. Instead of taxis we might have horse and buggies; instead of the telephone, the telegraph; instead of computers, slide rules. Obsolescence would equal entitlement.

Taxi medallions authorize the owners to own and operate taxis, not to exclude competing transportation services. The plaintiffs in this case cannot exclude competition from buses or trains or bicycles or liveries or chartered sightseeing vehicles or jitney buses or walking; indeed they cannot exclude competition from taxicab newcomers, for the City has reserved the right (which the plaintiffs don't challenge) to issue additional taxi medallions. Why then should the plaintiffs be allowed to exclude competition from Uber? To this question they offer no answer.²⁰⁴

The Court is almost certainly correct in its result, and there is little reason to reduce transportation options and maintain inflated costs to the detriment of Chicago's passengers.²⁰⁵ The real question, though, is not whether Chicago was constitutionally required to protect its licensed taxicab and livery drivers from competition by the sudden and rapid growth of ride-sharing services.²⁰⁶ Rather, it is whether Chicago could be doing something to insulate participants in an established and heavily regulated industry against the displacement that results as technological change makes the service they have long provided, at considerable personal investment, less desirable.²⁰⁷ And if we protect the taxi driver whose six-figure medallion is plummeting in value, why should we not extend the same safeguards to the low-wage American worker who is replaced by a lower-wage Mexican or Chinese worker, a robot, or an algorithm?²⁰⁸

²⁰⁴ *Id.* at 596–97.

²⁰⁵ See Isaacson, *supra* note 56 (describing “city officials [that] had become so beholden to and intimidated by the taxi industry that the medallion and licensing system had become a way to protect the interests of the owners rather than of passengers”).

²⁰⁶ See also *Joe Sanfelippo Cabs, Inc. v. City of Milwaukee*, 839 F.3d 613, 614 (7th Cir. 2016) (companion case to *Illinois Transp. Trade Ass'n*); *Phila. Taxi Ass'n, Inc. v. Uber Techs., Inc.*, 886 F.3d 332, 344 (3d Cir. 2018) (“Were we to award Appellants antitrust damages to compensate for their financial injuries, we would condemn vigorous competition, rather than encourage it.”); *Checker Cab Operators, Inc. v. Miami-Dade County*, 899 F.3d 908, 912 (11th Cir. 2018) (“The medallions conferred by the County created a license to offer for-hire taxicab services in Miami-Dade County; the County did not afford the Medallion Holders the right to exclude competition in the marketplace.”).

²⁰⁷ See, e.g., Miller, *supra* note 122, at 176 (“[W]hile it might be easy to view the situation as a David and Goliath tale of fighting for a defined market share, the truth is likely more complicated.”).

²⁰⁸ The Uber driver who just made a taxi driver's job obsolete ought to be sympathetic, as they probably recognize that autonomous vehicles will soon relegate them to the same fate. See generally Katrina M. Wyman, *Taxi Regulation in the Age of Uber*, 20 N.Y.U. J. LEGIS. & PUB. POL'Y 1, 77–98 (2017) (discussing and rejecting the legal, economic, and fairness justifications for compensating owners of taxi medallions); David K. Suska, *Regulatory Takings and Ridesharing: “Just Compensation” for Taxi Medallion Owners?*, 19 N.Y.U. J. LEGIS. & PUB. POL'Y 183, 198–212 (2016) (same, but arguing in favor of transition relief for efficiency reasons).

Chicago might have imposed a one-dollar fee on every shared ride, with the money dedicated to educating former taxi drivers and easing their transition into another job. The city could have bought back a certain number of medallions, so that the reduction in demand for these mandatory licenses would be partially offset by a decrease in supply. It might have established higher barriers of entry for Uber at the outset—perhaps by requiring a less costly type of ride-share medallion—while telegraphing that it would gradually reduce these barriers over time, so that traditional taxi medallion holders would have a longer period in which to amortize their investment and begin transitioning into other jobs.

None of these policies are required, in the court's view, and some might be viewed as anti-competitive by Uber, Lyft, and their supporters or might be opposed by the riders or taxpayers who would have to fund them. But each might have smoothed over some of the rougher edges of our economic system by transferring some of the gainers' gains to help offset the losers' losses. These alternatives also might reduce some of the political backlash that difficult transitions generate among those who suffer the greatest displacement. Even Lyft itself has floated the idea of voluntarily adopting a transfer payment system to assist displaced taxi drivers.²⁰⁹

New York City has recently taken steps to soften the transition to ride sharing.²¹⁰ The City has capped the number of ride-sharing vehicles in the city for two years and may extend this limit beyond that,²¹¹ establishing the equivalent of a temporary medallion program for ride shares to match the one already in existence for yellow cabs.²¹² This approach recreates a gentler version of the transportation cartel that existed before

²⁰⁹ Ginia Bellafante, *Uber and the False Hopes of the Sharing Economy*, N.Y. TIMES (Aug. 9, 2018), <https://www.nytimes.com/2018/08/09/nyregion/uber-nyc-vote-drivers-ride-sharing.html> [<https://perma.cc/S5AB-R8CL>] (“[T]here had been discussion, led primarily by Lyft, of a hardship fund to be set up by the various ride-hailing companies to alleviate some of the suffering conventional drivers have experienced, but that was only going to go forward if the city agreed not to impose a cap [on the number of ride-sharing drivers].”).

²¹⁰ See Fitzsimmons, *supra* note 42.

²¹¹ Irina Ivanova, *New York Extends Freeze on New Uber and Lyft Drivers*, CBS NEWS (June 12, 2019), <https://www.cbsnews.com/news/nyc-uber-cap-gets-extended/> [<https://perma.cc/6BYR-4JK7>].

²¹² See Fitzsimmons, *supra* note 42 (“Councilman Eric Ulrich, a Republican from Queens, said he opposed the cap, arguing that limiting Uber to help yellow taxis was similar to regulating Netflix, the streaming service, to help Blockbuster, the video rental chain.”); cf. Gordon Y.K. Pang, *Honolulu Mayor Vetoes Bill that Caps Uber/Lyft Surge Pricing*, HONOLULU STAR-ADVERTISER (June 19, 2018), <http://www.staradvertiser.com/2018/06/19/breaking-news/caldwell-vetoes-bill-that-caps-uberlyft-surge-pricing/> [<https://perma.cc/MAP2-J8RZ>].

the advent of ride-sharing.²¹³ New York has also adopted a minimum wage of \$17.22 after expenses for ride-sharing drivers, effectively transferring funds from patrons and platform shareholders to service workers.²¹⁴ Passengers, or perhaps the intermediary platform, must pay this minimum hourly amount to drivers, which means that the beneficiaries of the ride-share revolution will have to hand over some of their gains to the industry's workers. Depending on its final form, this proposal might reduce the competitive advantages ride-sharing drivers enjoy over drivers of traditional taxis. This is a tentative step in the direction of using some of the benefits created by the sharing economy to mitigate individual losses.²¹⁵

IV. DYNAMIC PRICING, ALLOCATION OF SCARCE RESOURCES, AND THE POSSIBILITY OF INTERVENTION

The discussion so far has addressed whether the recent expansion of the sharing economy will increase inequality, particularly through the spread of dynamic pricing. That inquiry, though, raises the more basic economic question of how we should allocate scarce resources.

A. *Dynamic Pricing and the Allocation of Scarce Resources*

We have seen that the dynamic pricing characteristic of much of the sharing economy is often more economically efficient than the method of allocation it displaces.²¹⁶ As sharing technology continues to advance, suppliers and consumers enjoy increased and rapid access to information.²¹⁷ Every time a supply

²¹³ See Fitzsimmons, *supra* note 42 (“Uber has warned its riders that the cap could produce higher prices and longer wait times for passengers if the company cannot keep up with the growing demand.”). Since the City will not be issuing new licenses for at least one year, a secondary market for ride-sharing licenses might develop in parallel with the secondary market in traditional taxi medallions. Some of the benefit intended for yellow-cab drivers might be transferred to those who currently hold for-hire-vehicle licenses, since those are likely to increase in value due to the government’s artificially created shortage.

²¹⁴ Joshua Brustein, *New York Sets Nation’s First Minimum Wage for Uber, Lyft Drivers*, BLOOMBERG (Dec. 4, 2018), <https://www.bloomberg.com/news/articles/2018-12-04/new-york-sets-nation-s-first-minimum-wage-for-uber-lyft-drivers> [<https://perma.cc/CJK6-MFTW>].

²¹⁵ Every step taken to address one problem will likely create others. See, e.g., Emily Badger, *What’s the Right Number of Taxis (or Uber or Lyft Cars) in a City?*, N.Y. TIMES (Aug. 10, 2018), <https://www.nytimes.com/2018/08/10/upshot/uber-lyft-taxi-ideal-number-per-city.html> [<https://perma.cc/6CUW-NUX8>] (“The right number [of ride-sharing vehicles] then is best thought of as more of a sweet spot in the trade-offs between convenience and congestion; high wages and short waits; what’s best for individuals and what’s best for everyone.”).

²¹⁶ See *supra* Sections I.A–B.

²¹⁷ See *supra* Sections I.A–B.

or demand curve shifts, the price equilibrates almost instantly.²¹⁸ This leads to more precise pricing and re-pricing while also increasing volatility and uncertainty.²¹⁹ The growth of the sharing economy also makes it more feasible for multiple market participants to co-own assets in a variety of different legal structures that were not practicable just a few years ago.²²⁰

The platform economy, then, seems to be the neoclassical economist's dream. Microeconomics is often criticized because its assumptions do not reflect actual human behavior.²²¹ People are not always rational. They may lack the information they need to make wise decisions. Transactions costs may make desirable behavior cumbersome or expensive.²²² The sharing economy reduces these problems, by providing massive quantities of information and processing capacity to consumers and suppliers cheaply and quickly. Armed with this information, economic actors can act more like the neoclassical model predicts they will.

In some respects, this reduction of drag will be beneficial to most market participants.²²³ Goods and services will be promptly allocated at an ever-changing equilibrium price on the basis of current supply and demand. Shifts will be telegraphed throughout the market immediately, causing the expected responses, and the market will reach a new equilibrium rapidly. Lower transaction costs should translate into lower prices.²²⁴ These benefits will happen far more quickly than in the past, and utility will increase.²²⁵

Levels of service and product quality will stratify, with a menu of a la carte add-ons replacing a single unitary product or

²¹⁸ See *supra* Sections I.A–B.

²¹⁹ See *supra* Sections I.A–B.

²²⁰ See *supra* notes 74–77 and accompanying text.

²²¹ See POSNER, *supra* note 105, at 3–15, 20–22.

²²² “Transactions costs” is sometimes used as a synonym for “middlemen,” including brokers, agents, and lawyers. See, e.g., Ronald J. Gilson, *Value Creation by Business Lawyers: Legal Skills and Asset Pricing*, 94 YALE L.J. 239, 241–43 (1984) (describing and contesting this perception). Reducing these costs may grease the overall market but might also cause displacement in fields such as travel agency, real estate brokerage, and legal services, as consumers become better equipped to perform these services for themselves or to employ low-cost apps to do it for them.

²²³ See SUNDARARAJAN, *supra* note 160, at 129 (“[O]ur models project massive gains in consumer surplus, on the order of tens of billions of dollars annually in the United States alone. Most strikingly, lower-income households will enjoy these gains disproportionately.”).

²²⁴ See Lobel, *supra* note 20, at 106–11 (illustrating ways in which online platforms reduce transactions costs).

²²⁵ This is not meant to suggest that these increases in utility will be distributed equally. For a thoughtful discussion of this question, see Zachary Liscow, *Is Efficiency Biased?*, 85 U. CHI. L. REV. 1649, 1682 (2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3018796 [<https://perma.cc/A36N-64JG>] (“[E]fficient policies are tilted in favor of rich-biased policies.”).

service.²²⁶ Instead of a fixed-price ticket for a movie, there will be a range of prices depending on seat location, day of the week, time of day, and popularity of the film. Each consumer will have more options for selecting the precise level of quality and service that matches their requirements and pocketbook.²²⁷ Needs, desires, and budgets can be more finely calibrated and coordinated.²²⁸ If a resource is scarce and desirable, each consumer of more limited means can make tradeoffs that allow them to enjoy the specific benefits of the resource that are most essential to that particular user.²²⁹

But these features will have predictable downsides as well. Prices will become less stable, rising suddenly in response to demand spikes or unanticipated shortages.²³⁰ It will become harder to budget, since planning future expenditures requires some certainty as to what their cost will be on the expected purchase date.²³¹ Consumer expectations are more likely to be dashed, leading to greater disappointment and uncertainty. Economic decisions will become more complex, as every basic item comes with an array of upgrades, much like present-day airline tickets. The shopping process will take longer, and the ultimate price will be more masked.²³²

B. *The Possibility of Intervention in the Market*

There is legitimate political disagreement as to whether or when any intervention in the operation of the free market is warranted. But if there is to be intervention at all, the case for

²²⁶ See *supra* note 103 and accompanying text.

²²⁷ See *supra* note 103 and accompanying text.

²²⁸ See *supra* note 103 and accompanying text.

²²⁹ This stratification also applies to access to certain commodities. The “I Know the Chef” app, with elite packages available for \$1,250 per year, gives users priority on the waiting lists for hot restaurants. Stephanie Strom, *A Brief Guide to the Newer Reservation Apps*, N.Y. TIMES (Aug. 29, 2017), <https://www.nytimes.com/2017/08/29/dining/restaurant-reservation-apps.html> [<https://perma.cc/95U9-VZQM>]. Similarly, those who wish to attend Supreme Court oral arguments may pay line-sitters to obtain access for them. Robert Barnes, *Should Wanting to See the Supreme Court Require Nights on the Sidewalk?*, WASH. POST (Dec. 17, 2017), https://www.washingtonpost.com/politics/courts_law/should-wanting-to-see-the-supreme-court-requires-nights-on-the-sidewalk/2017/12/17/e48df938-db6e-11e7-b1a8-62589434a581_story.html?utm_term=.3f53c459d732 [<https://perma.cc/7AL8-AAR8>].

²³⁰ See *supra* Section I.B.

²³¹ Just as smaller, less affluent consumers may suffer negative consequences from these features, so might smaller, less well-capitalized suppliers. The Amazons of the world enjoy considerable competitive advantages over independent booksellers.

²³² This discussion assumes that the platform economy really is untainted capitalism and not “just one more play for capital accumulation in an increasingly stratified economy.” Frank Pasquale, *Two Narratives of Platform Capitalism*, 35 YALE L. & POLY REV. 309, 313 (2016). Professor Pasquale proceeds to ask whether policymakers in this area should focus more on fostering competition or regulating platform businesses. *Id.* at 316.

it is strongest when the most vulnerable purchasers are in need of the greatest protection.²³³ This occurs when the good or service in question is some combination of necessary, inelastic, and public.²³⁴ In these settings, the free market is most likely to allocate essential or difficult-to-substitute resources in a manner that harms those who are least well positioned to respond and adapt. These are the circumstances in which price-based allocation is most difficult to justify.²³⁵

Different types of market intervention might be appropriate in particular situations and different parties might perform this intervening. The consumer often lacks the necessary legal and technical knowledge and is probably the market participant least able to anticipate, avoid, or address these sorts of problems. If there is to be any intervention at all—and there need not be—that leaves the government, sellers, and platform intermediaries.

1. Government Intervention

Government intervention could alleviate some allocation problems and already does so in a limited number of cases. Legislation might cap prices, provide subsidies to consumers or providers, or redistribute assets in different ways. Governments occasionally adopt wage and price controls and rationing, though typically only in extreme circumstances such as wartime, and these interventions are likely to be unwarranted and unpopular at most other times.²³⁶ Federal and state governments have long provided subsidies and similar support for housing and nutritional needs and, for at least some Americans, health care as well.²³⁷ But some view solutions such as these as extreme, and these remedies are likely to be politically unpopular in many circumstances.

More promising is a moderate government-imposed reallocation that transfers some of the overall benefits of the sharing economy from the beneficiaries to that subset of actors who suffer from it. This would not be a tax, but rather a compulsory internalizing of externalities that a market actor

²³³ Cf. Calo & Rosenblat, *supra* note 45, at 1681–89 (arguing for an expanded and updated application of consumer protection law to sharing transactions).

²³⁴ See *supra* Sections II.A–C.

²³⁵ For an excellent discussion of whether equilibrium pricing is inherently just, see Robert C. Hockett and Roy Kreitner, *Just Prices*, 27 CORNELL J.L. & PUB. POL'Y 771 (2018).

²³⁶ See POSNER, *supra* note 105, at 197–200 (discussing rationales for and criticisms of price controls).

²³⁷ See *supra* notes 134–135 and accompanying text.

causes.²³⁸ To accomplish this goal, those who benefit under a regime in which dynamic pricing is common would be required to share some of their gains with those who lose under this system. If the total gains arising from the transition to a sharing economy exceed the total losses, those who benefit are in a position to compensate fully those who suffer and still retain some of their gain. Some market participants end up better off than they were while none are any worse off.²³⁹

Intervention in this manner offers numerous benefits. Since those who might otherwise suffer will receive a benefit to offset their losses, they are better off than they would have been in the absence of intervention and possibly even better off than before the change occurred.²⁴⁰ They are less likely to oppose the continued operation of a business model that harms them less.²⁴¹ Meanwhile, those who benefit gain less than in the absence of government intervention but more than if the sharing model cannot proceed at all because of popular opposition to it.

In addition, this approach is likely to reduce antagonism toward ongoing technological progress, since those who fear unexpected change will know that any disruption they may endure will be eased.²⁴² An imposition on those who benefit from the sharing economy might fund educational allowances, job retraining, or loan forgiveness.²⁴³ Or it might be used to provide

²³⁸ Cf. Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 668–69 (1994) (arguing that redistributions of this type should be affected through the income tax system).

²³⁹ Cf. *supra* notes 178 and accompanying text.

²⁴⁰ Some of this suffering may be borne by the public at large. See Nikil Saval, *Uber and the Ongoing Erasure of Public Life*, NEW YORKER (Feb. 18, 2019), <https://www.newyorker.com/culture/dept-of-design/uber-and-the-ongoing-erasure-of-public-life> [<https://perma.cc/3LGK-7ZCY>] (“Cities struggling to keep subways and buses running are being drained of revenue by tech companies and a reserve army of cars. These cars, in turn, coagulate the arteries of the city, blocking the remaining fleet of buses, causing a downward spiral of decreasing ridership and growing traffic.”).

²⁴¹ This approach mitigates the sudden displacement and disappointment of expectations that were so evidently factors in the 2016 presidential campaign. Cf. FRIEDMAN, *supra* note 65, at 329 (“[I]t is quite possible for the overall American pie ‘to grow by 3 percent, and some slices to contract by 40 percent, and we’ve seen that. We still have lots of displaced people, lots of angry people.’” (quoting MIT economist David Autor speaking about ways to adjust to the rapid growth of imports from China)).

²⁴² See *id.* at 28. (“[T]here is a mismatch between the change in the pace of change and our ability to develop the learning systems, training systems, management systems, social safety nets, and government regulations that would enable citizens to get the most out of these accelerations and cushion their worst impacts.”).

²⁴³ See, e.g., Arun Sundararajan, *Crowd-Based Capitalism, Digital Automation, and the Future of Work*, 2017 U. CHI. LEGAL F. 487, 510 (“One change that will be essential is altering the mix of . . . education to be better suited for an economy of entrepreneurs, emphasizing design, creativity, and entrepreneurship education over deeper investments into cognitive skill-heavy professions with a higher probability of automation.”).

additional services that offset benefits that have been lost.²⁴⁴ Some of the revenues from Singapore's auto licensing and congestion pricing programs, for example, have been directed to support for public projects that benefit the entire population.²⁴⁵ Those willing and able to pay the fees enjoy the benefits of reduced traffic, while everyone enjoys improvements in public amenities.²⁴⁶ And some drivers presumably will respond to the levy by changing their transit patterns in socially desirable ways.²⁴⁷

Government intervention in the marketplace causes problems of its own, however.²⁴⁸ Rationing and price controls distort the market and are ineffective in the long-run, as black markets arise and flourish.²⁴⁹ Thus, they should be reserved for only the most extreme cases, such as shortages of water and fuel following natural disasters or during wartime, and they should be left in place for as short a time as possible.²⁵⁰ Anti-gouging laws strive to accomplish some of these goals, by limiting price increases for essential goods in extreme situations.²⁵¹ But defining "essential" and "extreme" is challenging,²⁵² and what

²⁴⁴ See Emma G. Fitzsimmons, *Cuomo Warns of a 30 Percent Fare Hike if Congestion Pricing Fails*, N.Y. TIMES (Feb. 7, 2019), <https://www.nytimes.com/2019/02/07/nyregion/congestion-pricing-fare-hike.html> [<https://perma.cc/H6R7-55G6>].

²⁴⁵ Jianlin Chen & Jiongzhe Cui, *More Market-Oriented than the United States and More Socialist than China: A Comparative Public Property Story of Singapore*, 23 PAC. RIM L. & POL'Y J. 1, 8, 16–19 (2014) (describing Singapore's program).

²⁴⁶ *Id.* at 18.

²⁴⁷ A driver might enter the high-traffic zone earlier in the day, thereby spreading out traffic congestion in response to the new fee. By opting to wake up earlier to beat the traffic and the fee, they are demanding a slightly less popular service (a 7:30 arrival rather than an 8:00 arrival) and in return are paying a lower cost by avoiding the surcharge. Or two drivers might elect to carpool.

²⁴⁸ See Rafi Mohammed, *The Problem with Price Gouging Laws*, HARV. BUS. REV. (July 23, 2013), <https://hbr.org/2013/07/the-problem-with-price-gouging-laws> [<https://perma.cc/4XQG-M2HY>] (noting that limits on price gouging encourage hoarding and discourage businesses from boosting supplies).

²⁴⁹ See Stein, *supra* note 30, at 12–14.

²⁵⁰ See Geoffrey C. Rapp, *Gouging: Terrorist Attacks, Hurricanes, and the Legal and Economic Aspects of Post-Disaster Price Regulation*, 94 KY. L.J. 535, 541–50 (2005–06) (discussing representative state laws).

²⁵¹ See, e.g., TENN. CODE ANN. § 47-18-5103 (prohibiting charging prices "grossly in excess of the price generally charged for the same or similar goods or services in the usual course of business" immediately prior to the events giving rise to the state of emergency following a terrorist attack); cf. Ezra Rosser, *Exploiting the Poor: Housing, Markets, and Vulnerability*, 126 YALE L.J. F. 458, 475 (2017) (book review) (arguing that "housing emergencies do not cease being emergencies simply because they are of a continuing nature").

²⁵² Uber may sometimes wish that such anti-gouging measures were in place. See, e.g., Dan Macguill, *Did Uber Increase Its Prices in London After a Terror Attack?*, SNOPE (June 5, 2017), <https://www.snopes.com/fact-check/uber-increase-london-attack/> [<https://perma.cc/VTT3-YEEX>] ("What's True: Uber prices did go up in London and in the vicinity of the attack. What's False: This price surge happened automatically due to algorithms that observed increased demand, and was later stopped by the company.").

one person views as gouging another might simply call dynamic pricing in the purest sense.²⁵³

Even modest efforts to redistribute gains generated by the sharing economy are likely to engender political opposition from those who are profiting and would prefer to retain more of their new benefits rather than less. Those who gain as the economy evolves often are more politically astute than those who suffer, and they will fight having to relinquish some of the gains they might otherwise enjoy.²⁵⁴ They probably view themselves as innovators who are being penalized for their originality and entrepreneurship. If these beneficiaries are unwilling to contribute to the well-being of those who fall behind as the economy changes, and if they resist attempts to force any type of redistribution, then this type of reallocation is less likely to occur.

Moving toward this type of efficiency, particularly when necessities, inelastic items, or public goods are involved, may be politically shrewd. The 2016 presidential campaign demonstrated to many who have benefited from recent economic transformations that those who are lagging are politically motivated to resist change and return to the status quo ante. If the continued expansion of the sharing economy increases the chasm between those who are more and less affluent, it is likely to face ongoing opposition and resistance from those who are lagging. Those who are benefiting would be wise to heed the warning signs.

One variation of this approach that would not necessarily require government action is for a greater number of sharing economy platforms to move toward cooperative co-ownership by service providers.²⁵⁵ Under this model, ride-sharing drivers might be given the option after a certain amount of time to

²⁵³ Some economists “contend that anti-gouging measures, by effectively enacting price controls during emergencies, remove the incentive for consumers to conserve essential supplies. They also say that the incentive for suppliers to bring goods to dangerous areas—or keep extra stock on-hand before disasters—becomes distorted in ways that hurt people.” Andrew Ross Sorkin, *Hurricane Price Gouging Is Despicable, Right? Not to Some Economists*, N.Y. TIMES (Sept. 11, 2017), https://mobile.nytimes.com/2017/09/11/business/hurricane-price-gouging.html?action=click&module=Discovery&pg_type=Homepage [<https://perma.cc/HMQ7-JAUR>]. Moreover, anti-price-gouging laws can lead to black markets, scalping of essential goods, and favoritism, which may be no fairer than allowing the market to price the commodities dynamically. *Id.* But while “these arguments may make sense in the most theoretical context, . . . when it comes to trying to protect the poorest among us, who can’t afford the most basic of goods, they seem like an inhumane affront to our sensibilities.” *Id.*

²⁵⁴ See, e.g., Jon Henley, *Uber Clashes with Regulators in Cities Around the World*, GUARDIAN (Sept. 29, 2017), <https://www.theguardian.com/business/2017/sep/29/uber-clashes-with-regulators-in-cities-around-the-world> [<https://perma.cc/CW3F-MHNC>] (providing examples of disputes between Uber and different regulatory bodies).

²⁵⁵ Nothing in this model would preclude partial co-ownership by consumers as well.

purchase stock in the corporation that operates the platform.²⁵⁶ In this way, the gains that the new economy generates will be distributed more evenly than they have been so far,²⁵⁷ though not necessarily to all of those who are displaced.²⁵⁸ Transforming ride-share drivers into owners would spread the benefits of firm ownership more widely and allow workers to benefit from the growth of the sharing economy in more than one way.²⁵⁹ New competitors to incumbent companies that offer this benefit might be able to induce drivers to join the newer networks.²⁶⁰

2. Private Intervention

Rather than acting under government mandate, the new economy's beneficiaries might choose to provide benefits of this type voluntarily.²⁶¹ Many of the entrepreneurs who have profited wildly from the new economy recognize that they are gaining from major paradigm shifts they participated in creating. Some of these entrepreneurs have become philanthropic at very young ages, and some have developed very specific goals for their philanthropy.²⁶²

Private efforts probably cannot cover all the losses of those who suffer as the economy continually evolves. Moreover, some of these private philanthropists—unlike government actors—may impose conditions on their generosity that some prospective beneficiaries do not wish to meet or may simply target their philanthropy toward other goals.²⁶³ But the private sector seems aware of the problem and has taken some steps to confront it.²⁶⁴

²⁵⁶ Sundararajan, *supra* note 243, at 508.

²⁵⁷ *Id.* (“[T]he single most important broad policy guideline is to favor platform models that lead to genuine and decentralized capital ownership.”).

²⁵⁸ Taxi drivers, for example, do not benefit if Uber drivers receive shares in Uber.

²⁵⁹ *See, e.g.*, SUNDARARAJAN, *supra* note 160, at 86 (describing the transition of “the role of the crowd from being the source of capital and labor to actually owning and running the marketplace in a decentralized fashion”); *id.* at 125 (“[A]s the lines between producer and consumer blur, it certainly seems clear that great potential exists to expand the fraction of the population that owns wealth-producing assets.”); Zale, *supra* note 53, at 1014–15 (discussing the benefits of cooperative platforms that are owned by participants).

²⁶⁰ *See* Sheelah Kolhatkar, *Juno Takes On Uber*, NEW YORKER (Oct. 10, 2016), https://www.newyorker.com/?p=3259135&mbid=social_tablet_e [<https://perma.cc/Z8QC-DSWV>] (discussing Uber competitor that seeks to induce Uber drivers to switch to Juno by offering them higher pay and better benefits).

²⁶¹ *See* SUNDARARAJAN, *supra* note 160, at 138 (discussing “models in which users and providers are equally invested and responsible for enacting the regulations in question”).

²⁶² *See, e.g.*, Eric Franklin Amarante, *The Perils of Philanthrocapitalism*, 78 MD. L. REV. 1, 9 (2018) (describing “philanthrocapitalists [who] dictate the narrative and demand more involvement in the decisions of how and where to spend philanthropic dollars”).

²⁶³ *See id.* at 13–43 (critiquing the antidemocratic, paternalistic, and amateurish aspects of philanthropy).

²⁶⁴ *See* Molly Cohen & Arun Sundararajan, *Self-Regulation and Innovation in the Peer-to-Peer Sharing Economy*, 82 U. CHI. L. REV. DIALOGUE 116, 123–29 (2015) (discussing a variety of “self-regulatory organizations”).

In fact, some of the companies that directly benefit from the sharing economy have incentives to regulate themselves—in part, to head off government mandates—particularly if they announce these initiatives well in advance. Uber, for example, has suggested that it will provide educational and training benefits for drivers who are later made obsolete by self-driving cars, an approach that may help attract and retain drivers today.²⁶⁵

There are a handful of settings in which more affluent people are willing to shell out higher prices than their less fortunate fellow citizens pay for a good. Many universities make need-based financial aid available to prospective students who might not be able to afford attendance without it. This means that students from wealthier families pay the sticker price while their less-well-heeled classmates receive grants or low-rate loans to cover some portion of the cost. Two roommates may receive the exact same education, but one of them could be paying tens of thousands of dollars more for it.²⁶⁶ Moreover, the affluent families may also be making charitable contributions to the institution, further enhancing the price disparity. This type of voluntary redistributive transfer dovetails well with the progressive property movement, which recognizes that property owners bear responsibilities even as they enjoy the privileges of their property rights.²⁶⁷

In settings in which stark price differences for the same good lead to resistance by those asked to pay more, it is possible to offer different versions of the good with different levels of amenities, as noted earlier.²⁶⁸ All the seats on an airplane reach their destination at the same time, but some passengers are willing to pay considerably more for the wider, swankier ones with better food. In the university setting, the differences may be more subtle, such as nicer dormitories or the ability to forego summer income for a prestigious internship. But if higher-income families are willing to pay considerably more to educate their children, it might be possible to convince these consumers that

²⁶⁵ Josh Constine, *Uber Considers Steering Drivers to “Vocational Training” as Cars Go Autonomous*, TECHCRUNCH (Nov. 16, 2015), <https://techcrunch.com/2015/11/16/uber-vocational-training/> [<https://perma.cc/L782-RM3P>]. See generally Calo & Rosenblat, *supra* note 45, at 1668–70 (discussing conflicts of interest among sharing platforms, their workers, and their customers).

²⁶⁶ See, e.g., *How Aid Works*, HARV. C. GRIFFIN FIN. AID OFF., <https://college.harvard.edu/financial-aid/how-aid-works> [<https://perma.cc/FS77-UA3Q>] (“Families who have significant assets will be asked to pay more.”).

²⁶⁷ See Gregory S. Alexander et al., *A Statement of Progressive Property*, 94 CORNELL L. REV. 743, 744 (2009) (“Because of the equal value of each human being, property laws should promote the ability of each person to obtain the material resources necessary for full social and political participation.”).

²⁶⁸ See *supra* note 111 and accompanying text.

there are other settings in which differential pricing is acceptable and socially beneficial.²⁶⁹ This seems like a particularly effective approach with regard to services, which are harder to resell at a profit, though perhaps less so for goods.²⁷⁰

3. Hybrid Action

The previous two subsections have suggested that the actions needed to mitigate inequities caused by the growth of the sharing economy can either occur voluntarily or be mandated by the government.²⁷¹ Some approaches involve using both methods, or they fall between these two extremes and can be structured in an intermediate manner. One model, already noted above, is to impose a fee on those who benefit from new efforts at dynamic pricing and use the proceeds to fund programs such as job retraining, mid-career education, and alternatives to the costlier new service.²⁷² This model would likely take the form of a mandate, as noted, though a hybrid variant that might succeed in some settings is the use of a voluntary fee. A one-dollar assessment charged on Lyft rides—paid by the passenger, Lyft, or both—can provide retraining for medallion holders who wish to transition into a new career or to expand bus service for those residents who cannot afford shared rides. A sales tax imposed on Airbnb stays, similar to a hotel tax, can provide housing subsidies to those who face unaffordable rent increases if the housing stock shrinks as rental apartments are converted to shared units.²⁷³ Part of the congestion fee a large city charges

²⁶⁹ Here, I use the term “differential pricing” to represent a model in which more affluent consumers pay higher prices. Contrast this with another type of differential pricing in which just the reverse happens, *see supra* note 118 and accompanying text (discussing differential pricing in grocery stores in poor neighborhoods), and also with price discrimination, in which a seller estimates precisely how much each prospective buyer can be cajoled into spending, irrespective of each buyer’s financial status, *see supra* note 117 and accompanying text.

²⁷⁰ When goods are involved, the person receiving the price discount might be tempted to engage in arbitrage and resell the good at a profit to the more affluent person who would otherwise have to pay full price. *See supra* note 36 (discussing this phenomenon with regard to Super Bowl tickets). It is easier to scalp goods such as football tickets than services such as a university education.

²⁷¹ *See supra* Sections IV.B.1–2.

²⁷² *See supra* note 243 and accompanying text.

²⁷³ One group of researchers has concluded that the incentives to transform long-term rental apartments into Airbnb units have dropped considerably. Peter Coles et al., *Airbnb Usage Across New York City Neighborhoods: Geographic Patterns and Regulatory Implications*, in *CAMBRIDGE HANDBOOK OF THE LAW OF THE SHARING ECONOMY* 108, 118 (Nestor M. Davidson et al. eds., 2018) (as of June 2017, “to match long-term rental revenue, hosts would have to have their homes booked over 216 days a year, the ‘break-even’ number of short-term rental nights. Placed in context, . . . the median number of nights booked for a typical entire home listing in New York City was 46.”).

to drive in the crowded downtown can subsidize mass transit for those who can no longer use roads on which space is rationed by price rather than willingness to endure delays.²⁷⁴

User fees such as these may prove to be less unpopular than broader-based taxation schemes, as they charge only the beneficiaries of a new service and direct the proceeds to assist those being forced to adapt. They internalize specific externalities more precisely, thereby preventing non-users from having to subsidize the activities of others. Such a fee will probably have to take the form of a government requirement but could also be structured as a non-binding recommendation. Tipping, which is customary in a wide range of service industries, illustrates a type of non-mandated transfer from a customer to a service provider. Norms and social pressure encourage patrons to tip even if they know they will never interact with that provider again. A transfer fee of the type just described might succeed on an entirely voluntary basis, or it might be established as a mandate that is tolerated with only minimal grumbling.

Licensing requirements can play a role similar to transfer fees. Requiring Lyft drivers to obtain medallions, demonstrate their familiarity with local roadways, and prove that they carry adequate insurance might have to take the form of government regulation. But it differs little from rules requiring lawyers to pay hefty annual licensing fees, with the receipts used to assist those who have suffered at the hands of less scrupulous members of the bar.²⁷⁵ The license demonstrates mastery, signals the attainment of proficiency, and serves as the government's imprimatur. The government requires payment from those who wish to enjoy a privilege, and in some cases a monopoly. Voluntary variants of these models sometimes succeed, and various private entities have established non-binding endorsement mechanisms that some service providers pursue even though they do not have to.²⁷⁶ Reputational ratings used by many sharing platforms can also serve as a substitute for government regulation.²⁷⁷ Once again,

²⁷⁴ See *supra* note 42 and accompanying text.

²⁷⁵ See *Frequently Asked Questions*, LAW. FUND FOR CLIENT PROTECTION ST. N.Y., <http://www.nylawfund.org/faq.html> [<https://perma.cc/BRZ6-2B8C>] (noting that this fund offers “reimbursement to law clients who have lost money or property as a result of a lawyer’s dishonest conduct in the practice of law. . . . The fund is financed by the 278,000 members of the legal profession in New York State through a registration fee required by law.”).

²⁷⁶ See, e.g., *Our Mission: Working for a Safer World*, UL, <https://www.ul.com/about/mission> [<https://perma.cc/5FRJ-GZ7Q>] (providing its mission statement, including “working for a safer world”); *Marks and Labels*, UL.COM, <https://www.ul.com/marks/> [<https://perma.cc/94H7-AW75>] (“The UL Mark is the single most accepted Certification Mark in the United States, appearing on 22 billion products annually.”).

²⁷⁷ See, e.g., Daniel K. McDonald, *Reputation Will Teach the Sharing Economy to Share*, 27 U. FLA. J.L. & PUB. POL’Y 219, 229–35 (2016) (discussing the value of reputation

private action, public mandates, or a combination of the two can accomplish the same goal.

Even market participants who object strenuously to government regulation will have to concede at some level that hybrid actions such as these are fair and afford value to them. The fact that they pay a fee or opt to obtain a license demonstrates that government or private authorization still has positive net worth to them even after paying its cost. Some licensees might even have been willing to contribute to such a fund had these contributions been merely encouraged. Automobile drivers, for example, rarely complain about the requirement that they obtain and pay for a drivers' license before operating a motor vehicle, and some do not object to obtaining mandated liability insurance. Many would do so even if it were optional.

A hybrid model, then, might include mandatory elements such as transfer fees, licensing requirements, and compulsory insurance, alongside voluntary features, including tipping, reputational rankings, and optional add-ons. Some sharing platforms already demonstrate many of these characteristics. Government and private actors may be able to cooperate to provide some of the types of protection this article recommends.

4. No Intervention

A final possibility is to do nothing, an option that may be more appropriate with regard to the owner of a single Airbnb unit than the landlord of a large number of short-term rental apartments. This suggestion is not intended as a celebration of the free market but rather as a recognition that technology is evolving so quickly that rapid change might make any government action obsolete or even counter-productive before it can have any positive impact. To a considerable extent, resource-allocation problems may prove to be self-correcting: The same advances in algorithms that have allowed the sharing economy to expand so rapidly may also allow for more nimble responses to changes in supply and demand.

As suppliers of goods and services accumulate and analyze the huge amounts of digital information now available to them, they will become more adept at predicting future market changes. Home-improvement stores already follow weather reports and direct generators, chainsaws, and bottled water to stores in the path of an approaching storm. With

as a capital asset); Thierer et al., *supra* note 64, at 875 (arguing that reputational rankings reduce the need for regulation).

continuing increases in the capacity to analyze big data, Uber can notify its drivers of a cloudburst that will arrive in twenty minutes or a concert that will end in ten, allowing them to hit the road just as demand swells. The next iteration of the sharing economy may have the built-in capacity to mitigate the drawbacks of its predecessors.

As we continue to harness new technologies, predictive software will increasingly be able to anticipate shortages or surpluses. This will allow buyers and sellers to respond to changes as they happen and will dampen price volatility. Supply and demand curves can thereby move more gradually and in tandem, reducing sharp price swings and uncertainty. Surprises will still occur, but as recent technological changes settle into place and new approaches continue to be developed, our ability to manage the massive quantities of information we are now accumulating will improve. The sudden revolution that is occurring now, characterized by significant price uncertainty, will transform into a more gradual evolution, with prices that rise and fall more slowly and less surprisingly.²⁷⁸

It is also worth remembering that new technologies will continue to have surprising and world-changing effects just as the rapid spread of smartphones has done and that the legal system will be hard pressed to keep up with these continuing transformations.²⁷⁹ Regulations will necessarily lag behind sudden transitions, as they have for the rapid growth of ride-sharing and home-sharing.²⁸⁰ Cities and counties may belatedly attempt to regulate these new industries in a variety of ways, and the industries will respond by lobbying state legislatures to preempt this type of regulation.

Some innovators enter new markets knowing that their business model may be of questionable legality, with the intent of challenging and changing existing norms and laws.²⁸¹ They

²⁷⁸ See, e.g., Tayo Fabusuyi & Robert C. Hampshire, *Rethinking Performance Based Pricing: A Case Study of SFPark*, 115 TRANS. RES. PART A: POLY & PRAC. 90 (2018) (claiming to improve on San Francisco's pricing algorithm for public parking by factoring in elasticity of demand and thereby pricing parking based on predicted demand rather than actual demand).

²⁷⁹ See Mirit Eyal-Cohen, *Through the Lens of Innovation*, 43 FLA. ST. U. L. REV. 951, 977–85 (2016) (describing the unique aspects of entrepreneurship and arguing that the legal system needs to take care not to act as a drag on innovation).

²⁸⁰ See Orly Lobel, *Regulating the Sharing Economy: Self-Governance, Efficiency & Values* 6 (Univ. of S.D. Sch. of Law, Research Paper No. 19-419, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3473215 [<https://perma.cc/HP9T-FC3Z>] (“Regulators must consider the continued value in certain regulatory requirements in the face of a new market model and changing preferences and norms.”).

²⁸¹ See Elizabeth Pollman & Jordan M. Barry, *Regulatory Entrepreneurship*, 90 S. CAL. L. REV. 383, 403–06 (2017) (describing start-up businesses that plan from the outset to mobilize satisfied customers so they can change laws that may limit their

know they are creating regulatory uncertainty, and they intend to win the war of popular opinion before the government realizes what is happening and can respond, as Uber has done so successfully in many jurisdictions and as providers of shared electric scooters are trying to do.²⁸² These new industries are engaging in a type of regulatory arbitrage.²⁸³ This raises the question of how well-suited existing laws are to regulating new platforms.²⁸⁴ By the time government bodies consider acting, the public has already accepted and endorsed the new business model.²⁸⁵ By then, the technology may have moved ahead still further, with any new regulations addressing only yesterday's problems,²⁸⁶ just as regulations designed for hotels seem a poor fit for short-term rentals.²⁸⁷

Moreover, regulation of this type could squelch future innovation.²⁸⁸ New business models have unquestionably created numerous benefits, and we do not wish to preclude entirely the

operations); Ronald A. Klain, *The Downside to All Those Scooters and Dockless Bikes Appearing in Our Cities*, WASH. POST (June 20, 2018, 5:47 PM), https://www.washingtonpost.com/opinions/the-downside-to-all-those-scooters-and-dockless-bikes-appearing-in-our-cities/2018/06/20/9e492c74-73f6-11e8-9780-b1dd6a09b549_story.html?noredirect=on&utm_term=.7653a262410f [<https://perma.cc/9SUQ-L7KJ>] (“[W]e have largely shifted the decision-making about how people should get around our cities from public authorities and public investments to private companies and private investors”).

²⁸² See Nikil Saval, *The Scooting Life: Are Electric Scooters Worth the Trouble?*, NEW YORKER (July 11, 2018), <https://www.newyorker.com/culture/dept-of-design/the-scooting-life-are-electric-scooters-worth-the-trouble> [<https://perma.cc/YNT7-M8YW>] (“When I asked a spokesperson for the city of Nashville why Bird [scooters] did it this way, she suggested that it followed ride-sharing companies’ ‘don’t ask for permission, ask for forgiveness’ model.”); cf. Davidson & Infranca, *supra* note 86, at 273–74 (suggesting that this approach also may lead to collaboration between business and government).

²⁸³ See, e.g., Lobel, *supra* note 20, 156–60 (discussing ways in which new platforms seek to avoid the application of existing laws that were designed to address somewhat different problems).

²⁸⁴ *Id.* at 144 (“[I]t is both true that the platform should be understood in light of basic legal principles that existed before its rise and that . . . there is something new and unique about the law of the platform.”).

²⁸⁵ See, e.g., Eric Biber et al., *Regulating Business Innovation as Policy Disruption: From the Model T to Airbnb*, 70 VAND. L. REV. 1561, 1578–87 (2017) (discussing different ways this problem can arise and different methods of addressing it). For an interesting international comparison, see Shitong Qiao, *Dealing with Illegal Housing: What Can New York City Learn from Shenzhen?*, 43 FORDHAM URB. L.J. 713, 714 (2017) (discussing illegal housing units in Shenzhen, China, that have become so popular—housing over eight million people—that it would be futile to crack down on them post hoc).

²⁸⁶ See, e.g., Gregory M. Stein, *The Impact of Autonomous Vehicles on Urban Land Use Patterns*, 48 FLA. ST. U. L. REV. (forthcoming 2021) (describing the risks and benefits of government action while a technology is rapidly evolving).

²⁸⁷ See, e.g., Miller, *supra* note 122, at 168 (“[T]he unique intimacy and informality of the sharing economy make traditional regulation unlikely to succeed”).

²⁸⁸ See Sundararajan, *supra* note 243, at 509 (“Often, crowd-based providers and the platforms that enable them emerge without formal government approval. It is critical that this ‘experimental’ nature of innovation is preserved.”).

ability to build on these gains.²⁸⁹ Innovative technologies will continue to lap regulators' capacities to regulate them.²⁹⁰ To the extent regulators do adopt new laws, those laws may need to change as rapidly as the technology that motivated them.²⁹¹

This suggests that the private sector, and especially these new industries themselves, will play a large role in determining what new norms develop and how the legal system will respond to these norms.²⁹² Earlier, I suggested that private redistributive action designed to mitigate rising inequality may be more politically palatable than public action with the same goals. But it is important to recognize that some public action will be little more than a response to aggressive, self-interested action by private actors from the new economy. In cases such as this, private activity may serve as a direct challenge to public norms and may seek to change or disregard them. The market disrupter may be hostile to any redistribution that could undercut its business model and disappoint its shareholders. In settings such as these, to the extent restrictions are merited, only public restrictions will be effective. And by the time government entities consider them, it may already be too late.²⁹³

Public policy makers must remember that they are trying to achieve two goals that are partially incompatible. First, they want to encourage and facilitate technological advances, which are becoming more revolutionary and more rapid. Many of these developments will prove to be inevitable, and it may be short-sighted and futile to attempt to impede them.²⁹⁴ Localities and nations that support innovation will benefit while others fall behind.

²⁸⁹ See Shapiro & McDonald, *supra* note 157, at 465 (“[I]t’s hard to innovate when innovation itself is illegal.”).

²⁹⁰ See Cohen, *supra* note 62, at 136 (“Law for the platform economy is already being written—not via discrete, purposive changes, but rather via the ordinary, uncoordinated but self-interested efforts of information-economy participants and the lawyers and lobbyists they employ.”).

²⁹¹ See, e.g., Giovanni Quattrone et al., *Who Benefits from the “Sharing” Economy of Airbnb?*, at 26 (2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2738731 [<https://perma.cc/26QM-24MQ>] (“Our attempt contributes to the general idea of ‘algorithmic regulation,’ which argues for the analysis of large sets of data to produce regulations that are responsive to real-time demands.”).

²⁹² See Dyal-Chand, *supra* note 60, at 292 (asking whether the sharing economy will become “the basis for redistributing resources, market participation, and ultimately wealth to a broader range of individuals”).

²⁹³ See, e.g., Mark Fenwick et al., *Regulation Tomorrow: What Happens When Technology Is Faster than the Law?*, 6 AM. U. BUS. L. REV. 561, 567–84 (2017) (discussing the difficult timing issues in regulating disruptive new businesses).

²⁹⁴ Isaacson, *supra* note 56 (“Peer-to-peer technology may be disruptive, and its effects can be messy. But it has an inexorable tendency to empower people to find—and produce—new offerings that improve our lives by reinforcing the most basic rule of entrepreneurship, which is to make something that people really want.”).

Second, they must work to ensure that these new developments do not exacerbate existing inequality by favoring those who are already advantaged. Those who are falling further behind in our modern economy may become even less able to afford necessities, inelastic products, and public goods. With the growth of the sharing economy, more and more goods and services will be surge priced, causing them to become less affordable when they are most needed. In addition, economic transitions will occur more rapidly, causing economic displacement more often and more quickly than in the past.

As increasingly rapid transitions leave some people in their wake, we need to be attentive to potential increases in inequality. Transformations such as these can seem unfair to those who are left behind, whose expectations may be dashed. They also can lead to economic and political unrest and backlash against changes that may be desirable overall but harmful to some along the way. Moreover, those who profit today should recognize that they could be tomorrow's casualties.²⁹⁵

CONCLUSION

Technological developments are accelerating. To the extent that the growth of the sharing economy leads to greater and speedier innovation, it creates numerous advantages. The economy can function more smoothly, as people have greater access than ever before to the information they need to make rational, wise economic decisions. Transactions costs shrink. Over time, this exuberant and unpredictable market will begin to settle, and market participants will grow accustomed to the new rules governing the structure and speed of economic markets.

This growth has also, predictably, created fallout. Some of these repercussions could easily cause those who are already economically vulnerable to fall further behind, thereby expanding existing inequalities. The growth of the sharing economy and the increased use of dynamic pricing have led to increases in price volatility and unpredictability, which may cause those in the weakest economic position to suffer even more. This is of particular concern when those who are lagging are unable to obtain necessities, inelastic goods, or public goods. These are the settings in which government action or other intervention may be warranted.

²⁹⁵ See, e.g., Peter Eavis, *WeWork Will Lay Off 2,400 Workers*, N.Y. TIMES (Nov. 21, 2019), <https://www.nytimes.com/2019/11/21/business/wework-layoffs.html> [<https://perma.cc/522A-XU6A>].

Innovative disrupters would be wise to recognize the responsibility they bear for mitigating some of the damage their changes cause to others. No one expected early automobile manufacturers to compensate buggy makers and farriers. At the same time, today's auto may rapidly become tomorrow's horse and buggy—what has become of the tens of thousands of videocassette rental stores that blossomed in the 1980s and 1990s?—and the durational arc of an industry's rise and fall is shorter than in the past. The masters of new industries should be attentive to the needs of those they displace, as a moral matter, as a matter of good business, and in recognition that they may end up on the wrong side of the next innovation curve more quickly than they imagine.