Justice in the Global Digital Economy

Johannes Himmelreich
Maxwell School of Citizenship and Public Affairs, Syracuse University

Draft. For *Justice in Global Economic Governance*,
Axel Berger, Clara Brandi, Eszter Kollar (eds.), Edinburgh University Press

Word count: 4,837 (incl. footnotes, excl. references)

1 Introduction

On stock markets, in politics, and in business, the digital economy receives a fair amount of attention. In this chapter, I first center our understanding of "digital economy" on its role as an infrastructure; I then describe some of the problems of justice that the global digital economy raises and sketch potential reforms.

2 Digital Economy as Digital Infrastructure

For the purposes of this chapter, the digital economy is understood as consisting of those companies that produce infrastructure goods, which are provided or accessed online.[1] In a slogan, the digital economy is the *digital infrastructure*.[2]

Why infrastructure and not just data? Consider some examples. Amazon is not only a retailer but a marketplace and fulfillment service. Facebook, in addition to the social network, provides communication services and technologies, such as video telephony and virtual reality devices. Apple's Appstore is a marketplace for apps. Google and Facebook, through their advertising networks, allow companies to track and influence customers. Cloud computing companies host databases, offer fraud detection, code analysis, or budget management. Software is provided "as a service". We all consume

[1] On the one hand, this definition is relatively narrow. It excludes companies that produce the hardware and software that powers the digital infrastructure. It also excludes content creators—or more generally enterprises that offer consumption products via digital infrastructure. For a discussion of different definitions see OECD (2019, 34–70).

[2] On the other hand, this definition is relatively broad. Often the digital economy is defined as platforms (cf. Khan 2017, 754, 802–3; Rahman 2018), which are one kind of infrastructure (Plantin et al. 2018).

digital products like we do electricity or running water. Whether it is office apps, Youtube, Netflix, Spotify, or Apple Music—the digital economy provides what we need for work and fun—diverse resources for business' operations and our private production of leisure.

Thus, the digital economy should be thought of as *infrastructure that is provided or accessed online*. The digital economy meets the three conditions of what it means for a resource to be an "infrastructure" (Frischmann 2013, 61). We can use it like air, non-rivalrously; we use it as a resource for "downstream productive activity"; and we use it in diverse ways to produce "private goods, public goods, and social goods." In addition to this economic lens, the digital economy also has all the features that make it an infrastructure as understood by infrastructure studies: The digital economy is ubiquitous, dependable (users can rely on it), invisible (in how resources are provided), and crucial (in case of a breakdown, the effects are profound) (Plantin et al. 2018, 294).

This infrastructure-centric definition of the digital economy complements a data-centric definition. Some argue that whether a company is part of the digital economy depends on how much this company relies on data. This data-centric definition emphasizes the growing importance of intangible assets. But companies like Amazon, Google, Apple, or Facebook rely crucially on tangible assets: data centers, networks of high-bandwidth cables, specialized chips, and power generation facilities (to meet their high demands for electricity). Moreover, data is crucially important for most economic activity. All companies rely on data. The data-centric definition thus risks including "in modern economies, the entire economy" (IMF 2018, 7).

Yet, regardless of whether "digital economy" is defined as being about data or about infrastructure, the economic analysis is similar: Search and transaction costs are very low and data travels for free (Goldfarb and Tucker 2019). As such, the digital infrastructure has global reach. To make matters worse, because of high fixed costs and economies of scale, the digital economy tends to give rise to natural monopolies (see the companion chapter by Florian Hett and Jakob Schwab).

The infrastructure-centric definition of the digital economy has two advantages. First, it brings essential aspects into focus. It invites researchers to use approaches and theoretical tools that were developed specifically for infrastructures (e.g. Plantin et al. 2018). For normative analyses, the topic of privacy moves into the background. Of

course, privacy matters because digital infrastructures harvest and exploit data. But harvesting and exploiting data is something that, these days, most enterprises do. Privacy is bigger than the digital economy.

Second, the infrastructure-centric definition makes clear why the digital economy matters for justice. As an infrastructure, the point of the digital economy is to provide resources. The resources that the digital economy provides are particularly powerful. We rely on the digital economy across all aspects of life. It lubricates economic activities, such as setting up new businesses; it helps us make political goods—to facilitate participation, inform debates, or build solidarity; and it helps us make social goods, such as friendships. How individual can access a resource as powerful as this is a matter of justice.

To keep things short, this survey about justice in the global digital economy is selective and schematic. It is geographically selective in that I concentrate mostly on America, Europe, and Africa, and it is topically selective in that I leave aside issues of domestic socio-economic justice as well as racial and gender justice. The survey is schematic in that, by dividing the world into the global north and south, I omit important distinctions within and between these two groups.

3 Justice in the Global Digital Economy

The global digital economy raises problems of justice on many fronts. I will focus on three: On the front of socio-economic justice, the digital economy increases global inequality. On the front of inter-generational justice, one generation may give up their data at the expense of the next (see the companion chapter for both points). On the front of political justice, the global digital economy raises four potential problems: It (1) abridges state power, (2) degrades political relations, (3) supports authoritarian politics, and (4) exacerbates American global political power.

In some ways, these problems are familiar ones. As far back as the 17th century, with the case of the East India Company, economic interests have strived for political power (Zingales 2017). Global and inter-generational inequality are likewise long-standing and persistent problems. One thing is different, however: The issues of political justice that were familiar domestically now scale up to global proportions. Hence, because of their control over the digital infrastructure, Chinese and the US multinational companies are seen as neo-colonial political powers in the Global South (Kwet 2019;

Gravett 2020). Of course, their power today is based on monopolies (Mann 2018), not on the violent acquisition of territory. Still, the bigger picture that emerges is that the injustices described below tend to instantiate the different wrongs of neo-colonialism such as domination, exploitation, and a denial of "equal and reciprocal terms of cooperation" (Ypi 2013; see also Gray and Suri 2019; Muldoon and Raekstad 2023; Nkrumah 1965; Prassl 2018; Valentini 2015).

3.1 Global Monopolies, Global Inequality

Socio-economically, the digital economy leads to an unjust distribution. The monopolies of the digital economy will reside in the global north, which, consequently, will *on average* likely see greater income, greater welfare, and better access to resources and opportunities (see the companion chapter by Hett and Schwab). This is a matter of distributive justice. To start with, this is a matter of *equality*—or, rather, lack thereof. Even if philosophers disagree about the equality of what—income, welfare, resources, opportunities—equality, at least within some measure, is widely taken to be one component of justice. But moreover, this global disparity could also be a matter of *sufficiency*. The issue would then be not that some have too much, but that others do not have enough (Frankfurt 1987). Insofar as the digital economy is a basic good, individuals have strong claims to get enough of it.

Of course, inequality is not always unjust—in fact, there can be justice-based reasons for inequality—and equality is not the only value that matters. But distributive justice is still of paramount importance in the digital economy. The relevant things to look at, the *distribuenda*, may not be income or opportunities, but instead *standing* (whether individuals relate to each other as equals) or *power* (whether one can impose their will on another). Even if everyone had sufficient access to the digital economy, the *way* in which this access is provided might be unjust. Equality can be provided in a way that is demeaning (Anderson 1999); and power asks not only what you have and how you got it, but whether somebody could take it away (cf. Pettit 1997; List and Valentini 2016).

Power over infrastructures might be the harder problem than *access* to them. Because the digital economy is a business, and because the Global South is a market, there is a buck to be made. Thus, given the existing economic regimes, the Global South will get access to the digital infrastructure—and pay for it. And those who own the digital economy will have power over those who merely get to use it.

3.2 Price Discrimination Against Future Generations

The companion piece identifies a problem of inter-generational justice: consumers today pay for digital services with their data. But these data contain information not only about today's consumers but also about future consumers—and their willingness to pay.[3] Hence, today's consumers "benefit from low prices" while "future consumers suffer from the intensified price discrimination" (Hett and Schwab in companion chapter). Data collected today will allow companies tomorrow to charge exactly what each is willing to pay. In a kind of personalized pricing, everyone will have to pay the highest price that they are willing to pay (Steinberg 2020).

But, perhaps surprisingly, such price discrimination is less morally problematic than it may seem. For one thing, even if present generations disadvantage future generations in this way, future generations may still benefit on balance. Just as future generations inherit cultural and technological capital, they inherit whatever good comes from the digital economy and its low prices today. Price discrimination on future generations might be a way in which future generations compensate the present generations for the things the present generations leave behind.

Moreover, it's unclear what's wrong with price discrimination (Marcoux 2006; Elegido 2011; Coker and Izaret 2021). Price discrimination—that a seller charges different people different prices for the same product—is very common: discounts for students and senior citizens, travel tickets that get more expensive over time, journals sold to universities only in bundles, tuition support that varies with household income, and hardcover books are examples. Price discrimination can lead to greater welfare and efficiency (Steinberg 2020, 99–104; but see Huang 2005). It makes industries with high fix costs profitable (Elegido 2011, 637), and hence enables products that otherwise might not exist. It allows monopolists, instead of maximizing profit by restricting supply, to offer as much of their product as they would on a competitive market (Steinberg 2020, 103). In short, there are good reasons in favor of price discrimination.

Some argue that price discrimination violates a norm of equality: everyone should pay the same. But others reject this this norm in favor of a different one. Price discrimination yields to equality of a different form, they argue: each consumer gets

[3] Genetic data have the same property—and raise an analogous (intra-generational) externality.

the same surplus value (Marcoux 2006). Those who pay a higher price do so because they value the good more or can afford to pay more. Similarly, global pharmaceutical companies charge higher prices in rich countries, and thereby—in addition to making significant profit—fund the development of new medication.[4] Again, price discrimination has good reasons in its favor; and while it may violate one norm of equality, it upholds another.

In sum, price discrimination is not as severe a problem of justice as it may initially seem. Because the arguments above should not be taken as decisive, I will later consider how price discrimination could be addressed. But for now, I will turn to problems of political justice.

3.3 Abridgment of State Power

At the beginning of the SARS-CoV2 pandemic, Apple and Google developed low-level software that could have been used for contact tracing. But the companies allowed to use the software only for exposure notifications. The companies legally barred public health authorities from using the gathered information to identify individuals in a chain of transmissions. In this way, the companies took an important public health policy option off the table.[5]

This illustrates a general problem: Companies in the digital economy have power over states. The companies control how their infrastructure is used—in this case: phone operating systems. In addition to such direct control, when digital infrastructure is critical, companies wield significant indirect bargaining power. Companies can threaten to restrict infrastructure access and thereby influence policy options that are not under their direct control.

This is an example of how state power is suffocated by corporate power (cf. Claassen and Herzog 2021). To put corporate power in perspective, one can think of it either as

[4] Some argue that price discrimination offends against relational equality (Steinberg 2020), or the idea of fair competition (Moriarty 2021). But given that the relation between present and future generations is already bedeviled with asymmetries, considerations of relational equality seem out of place. And whether present individuals owe fair terms of competition to non-existent possible future individuals is, at least, an open question.

[5] This decision is not unreasonable, considering some countries' weak data protection regimes.

a matter of market concentration or of size.[6] *Market concentration* is measured by the Herfindahl–Hirschman Index (HHI) and has been rising in the public cloud computing market. Concentration is nearing the US Department of Justice' highest category.[7] Going by *size*—by market valuation—digital economy companies are the largest companies in the world. As of early 2021, Microsoft is valued at $1.76tn, followed by Amazon at $1.59tn, followed by Alphabet at $1.41tn.[8] In terms of revenue, they dwarf states. Apple's annual revenue in 2020 approached $300bn, Amazon's was over $380bn.[9] For comparison, the median annual total GDP is Afghanistan's at around $19bn.[10]

Of course, size and power are not as such morally problematic. But when companies are powerful enough to escape or profoundly limit the jurisdiction and governance of states, the companies yield their power illegitimately and without proper authority (Lazar 2022). Regardless of what they decide and why, companies are just not the right agents to make policy decisions—they lack authority—and they do not do so in the right way—they act illegitimately. And, because power consists in possibility, this problem of political justice persists, even if companies do not actually influence policymaking.

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[6] Conceiving of corporate power as a matter of market share stands in the tradition of neoclassical economics, which concentrates on avoiding monopolies. But market concentration may not be problematic as such (DeMarco 2001). The problem of corporate size has been neglected in economic and normative theorizing (Zingales 2017, 117; Claassen and Herzog 2021).

[7] Goldman Sachs, in a report from 2016, projected that by 2020, the public cloud market would "further concentrate into a moderately concentrated market, with a HHI of 2,235" (Bellini et al. 2016, 59). In fact, this market has a HHI of 2,345 in 2019 (own calculations). A market is considered highly concentrated when the HHI is greater than 2,500 (U.S. Department of Justice and Federal Trade Commission 2010).

[8] "Quotes For NASDAQ-100 Index." Accessed February 24, 2021. https://www.nasdaq.com/market-activity/quotes/nasdaq-ndx-index.

[9] See https://www.macrotrends.net/stocks/charts/AAPL/apple/revenue, https://www.apple.com/newsroom/pdfs/FY20_Q4_Consolidated_Financial_Statements.pdf, https://www.macrotrends.net/stocks/charts/AMZN/amazon/revenue.

[10] The distribution of GDP approximates a normal distribution. See https://www.wolframalpha.com/input/?i=median+of+gdp+of+all+countries+in+2020++in+usd/. All last accessed on March 20, 2021.

This abridgment of state power is particularly acute on the global scale. Power likely correlates with existing advantages. Those states that are already victims of injustice may come to live under the shadow of the digital economy.

3.4 Degradation of Economic Opportunities and Political Relations

Corporate power—and power over infrastructure in particular—affects domestic economic justice. First, corporate power can degrade economic opportunities by stifling competition and innovation (Khan 2017; 2018). This hence deprives individuals of fair economic opportunities. The power of companies may also have a deterrent effect, such that fewer people are willing to enter the markets that these companies occupy. If the deterrent isn't enough, large companies can exercise *gatekeeper power* to keep competitors out of markets. They may lobby the government to raise the barriers to entry, for example, by requiring licenses to develop certain technologies (in 2023, large AI companies pushed to license the development of so-called AI foundation models). Or they exercise gatekeeper power by simply acquiring emerging competitors, as in the case of Facebook and Instagram. Over ten years, the five big technology firms acquired more than 400 companies. Half of the apps that the companies acquire are discontinued—and notably these are often "less privacy-intrusive than apps that are continued" (Affeldt and Kesler 2021). The corporate power thus not only diminishes economic opportunities but also social opportunities, such as the choice of a more privacy-preserving app.

Moreover, large companies have *leveraging power*, that is, they can establish an advantageous position in ancillary markets. For example, Amazon may have given its own book publishing division an advantage in its competition with other publishers. This makes it harder for new competitors to enter the market—and thus deprives these potential competitors as well as their potential customers of opportunities. Third, large corporations have *information exploitation* power to practice forms of price discrimination (see discussion above).[11] Finally, the digital economy can degrade economic opportunities on labor markets—salaries diverge, workers are made contingent, and unions are busted.[12] Often the threat of automation is used to reduce the power of workers (Benanav 2022, chap. 3).

[11] All the emphasized terms here are due to Khan (2018).

[12] This is likely also driven by near-zero transportation costs for data (Goldfarb and Tucker 2019).

Secondly, the power of the digital economy negatively affects not only economic and social opportunities but also political relations. This starts at work: Labor relations are political relations because they transfer authority over important aspects of an individual's life. Because the workplace is rife with oppression, these relations are already defective (Anderson 2017; Coyle 2017). As the political power of employers increase—not only through institutions but also through technologies, such as workplace surveillance—these relations are bound to degrade further. Corporate power moreover degrades political equality between citizens also outside of the workplace. Large corporations influence legislative, regulatory, or judicative processes and outcomes. With the digital economy, this old story of regulatory capture is now told anew (Dal Bó 2006; Shughart and Thomas 2019). Finally, large corporations can escape the "ordinary mechanisms of political accountability" (Rahman 2018, 1629).

To return to a global outlook, corporate power can degrade political relations between countries. History offers drastic lessons: The East India Company managed to extend its initially time-limited monopoly from 15 to more than 200 years. During this time, it established itself as a de facto ruler of Bengal, contributed to a famine that killed more than 10 million people, and helped incite the so-called opium wars (Zingales 2017, 115–16). Many of the circumstances driving this—winner-take-all markets and economies of scale—are the same today. Notably, the rise in widespread corporate power seems to coincide with democratic backsliding, support for authoritarianism, and even fascism (Wu 2018).

When the digital economy is placed before this backdrop of colonialism, two problems of political justice on a global scale stand out: how the digital economy supports authoritarian politics and subsequently exacerbates American global political power.

3.5 Support of Authoritarian Politics

The digital economy can be a force for democracy (Himmelreich 2022). Social media lubricated civil society movements in the Philippines in 2001, in Ukraine in 2004 (the Orange Revolution), in Lebanon in 2005 (the Cedar Revolution), in Tunisia, Egypt and others during the Arab Spring, as well as during the Gezi Park and Occupy protests

around 2010-11 (Diamond 2010, 78; Howard and Hussain 2011; 2013; Tufekci 2017).[13]

However, the digital economy can also be a force in the opposite direction—and support authoritarianism. One example for this is Facebook's role in Myanmar's humanitarian crisis in 2018. For many of Myanmar's 18 million internet users, Facebook is indistinguishable from the internet (Mozur 2018). Facebook, hence, was the ground on which the Myanmar military rolled out an Astroturf ultranationalist Buddhist movement that spread misinformation and vilified the Muslim Rohingya minority in Rakhine State (Fink 2018). This led to a "textbook example of ethnic cleansing" according to an UN report (quoted in Mozur 2018). In the eyes of one member of a civil society group, Facebook had a responsibility "to take proper actions to avoid becoming an instigator of genocide"; Facebook "acknowledged it had been too slow to act" (Mozur 2018).

Whereas Facebook's involvement here may have been unintentional, elsewhere the company seemed to cooperate deliberately. In Vietnam, Facebook "agreed to restrict access to dissident political content deemed illegal [by the government] in exchange for the government ending its practice of disrupting Facebook's local servers, which had slowed the platform to a crawl" (Horwitz and Newley 2020). Likewise, in India—where Facebook has more users (280m) than in any other country, including the US (190m)—Facebook may have engaged in "a broader pattern of favoritism … toward Mr. Modi's Bharatiya Janata Party and Hindu hard-liners" (Horwitz and Newley 2020). Even as members of Modi's party called for Rohingya Muslim immigrants—from Myanmar—to be shot and threatened to raze mosques, thereby violating Facebook's own policies, a Facebook executive reportedly admonished employees that "punishing violations by politicians from Modi's party would damage the company's business prospects in the country" (Horwitz and Newley 2020).

These cases, since they are anecdotical evidence, do not show the problem's extent, but they suggest its magnitude. They illustrate how companies in the digital economy can prop up authoritarian politics. That social media are "tilting dangerously towards illiberalism" because they offer regimes means of surveillance and control, has been observed systematically in other contexts (Shahbaz and Funk 2019). And what goes

[13] The causal role of the technology is contested (Howard and Hussain 2013, 24; Lim 2018, 95).

for social media goes, likewise, for cloud services. China, for example, requires "foreign firms … to submit source code, undergo security audits, and localize data and equipment" (Parasol 2018, 86). Even if these requirements help to foster innovation and cybersecurity, fears about surveillance and authoritarian abuse loom large; especially, since the Cyber Security Association of China, which plays a central role in China's internet governance, is chaired by the "'Father of the Great Firewall', China's censorship and surveillance system" (Parasol 2018, 74).

The structural problem in these cases is that the business interests of companies in the digital economy align with the interests of authoritarian regimes: to stifle opposition and political competition and to consolidate their power. The companies and these authoritarian interests support each other. Authoritarian powers enable companies to stay in business, and these companies help the regimes to stay in power.[14]

Whether through inattentiveness or incompetence, or whether through malicious neglect or opportunism—the digital economy risks being complicit in supporting authoritarian politics. Next to abridging state power and to degrading political relationships broadly, this is a third problem of political justice of the global digital economy.

3.6 Exacerbation of American Global Power

Finally, the global digital economy affects political justice in that it indirectly increases the US' international power. Because many large players in the digital economy are US companies, they are under direct jurisdiction of, or are at least politically beholden to, the US government. In fact, as of 2019, US companies control around 68% of the worldwide public cloud market.[15] To the extent that these companies provide critical infrastructure to other countries, this increases the effect of potential sanctions, and hence the bargaining power of the US.

This is not a hypothetical concern. Even without sanctions, US domestic politics has restricted foreign access to digital infrastructure. On July 25, 2019 GitHub started

[14] This phenomenon is in tension with the earlier—but equally plausible—claim that companies wield indirect power over states with the threat of withholding access to their infrastructure.

[15] With AWS (45%) leading Microsoft's Azure (17.9%), followed by Google Cloud (5.3%). Only one non-US cloud computing service has significant market share: Alibaba Cloud (9.1%). The data is by Gartner and reported in Eide (2020).

blocking Iranian nationals from accessing their code repositories and, reportedly, their pages (Motamedi 2019a). Just weeks later, Iranian users had been locked out of Amazon's cloud products, Amazon Web Services (AWS). Because AWS powers virtual private networks—which are crucial for circumventing governmental internet surveillance and restrictions—this move by Amazon may have adversely affected the Iranian civil society (Motamedi 2019b). These restrictions were only the latest additions after other companies, such as Google, Apple, and Slack, had reportedly already restricted their services in Iran (Motamedi 2019b). Although the US Office of Foreign Assets Control (OFAC) had *allowed* companies to export services to Iran in 2014, according to reports from Al Jazeera, Iranian citizens are effectively still "locked out" from many internet services. The US-based digital economy tends to "overcomply" with US sanctions against the Iranian government—be it for political reasons or because of the administrative burden associated with exporting services (Motamedi 2019b; 2019a).

The digital economy hence leverages the international political power of those states that are their primary political home—generally, this means often: the power of the US. Without adjudicating this particular instance of US sanctions, this power leverage raises concerns for political justice. In the digital economy, export restrictions can affect the economic and social opportunities of citizens in distant countries directly. Such international power might be illegitimate or substantially unjust.

4 Conclusion

The digital economy, as discussed here, combines infrastructure and data. It grafts the logic of platforms and network goods onto the data economy trunk. The digital economy has burgeoned—its individual players as well as the industry—sprawling out from China and the global north. It is bound to grow further as the global digital divide narrows. But problems of justice arise already today. Insofar as these problems are problems due to companies' size, the digital economy and its threats to justice will grow in concert.

This chapter outlined a framework for thinking about justice in the global digital economy. The framework consists of three main points. First, the digital economy should be thought of as digital infrastructure. Second, the digital economy compounds existing concerns of socio-economic injustice—issues of global inequality and insufficiency. Third, the digital economy raises four problems of political justice. The

power wielded by the digital economy restricts what states can do, it deepens defects in domestic economic participation, political representation, and labor relations, it finds itself contributing to anti-democratic currents, and exacerbates the diplomatic power of already powerful states.

The point of identifying problems of justice is to do something about them. What can be done?

To fix price discrimination, a first route goes via competition. On a perfectly competitive market, price discrimination would be impossible. If Amazon charges you more for premium cat litter because they know your willingness to pay, Amazon's competitors might try to make you a better offer—given that the competitor knows about Amazon's offer. So, price discrimination can be addressed by lowering search costs (via price transparency or via the dissemination of technology that predicts consumers' willingness to pay). Moreover, price discrimination could be addressed by distinguishing between permissible and impermissible price discrimination and enforcing a ban on the latter. However, given the difficulty of drawing this distinction, this latter avenue seems less promising.

The problems of socio-economic injustice, as suggested in the companion piece to this chapter, could be addressed through a digital services tax. On such a tax, each country has the right to tax a digital services company's global income proportional to the revenue that the company generated in this country. Normative arguments for such a policy and proposals for a global tax regime are being developed (Dietsch 2015; Kern 2020). The process of setting up such a tax may entail—that is, it may either presuppose or lead to the situation—that the balance of power shifts from economic interests to states.

The problems of political justice play out both domestically and internationally. Domestically, states should renew their efforts to reign in economic power. The powers that the digital economy wields domestically are not novel and may be hemmed in with known tools of antitrust and competition regulation. Internationally, the picture is different. A relatively easy start would be for the US to use its domestic power over the digital economy to shape how the companies behave abroad. This, of course, exploits the potential injustice of American global power instead of addressing it. But

this may be a first step towards a recommendation that has to be—unfortunately—as vague as it is trite: Effective global governance is needed.

Thus, even though key problems of the digital economy have been identified and potential reforms sketched, the hard work remains yet to be done—intellectually, to articulate the procedural and substantive norms that injustices violate; and practically, to develop specific reforms and organize for their implementation.

Acknowledgements and Conflict of Interest Statement
This paper benefitted from detailed comments by and thoughtful discussions with Lisa Herzog, Seth Lazar, Marco Meyer, and Fay Niker. Amir Arturo Javier Castellanos and Tatevik Khachatryan provided valuable research assistance. Potential conflict of interest disclosure: From 2017-2019 the author held a postdoctoral fellowship at Stanford University which was sponsored by Apple Inc, during which the author participated in activities at Apple University.

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