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Pandora's Loot Box

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Pandora's Loot Box

Sheldon A. Evans*

ABSTRACT

The emerging trend of loot boxes in video game platforms continues to expand the shifting boundaries between the real and virtual world and presents unique insights into the impact each world should have on the other. Borrowing their design from the gambling industry, loot boxes operate as a hybrid between slot machines and trading cards. A consumer pays real-world money to buy a virtual box without knowing its contents. Upon opening the box, the consumer receives a virtual good that may be of great value, but more commonly is of little or no value.

This Article contributes a novel theory of virtual valuation that reframes how we should think about loot boxes, but also more generally about the influence that virtual goods have in the real world. Scholars have presented differing views regarding the ownership, sale, and taxation of virtual goods, but have always relied upon virtual goods' real-world value to determine their real-world significance. This Article rejects this dominant value construct by tailoring the economic principal of perceived value for the virtual world. By valuing a virtual good based on the perceived benefit it can bring in the virtual world—irrespective of any real-world value—it becomes clear that consumers are driven to gamble for virtual goods in loot boxes based on the potential prizes' perceived value. Using this new framework, this Article argues that loot boxes should be regulated similarly to the gambling industry they mimic. After considering the policy ramifications of loot box regulation, this Article concludes by exploring the contribution that perceived virtual value can have in the many legal contexts that also rely upon the value of virtual goods to determine real-world significance.

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INTRODUCTION

The virtual world is a frontier unlike any other because it is both interlaced yet simultaneously separate from the real world. Whether it comes by exploring alien worlds in video games, sharing likes with friends on social media, or navigating a digital library of content, interactions with people and things inside the virtual world have real impact. For one, while most of the planet accesses the virtual world for entertainment, social, and business purposes, scholars have been discussing how virtual goods—which are assets that exist solely in the virtual world—should be valued in the real world.¹ The ramifica-

¹ See, e.g., Joseph Macey & Juho Hamari, *eSports, Skins and Loot Boxes: Participants, Practices and Problematic Behaviour Associated with Emergent Forms of Gambling*, 21 *NEW MEDIA & SOC'Y* 20, 22 (2019).

tions of this debate are legion and have tremendous impact on how we think about property, family, taxes, government benefits, and more. The growing trend of loot boxes in the video game industry offers unique insight into these questions. Loot boxes are a mix between pulling a slot machine lever and buying a pack of trading cards. Players spend real-world money to buy a virtual box without knowing its contents.² Thus, the player engages in this game of chance with the hopes that the virtual good inside the box is valuable. The concept of *value* in the virtual world, however, is underappreciated and undertheorized. While real-world scholars, courts, and government agencies assess real-world value before exploring commensurate policy responses, this Article rejects that dominant value construct by contributing a new theory of virtual valuation.³ By tailoring the economic theory of perceived value to apply to virtual goods, this Article argues that loot boxes should be regulated as a gambling activity. This contribution of perceived virtual value has ramifications throughout the virtual and real worlds, which this Article further explores as the virtual frontier continues to expand.

The subject of virtual worlds⁴ is vast, but this Article focuses on the loot box phenomena as a gateway to understand and appreciate the importance of perceived value when assessing virtual goods and other virtual assets generally. Loot boxes specifically have grown in the virtual worlds presented in video games, which is one of the fastest growing industries in the world.⁵ The video game industry boasts a multi-billion-member player base and revenues that have already overtaken other traditional entertainment mediums such as sports, movies, and music combined.⁶

The universal appeal of virtual worlds and the video games within becomes apparent when contrasted with these other forms of traditional entertainment and expression. Virtual worlds have become a dominant medium of entertainment of this generation⁷ because of

2 See Aaron Drummond & James D. Sauer, *Video Game Loot Boxes are Psychologically Akin to Gambling*, 2 NATURE HUM. BEHAV. 530, 530 (2018).

3 See Macey & Hamari, *supra* note 1, at 26.

4 This Article appreciates multiple concepts of the virtual world. There is the concept of one virtual world that exists via the internet, but this one virtual world can also be separated into several uniquely different worlds that are owned and accessed by different consumers.

5 See generally Katie Jones, *Online Gaming: The Rise of a Multi-Billion Dollar Industry*, VISUAL CAPITALIST (July 15, 2020), <https://www.visualcapitalist.com/online-gaming-the-rise-of-a-multi-billion-dollar-industry/> [<https://perma.cc/T5TC-R2XX>] (discussing growth by revenues of industry as a whole as well as growth of subsets of the video game industry).

6 See *infra* notes 52–57 and accompanying text.

7 See Peter Zackariasson & Timothy L. Wilson, *Introduction*, in THE VIDEO GAME IN-

their interactive ability to teach us, shape our moods, and create new habits.⁸ People escape into virtual worlds for a number of different reasons, such as pursuing heroic narratives that build a sense of self-worth and accomplishment, toggling along a spectrum of identity and expression, and socializing with friends in team-building events, all of which are uniquely different than similar opportunities presented in the real world.⁹ People live in virtual worlds,¹⁰ enough for some to claim citizenship there.¹¹ People love in virtual worlds, enough for them to get married there.¹² People die in virtual worlds, enough for crimes to be charged there.¹³ Spending time in virtual worlds is no longer the stereotypical pastime of teenagers,¹⁴ but has expanded exponentially into the living rooms, computers, and pockets of nearly

DUSTRY 1, 1 (Peter Zackariasson & Timothy L. Wilson eds., 2012) (describing video games as “one of the major media we interact with during the course of a day”); Dan L. Burk, *Owning E-Sports: Proprietary Rights in Professional Computer Gaming*, 161 U. PA. L. REV. 1535, 1535–36 (2013) (describing the expanding market of video games as “[o]ne of the most astounding and largely underappreciated developments accompanying the recent proliferation of mass-market computer technology”).

⁸ See, e.g., Joseph Macey & Juho Hamari, *Investigating Relationships Between Video Gaming, Spectating eSports, and Gambling*, 80 COMPUTS. HUM. BEHAV. 344, 344–45, 350 (2018) (outlining research showing associations between video games, aggressive behavior, and substance abuse); YU-KAI CHOU, ACTIONABLE GAMIFICATION 129 (2016) (describing a study showing that those who played certain video games exhibited improved memory, visual, and information filtering abilities).

⁹ See JANE MCGONIGAL, REALITY IS BROKEN: WHY GAMES MAKE US BETTER AND HOW THEY CAN CHANGE THE WORLD 4 (2011) (arguing that video games offer genuine human fulfillment in ways that the real world cannot).

¹⁰ See Jack M. Balkin & Beth Simone Noveck, *Introduction*, in THE STATE OF PLAY 3, 3 (Jack M. Balkin & Beth Simone Noveck eds., 2006) (noting that many gamers spend more time in the virtual world than in the real world).

¹¹ See F. Gregory Lastowka & Dan Hunter, *Virtual Worlds: A Primer*, in THE STATE OF PLAY, *supra* note 10, at 13, 16; see also GREG LASTOWKA, VIRTUAL JUSTICE 79–87 (2010) (citing arguments of scholars for why internet and virtual worlds should be their own jurisdiction for legal purposes).

¹² See LASTOWKA, *supra* note 11, at 29–30 (describing a couple who got married in both the real and virtual world).

¹³ See, e.g., *id.* at 122–23 (describing Dutch and South Korean authorities using criminal law to punish virtual property theft and fraud); ‘Virtual Theft’ Leads to Arrest, BBC NEWS (Nov. 14, 2007, 2:37 PM), <http://news.bbc.co.uk/2/hi/technology/7094764.stm> [<https://perma.cc/6APH-4PR9>] (reporting that Dutch courts charged theft of virtual goods as if it were real-world property); Cao Li, *Death Sentence for Online Gamer*, CHINA DAILY (June 8, 2005), http://www.chinadaily.com.cn/english/doc/2005-06/08/content_449600.htm [<https://perma.cc/TQU2-H3R9>] (describing a crime in which a Chinese gamer murdered another player over the theft of a virtual good because there was no legitimate legal redress otherwise).

¹⁴ See JASON SCHREIER, BLOOD, SWEAT, AND PIXELS, at XV (2017) (discussing the transformation of video gamers from the stereotypical teenager to a broader gaming demographic).

one-third of the planet.¹⁵ So even for those that do not consider themselves to be gamers, chances are they know somebody who does.

But even imaginary virtual worlds need to establish a baseline of reality to effectively engage their audience. Video game developers achieve this by designing intricate virtual economies that run on many of the same traditional economic principles that govern real-world economies.¹⁶ For example, virtual worlds have a familiar work-to-reward ratio in which rare and valuable virtual goods require a commensurate amount of player effort to obtain.¹⁷ This investment of time is one of the things that makes virtual goods so valuable to players.¹⁸ People have been killed over virtual goods.¹⁹ Companies have been sued over virtual goods.²⁰ People make a living from transacting with virtual goods.²¹ Appreciating this value judgment of players and an entire industry is yet another important aspect of how the real world and virtual world mirror and impact each other.

This is what gives loot boxes their allure; they give players the opportunity to short-circuit this gameplay loop by paying real-world money for the *chance* of winning a valuable virtual good—or “loot” as many players call it. But just like pulling the lever on a slot machine or playing the lottery, players have a better chance of being hit by virtual lightning²² than winning top-tier virtual goods in a loot box.²³ This is by design and is meant to entice players to spend more real-world money to open loot boxes for the marginal chances of attaining valuable virtual goods, borrowing from the same strategies to exploit physi-

¹⁵ See Ilker Koksall, *Video Gaming Industry & Its Revenue Shift*, FORBES (Nov. 8, 2019, 5:50 PM), <https://www.forbes.com/sites/ilkerkoksall/2019/11/08/video-gaming-industry—its-revenue-shift/> [<https://perma.cc/6LG2-RHU3>].

¹⁶ See Thomas Malaby, *Parlaying Value: Capital in and Beyond Virtual Worlds*, 1 GAMES & CULTURE 141, 145 (2006).

¹⁷ See *id.* at 150 (discussing how the assessment of value of virtual goods is correlated to the amount of time spent in the virtual world to obtain them).

¹⁸ See *id.*

¹⁹ See Li, *supra* note 13.

²⁰ See Josh Ye, *Tencent Tells Chinese Court It Owns All Virtual Coins, Other Merchandise Acquired by Players in Its Video Games*, S. CHINA MORNING POST (May 3, 2021, 9:07 PM), <https://www.scmp.com/tech/big-tech/article/3132123/tencent-tells-chinese-court-it-owns-all-virtual-coins-other> [<https://perma.cc/3WJX-4C4N>].

²¹ Cf. LASTOWKA, *supra* note 11, at 122–23 (describing Dutch and South Korean authorities using criminal law to punish virtual property theft and fraud).

²² Unless you have virtual goods like metal weapons or armor during a thunderstorm in *The Legend of Zelda: Breath of the Wild*.

²³ See Andrew V. Moshirnia, *Precious and Worthless: A Comparative Perspective on Loot Boxes and Gambling*, 20 MINN. J.L. SCI. & TECH. 77, 87 (2019).

cal and psychological triggers as gambling mechanics.²⁴ Because these items carry so much *value* in the virtual world, players are willing to compulsively spend real-world money for the chance to obtain desired virtual goods.²⁵

Designing loot boxes to trigger the same responses as gambling activities also produces the same negative externalities that gambling regulations seek to curb. Children, for example, are targeted by the video game industry to purchase these loot boxes and other online content.²⁶ People who have developed problem gambling behaviors have also been targeted by developers. Artificial intelligence (“AI”) is used to identify “whales” and high spenders to extract as much revenue from them as possible by encouraging and advertising loot box spending.²⁷ This explains why there are hundreds of anecdotal stories across the internet of children and adults selling their possessions, stealing credit cards from parents, and even contemplating suicide²⁸ to cope with and support their unhealthy loot box habit. When consumer predation becomes a business model, consumer protection tools become a necessary bulwark.

Policy makers and courts, however, have yet to catch up to the virtual world and the loot boxes therein. Legal definitions of gambling vary across jurisdictions, but all define it with similar strokes: the activity must include (1) offering consideration (2) to play a game of

²⁴ See *id.* at 87–88 (describing several similarities between loot boxes and slot machines).

²⁵ See *id.* at 80–81.

²⁶ See, e.g., Marisa Meyer, Victoria Adkins, Nalingna Yuan, Heidi M. Weeks, Yung-Ju Chang & Jenny Radesky, *Advertising in Young Children's Apps: A Content Analysis*, 40 J. DEVELOPMENTAL & BEHAV. PEDIATRICS 32, 34–36 (2019) (describing advertising and other strategies that encourage and deceive children to spend more money on microtransactions).

²⁷ See Alex Walker, *Someone Spent Over \$150,000 in Microtransactions on a Transformers Game*, KOTAKU (Oct. 14, 2019, 7:00 PM), <https://kotaku.com/someone-spent-over-150-000-in-microtransactions-on-a-t-1839040151> [<https://perma.cc/5C9X-RGXJ>] (detailing AI technology that identifies whales with 87% accuracy); see also Mark D. Griffiths, *Online Gambling and Geolocation Technology: Implications for Regulation and Potential Threats to Player Protection*, 23 GAMING L. REV. 344, 346 (2019) (describing gambling industry use of big data to track customer spending habits).

²⁸ See Shaun Assael, *Skin in the Game*, ESPN (Jan. 20, 2017), https://www.espn.com/espn/feature/story/_id/18510975/how-counter-strike-turned-teenager-compulsive-gambler [<https://perma.cc/885Z-ZPBZ>] (detailing story of sixteen-year-old Elijah Ballard who sold his iPad and stole money from his parents to support his habit of gambling with virtual goods); Ellen McGrody, *For Many Players, Lootboxes Are a Crisis That's Already Here*, VICE (Jan. 30, 2018, 2:08 PM), <https://www.vice.com/en/article/kznmwa/for-many-players-lootboxes-are-a-crisis-thats-already-here> [<https://perma.cc/F8EN-BD77>] (interviewing player with suicidal ideations from overspending on virtual goods).

chance (3) to win a prize.²⁹ The “prize” element is where virtual goods get lost in the shuffle. Many courts have interpreted the prize element to only include things of “value,” and value is often interpreted narrowly to mean real-world or fair-market value.³⁰ Under this precedent—adopted well before the digital age—such prizes of value could include money, vacations, cars, and many other valuable goods.³¹ Thus, a prize only has sufficient value if it can be readily exchanged for real-world money to allow players the ability to cash out. This aspect of the prize/value element—referred to as the “cash-out” rule—likely means that buying and selling loot boxes would not be categorized as gambling activity because most virtual worlds do not allow players to “cash out” by selling or exchanging their virtual goods for real-world money.

The cash-out rule has proven to be the decisive legal distinction in how different countries address the loot box pandemic.³² New Zealand, Denmark, and Ireland—despite impaneling multiple legislative committees and commissioning expert reports—have not classified loot boxes as a gambling activity because of the cash-out rule.³³ Other countries have been more responsive. The Netherlands and Belgium have taken the strong stance of banning loot boxes entirely because of their gambling-like design,³⁴ while parliamentary committees in the

²⁹ See 38 AM. JUR. 2D *Gambling* § 2 (2021) (describing elements of gambling through state survey).

³⁰ See *infra* Part II.

³¹ See *infra* note 181 and accompanying text.

³² See Moshirnia, *supra* note 23, at 99–107 (outlining domestic and international response in regulating loot boxes); see also Emma Kent, *15 European Gambling Regulators Unite to Tackle Loot Box Threat*, EUROGAMER (Aug. 16, 2019), <https://www.eurogamer.net/articles/2018-09-17-15-european-gambling-regulators-unite-to-tackle-loot-box-threat> [<https://perma.cc/ST4L-AKDR>] (describing important steps taken by European countries and Washington State to investigate and regulate loot boxes). See generally Daniel Cermak, Note, *Micro-Transactions, Massive Headaches: International Regulation of Video Game Loot Boxes*, 28 MICH. ST. U. COLL. L. INT’L L. REV. 273 (2020) (comparing international regulatory responses to loot boxes).

³³ See Katherine Cross, *New Zealand Says Lootboxes ‘Do Not Meet the Legal Definition for Gambling,’* GAME DEV. (Dec. 11, 2017), https://www.gamasutra.com/view/news/311463/New_Zealand_says_lootboxes_do_not_meet_the_legal_definition_for_gambling.php [<https://perma.cc/JZ9T-6HH9>] (describing same for New Zealand); *Government Shies Away from Crackdown on ‘Loot Box’ Games*, IRISH LEGAL NEWS (Sept. 27, 2018), <https://www.irishlegal.com/article/government-shies-away-from-crackdown-on-loot-box-games> [<https://perma.cc/4FY4-HBUR>] (describing same for Ireland); Rune Kristian Lundedal Nielsen & Pawel Grabarczyk, *Are Loot Boxes Gambling?*, 4 TRANSACTIONS DIGIT. GAMES RSCH. ASS’N 171, 191 (2019) (explaining Danish decision that loot box rewards that “cannot easily be exchanged for money” are not considered gambling).

³⁴ BELG. GAMING COMM’N, RESEARCH REPORT ON LOOT BOXES 16 (2018), <https://gamingcommission.be/sites/default/files/2021-08/onderzoeksrapport-loot-boxen-Engels-publicatie.pdf> [<https://perma.cc/5Q72-YNTG>] (finding that paid loot boxes observed in most popular

United Kingdom have issued recommendations to regulate loot boxes as gambling activities.³⁵ China and South Korea have taken swift action to try to demonetize virtual goods and currencies, making it harder for players to exchange these virtual assets for real-world money.³⁶ And yet, the United States—one of the biggest markets for video games³⁷ and a global leader in game production—has remained silent. While there have been some state-level inquiries³⁸ and even a bipartisan bill introduced in Congress,³⁹ these efforts have had little impact in this burgeoning virtual world.

This Article proposes an appropriate expansion of how courts, and later regulators, should think about valuating virtual goods. Drawing from economic and social science theories that measure consumer consumption, this Article argues that consumers desire virtual goods based on their perceived value; this includes the social, expressive, and utility value these goods have in the virtual world. What the antiquated cash-out rule fails to account for is that money and value are different but related concepts. The former is merely one of many ways to assess the latter. The real-world market value of a virtual good is less significant to players when compared to what that virtual good can do to enhance the player's virtual experience. For example, attaining a rare virtual good can signal status and skill in the virtual

games like *Overwatch*, *FIFA 2018*, and *Counter-Strike: Global Offensive* fit the legal description of gambling under the Belgium Gaming and Betting Act); NETH. GAMBLING AUTH., GUIDE ON ASSESSING GAMES OF CHANCE (2018), https://www.mygamecounsel.com/wp-content/uploads/sites/32/2018/04/guide_on_assessing_games_of_chance.pdf [<https://perma.cc/VG5C-3ZCE>] (same corresponding to Article 1 of the Netherlands' Betting and Gaming Act).

³⁵ SELECT COMMITTEE ON THE SOCIAL AND ECONOMIC IMPACT OF THE GAMBLING INDUSTRY, GAMBLING HARM—TIME FOR ACTION, 2019–21, HL-79, at 115 (UK) (recommending that legislatures regulate loot boxes under United Kingdom's Gambling Act of 2005).

³⁶ VILI LEHDONVIRTA & MIRKO ERNKVIST, KNOWLEDGE MAP OF THE VIRTUAL ECONOMY 18–19 (2011) (describing efforts of China, South Korea, and Vietnam to create legislation and act through central banks to curb negative social and economic effects of commodifying virtual goods). See MCGONIGAL, *supra* note 9, at 2–3.

³⁷ *U.S. Games Market 2018*, NEWZOO (Aug. 1, 2018), <https://newzoo.com/insights/info-graphics/us-games-market-2018/> [<https://perma.cc/44LZ-D24X>] (reporting that the U.S. gaming market is second in the world).

³⁸ See S. 6266, 65th Leg., Reg. Sess. (Wash. 2018); H.R. 2686, 29th Leg., Reg. Sess. (Ha. 2018); H.R. 2727, 29th Leg., Reg. Sess. (Ha. 2018); S. 3024, 29th Leg., Reg. Sess. (Ha. 2018); S. 3025, 29th Leg., Reg. Sess. (Ha. 2018); Assemb. 2194, 2018 Leg., Reg. Sess. (Cal. 2018); H.R. 4460, 90th Leg., 19th Sess. (Minn. 2018); see also S. ENV'T & COMM'NS REFERENCES COMM., PARLIAMENT OF AUSTL., GAMING MICRO-TRANSACTIONS FOR CHANCE-BASED ITEMS 14 (2018) [hereinafter AUSTL. SENATE REPORT] (noting that none of these bills have passed in respective state legislatures).

³⁹ Protecting Children from Abusive Games Act, S. 1629, 116th Cong. (2019).

world because of the work-to-reward ratio.⁴⁰ Virtual goods can also be used as models of expression, especially if they bring aesthetic enjoyment and hedonic pleasure to the player and others. And virtual goods have tremendous utility value that helps empower players to overcome obstacles in the virtual world.⁴¹ It is this perceived value that entices players to buy loot boxes for the rare chance of winning a virtual prize that has virtual value.⁴²

This new framework of perceived virtual valuation offers several new insights into how we regulate the rotating door in which money and value flow between the real and virtual worlds. In the gambling context, this Article argues that state gambling laws and courts should adopt this more accurate view of perceived virtual value when assessing the prize/value element in loot box litigation. But beyond loot boxes and gambling regulation, should this perceived virtual value be taken into account when assessing assets to be divided in divorce cases, determining child support, or alimony? Should bankruptcy courts start valuating the virtual assets of debtors? Could this new valuation tool be used to negatively affect students applying for government aid and scholarships, or even those applying for other need-based government benefits such as welfare? These important considerations beg the following question: does the new framework of perceived virtual value close one Pandora's box (by regulating gambling mechanics in video games) only to open another? This Article humbly answers in the negative. All of the aforementioned asset-based determinations rely upon real-world value, which this Article's framework specifically separates from perceived virtual value. While perceived virtual value is incredibly relevant to help explain why consumers enter into gambling transactions in the virtual world, it is not able to assess the real-world value of assets in other legal contexts. Only real-world markets can do that. Nevertheless, perceived virtual value may still serve as an important component in some of these other contexts, especially as a powerful bargaining tool in adversarial negotiations.

⁴⁰ See, e.g., Moshirnia, *supra* note 23, at 89.

⁴¹ See Bryan Wirtz, *Pay to Win Games Are Taking Over: How Much Are You Willing to Pay?*, *GAMEDESIGNING* (Dec. 22, 2021), <https://www.gamedesigning.org/gaming/pay-to-win-games/> [<https://perma.cc/N5KJ-UGT7>] (discussing how purchasing virtual goods can give players a competitive advantage).

⁴² Loot boxes and their overlap with gambling law is understudied in American legal academia, with the exception of a handful of scholars and student notes. See, e.g., Moshirnia, *supra* note 23, at 87–88; Kyle Langvardt, *Regulating Habit-Forming Technology*, 88 *FORDHAM L. REV.* 129, 131–32, 144, 156–59, 164–66 (2019) (discussing addictive technologies, such as loot boxes and social media software design); Edwin Hong, Note, *Loot Boxes: Gambling for the Next Generation*, 46 *W. ST. L. REV.* 61 (2019).

Although the concept of perceived value is not new to social science literature, grafting it into a novel valuation framework for virtual goods finds a natural affinity because of the unique setting of virtual worlds. It is precisely because the virtual and real worlds are separate—yet overlapping—that there is still a divide between value in the real world versus value in the virtual world. By filling this gap, this Article expands the use of perceived value as an economic tool while also contributing to the growing literature on the impact of the virtual world and growing predatory trends in the technology industry.⁴³

This Article does so in five parts. Parts I–III answer the outstanding legal question of whether loot boxes can and should be considered gambling. Part I starts this analysis by exploring the depth of virtual worlds and their economies. By detailing the mechanics of loot boxes against the backdrop of perceived virtual value, the scope of the problem and potential solutions are properly contextualized. Part II continues by overlaying the existing structures of state gambling laws, and explains why current laws do not properly account for virtual goods. Analyzing the limited case law dealing with trading cards and virtual rewards establishes the limits of courts' understanding of value. Part III brings the preceding parts together, analyzing why loot boxes can and should be considered as a gambling activity when properly accounting for perceived value. But declaring loot boxes as a gambling activity is merely one part of solving the puzzle.

Part IV answers the practical regulatory questions of what then should be done, while also considering nuances and potential unintended consequences. By probing traditional frameworks for regulation, this Part advocates for a new set of regulatory tools uniquely tailored to combat the specific harms of loot boxes. This Part goes beyond the role of courts and regulators, but instead provides for multiple interventions and partnerships distributed among private and public actors. Part V continues this discussion by considering the impacts of perceived virtual value outside of the gambling and loot box context. While there is a danger in expanding virtual value too far, this Part concludes the Article by offering assurances that virtual value does not threaten the existing real-world valuation order. Rather, it enhances the existing valuation order to properly account for and regulate predatory practices in the virtual world that have been ignored for too long. Given the tremendous impact at stake with the unregu-

⁴³ See *infra* notes 328–29 and accompanying text (examining well-documented critiques of social media companies like Facebook and YouTube for designing addictive products and services).

lated gambling activity of loot boxes and other predatory practices, exploring this aspect of virtual worlds is indeed a new legal frontier.

I. EXPLORING VIRTUAL VALUE IN THE WORLDS OF GAMING

The dream has become their reality. Who are you to say otherwise . . . ?

—Inception⁴⁴

The irony of exploring virtual worlds is that it starts with the reality of human experience. Players that access these virtual worlds necessarily bring a piece of their humanity with them. With such humanity must also come a modicum of rights, privileges, and protections in these virtual worlds. This rotating door between the real and virtual worlds undergirds longstanding debates within the scholarly and business community about the optimal level of impact the real world should have on the virtual world. Central to this discussion is the penetrability of the “magic circle.” This concept was first discussed by game theorist Johan Huizinga to describe the veil of make-believe that keeps the game world separate from the real world.⁴⁵ One of the seminal debates of the law’s relation to the magic circle included adverse positions from economist Edward Castronova and legal scholar Jack Balkin. Castronova has argued that the law should play a role in protecting the magic circle by making it impenetrable from outside legal interference.⁴⁶ Balkin, however, rightfully recognized that as more people invest more time and real-world money in virtual worlds, real-world law would have to seep in, if for nothing else, to protect basic human rights among other things.⁴⁷ Other scholars have supplemented this debate, arguing that the laws of the real world must pene-

⁴⁴ INCEPTION (Legendary Pictures 2010).

⁴⁵ See J. HUIZINGA, *HOMO LUDENS* 10–11 (Routledge & Kegan Paul 1949).

⁴⁶ See Balkin & Noveck, *supra* note 10, at 6; Edward Castronova, *The Right to Play*, in *THE STATE OF PLAY*, *supra* note 10, at 68, 83–85.

⁴⁷ Jack M. Balkin, *Law and Liberty in Virtual Worlds*, in *THE STATE OF PLAY*, *supra* note 10, at 86, 88–94 (explaining various permeable aspects of the magic circle and the integration of real-world issues into virtual worlds).

trate the magic circle to consider human rights,⁴⁸ property rights,⁴⁹ criminal regulation,⁵⁰ and even taxation of virtual economies.⁵¹

This Part provides a tutorial backdrop to introduce the rules of virtual economies, theories of virtual valuation, and the reasons why real-world value is significantly different from virtual value. It explores why virtual ownership, use, and profit inform that unique valuation question. This Part concludes by integrating these principles with the theoretical contribution of the Article, which relies on economic and social science literature to show that virtual goods are valuable in the virtual world irrespective and wholly apart from any corresponding real-world value. This new theory of virtual value, which relies on the economic principle of perceived value, is central to solving the loot box problem by fully appreciating why consumers are so willing to compulsively gamble for virtual goods.

A. *Virtual Economics: Virtual Value to Developers*

The importance of virtual worlds cannot be overstated. Video game industry analysts estimate that 2.5 billion players populate virtual worlds, and industry giants seek to increase this player base to seven billion in the next generation.⁵² This enormous demographic of gamers generates \$150 billion annually,⁵³ which is forecast to double

⁴⁸ See Raph Koster, *Declaring the Rights of Players*, in *THE STATE OF PLAY*, *supra* note 10, at 55, 56–61 (laying out “The Declaration of the Rights of Avatars” modeled after The Declaration of the Rights of Man and of the Citizens (Fr. 1789)).

⁴⁹ See F. Gregory Lastowka & Dan Hunter, *The Laws of the Virtual Worlds*, 92 CALIF. L. REV. 1, 43 (2004) (arguing there is no obvious reason to prohibit recognition of legal interests in intangible virtual properties); see also Caroline Bradley & A. Michael Froomkin, *Virtual Worlds, Real Rules: Using Virtual Worlds to Test Legal Rules*, in *THE STATE OF PLAY*, *supra* note 10, at 227, 232–33 (briefly describing different real and chattel property regimes in virtual worlds).

⁵⁰ See F. Gregory Lastowka & Dan Hunter, *Virtual Crime*, in *THE STATE OF PLAY*, *supra* note 10, at 121, 122–27 (expounding on legal challenges to creating virtual crimes within game world).

⁵¹ See *infra* notes 111–18 and accompanying text.

⁵² Koksai, *supra* note 15 (estimating 2.5 billion people around the world play video games); see also Austen Goslin, *Phil Spencer Says Amazon and Google are Xbox's Real Competition*, POLYGON (Feb. 5, 2020, 11:31 AM), <https://www.polygon.com/2020/2/5/21124148/phil-spencer-microsoft-xbox-xcloud-amazon-google-competition> [<https://perma.cc/T729-LRPH>] (quoting Microsoft executive speculating that Google and Amazon are pushing to expand global player base to seven billion people).

⁵³ Tom Wijman, *The Global Games Market Will Generate \$152.1 Billion in 2019 as the U.S. Overtakes China as the Biggest Market*, NEWZOO (June 18, 2019), <https://newzoo.com/insights/articles/the-global-games-market-will-generate-152-1-billion-in-2019-as-the-u-s-overtakes-china-as-the-biggest-market/> [<https://perma.cc/GT63-VCL8>] (estimating projected revenue of over \$150 billion in 2019).

in the next five years.⁵⁴ Loot boxes contribute a significant portion to this revenue and projected growth,⁵⁵ with one industry estimate reporting that these sales accounted for \$30 billion in 2018.⁵⁶ To put this market power in perspective, the video game industry—and in some cases, loot boxes alone—generate more annual revenue than the Hollywood annual box office, the most popular domestic sports leagues, and the mainstream music industry combined.⁵⁷ Like all other entertainment industries, virtual worlds have the potential for positive social impact,⁵⁸ but can also be a double-edged sword that can just as easily cut the other way.⁵⁹ When considering the sheer size of the industry, which way this sword cuts is an ongoing debate.

⁵⁴ See *id.* (showing over 9% growth from 2018 to 2019 revenues, and further projected growth through 2022); see also Koksas, *supra* note 15 (estimating that the video game industry could be worth over \$300 billion by 2025).

⁵⁵ See AUSTL. SENATE REPORT, *supra* note 38, at 5 (citing research stating that 25% of digital sales in the video game industry was generated by loot box sales); see also *Loot Boxes & In-Game Spend Drive Digital Games Market: Surpassing \$160 Billion by 2022*, JUNIPER RSCH. (May 1, 2018), <https://www.juniperresearch.com/press/press-releases/loot-boxes-in-game-spend-drive-digital-games> [<https://perma.cc/H4AA-EKMH>] (attributing projected growth of video game industry to rely heavily on loot box sales over the next few years).

⁵⁶ JUNIPER RSCH., *IN-GAME GAMBLING—THE NEXT CASH COW FOR PUBLISHERS* (2018), <https://www.juniperresearch.com/document-library/white-papers/in-game-gambling-the-next-cash-cow> [<https://perma.cc/J6U5-3ZG8>].

⁵⁷ See Samuel Stewart, *Video Game Industry Silently Taking Over Entertainment World*, EJINSIGHT (Oct. 22, 2019, 8:33 AM), <https://www.ejinsight.com/eji/article/id/2280405/20191022-video-game-industry-silently-taking-over-entertainment-world> [<https://perma.cc/B98Q-WHJR>]; see also Mark Hughes, *2018 Sets New Box Office Record With Enormous \$41+ Billion Worldwide*, FORBES (Dec. 31, 2018, 3:17 PM), <https://www.forbes.com/sites/markhughes/2018/12/31/2018-sets-new-box-office-record-with-enormous-41-billion-worldwide/> [<https://perma.cc/Q5MF-8WPF>]; Michael Colangelo, *The NFL Made Roughly \$16 Billion in Revenue Last Year*, USA TODAY: TOUCHDOWN WIRE (June 15, 2019, 10:32 PM), <https://touchdownwire.usatoday.com/2019/07/15/nfl-revenue-owners-players-billions/> [<https://perma.cc/Q3EZ-XHMT>]; Maury Brown, *MLB Sees Record \$10.7 Billion in Revenues for 2019*, FORBES (Dec. 21, 2019, 7:02 PM), <https://www.forbes.com/sites/maurybrown/2019/12/21/mlb-sees-record-107-billion-in-revenues-for-2019/> [<https://perma.cc/44K2-YUYE>]; Kurt Badenhausen, *NBA Team Values 2019: Knicks on Top at \$4 Billion*, FORBES (Feb. 6, 2019, 9:00 AM), <https://www.forbes.com/sites/kurtbadenhausen/2019/02/06/nba-team-values-2019-knicks-on-top-at-4-billion/> [<https://perma.cc/944E-WXE7>]; Hugh McIntyre, *The Global Music Industry Hit \$19 Billion in Sales in 2018, Rising By Almost 10%*, FORBES (Apr. 2, 2019, 10:59 AM), <https://www.forbes.com/sites/hughmcintyre/2019/04/02/the-global-music-industry-hits-19-billion-in-sales-in-2018-jumping-by-almost-10/> [<https://perma.cc/W28C-GFZC>].

⁵⁸ See, e.g., Jon Porter, *Hearthstone Player Banned for Supporting Hong Kong Protesters During Live Stream*, VERGE (Oct. 8, 2019, 8:06 AM), <https://www.theverge.com/2019/10/8/20904308/hearthstone-player-blitzchung-hong-kong-protesters-ban-blizzard> [<https://perma.cc/E28Y-VSM4>] (reporting story of controversial political protest on gaming platform); see also MCGONIGAL, *supra* note 9, at 236–42 (describing Folding@home project that combined network of PlayStation 3 processors to solve complex genome scientific problems).

⁵⁹ See, e.g., Mark D. Griffiths & Alex Meredith, *Video Game Addiction and Its Treatment*,

Virtual economics—like real-world economics—finds its foundation in the study of human behavior when balancing ends with scarce means.⁶⁰ Scarcity in the real world is a matter of naturally occurring resources or manufactured goods and their efficient allocation. Virtual economies, on the other hand, rely on the artificial scarcity of digital resources such as virtual currencies and virtual goods.⁶¹ For example, the value of real-world commodities like gold is a combination of the metal's natural scarcity and the costs of extracting it from the earth. The value of virtual commodities like gold in *World of Warcraft*, however, is a function of the careful calibration that game developers⁶² make in the virtual world.⁶³ It costs nearly nothing for them to extract or refine other than typing in a few keystrokes of computer code.⁶⁴

This is what makes virtual economies so entertaining; players complete artificially designed obstacles to garner virtual rewards according to a work-to-reward ratio. But instead of spending precious time earning these rewards, some players prefer to use microtransactions to buy these virtual goods.⁶⁵

Microtransactions are in-game purchases in which players use real-world money to buy virtual goods.⁶⁶ Microtransactions give players more options. Instead of playing the game for hours doing a task (such as hunting monsters or gathering minerals), players can bypass the work-to-reward ratio by purchasing the valuable virtual goods if the real-world price is right. Microtransactions have quickly become

39 J. CONTEMP. PSYCHOTHERAPY 247 (2009) (detailing psychological condition of addiction to video games); John T. Holden, Thomas A. Baker III & Marc Edelman, *The #E-Too Movement: Fighting Back Against Sexual Harassment in Electronic Sports*, 52 ARIZ. ST. L.J. 1, 14–21 (2020) (outlining subculture of sexual harassment on online gaming and media platforms).

60 See VILI LEHDONVIRTA & EDWARD CASTRONOVA, VIRTUAL ECONOMIES 1, 42 (Sandra Braman & Paul Jaeger eds., 2014) (quoting Lionel Robbins, former head of the economics department at the London School of Economics, and discussing that virtual worlds do not reinvent economics but merely apply it to new situations).

61 See *id.* at 1.

62 For purposes of this Article, the term “developer” will be used to refer to the larger value chain—which includes artists, programmers, designers, and publishers—that covers the vast number of activities and corporate entities that create a video game and bring it to market.

63 See Daniel Friedman, *World of Warcraft's Inflation Problem Could Finally Be Hitting Regular Players*, POLYGON (Aug. 22, 2018, 11:00 AM), <https://www.polygon.com/2018/8/22/17759824/world-of-warcraft-azereth-economy-gold> [<https://perma.cc/52JG-VWLX>].

64 See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 1–2 (explaining that while some digital goods and information can be “duplicated indefinitely,” other digital resources are unique and cannot be duplicated).

65 See RYAN ROGERS, HOW VIDEO GAMES IMPACT PLAYERS 138 (2016).

66 See *id.* (describing microtransactions as purchasing options allowing players to buy content beyond original price of game).

the dominant revenue source in the video game industry,⁶⁷ with more games incorporating them to maximize profits.⁶⁸

Loot boxes are a type of microtransaction that offer randomized rewards in virtual containers.⁶⁹ The Ultimate Team mode in the popular *FIFA* soccer video game franchise is one of the most well-documented examples. First, players can use real-world money to purchase virtual coins,⁷⁰ which can then be used to purchase virtual card packs without knowing the contents.⁷¹ Virtual coins can also be earned by playing the game, but the work-to-reward ratio is specifically designed to be so burdensome that it encourages players to spend real-world money as a needed shortcut.⁷² Second, players open these card packs to great virtual fanfare;⁷³ like the inviting sounds, colors, and music of a slot machine, inventive visual and auditory tools are used to enhance the pleasure of the experience.⁷⁴ Third, the player can now form a better soccer team to take the virtual field in competition based on the virtual rewards received from the card pack.⁷⁵ To maintain the value of these virtual rewards, loot boxes use similar random reward mecha-

67 See Yasin Sebastian Qureshi, *Virtual Goods Economy: How Blockchain Could Empower Gamers*, IRISH TECH NEWS (Nov. 8, 2018), <https://irishtechnews.ie/when-atari-released-legendary-pong-some-45-years-ago-its-major-commercial-success-triggered-the-beginning-of-modern-video-game-industry-soon-gaming-would-transcend-the-domain-of-t/> [<https://perma.cc/Y89G-8XKS>] (“From more than 2.3 billion active gamers in the world in 2018, 1.1 billion (46%) spent money on games. The majority of them spent money on in-game items or virtual goods.”).

68 See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 3 (noting that developers are increasingly making more money from microtransactions).

69 See Drummond & Sauer, *supra* note 2, at 530.

70 This conversion of money into virtual currency is a monetary dissociation strategy that casinos also use. See Khadijah McFadden, Note, *The Tax Web of Unredeemed Gambling Chips*, 97 U. DET. MERCY L. REV. 95, 103 (2019). The gambling industry recognizes that casino chips (like virtual coins) help obscure from consumers how much money they are spending based on these degrees of transaction separation. See FTC Workshop, *Inside the Game: Unlocking the Consumer Issues Surrounding Loot Boxes* 63, 67 (Aug. 7, 2019) [hereinafter *FTC Workshop*], https://www.ftc.gov/system/files/documents/public_events/1511966/loot_boxes_workshop_transcript.pdf [<https://perma.cc/TV2C-WERP>] (statement of John Breyault, Vice President, Public Policy Telecommunications and Fraud at National Consumers League) (highlighting “cognitive load” put on user, which often results in lack of ability to create “complex exchange rate between digital money and real dollars”).

71 See *What Is FIFA Ultimate Team? FIFA Ultimate Team Explained*, FIFA ADDICTION [hereinafter *FIFA Ultimate Team*], <http://fifaaddiction.com/ultimate-team/what-is-fifa-ultimate-team> [<https://perma.cc/K2YG-QS4M>].

72 See *id.*

73 See Jason M. Bailey, *A Video Game ‘Loot Box’ Offers Coveted Rewards, but Is It Gambling?*, N.Y. TIMES (Apr. 24, 2018), <https://www.nytimes.com/2018/04/24/business/loot-boxes-video-games.html> [<https://perma.cc/XT5N-FTNG>] (comparing the sounds given by casino slot machines to the sounds given in games that feature loot boxes).

74 *Id.*

75 See *FIFA Ultimate Team*, *supra* note 71.

nisms (“RRM”) as slot machines, using complex algorithms⁷⁶ to allocate different tiers of prizes based on their value;⁷⁷ virtual prizes of higher value are much harder to come by, just like how higher slot machine payouts are rare. Based on these RRM, one estimate suggested that the most popular “gold” tier rewards in *FIFA* translate into tens of thousands of dollars in real-world money based on their rarity in the *FIFA* marketplace.⁷⁸

This new normal of the expanding microtransaction business model has prompted government agencies and scholars to study virtual economies to properly regulate them, including differentiating between closed, hybrid, and open virtual economies.⁷⁹ A *closed* virtual economy is completely self-contained. There is no comingling, sale, or exchange of virtual currency with real-world currency.⁸⁰ This might look like a virtual world based on the popular board game of Monopoly; fake artificial currency can only be earned through playing the game. Similarly, the artificial Monopoly currency cannot leave the virtual world to be exchanged or liquidated into real-world money or to pay for real-world services.

A *hybrid* virtual economy describes somewhat of a greenhouse for real-world money; it can enter the virtual world, but it cannot exit.⁸¹ Players are free to spend real-world money to buy virtual goods

⁷⁶ See Christine Hurt, *Regulating Public Morals and Private Markets: Online Securities Trading, Internet Gambling, and the Speculation Paradox*, 86 B.U. L. REV. 371, 428–29 (2006) (detailing that most slot machines are now operated by algorithms on a network with similar devices to manage payouts across a casino’s network).

⁷⁷ See Drummond & Sauer, *supra* note 2, at 530 (explaining RRM mechanics and variable reinforcement in loot boxes); *FIFA Ultimate Team*, *supra* note 71 (explaining different tiers of prizes in *FIFA* card pack system).

⁷⁸ See Ronan Murphy, *FIFA Ultimate Team: How Much Does It Cost to Get All the Best Players*, GOAL (Mar. 22, 2021, 10:30 AM), <https://www.goal.com/en-us/news/fifa-ultimate-team-how-much-cost-get-all-best-players/9kyct7nxj1tj1rixzb6omeeqh> [<https://perma.cc/3ZAH-8AA7>] (finding that it would take approximately \$50,000 to obtain the best gold rewards in *FIFA 21*); see also Aykut Oezbey, *FIFA 21—Is This the Most Expensive FUT Team Ever?*, ESPORTS.COM (Mar. 19, 2021), <https://www.esports.com/en/fifa-21-is-this-the-most-expensive-fut-team-ever-192492> [<https://perma.cc/3ZEM-PLNX>]; Wesley Yin-Poole, *FIFA Player Uses GDPR to Find Out Everything EA Has on Him, Realises He’s Spent Over \$10,000 in Two Years on Ultimate Team*, EUROGAMER (July 25, 2018), <https://www.eurogamer.net/articles/2018-07-23-fifa-player-uses-gdpr-to-find-out-everything-ea-has-on-him-realises-hes-spent-over-usd10-000-in-two-years-on-ultimate-team> [<https://perma.cc/3FXD-VK8T>].

⁷⁹ See U.S. GOV’T ACCOUNTABILITY OFF., GAO-13-516, VIRTUAL ECONOMIES AND CURRENCIES: ADDITIONAL IRS GUIDANCE COULD REDUCE TAX COMPLIANCE RISKS 4–6 (2013) [hereinafter GAO REPORT].

⁸⁰ *Id.*

⁸¹ Bitcoin is a popular exception to this rule that could be considered as a virtual currency mined in a virtual world that can be liquidated or used to buy real-world goods and services. See Scott A. Wiseman, Note, *Property or Currency? The Tax Dilemma Behind Bitcoin*, 2016 UTAH

through microtransactions and loot boxes, but those virtual goods are not allowed to be exchanged back into real-world money.⁸² Instead, those virtual resources can be used to buy, sell, or barter within the virtual world for other virtual resources—like selling a Sword of Destiny⁸³ for 100 virtual gold, or buying the same sword for that price. Hybrid virtual economies dominate the gaming industry⁸⁴ and have started to garner attention from some regulators because they do intermingle real-world money with virtual goods.⁸⁵ But even hybrid economies have allowed virtual currency to escape, which has led to the rise of using virtual currencies to pay for real-world goods and services.⁸⁶ Bitcoin might be considered a popular example of this phenomena, where a limited virtual resource is mined by computers, which can then be used as a virtual currency to buy real-world goods and services.⁸⁷

An *open* virtual economy has a free flow of buying, selling, and exchanging virtual currency and goods for real-world currency and goods. Not only can players use real-world money to purchase virtual goods through microtransactions and loot boxes, but they can also freely sell their virtual goods on primary or secondary marketplaces for real-world money.⁸⁸ With the rotating door left open and the magic circle nearly extinguished, it is no surprise that open virtual economies invite the most real-world scrutiny.⁸⁹ Because virtual goods can readily be valued by normal market forces, people have even sued develop-

L. REV. 417, 418 (describing rise in popularity of virtual currencies like Bitcoin and real-world implications).

⁸² GAO REPORT, *supra* note 79, at 4.

⁸³ While the Sword of Destiny is a mere hypothetical example of a virtual item in a transaction, it is also the title of a popular book in the gaming and fantasy communities. *See generally* ANDRZEJ SAPKOWSKI, *SWORD OF DESTINY* (David French trans., Orbit Books 2015) (1993) (emphasizing fantasy world of *The Witcher* franchise, which spans books, video games, and television).

⁸⁴ *See generally* LASTOWKA, *supra* note 11 (discussing some of the largest video games in the industry, most of which feature hybrid virtual economies).

⁸⁵ *See, e.g.*, GAO REPORT, *supra* note 79, at 1.

⁸⁶ *See, e.g.*, Mark Wallace, *The Game Is Virtual. The Profit Is Real*, N.Y. TIMES (May 29, 2005), <https://www.nytimes.com/2005/05/29/business/yourmoney/the-game-is-virtual-the-profit-is-real.html> [<https://perma.cc/Q6A9-S65G>].

⁸⁷ *See* Wiseman, *supra* note 81, at 421 (describing rise in popularity of virtual currencies like Bitcoin and real-world implications).

⁸⁸ GAO REPORT, *supra* note 79, at 5.

⁸⁹ *See, e.g.*, LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 164 (detailing FBI investigation into gambling with virtual currency in open virtual economies like *Second Life*); LASTOWKA, *supra* note 11, at 104 (describing 2008 congressional hearing on impact of virtual worlds, which almost exclusively focused on open economy implications of *Second Life*).

ers when they have made changes to the virtual world that compromised the value of their virtual property.⁹⁰

The closed-hybrid-open virtual economic spectrum also impacts transactions for virtual goods. Developers sell microtransactions and loot boxes in primary marketplaces.⁹¹ In order to maximize profits, developers often claim exclusive rights to create and sell these virtual goods to players⁹² through End User Licensing Agreements (“EULA”).⁹³ EULAs are the click-wrap version of traditional shrink-wrap contracts.⁹⁴ By clicking “accept,” players forfeit many traditional rights they might enjoy in the real world, such as the right to own virtual currency, goods, or property.⁹⁵ Legally, players do not own anything in the virtual world, but are only granted a license to use these virtual assets at the pleasure of the developers.⁹⁶ And in order to protect this monopoly of microtransactions,⁹⁷ most developers include provisions in their EULAs that ban players from buying or selling virtual goods in secondary marketplaces.⁹⁸

The high demand for virtual goods has fostered a rich secondary marketplace, regardless of the risks that come with violating EULAs.⁹⁹ These secondary markets are best analogized to popular websites like *eBay.com*, where players can list virtual goods on a database and entertain offers from other players.¹⁰⁰ Millions of virtual goods are on sale through such secondary markets every day¹⁰¹ and were esti-

90 See *Bragg v. Linden Rsch., Inc.*, 487 F. Supp. 2d 593, 595–97 (E.D. Pa. 2007) (player of open virtual economy game *Second Life* sued developer when it recalled virtual property that player had already purchased); Jack M. Balkin, *Virtual Liberty: Freedom to Design and Freedom to Play in Virtual Worlds*, 90 VA. L. REV. 2043, 2071 (2004) (“If virtual items have real-world equivalent values . . . the game designer may be destroying a considerable amount of value by turning off the game, and the more value that is destroyed, the less likely the law will stand for it.”).

91 See Eino Joas, *Are Secondary Markets Beneficial for a Virtual World Operator?* 8 (2016) (M.S. thesis, Aalto University School of Business), <https://pdfs.semanticscholar.org/84c4/8905c1692b52b970881466e5dfa3139fed0f.pdf> [<https://perma.cc/9WW3-A3WT>].

92 See *id.* at 31 (detailing monopoly of primary virtual markets); see also LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 118.

93 See Castronova, *supra* note 46, at 76 (describing contours of EULAs).

94 See LASTOWKA, *supra* note 11, at 92 (describing industry practice of click-wrap contracts).

95 *Id.*

96 See Joshua A.T. Fairfield, *Virtual Property*, 85 B.U. L. REV. 1047, 1082 (2005).

97 See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 118.

98 See Castronova, *supra* note 46, at 74 (acknowledging that many publishers tacitly accept secondary market trade as unavoidable given size and scope of virtual goods market).

99 See Joas, *supra* note 91, at 38.

100 See *id.* at 8.

101 Balkin & Noveck, *supra* note 10, at 4.

mated to be worth over \$50 billion in market value worldwide in 2017.¹⁰² But these primary and illegitimate secondary markets still leave the deeper question unanswered of who really owns these virtual items from a legal and practical perspective, which is central to determining who benefits from the value of virtual goods.

B. *Virtual Property: Virtual Value to Players*

These issues exploring virtual ownership, licenses, and profits when transacting for virtual goods are important aspects scholars have discussed that inform how virtual goods should be valued, and to whom such value should be assigned. Raph Koster has gone as far as to draft a “Declaration of the Rights of Avatars” that includes the inalienable right to own property in the virtual world.¹⁰³ Gregory Lastowka and Dan Hunter have argued that there is no obvious reason to prohibit a player’s legal interests in intangible virtual property.¹⁰⁴ Joshua Fairfield has gone one step further to argue for a robust intellectual property regime that would not threaten the ownership rights of developers, but would merely expand protections to players who spent time or money obtaining the virtual good.¹⁰⁵

Intellectual property law has a long history of assigning real-world value to nontangible property. The sale of software licenses, streaming music, and other tools to separate ownership from use is one of the bedrocks of intellectual property.¹⁰⁶ But the primary versus secondary marketplace battle prevents intellectual property from determining the value of virtual goods. While players in secondary markets can sell any virtual good to other players, this violates the EULA

¹⁰² See WAX io, *How on Earth Is Trading Virtual Items in Video Games a \$50 Billion Industry?*, MEDIUM (Dec. 11, 2017), <https://medium.com/wax-io/how-on-earth-is-trading-virtual-items-in-video-games-a-50-billion-industry-5972c211d621> [<https://perma.cc/SU3W-96R3>] (claiming virtual market for virtual goods was worth \$50 billion in 2017).

¹⁰³ See Koster, *supra* note 48, at 56; see also Erez Reuveni, *On Virtual Worlds: Copyright and Contract Law at the Dawn of the Virtual Age*, 82 IND. L.J. 261, 290–94, 304 (2007) (discussing arguments supporting virtual property rights).

¹⁰⁴ See Lastowka & Hunter, *supra* note 49, at 40–49.

¹⁰⁵ See Fairfield, *supra* note 96, at 1096 (“[O]wnership of virtual property does not threaten the intellectual property interest held by the creator of the property. It protects the interests of the purchaser of the object. An owner of virtual property owns the same rights that the owner of a book does.”).

¹⁰⁶ See, e.g., Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 998 (1997) (describing transactions between owners of creative works and those that want to license the work for other use through intellectual property rights of the owner); Aaron Perzanowski & Jason Schultz, *Reconciling Intellectual and Personal Property*, 90 NOTRE DAME L. REV. 1211, 1214, 1225–38 (2015) (outlining separation of ownership and use of virtual or online property through software licensing agreements).

obligations of both the secondary buyer and seller.¹⁰⁷ Secondary markets can be fruitful to determine the accurate real-world value of virtual goods, but such valuation comes at the cost of breaching private agreements with developers. And it is unlikely that any legitimate valuation of virtual goods could stand on the shoulders of its corresponding illegitimate market value. One solution might be for courts to declare these EULA provisions unconscionable or void, but that would have even larger implications by erasing the freedom to contract.¹⁰⁸ It would also mandate that all virtual worlds become open economies because all primary and secondary sales of virtual goods would be admissible. As noted above, this would open all virtual worlds to a level of scrutiny that many developers seek to avoid.¹⁰⁹ The property interests, ownership, and licensing of virtual goods is still very much on the cutting edge of digital property law, and continues to be litigated as more consumers and virtual property advocates seek to assert ownership over the virtual assets they purchase or earn.¹¹⁰

These questions of property—which often seek to determine the potential benefits of ownership—must also be considered against the potential liabilities. Tax scholars have led on this issue, proposing various theories on the tax liabilities that might come with virtual ownership.¹¹¹ This is yet another key question tied to virtual value: if people own and are benefiting from assets in the virtual world, how should these assets be taxed according to income revenue or investment growth? Leandra Lederman and Bryan Camp were among the first to outline tax frameworks for virtual goods,¹¹² agreeing that microtran-

¹⁰⁷ See LASTOWKA, *supra* note 11, at 93–94.

¹⁰⁸ See Fairfield, *supra* note 96, at 1083–84 (arguing EULAs may not be enforceable under contract and property theory based on creation of user value in enhancing the game and property).

¹⁰⁹ See *supra* note 89 and accompanying text; see also LASTOWKA, *supra* note 11, at 142 (stating that developers have little incentive in giving players property rights in virtual goods).

¹¹⁰ See, e.g., Memorandum of Points and Authorities in Support of Defendant Amazon.com, Inc.'s Motion to Dismiss at 2–3, 9–11, *Caudel v. Amazon.com, Inc.*, No. 2:20-cv-00848, 2021 WL 4819602 (E.D. Cal. Oct. 15, 2021) (arguing that consumers who buy Prime Video content do not own the content, but rather own a perpetual license to stream the content); Julian Dibbell, *Owned! Intellectual Property in the Age of eBayers, Gold Farmers, and Other Enemies of the Virtual State*, in *THE STATE OF PLAY*, *supra* note 10, at 137, 142 (describing virtual economic justice in the ownership of virtual goods, and what it says about power in a semifictional world).

¹¹¹ See, e.g., Jeffrey Anand, Note, *Virtual Economies Virtually Unregulated: How Clear Taxpayer Guidance Can Mitigate Tax Compliance Risks*, 43 HOFSTRA L. REV. 253 (2014).

¹¹² See Leandra Lederman, “Stranger Than Fiction”: *Taxing Virtual Worlds*, 82 N.Y.U. L. REV. 1620, 1620, 1665–70 (2007) (describing open virtual economy of *Second Life* that gives users rights to buy, sell, and trade virtual goods); Bryan T. Camp, *The Play's the Thing: A Theory of Taxing Virtual Worlds*, 59 HASTINGS L.J. 1, 2–5 (2007).

sactions in closed or hybrid virtual economies should not be taxed because these virtual acquisitions cannot generate or be exchanged for real-world currency.¹¹³ Other scholars diverge on the optimal taxation model for open virtual economies,¹¹⁴ but there is still a general consensus that the “cash-out” rule should serve as a baseline for taxing income when virtual currency or goods are exchanged for real-world money.¹¹⁵ This has become an issue of such economic import that even the Internal Revenue Service (“IRS”) was forced to confront the issue, giving limited guidance on the taxation of virtual currencies, like Bitcoin,¹¹⁶ while declining to tax virtual currencies, like *Fortnite*’s popular V-Bucks, because they cannot be exchanged for real-world money.¹¹⁷

While the tax treatment of virtual *currency* has received some attention,¹¹⁸ there is still little guidance on the tax treatment of virtual *goods*. Like other forms of chattel property, virtual goods should not be taxed as a type of income or investment medium until a recognition event, which is usually at the point of resale.¹¹⁹ After all, not every-

113 See Camp, *supra* note 112, at 2 (“This Article’s central thesis is that . . . player activity that occurs solely within the online virtual world is not gross income under current doctrine, nor should current doctrine change.”); Lederman, *supra* note 112, at 1670 (“There is a strong case . . . for not taxing in-game receipts and trades within game worlds, including sales within those games for virtual currency.”).

114 Compare Lederman, *supra* note 112, at 1665–66 (arguing that any sale for a virtual item that involves a virtual currency that is readily exchangeable for real-world dollars should be taxed because the virtual currency is merely a stand-in for real-world currency), with Camp, *supra* note 112, at 70 (arguing that only sales for a virtual item that directly involve real-world money should be taxed).

115 See, e.g., Camp, *supra* note 112, at 45; Lederman, *supra* note 112, at 1625 (discussing a “cash-out rule”); Theodore P. Seto, *When Is a Game Only a Game?: The Taxation of Virtual Worlds*, 77 U. CIN. L. REV. 1027, 1029–30 (2009) (arguing that taxation should depend upon whether virtual goods are either convertible or redeemable).

116 See Wiseman, *supra* note 81, at 430 (indicating that the IRS taxes virtual currencies like Bitcoin similarly to transactions of real property or stocks, as opposed to taxing it as income).

117 See *IRS Statement on Changes to Virtual Currency Webpage*, IRS (Feb. 14, 2020), <https://www.irs.gov/newsroom/irs-statement-on-changes-to-virtual-currency-webpage> [https://perma.cc/M8VC-8DPC] (clarifying an earlier statement to mean that “[t]ransacting in virtual currencies as part of a game that do not leave the game environment (virtual currencies that are not convertible) would not require a taxpayer to indicate this on their tax return”); Kelly Phillips Erb, *After Confusion, IRS Clarifies Tax Treatment of Fortnite & Gaming Currencies*, FORBES (Feb. 15, 2020, 2:08 PM), <https://www.forbes.com/sites/kellyphillipserb/2020/02/15/after-confusion-irs-clarifies-tax-treatment-of-fortnite-gaming-currencies/> [https://perma.cc/KHF5-PURC].

118 Even foreign governments, like China and South Korea have moved to regulate these virtual economies through various taxation models. See *Special Report: Video Games*, ECONOMIST (Dec. 8, 2011), <https://soundcloud.com/theeconomist/special-report-video-games> [https://perma.cc/S65X-XECN] (describing China’s and South Korea’s efforts to tax and even prohibit virtual currency transactions).

119 See 1 TAXPAYER ADVOC. SERV., IRS, NATIONAL TAXPAYER ADVOCATE: 2008 ANNUAL

thing that has a discernable real-world value is taxed, often because the government would have difficulty enforcing the law or because taxpayers would have difficulty complying with it.¹²⁰ Frequent flyer miles are not taxed even though they can be readily transferred into discounted or free airline tickets and have a readily discernable fair-market value.¹²¹ For the same reason, a boy in the stands on a hot summer's day that catches a home run baseball is not taxed, even though that baseball might have a discernable fair-market value in a secondary market.¹²² Not until the boy sells the baseball and generates an income is it touched by the IRS.¹²³

Scholars have led the way for over a decade in finding creative solutions to argue for player rights while balancing social costs in virtual economies. But these efforts have largely been tethered to the real-world value that virtual goods garner.¹²⁴ This makes sense from the unique perspectives of those areas of law. Schools of intellectual property argue that such a property regime is motivated to incentivize creation by maximizing real-world monetary gain for creators.¹²⁵ Tax law is also traditionally thought to incentivize behavior that maximizes real-world social welfare through the division and maintenance of as-

REPORT TO CONGRESS 220 (2008), https://www.irs.gov/pub/tas/08_tas_arc_intro_toc_msp.pdf [<https://perma.cc/54ER-DM48>] (citing *Burnet v. Logan*, 283 U.S. 404 (1931)).

¹²⁰ *See id.*

¹²¹ *See* IRS Announcement 2002-18, 2002-10 I.R.B. 621 (declaring that “[t]he IRS will not assert that any taxpayer has understated his federal tax liability by reason of the receipt or personal use of frequent flyer miles or other in-kind promotional benefits attributable to the taxpayer’s business or official travel”). *But see* Dominic L. Daher, *The Proposed Federal Taxation of Frequent Flyer Miles Received from Employers: Good Tax Policy but Bad Politics*, 16 AKRON TAX J. 1, 2 (2001) (suggesting that the receipt of frequent flyer miles is taxable under current law and that the IRS’s announcement was the result of political pressure).

¹²² *Compare* IRS News Release IR-98-56 (Sept. 8, 1998), with Darren Heil, *The Tax Implications of Catching Mark McGwire’s 62nd Home Run Ball*, 52 TAX LAW. 871 (1999) (arguing that a taxpayer should be taxed even if he or she returns the ball because he or she exercises dominion and control over it).

¹²³ Note that the IRS has not provided explicit clarification on whether such income would be taxed and has not yet made any efforts to tax such catches until they are sold in regular commerce. *See* Andrew D. Appleby, *Ball Busters: How the IRS Should Tax Record-Setting Baseballs and Other Found Property Under the Treasure Trove Regulation*, 33 VT. L. REV. 43, 45–48 (2008).

¹²⁴ *See* Nika Antonikova, *Real Taxes on Virtual Currencies: What Does the I.R.S. Say*, 34 VA. TAX REV. 433, 435–36 (2015).

¹²⁵ *See, e.g.*, Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745, 1749–53 (2012) (explaining utilitarian incentives of giving ownership rights and financial incentives to content creators); Eric E. Johnson, *Intellectual Property and the Incentive Fallacy*, 39 FLA. ST. U. L. REV. 623, 628–40 (2012) (acknowledging and critiquing incentive theories of intellectual property).

sets.¹²⁶ Reducing these areas of law into simplistic summaries leaves out important nuances, but nevertheless illustrates why these fields view virtual goods through the lens of the power and value they confer in the real world. Consequently, the existing literature holds little explanatory power over the importance of virtual goods and the full range of their value in the virtual world.

C. *Virtual Reality: Perceived Value to Consumers*

What the legal literature on virtual value misses, the social science literature can fill. This is especially important to identify the market drivers that coax players to spend money chasing after loot box rewards. A more fulsome view of virtual worlds must account for the perceived value consumers assign to virtual goods based on their social,¹²⁷ expressive,¹²⁸ and utility¹²⁹ value that are exclusive to the player experience in the virtual world.¹³⁰

Economic theories of consumption have long recognized the diverse values of a product that affect a consumer's purchasing decisions.¹³¹ This comports with rational choice economics, positing that rational consumers will make behavioral choices in line with their preferences.¹³² From a consumer's standpoint, this economic choice can often be reduced to a trade-off between costs and benefits and an assessment of getting a return that is more than their original investment.¹³³ But such an investment of consumer time—known as the

¹²⁶ See generally JOHN F. O'CONNELL, *WELFARE ECONOMIC THEORY* (1982) (postulating that tax theory is based on optimal outcomes of social welfare and benefits to society, as well as social choice that incentivizes people to make efficient economic decisions).

¹²⁷ See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 265 (measuring “gross virtual product” of virtual economies by, in part, assessing social benefits of virtual goods).

¹²⁸ See Richard A. Bartle, *Virtual Worldliness*, in *THE STATE OF PLAY*, *supra* note 10, at 31, 40 (explaining that many people play in virtual worlds as a way to explore their identity).

¹²⁹ See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 52–53 (recognizing functional value of virtual goods, as well as social and emotional value).

¹³⁰ See *id.* at 265 (coining the term “gross virtual product” as a measurement of value for virtual goods that assess their ability to “fulfill personal whims, establish identity positions, and communicate values”).

¹³¹ See Jagdish N. Sheth, Bruce I. Newman & Barbara L. Gross, *Why We Buy What We Buy: A Theory of Consumption Values*, 22 J. BUS. RSCH. 159, 160–63 (1991) (identifying five different category values for consumption: functional, social, emotional, conditional, and epistemic).

¹³² See Morris B. Holbrook, *Introduction to Consumer Value*, in *CONSUMER VALUE: A FRAMEWORK FOR ANALYSIS AND RESEARCH* 1, 5 (Morris B. Holbrook ed., 1999) (defining value as “an interactive relativistic preference experience”).

¹³³ See Valarie A. Zeithaml, *Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence*, 52 J. MKTG. 2, 22 (1988) (noting that one aspect of value is a consumer's assessment of what they get for what they give up).

work-to-reward ratio—or money is rarely tied to pecuniary gain. Instead, the perceived value of any good or service is judged by a number of factors independent of monetary reward, including the social, expressive, or utility rewards of purchasing the good or service.¹³⁴ In other words, consumers buy real-world goods and services based on how fresh flowers make them feel, the social status that comes with flashing a Rolex, or the practical uses of buying a ladder to clean a roof gutter. This same concept of perceived value is just as true in the virtual world as it is in the real world.¹³⁵

Social value takes many forms in the virtual world with similar parallels in the real world. Purchasing a virtual good can enhance one's membership status in a group of friends¹³⁶ in the same way that buying matching uniforms in a real-world summer athletic league might. But apart from enhancing the social experience with friends and others, social value also serves an important signaling function.¹³⁷ Whether a player invests time or money attaining the Sword of Destiny, merely having this valuable virtual good communicates something to other players. It can signal the skill level of a person who has overcome levels of gameplay to acquire such a rare virtual good, and it can also signal the real-world wealth or luck of a player who decided to pay for such an expensive virtual good through microtransactions or loot boxes.¹³⁸ People buy expensive cars and jewelry for the same reasons.

People buy goods for many other reasons as well, such as their unique ability to serve as mediums of expression or reimagination of personal identity.¹³⁹ This expressive value also factors into the virtual world.

Virtual avatars can take on different genders, hair colors, tattoos, races, clothing styles, and a number of other attributes that are different from their real-world player.¹⁴⁰ Players can enjoy the freedom to be different people, live in different places, and perform different jobs than they do in the real world as a form of escapism and even experi-

¹³⁴ See J. Brock Smith & Mark Colgate, *Customer Value Creation: A Practical Framework*, 15 J. MKTG. THEORY & PRAC. 7, 23 (2007) (providing taxonomy of perceived value, including “symbolic/expressive,” “experiential/hedonic,” “functional/instrumental,” and “cost/sacrifice”).

¹³⁵ See Bartle, *supra* note 128, at 46 (outlining social importance of virtual goods).

¹³⁶ See *id.*

¹³⁷ See *id.*

¹³⁸ See *id.*

¹³⁹ See *id.* at 40.

¹⁴⁰ See LASTOWKA, *supra* note 11, at 48 (describing people exploring different sexualities and identities in virtual worlds by creating avatars that differ from their own sexual identity).

mentation.¹⁴¹ This expressive value has signaling effects as well, both to express membership in a group or to express the “cool” factor of standing out in a crowd.¹⁴² But expressive value is distinctly personal, often classified as more hedonistic by bringing personal pleasure to the player.¹⁴³ In this way, virtual goods are valued according to how they make a player feel, the aesthetic pleasure derived, and the sentimental bonds formed with the virtual good.¹⁴⁴

Many goods, such as an expensive car, have more uses than being tools of social and expressive value; for instance, they can actually be driven. This utility value is also incredibly important to people in the real and virtual world when making purchasing decisions.¹⁴⁵ While an expensive car does still have utility in getting a person or avatar from point A to point B, the utility value is often secondary to the social and expressive value. Jewelry is the quintessential example of an item of high social and expressive value with little utility value. It does not actually *do* anything other than enhance aesthetics and status. But there are many items that help a hero along their journey in the virtual world; one of the driving factors of progress is empowering your avatar by investing in its ability to overcome the next obstacle.¹⁴⁶ Thus, certain virtual goods may be valued based on their unique attributes to help players reach the next level of progress.

Players and consumers assess these perceived values differently according to their preferences. Some choose to invest their time and money into virtual goods that give them more utility to enhance how they play the game.¹⁴⁷ Some will choose differently to form social bonds or to stand out in the virtual crowd.¹⁴⁸ This same concept is true in the real world, like when consumers choose to spend \$4.00 on a Pet

¹⁴¹ See *id.* at 47–48.

¹⁴² See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 42 (explaining the value of standing out in a crowd in the virtual world). Land use and real property scholars have also recognized the importance of property, development, and neighborhood aesthetics as a way of expressing group and individual identity. See, e.g., Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 994, 1015 (1982) (recognizing property as an expression of individual and group identity).

¹⁴³ See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 51 (explaining that the hedonic aspect of personal consumption is not based on social relationships, but personal preferences).

¹⁴⁴ See *id.*

¹⁴⁵ See *id.* at 52–53 (explaining actual utility for in-game activities).

¹⁴⁶ See Lastowka & Hunter, *supra* note 50, at 124 (“Most players . . . do have clear goals in virtual worlds, and the predominant goal is to seek the virtual empowerment of their avatars.”).

¹⁴⁷ See AUSTL. SENATE REPORT, *supra* note 38, at 29.

¹⁴⁸ See *id.*

Rock.¹⁴⁹ While it seems like a waste of money to the masses, buying a rock is perfectly in line with that consumer's preferences to spend their money on something that will give them some sort of subjective perceived value. And if a consumer wants to buy a Sword of Destiny for \$400.00, is this any less rationale according to that player's preferences? The answer must be no.¹⁵⁰

The perceived value of virtual goods is so important to players that in some virtual worlds, it has turned many virtual goods into a commodity currency.¹⁵¹ For example, players have been known to trade virtual chairs as currency due to their utility value,¹⁵² or even to wager virtual "skins" on the outcome of a competitive match due to their expressive value.¹⁵³

The social, expressive, and utility aspects of perceived values are well-accepted concepts that are already appreciated in many real-world transactions¹⁵⁴ and must be a part of studying virtual worlds. So as virtual economists have asked and answered, "[w]hy do people desire virtual goods? . . . For all the same reasons as they desire physical goods!"¹⁵⁵

II. EXPLORING REAL-WORLD VALUE IN THE WORLD OF GAMBLING REGULATION

Money is the fuel of gambling; it drives it, as petrol powers a car, but the pleasure of driving a car is not about petroleum. It's about speed, style, movement. Fuel is merely what makes

¹⁴⁹ See CHOU, *supra* note 8, at 168–69 (explaining sales of Pet Rock product in 1970s and why it found a niche market).

¹⁵⁰ See AUSTL. SENATE REPORT, *supra* note 38, at 28–29 (citing Australian gambling experts stating that value in a virtual world is enough to motivate virtual purchasing decisions).

¹⁵¹ See John T. Holden & Sam C. Ehrlich, *Esports, Skins Betting, and Wire Fraud Vulnerability*, 8 GAMING L. REV. 566, 570–73 (2017).

¹⁵² See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 177–78 (describing a virtual community in *Habbo Hotel* exchanging chairs as a type of currency in virtual bartering transactions).

¹⁵³ The term "skins" refers to the aesthetic appearance of a character's avatar or their virtual accessories. See CHRIS GROVE, UNDERSTANDING SKIN GAMBLING 2 (2016) (providing an overview of what skins are and their purpose in the video game industry and referring to them as a "de facto currency"); see also Taylor Stanton Hardenstein, Comment, "Skins" in the Game: Counter-Strike, Esports, and the Shady World of Online Gambling, 7 U. Nev. L.V. GAMING L.J. 117, 124 (2017) (arguing that *CS:GO* skin betting should be regulated as gambling because skins are used as consideration in gambling transactions).

¹⁵⁴ See Lastowka & Hunter, *supra* note 50, at 126 ("Virtual chattels . . . are currently being created, traded, and socially valued in ways that are generally compatible with traditional theories of property.").

¹⁵⁵ LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 53.

the car run. In that sense, the real motives behind gambling are to be sought elsewhere.

—David Spanier¹⁵⁶

Unlike the study of virtual worlds, gambling and its regulation have been recognized and debated for generations. Gambling covers a wide variety of activities, including betting on horse races, slot machines, card games, and a host of other ways to wager money on uncertain outcomes and events.¹⁵⁷ But because of the old interpretations of antiquated state laws, gambling for virtual goods in loot box transactions has eluded regulation.

This Part continues by providing a brief landscape of state and federal gambling laws and then dives deeper into specific case law that informs the interpretation of the prize/value element of gambling activity that is central to the loot box problem. It proceeds by explaining specific regulatory interventions taken by public and private actors to mitigate the harms of activities once relevant authorities have deemed the activities gambling.

A. *The Elements of Gambling: The Value of Prizes*

Like the video game industry, the expansion of the internet and mobile phones has taken the gambling industry to another level because of the ease of access these platforms provide.¹⁵⁸ In 2017, worldwide gambling revenues were estimated to be approximately \$450 billion; but the flip side of that coin is understanding that gambling losses of individual consumers generate the majority of these impressive revenues.¹⁵⁹ As more gambling activity spawns onto new, colorful,¹⁶⁰ and creative platforms and devices, it seems that video games

¹⁵⁶ DAVID SPANIER, *THE HAND I PLAYED: A POKER MEMOIR* 50 (2001).

¹⁵⁷ See BARRIE GUNTER, *GAMBLING ADVERTISING: NATURE, EFFECTS AND REGULATION* 1 (2019); see also Theresa A. Gabaldon, *John Law, with a Tulip, in the South Seas: Gambling and the Regulation of Euphoric Market Transactions*, 26 J. CORP. L. 225, 241–42 (2001) (differentiating between various gambling activities of pure chance and those mixed with skill).

¹⁵⁸ See Bruce P. Keller, *The Game's the Same: Why Gambling in Cyberspace Violates Federal Law*, 108 YALE L.J. 1569, 1570 (1999) (explaining that “[t]he sudden and ready accessibility of Internet gambling has the potential to turn every home and office into a gambling parlor”); Mirella Yani-de-Soriano, Uzma Javed & Shumaila Yousafzai, *Can an Industry Be Socially Responsible If Its Products Harm Consumers? The Case of Online Gambling*, 110 J. BUS. ETHICS 481, 483 (2012) (“During the last decade, home-based gambling (via the Internet, telephone, interactive television or mobile phone) has become increasingly popular, fueled by new technologies, e.g. tablets, laptops, netbooks and smartphones.”).

¹⁵⁹ GUNTER, *supra* note 157, at 1 (reporting estimated gambling revenues and losses worldwide in 2017).

¹⁶⁰ See *id.* at 22, 50 (explaining that gambling industry experiments with situational and

and gambling have many synergies.¹⁶¹ It is this landscape of losses that contextualizes the need for a commensurate framework of consumer protection regulations on gambling activities.

Like many criminal and civil regulations, gambling regulation is primarily governed by state laws, which in most cases were enacted generations ago during the various times when gambling was going in and out of prohibition.¹⁶² Gambling has grown tremendously in the digital age, relying more on these websites, social media gambling apps, and fantasy leagues.¹⁶³ Having transcended the physical brick and mortar casinos or riverboats subject to states' physical jurisdiction, the federal government has since federalized gambling crimes in an effort to regulate interstate online gambling.¹⁶⁴ As an example, the Unlawful Internet Gambling Enforcement Act ("UIGEA"),¹⁶⁵ enacted in 2006, prohibits websites from accepting electronic payments for placing bets or wagers.¹⁶⁶ But the Supreme Court's recent decision in *Murphy v. National Collegiate Athletic Ass'n*¹⁶⁷—declaring the federal government's ban on sports betting unconstitutional because it unlawfully prohibited states' own powers to regulate gambling¹⁶⁸—shows that the era of federalizing gambling law may be coming to an end, and the power to regulate gambling is transitioning back into the hands of the states.

Although many commentators and experts have proposed that federal law might be able to curb emerging online and sports gambling activities,¹⁶⁹ many federal gambling laws are still reliant on state law.

structural factors have enhanced gambling experience by enhancing colors, lighting, music, and sound effects).

¹⁶¹ See, e.g., *id.* at 3 (recognizing that combining gambling with other forms of entertainment, like sports or other competition, enhances the fun of gambling).

¹⁶² See I. NELSON ROSE, *GAMBLING AND THE LAW* 75–90 (1986) (giving historical overview of gambling regulation); Gabaldon, *supra* note 157, at 250 (same).

¹⁶³ Keller, *supra* note 158, at 1570; Yani-de-Soriano et al., *supra* note 158, at 483 (explaining growth of gambling industry due to internet and mobile devices, which also offers easy payment systems, higher degree of privacy and secrecy, and 24/7 availability, among other factors).

¹⁶⁴ Historically, the federal government's regulation of gambling was also motivated to curb the growth of organized crime, which drew large revenues from promoting and facilitating gambling activities. See Nathaniel J. Ehrman, Note, *Out of Bounds?: A Legal Analysis of Pay-To-Play Daily Fantasy Sports*, 22 *SPORTS LAWS* J. 79, 95, 111 (2015).

¹⁶⁵ 31 U.S.C. §§ 5361–5367.

¹⁶⁶ *Id.*

¹⁶⁷ 138 S. Ct. 1461 (2018).

¹⁶⁸ See Mark Brnovich, *Betting on Federalism: Murphy v. NCAA and the Future of Sports Gambling*, 2018 *CATO SUP. CT. REV.* 247, 259 (noting *Murphy*'s significance for state gambling regulation and broader federalism principles).

¹⁶⁹ See, e.g., Erik Gerstner, Note, *Losing the Digital Shirt Off Your Back: Applying the Unlawful Internet Gambling Enforcement Act to Virtual Property Betting*, 9 *WM. & MARY BUS.*

Some of these federal laws do not actually define gambling, but instead rely on state law to define gambling activities.¹⁷⁰ The purpose of these federal laws, then, is to proscribe or diminish activities that promote the interstate business of these gambling activities.¹⁷¹ As more states take an active role in determining whether emerging technologies like fantasy leagues and eSports constitute gambling,¹⁷² state law will continue to be the new frontier that shapes the future of online gambling activity.¹⁷³

These state laws come with minor variations, but most require three elements gleaned from common law when defining gambling: there must be (1) consideration in the form of something of value; (2) to play a game of chance; (3) for the possibility of winning a prize.¹⁷⁴ The consideration element is generally fulfilled when somebody spends money¹⁷⁵ or exhibits some type of effort to enter a gam-

L. REV. 321, 331–35 (2017) (arguing that the UIGEA could be interpreted to curb internet gambling in video games); Matthew R. Yost, Note, *Video Game Gambling: Too Big a Bet for New Jersey*, 70 RUTGERS U. L. REV. 335, 347, 360–61 (2017) (exploring federal law as a means to regulate modern electronic sports betting); Holden & Ehrlich, *supra* note 151, at 566–67 (arguing federal wire fraud statutes could be used to curb billion-dollar illegal skin gambling market).

¹⁷⁰ See generally Sheldon A. Evans, *Categorical Nonuniformity*, 120 COLUM. L. REV. 1171, 1174–77 (2020) (arguing that federal reliance on state law definitions across civil and criminal law causes inefficient variations and disparate treatment for similar conduct across state lines).

¹⁷¹ See, e.g., 18 U.S.C. § 1952 (prohibiting interstate travel with intent to support unlawful activity, such as illegal gambling defined under state law); 18 U.S.C. § 1953 (prohibiting interstate distribution of gambling paraphernalia not applicable to digital age); 18 U.S.C. § 1955 (prohibiting gambling businesses as defined under state law); 31 U.S.C. § 5362(10)(A) (defining term “unlawful Internet gambling” as placing a bet or wager that violates federal or state law).

¹⁷² See, e.g., *White v. Cuomo*, 118 N.Y.S.3d 775, 779–82 (N.Y. App. Div. 2020) (holding legislation permitting online fantasy sports betting violated New York constitution); *Dew-Becker v. Wu*, No. 124472, slip op. at 4–6 (Ill. Apr. 16, 2020) (holding that online fantasy sports betting was not gambling under Illinois state law); *What are the States Where You Can Play Daily Fantasy Sports?*, LEGAL SPORTS REP., <https://www.legalsportsreport.com/daily-fantasy-sports-blocked-allowed-states/> [<https://perma.cc/5FHE-BNSK>] (tracking state regulations of fantasy sports).

¹⁷³ Nothing is prohibiting Congress from enacting updated legislation, but, given the Supreme Court’s decision in *Murphy* and the lack of political will to pass legislation, movement from Congress is unlikely. For the many unsuccessful state and federal legislative attempts to regulate loot boxes, see S. 1629, 116th Cong. (2019); see also, e.g., AUSTR. SENATE REPORT, *supra* note 38 (listing the several proposed state legislative bills that were not passed into law); Marc Edelman, *Regulating Fantasy Sports: A Practical Guide to State Gambling Laws, and a Proposed Framework for Future State Legislation*, 92 IND. L.J. 653, 662–82 (2017) (describing recent developments in state regulation of online gambling, specifically in the context of fantasy sports).

¹⁷⁴ See Jerry Brito, Houman Shadab & Andrea Castillo, *Bitcoin Financial Regulation: Securities, Derivatives, Prediction Markets, and Gambling*, 16 COLUM. SCI. & TECH. L. REV. 144, 200 (2014) (listing common elements of state gambling laws); see also *Midwestern Enters., Inc. v. Stenehjem*, 625 N.W.2d 234, 237 (N.D. 2001).

¹⁷⁵ 38 AM. JUR. 2D *Gambling* § 2 (2021) (citing *Town of Mount Pleasant v. Chimento*, 737

bling transaction such as buying a ticket, taking part in a free promotion, or buying a product that automatically enters them in a sweepstakes to earn an additional prize.¹⁷⁶ The chance element is generally measured on a spectrum that examines a player's ability—or lack thereof—to control or influence an outcome in the game being played.¹⁷⁷ For example, slot machines and lotteries are perfect examples of games of chance because the player has no ability to influence the outcome.¹⁷⁸ Poker, by contrast, is often understood to be a mixed game of chance and skill¹⁷⁹ based on a player's luck to draw certain cards and their ability to influence other players through strategy.

The “prize” element, however, is central to properly assessing games of chance—like loot boxes—that award virtual prizes. State courts have consistently held that a “prize” needs to be “a thing of value,”¹⁸⁰ and different interpretations have produced several relevant cases that inform how states *value* gambling prizes. On the one hand, there is a consensus that these prizes of value do not have to be monetary winnings but can include a host of different prizes such as land,

S.E.2d 830 (S.C. 2012)); *FCC v. Am. Broad. Co.*, 347 U.S. 284, 295 n.15 (1954) (“[C]onsideration’ involves, for example, the payment of money for the purchase of merchandise, chance or admission ticket, or as payment on an account, or requires an expenditure of substantial effort or time.”).

¹⁷⁶ See, e.g., *Maughs v. Porter*, 161 S.E. 242, 242–44 (Va. 1931) (holding that “raffle” scheme giving free chances to persons who go to a store to register in order to participate in the drawing of a prize was enough to fulfill consideration element); *Grimes v. State*, 178 So. 73, 74 (Ala. 1937) (holding that a “bank night” scheme of giving movie customers entry into sweepstakes was consideration because it increased plans to fill movie theater).

¹⁷⁷ 38 AM. JUR. 2D *Gambling* § 2 (2021) (defining “chance” as “a lack of control over events or the absence of controllable causation,” that is, “the opposite of intention.” (citing *Barber v. Jefferson Cnty. Racing Ass’n, Inc.*, 960 So. 2d 599, 609 (Ala. 2006))).

¹⁷⁸ See Peter H. Aranson & Roger LeRoy Miller, *Economic Aspects of Public Gaming*, 12 CONN. L. REV. 822, 829–30 (1980) (distinguishing pure games of chance, such as roulette, in which outcomes are determined by “some kind of randomizing device,” and games of strategy, such as chess, which depend on the ability of the player to make decisions under conditions of uncertainty, and games that mix the two, such as poker, where strategy plays a large role, but the element of chance, determining which cards a player receives, is also important).

¹⁷⁹ See Anthony Cabot & Robert Hannum, *Poker: Public Policy, Law, Mathematics, and the Future of an American Tradition*, 22 T.M. COOLEY L. REV. 443, 459 (2005) (describing nationwide splits among states on whether poker is a gambling activity based on chance element); see, e.g., Steven D. Levitt, Thomas J. Miles & Andrew M. Rosenfield, *Is Texas Hold ‘Em a Game of Chance? A Legal and Economic Analysis*, 101 GEO. L.J. 581, 584–85 (2013) (using statistical analysis to conclude Texas Hold ‘Em is predominantly a game of skill).

¹⁸⁰ See, e.g., CAL. PENAL CODE § 330b(a) (West 2021) (stating that winning a “thing of value” is sufficient to fulfill the traditional prize element of gambling); *State v. Apodoca*, 251 P. 389, 389 (N.M. 1926) (finding that slot machine that awarded nominal prizes constituted gambling); *Phillips v. Double Down Interactive LLC*, 173 F. Supp. 3d 731, 739–41 (N.D. Ill. 2016) (determining that virtual chips won in casino game simulator were not things of value).

vacations, cars, or other valuable goods.¹⁸¹ On the other hand, courts have yet to directly answer whether this understanding of value extends to virtual goods. The following cases give valuable insight into how courts think about valuing non-monetary rewards in gambling-like activities.

1. *The Value of Trading Cards*

In the late 1990s, classes of plaintiffs tested interpretations of value when they sought damages from trading card companies for violating gambling laws. Plaintiffs' theory was that children buying Pokémon cards or baseball trading cards were buying packs of cards without knowing their contents.¹⁸² By paying money to open these card packs, the children were hoping to acquire rare cards that would enhance their play with friends, but that also could fetch high prices in secondary marketplaces given the artificial scarcity designed by the trading card companies.¹⁸³ In order to recover, however, plaintiffs had to prove they suffered injury; in these cases, they argued such injury was the gambling losses incurred from playing these games of chance.¹⁸⁴

The majority of courts dismissed these claims under the theory that the plaintiffs got the benefit of their bargain.¹⁸⁵ They paid money to receive a pack of cards. Although the plaintiffs may not have gotten the valuable, rare cards they wanted, they nevertheless received some assortment of cards. And thus, they received something of value that

¹⁸¹ *People v. Psallis*, 12 N.Y.S.2d 796, 798 (City Magis. Ct. 1939) (“It was never essential to constitute a lottery that the prizes should be in money. . . . [I]t will be equally so although the prizes are payable in lands or in chattels.”); see *Hotel Emps. & Rest. Emps. Int’l Union v. Davis*, 981 P.2d 990, 996 (Cal. 1999) (finding that “[p]rize” encompasses property that the operator offers to distribute”).

¹⁸² See David M. Halbfinger, *Suit Claims Pokémon is Lottery, Not Just Fad*, N.Y. TIMES (Sept. 24, 1999), <https://www.nytimes.com/1999/09/24/nyregion/suit-claims-pokemon-is-lottery-not-just-fad.html> [<https://perma.cc/W7NV-H3R5>] (describing Pokémon card packs and gambling theory); Patrice O’Shaughnessy, *Lawsuit Is in the Cards*, N.Y. DAILY NEWS (Dec. 8, 1996, 12:00 AM), <https://www.nydailynews.com/archives/news/lawsuit-cards-article-1.746692> [<https://perma.cc/T6G5-J6V9>] (describing several lawsuits filed against baseball trading card companies).

¹⁸³ See *Schwartz v. Upper Deck Co.*, 967 F. Supp. 405, 413 (S.D. Cal. 1997) (recognizing that value of cards is readily ascertainable due to cash value on secondary market).

¹⁸⁴ See *id.* at 414.

¹⁸⁵ See *Chaset v. Fleer/Skybox Int’l, LP*, 300 F.3d 1083, 1086–87 (9th Cir. 2002); *Price v. Pinnacle Brands, Inc.*, 138 F.3d 602, 607 (5th Cir. 1998) (per curiam); *Dumas v. Major League Baseball Props., Inc.*, 104 F. Supp. 2d 1220, 1223–24 (S.D. Cal. 2000); see also *Rodriguez v. Topps Co.*, 104 F. Supp. 2d 1224, 1227 (S.D. Cal. 2000); *Schwartz v. Upper Deck Co.*, 104 F. Supp. 2d 1228, 1230–31 (S.D. Cal. 2000).

justified their purchase.¹⁸⁶ Unfortunately, the courts never answered the key question of whether these card packs constituted gambling; instead, they dismissed these cases for lack of injury.¹⁸⁷ But what the courts did recognize was that even thin cardboard rectangles imbued with colorful pictures had sufficient real-world value to give plaintiffs the benefit of their bargain.¹⁸⁸ While this does not squarely answer the question of how to value loot box rewards, it illustrates the relatively low bar of value.

2. *The Value of Wagers*

Some courts have also employed a wager theory to the prize/value element, requiring that the prize is of greater value than the consideration.¹⁸⁹ For example, a line of cases found that vending machines that would randomly award consumers with prizes in addition to the intended purchase constituted a gambling activity.¹⁹⁰ Because the original consideration was commensurate with the originally desired item from the vending machine,¹⁹¹ any chance reward above that consideration met the prize/value element because its value automatically was greater than the consideration paid for the desired item.

Most recently, this logic was applied in *George v. National Collegiate Athletic Ass'n*,¹⁹² in which the Indiana Supreme Court held that a lottery system for collegiate basketball tickets was not a gambling activity.¹⁹³ In that case, the National Collegiate Athletic Association (“NCAA”) held a lottery to distribute a limited supply of collegiate basketball tickets in which thousands of people would submit the primary-market value of the ticket to enter the lottery.¹⁹⁴ Only winners that were randomly selected, however, would receive a ticket and would thus forfeit the entry fee for the lottery; the so-called “losers”

¹⁸⁶ See *Chaset*, 300 F.3d at 1087.

¹⁸⁷ *Id.*

¹⁸⁸ See generally *supra* note 185 and accompanying text.

¹⁸⁹ See, e.g., *Collins v. Comm’r*, 64 T.C.M. (RIA) 557, 568 (1992) (“[A] gain from a wagering transaction means the amount won [is] over the amount bet; it implies that there was a prior wager.”).

¹⁹⁰ See *Commonwealth v. Gritten*, 202 S.W. 884, 885 (Ky. 1918) (holding chewing gum slot machine was gambling device for randomizing rewards). *But see* *Commonwealth v. Irwin*, 636 A.2d 1106, 1107–08 (Pa. 1993) (holding that electronic blackjack, poker, and other game machines were not gambling machines because tokens won were carefully calculated by computer to require more to be spent playing than value of prizes that could be redeemed).

¹⁹¹ See *Gritten*, 202 S.W. at 885.

¹⁹² 945 N.E.2d 150 (Ind. 2011).

¹⁹³ *Id.* at 152.

¹⁹⁴ *Id.*

would receive a refund.¹⁹⁵ The court held that awarding these tickets was insufficient to constitute a “prize” because the value of a ticket was equal to the entry price of the lottery.¹⁹⁶ There was no true “wager” to receive something of greater fair-market value than what was invested through the original consideration.¹⁹⁷ Even though there was a robust secondary market in which these tickets could be sold for higher prices, the court was unwilling to subject the NCAA to gambling regulations based on a secondary market out of its control.¹⁹⁸

This wager theory heavily relies on real-world value, measuring both the value of consideration and the value of the prize. Also, if this wager theory were applied to loot boxes and virtual goods, it is unlikely that courts would rely on illicit secondary market prices as a determinant of legitimate real-world value.

3. *The Value of Virtual Tokens*

Another line of gambling cases considered whether winning “free plays” could fulfill the prize/value element. These cases often dealt with a slot machine or other electronic gambling device that did not reward players with a traditional prize but merely the opportunity to win tokens that could be used to play the game again in a constant gameplay loop. Courts have reached mixed results in these cases.¹⁹⁹ Some courts used the cash out rule to reason that because these tokens cannot be exchanged for money or prizes, they cannot fulfill the prize/value element.²⁰⁰ But sister courts have disagreed, finding that such tokens were indeed “things of value” because they allowed the player to continue the “privilege of playing” the game.²⁰¹ Normally, such games are pay-to-play, meaning there is a buy-in (even as little as

¹⁹⁵ *Id.*

¹⁹⁶ *Id.* at 152, 160.

¹⁹⁷ *Id.*; see also *State v. Turlington*, 204 S.W. 821, 823 (Mo. Ct. App. 1918) (interpreting Missouri gambling law to require prizes to be more valuable than amount originally invested).

¹⁹⁸ *George*, 945 N.E.2d at 159–60.

¹⁹⁹ *Kater v. Churchill Downs Inc.*, 886 F.3d 784, 788 (9th Cir. 2018) (citing several federal courts that have reached different results in “free to play” cases due to interpretation of different state laws).

²⁰⁰ See, e.g., *Phillips v. Double Down Interactive LLC*, 173 F. Supp. 3d 731, 739–41 (N.D. Ill. 2016) (finding that winning virtual chips in a casino game simulator merely gave players an opportunity to play again by winning more chips that could be used in a loop to play more games, not necessarily to win a thing of value).

²⁰¹ See, e.g., *Commonwealth v. Two Elec. Poker Game Machs.*, 465 A.2d 973, 978 (Pa. 1983) (holding that rewarding free games constituted a thing of value); *Score Fam. Fun Ctr., Inc. v. Cnty. of San Diego*, 275 Cal. Rptr. 358, 359–61 (Cal. Ct. App. 1990) (“A reward of extended play by a video game for winning is a ‘thing of value’ within the meaning of the Penal Code definition.”).

a quarter) to play the game; thus, tokens won by a player subsidized the player's own monetary contribution to continue playing the game, regardless of whether the tokens themselves lacked pecuniary value.²⁰²

This logic led the Ninth Circuit to hold that virtual casino chips were indeed things of value in *Kater v. Churchill Downs, Inc.*²⁰³ Like in the scenario above, players gambled in a virtual casino game and had the opportunity to win virtual chips, which could in turn be used to continue playing these games without having to spend more real-world money. The court held that these virtual chips had sufficient value to fulfill the prize/value element.²⁰⁴ The Fourth Circuit, however, contrasted this logic in *Mason v. Machine Zone, Inc.*²⁰⁵ when deciding a case involving *Game of War: Fire Age*. In *Game of War*, players could spend real-world money to buy virtual gold, and then in another transaction spend that virtual gold to buy virtual chips used to spin a prize wheel awarding virtual goods.²⁰⁶ These virtual goods could not be redeemed for money; instead, they were only useful inside the virtual world.²⁰⁷ Relying on the cash-out rule, the court held that spinning the virtual wheel could not be gambling because real-world money was not at stake and could not be won or lost.²⁰⁸ *Soto v. Sky Union, LLC*²⁰⁹ is another case that invoked the cash out rule, holding that the mobile game *Castle Clash* did not contain gambling elements.²¹⁰ In that game, players had the option to use real-world money to purchase “gems” that could be spent on a virtual game that would randomly reward players with a new hero.²¹¹ Although some players spent as much as \$3,000 every day purchasing gems with the hopes of obtaining valuable new heroes,²¹² the court held that this was not gambling because there was no way of redeeming gems or heroes for real-world money.²¹³ Despite the presence of a robust secondary market in

202 See, e.g., *Bullseye Distrib. LLC v. State Gambling Comm'n*, 110 P.3d 1162, 1166 (Wash. Ct. App. 2005) (holding that points awarded by electronic vending machine were a “thing of value” because they extend the “privilege of playing the game without charge”).

203 886 F.3d 784 (9th Cir. 2018).

204 See *id.* at 787.

205 851 F.3d 315 (4th Cir. 2017).

206 See *id.* at 317–18.

207 See *id.* at 318.

208 See *id.* at 319. Further, the presence of a secondary market to sell entire *Game of War* accounts—as opposed to individual virtual goods—was unpersuasive to the court. See *id.* at 320.

209 159 F. Supp. 3d 871 (N.D. Ill. 2016).

210 See *id.* at 880.

211 See *id.* at 875.

212 *Id.* at 876.

213 See *id.* at 880.

which *Castle Clash* players could sell their entire accounts based on the valuable heroes in their roster, the court was unconvinced that this conferred real-world value on the individual rewards at stake in the randomized game.²¹⁴

The consensus is clear; no matter what the outcome, the game, or the context, courts heavily rely on real-world value and the cash-out rule in assessing the prize/value element. But these cases, especially those involving virtual rewards, make the mistake of assuming that goods can only have real-world import if they can be converted into real-world money. This narrow view of value ignores the economic consensus that social, expressive, and utility perceived values drive consumer and gambling behavior in the virtual world. If state gambling laws do not update with the times to understand these new realities, video game mechanics, like loot boxes, can and will lead to the same negative externalities that traditional gambling laws have sought to mitigate.

B. *The Regulatory Landscape of Gambling Activities*

Courts are in the unique position to interpret the prize/value element under state law in a way that fully embraces this new digital age. But courts only play one part in a larger regulatory machine that mitigates gambling harms. Once an activity is deemed to be gambling—by a court or other public decisionmaker—state gambling commissions often operationalize how that activity should be regulated. This can run the gamut between full prohibition to light restrictions.²¹⁵ This spectrum of regulation borrows from several other industries that produce potentially dangerous products, like the alcohol and tobacco industries.²¹⁶ These frameworks do not seek to eliminate these goods and services as legitimate pastimes, but merely seek to mitigate social harms and protect vulnerable groups.²¹⁷

The regulatory landscape of gambling in the United States is vast but can be summarized under several categories, such as limits on age, advertising, physical location, fairness in gameplay, monetary consid-

²¹⁴ See *id.*

²¹⁵ See Langvardt, *supra* note 42, at 153 (describing a broad range of regulatory options including “[l]ight-touch responses,” as opposed to prohibition, that help consumers make better decisions).

²¹⁶ See GUNTER, *supra* note 157, at 13, 16–17 (comparing gambling regulatory approach to alcohol and tobacco industries).

²¹⁷ See JOHN LYMAN MASON & MICHAEL NELSON, GOVERNING GAMBLING 83 (2001) (“The most widely discussed problems with Internet gambling fall into three categories: gambling disorders, especially among young people; crime; and burdens on government.”).

eration, and exemptions.²¹⁸ Placing limitations on age is meant to prevent children from engaging in gambling activity because they are too young to appreciate the financial and psychological risks fully. Multiple studies have shown that when children are introduced to addictive gambling activities at a young age, they are more likely to exhibit problem-gambling behavior as an adult.²¹⁹ Consequently, the legal gambling age in the majority of states is between eighteen and twenty-one depending on the gambling activity.²²⁰ Limitations on advertising are closely related to these concerns, with many states restricting when, where, and how gambling providers can advertise their business.²²¹ These gambling advertisements may be restricted so that they cannot target minors²²² and cannot be misleading when portraying gambling odds or chances of winning.²²³

States also seek to control gambling activities through licensing procedures that determine who can provide gambling services and where they can be provided.²²⁴ Much like state and local procedures that award businesses liquor licenses, gambling establishments must also adhere to this cost of doing business.²²⁵ Not only does it cost

218 See DAVID MIERS, REGULATING COMMERCIAL GAMBLING 338–39, 344 (2004) (discussing goals of gambling regulation “to control ‘what gambling products and services may be offered to whom, by whom, at what price, in what areas, in what venues, at what times, and how these products and services may be marketed’” (quoting PETER COLLINS, GAMBLING AND THE PUBLIC INTEREST 1 (2003))); Gabaldon, *supra* note 157, at 251–52 (outlining several different overlapping regulatory models in the United States, including licenses, time and place restrictions, restricting clientele, and others); George G. Fenich, *A Chronology of (Legal) Gaming in the U.S.*, 3 GAMING RSCH. & REV. J. 65, 65, 71–76 (1996) (listing various state gambling laws passed before 1995).

219 See, e.g., Ronald J. Rychlak, *The Introduction of Casino Gambling: Public Policy and the Law*, 64 MISS. L.J. 291, 342 (1995) (finding that teenagers that participate in gambling activity may be three times more likely than adults to become problem gamblers).

220 See *Legal Gambling Age in the US*, GAMBLING.COM, <https://www.gambling.com/us/laws/legal-gambling-age-in-the-us> [<https://perma.cc/XLR8-YQZF>] (recording legal age for various gambling activity in every state, along with specific state regulations on age limitations).

221 See generally AM. GAMING ASS’N, RESPONSIBLE GAMING: REGULATIONS AND STATUTES (2019) [hereinafter RESPONSIBLE GAMING], https://www.americangaming.org/wp-content/uploads/2019/09/AGA-Responsible-Gaming-Regs-Book_FINAL.pdf [<https://perma.cc/H746-TCR2>] (highlighting dozens of state statutes and regulations limiting advertising).

222 See *id.* at 4 (stating that states may impose advertising restrictions prohibiting advertising that targets minors).

223 See, e.g., *id.* at 8, 13, 65, 146 (highlighting laws of Arkansas, Colorado, Delaware, Kansas, and Nevada, among others, that prohibit misleading advertising regarding gaming operations and chances at winning).

224 Gabaldon, *supra* note 157, at 251.

225 See *id.* at 251–52 (outlining general state-law licensing requirements). See generally RESPONSIBLE GAMING, *supra* note 221 (describing licensing requirements and restrictions in dozens of states).

money to apply for these licenses, but there are ongoing duties to maintain that license, including special taxes, physical inspections, and other monitoring to ensure compliance with state and local gambling laws.²²⁶ Many states also prohibit where bets can be placed by limiting the use of mobile phones.²²⁷ This ensures that bets are placed within the actual physical location where gambling activity can be supervised.²²⁸ And many local governments exercise their zoning powers to control where physical gambling establishments can operate.²²⁹ This ensures that gambling establishments like casinos—as opposed to the corner liquor store that sells lottery tickets—do not bleed into neighborhoods that might indirectly trigger gambling behavior in a family environment.

These ongoing licensing requirements overlap with various compliance protocols to ensure that gambling activities are sufficiently fair and not deceptive or predatory. For example, slot machines are required to display their odds,²³⁰ and slot machine payouts are carefully audited by third-party monitors.²³¹ Many states also place limits on the amount of alcohol that can be served to induce or incentivize people to continue gambling.²³² Many states have also required gambling

²²⁶ See AM. GAMING ASS'N, STATE OF THE STATES 2019: THE AGA SURVEY OF THE COMMERCIAL CASINO INDUSTRY 8–15 (2019) [hereinafter STATE OF THE STATES], https://www.americangaming.org/wp-content/uploads/2019/06/AGA-2019-State-of-the-States_FINAL.pdf [<https://perma.cc/X75V-GMQG>] (overviewing state law requirements for licenses and compliance issues with state law); Darren A. Prum & Shannon Bybee, *Commercial Casino Gaming in the United States: A Jurisdictional Analysis of Gaming Taxes, Licenses, and Fees*, 4 GAMING RSCH. & REV. J. 17, 17–32 (1999) (overviewing licensing, fees, and tax requirements of eleven states and the federal government); MICHAEL BELLETIRE, LEGISLATING AND REGULATING CASINO GAMING: A VIEW FROM STATE REGULATORS 8–9 (1999), <https://govinfo.library.unt.edu/ngisc/reports/belletire.pdf> [<https://perma.cc/SKN3-JWZG>] (outlining internal control systems of independent monitoring and self-reporting for casinos).

²²⁷ See STATE OF THE STATES, *supra* note 226, at 14.

²²⁸ See *id.*

²²⁹ See BELLETIRE, *supra* note 226, at 14 (acknowledging power of local government and state officials to use zoning to control physical locations of casinos); see, e.g., RESPONSIBLE GAMING, *supra* note 221, at 66 (citing Kansas statute limiting casinos to specified “gaming zones”); N.Y. COMP. CODES R. & REGS. tit. 9, § 5301.1(e) (2020) (outlining New York regulations for providing zoning approvals for new casinos).

²³⁰ See, e.g., RESPONSIBLE GAMING, *supra* note 221, at 32 (citing an example of a Florida statute requiring odds to be posted on slot machines).

²³¹ See, e.g., STATE OF NEVADA GAMING CONTROL BOARD, GAMING AUDIT PROCEDURES MANUAL § Slot Revenue (2000).

²³² See RESPONSIBLE GAMING, *supra* note 221, at 4–6 (overviewing states that impose alcoholic beverage limitations in casinos); STATE OF THE STATES, *supra* note 226, at 8–12 (same regarding restrictions on offering complimentary alcoholic beverages); see also Langvardt, *supra* note 42, at 149 (describing “luck ambassadors” in casinos, which are employees that offer free drinks, tickets, or other incentives to encourage weary gamblers to continue gambling).

providers to offer spending limits to gamblers, which allow players to set a limit on how much they want to spend before going down the dangerous rabbit hole of being caught up in the adrenaline and dopamine rush of gambling excitement.²³³ These spending limits are closely related to limits on the type of spending allowed. Many states prohibit gambling providers from extending lines of credit to gamblers and also prohibit gamblers from using credit cards to fund overspending on gambling activities.²³⁴

One last trend to explore is a state's exemptions to its gambling laws. Several states have passed statutes that specifically exempt state-run gambling activities (such as lotteries) and charitable gambling activities (such as a church's bingo night).²³⁵ States justify these exemptions because the gambling revenues from these activities are going toward causes that society deems worthy and does not want to diminish revenues with costly regulations.²³⁶ Recently, a growing number of states have also exempted the emerging trend of fantasy sports leagues from gambling regulation, usually as the result of strong industry and lobbying efforts.²³⁷ In these cases, the tax revenue from these expansive gambling markets hold too much benefit for the state to subject them to many of the above limitations.²³⁸

Overviewing these targeted regulatory tools is necessary to understand what tools might work in a future that regulates loot boxes. As will be explored in Parts III and IV, if loot boxes are to be consid-

²³³ See RESPONSIBLE GAMING, *supra* note 221, at 4–6 (overviewing states that require casinos to offer wager and time limits to gamblers to help them self-control gambling behavior).

²³⁴ See *id.* (overviewing states that prohibit accepting credit payments or extending credit to gamblers); STATE OF THE STATES, *supra* note 226, at 8–12 (same).

²³⁵ See Marie-Cecile O. Tidwell, John W. Welte, Grace M. Barnes & Behnam Dayanim, *Gambling Modes and State Gambling Laws: Changes from 1999 to 2011 and Beyond*, 19 GAMING L. REV. & ECON. 13, 15–17 (2015) (recognizing carveouts for charitable gambling activities like bingo).

²³⁶ See, e.g., Wyoming Lottery Act, 9-17 WYO. CODE R. § 102 (LexisNexis 2021).

²³⁷ See *State by State Betting in the USA*, BETTINGUSA.COM, <https://www.bettingusa.com/states> [<https://perma.cc/R7TK-PCJY>] (outlining and updating state legislative action that expressly allow sports betting and online fantasy sports gambling); *12 States Allow Online Sports Betting—Which Will Be the 13th?*, AWFUL ANNOUNCING (Aug. 3, 2020), <https://awfulannouncing.com/gambling/12-states-allow-online-sports-betting-which-will-be-the-13th.html> [<https://perma.cc/G3X5-N98X>] (same).

²³⁸ See Francis Markham & Martin Young, “Big Gambling”: *The Rise of the Global Industry-State Gambling Complex*, 23 ADDICTION RSCH. & THEORY 1, 1 (2015) (arguing that gambling regulation is driven by economic imperatives of state and private actors). See generally Matthew Vaz, “The News from Brooklyn is Distributing”: *Corruption, Big-City Police, and the Dilemma of Gambling*, in ALL IN: THE SPREAD OF GAMBLING IN TWENTIETH-CENTURY UNITED STATES 17, 19 (Jonathan D. Cohen & David G. Schwartz eds., 2018) (explaining gambling prohibition has been more a story of politics, corruption, and monetary gain rather than paternalistic morality).

ered a gambling activity under substantive state law, narrowly tailored regulatory tools must be considered to achieve the desired mitigation of harms specific to loot boxes.

III. A BRIDGE BETWEEN WORLDS: VALUATING VIRTUAL PRIZES IN LOOT BOXES

[W]here your treasure is, there will your heart be also.

—Matthew 6:21²³⁹

The growing trend of loot boxes has only recently been met with a growing trend of litigation, asking foreign and domestic courts to consider whether loot boxes should be deemed a gambling activity.²⁴⁰ The main challenge for courts has been navigating how to treat such virtual goods under “antiquated statutes and interpretations.”²⁴¹ Using the lens of perceived value, this Part argues why loot boxes should be considered gambling, and why the broader acknowledgment of perceived value is necessary to assess the societal ills they bring. Apart from arguing for substantive legal change, this Part also relies on the most recent social science literature that bolsters the tremendous overlap between gambling design and loot boxes, which often lead to similar negative externalities.

A. *Loot Boxes as Gambling: The Substantive Law*

If the law is properly updated to appreciate perceived virtual value, loot boxes should be identified by courts as a gambling activity. The consideration element is fulfilled when a player spends real-world money to purchase a loot box.²⁴² But as case law provides, even non-monetary participation can fulfill the consideration element.²⁴³ This might include developers seeking to lure new players by offering free loot boxes as a promotional event, or to entice existing players to con-

²³⁹ Matthew 6:21 (King James).

²⁴⁰ See, e.g., Class Action Complaint, *Ramirez v. Elec. Arts, Inc.*, No. 20-cv-05672, 2021 WL 843184 (N.D. Cal. Mar. 5, 2021) (class action alleging *FIFA* card packs violate California’s gambling laws); Class Action Complaint for Consumer Fraud and Unjust Enrichment, *Zajonc v. Elec. Arts, Inc.*, No. 20-cv-07871 (N.D. Cal. filed Nov. 9, 2020) (class action alleging EA uses AI technology to unfairly adjust gameplay difficulty to induce loot box purchases). As of the writing of this Article, there are also fifteen pending cases in France alleging similar gambling allegations from EA’s unregulated sale of *FIFA* card packs. See Islem Sharouda, *More than 15 Lawsuits Filed Against FIFA 20 in France*, GAMEREACTOR (Mar. 9, 2020, 3:28 PM), <https://www.gamereactor.eu/more-than-15-lawsuits-filed-against-fifa-20-in-france/> [<https://perma.cc/H7GZ-4DC3>].

²⁴¹ John T. Holden, *Trifling and Gambling with Virtual Money*, 25 UCLA ENT. L. REV. 41, 41 (2018).

²⁴² See *supra* note 176 and accompanying text.

²⁴³ See *supra* note 177 and accompanying text.

tinue playing.²⁴⁴ By paying for the loot box or by giving some benefit to developers through participation in loot box promotions, players are fulfilling the consideration element of gambling.²⁴⁵ This consideration element would also extend to closed virtual economies in which players could spend the virtual currency they earn in the game to purchase loot boxes. Although real-world money is not penetrating the magic circle, scholars have found that these closed-economy loot box purchases still trigger the same psychological reward centers in the brain as traditional gambling activity.²⁴⁶

The chance element that measures a player's ability to change the outcome of a game would not be triggered for Monopoly or poker, but the RRM in loot boxes fit the necessary requirements. Loot boxes are more like slot machines or sweepstake contests and less like Monopoly or poker games in that there is nothing a player can do through skill, strategy, or calculating odds to influence the outcome of the game.²⁴⁷ When a player opens a loot box, they receive a virtual reward based solely on complex algorithms that determine payouts of rare virtual goods.²⁴⁸

The prize/value element is the determining factor of whether courts will identify loot boxes as gambling activity. Under the prevailing cash-out rule, it is unlikely that loot boxes would be considered gambling activity with the exception of those in open virtual economies.²⁴⁹ Because open virtual economies allow players to freely exchange and liquidate virtual goods for real-world money, they closely

244 These free promotional offers are similar to the "luck ambassadors" employed by the gambling industry. See Langvardt, *supra* note 42, at 149 (describing "luck ambassadors" in casinos, which are employees that offer free drinks, tickets, or other incentives to encourage weary gamblers to continue gambling).

245 See Leon Y. Xiao, *Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms*, INT'L J. MENTAL HEALTH & ADDICTION (Aug. 24, 2020), <https://link.springer.com/content/pdf/10.1007/s11469-020-00372-3.pdf> [<https://perma.cc/E7M6-2ZYG>] (arguing that loot boxes cause sufficient psychological harm to be regulated, regardless of whether they cost real-world money or whether they reward virtual goods with real-world value).

246 See David Zendle, Paul Cairns, Herbie Barnett & Cade McCall, *Paying for Loot Boxes Is Linked to Problem Gambling, Regardless of Specific Features Like Cash-Out and Pay-to-Win*, 102 COMPUTS. HUM. BEHAV. 181, 190 (2020) (finding that exposure to loot boxes when spending money on them, or in a "cash out" open virtual economy, is correlated with problem gambling behavior); see also Xiao, *supra* note 245 (arguing that loot boxes, even in closed virtual economies where there is no "cash out" option, still carry enough psychological harm to justify regulating them as gambling).

247 See *supra* notes 175–76 and accompanying text.

248 See *supra* notes 175–76 and accompanying text.

249 Moshirnia, *supra* note 23, at 77 (arguing that loot boxes are "unlikely to meet the legal requirements of gambling" in part because "all items offered have no tangible value").

resemble a casino that allows gamblers to cash out their chips at the end of a play session.²⁵⁰ The same is not true of closed and hybrid economies. Players cannot cash out.²⁵¹ Some have argued that the robust but illegitimate secondary marketplace serves as a de facto cash-out option.²⁵² But it is unlikely that the costly weight and liability of gambling regulations will be levied against developers based on an illegitimate marketplace that they contractually prohibit in their EULAs.²⁵³

This is why perceived value is so important to the question of loot box regulation. It bridges the gap between real-world regulation (which seeks to mitigate the social costs that arise from consumer engagement with gambling) and virtual world realities (where perceived value explains consumer engagement with virtual goods). The most cutting-edge social-science research confirms that players buy loot boxes for the perceived value of prizes, not for real-world pecuniary gain.²⁵⁴ When it comes to social value, studies have demonstrated that players spend money to acquire virtual goods that increase their social standing and relationships with their friends in online communities.²⁵⁵ Other studies have confirmed the importance of expressive value, with at least one finding that increased self-presentation and expression in the virtual world is another primary purchasing motivator.²⁵⁶ Following this pattern, studies have also confirmed that the utility value of virtual goods, which empowers the player to progress in the

²⁵⁰ See Balkin, *supra* note 47, at 95 (hypothesizing that a casino in a virtual world that allows players to directly cash out winnings is a loophole in online gambling restrictions).

²⁵¹ See GAO REPORT, *supra* note 79, at 4–6.

²⁵² See Nielsen & Grabarczyk, *supra* note 33, at 198; see also *supra* note 197 and accompanying text.

²⁵³ See *supra* notes 97–98 and accompanying text.

²⁵⁴ Yue Guo & Stuart J. Barnes, *Explaining Purchasing Behavior within World of Warcraft*, 52 J. COMPUT. INFO. SYS. 18, 24, 28 (2012) (finding that perceived value had the strongest influence on purchasing decisions, followed by social status conferred by a virtual good).

²⁵⁵ See Juho Hamari, Kati Alha, Simo Järvelä, J. Matias Kivikangas, Jonna Koivisto & Janne Paavilainen, *Why Do Players Buy In-Game Content? An Empirical Study on Concrete Purchase Motivations*, 68 COMPUTS. HUM. BEHAV. 538, 543 (2017) (providing an overview of psychological literature establishing that “[s]ocial motivations have been deemed to be one of the main categories of motivations for purchases of . . . virtual goods”).

²⁵⁶ See, e.g., Hee-Woong Kim, Hock Chuan Chan & Atreyi Kankanhalli, *What Motivates People to Purchase Digital Items on Virtual Community Websites? The Desire for Online Self-Presentation*, 23 INFO. SYS. RSCH. 1232, 1233–35, 1242 (2012) (outlining consumption literature showing the importance of self-presentation in consumer decisions); see also Yue Guo & Stuart Barnes, *Purchase Behavior in Virtual Worlds: An Empirical Investigation in Second Life*, 48 INFO. & MGMT. 303, 310–12 (2011) (studying consumer purchases of aesthetic items that improve avatar’s individuality and uniqueness).

game, is also an important motivating factor for buying and gambling for virtual goods.²⁵⁷

This understanding of perceived value confirms that players are indeed receiving a prize of *value*, but more specifically of virtual value. This contribution helps to properly identify loot boxes as a gambling activity and also responds to a chief critique. Developers have often argued that their loot boxes cannot be considered gambling because players cannot lose like they can in a gambling activity. Just like in the Pokémon and baseball card litigations of the 1990s,²⁵⁸ the industry has argued that regardless of the consideration and chance elements of gambling, “the player is *always* guaranteed to receive in-game content” just as in “collectible card games.”²⁵⁹ Slot machines and other gambling games, they might argue, require not only the possibility of winning, but also the possibility of walking away with nothing. But it is indeed possible to *lose* if the virtual perceived value is useless. Given the RRM in loot boxes, low value items are distributed quite often, with high value items being distributed rarely.²⁶⁰ Therefore, players are often rewarded with low value items that have little social, expressive, or utility value and might even be rewarded with duplicate items that they already own.²⁶¹ In other words, receiving a virtual good that a player already owns, or a virtual good that has inferior social, expressive, or utility value to goods they already own is useless to that player. These items are often discarded, thrown away, or abandoned in the virtual world. From a behavioral point of view, this causes the same addictive problems as gambling. Players perceive this as a loss, and as a result, continue to compulsively spend money buying loot boxes to chase after the “big win.”²⁶² Thus, players often lose when

²⁵⁷ See Hamari et al., *supra* note 255, 541–44; Pui-Lai To, Chechen Liao & Tzu-Hua Lin, *Shopping Motivations on Internet: A Study Based on Utilitarian and Hedonic Value*, 27 *TECHNOVATION* 774, 781–84 (2007) (finding that utility value was positively related to intention to buy items, but acknowledging no impact for buying purely hedonic items); FTC Workshop, *supra* note 70, at 126 (statement of Professor Andrey Simonov) (discussing that progressing in a game is an important motivator to purchase loot boxes).

²⁵⁸ See Halbfinger, *supra* note 182.

²⁵⁹ See Jason Schreier, *ESRB Says It Doesn't See 'Loot Boxes' as Gambling*, *KOTAKU* (Oct. 11, 2017, 12:46 PM), <https://kotaku.com/esrb-says-it-doesnt-see-loot-boxes-as-gambling-1819363091> [<https://perma.cc/H26E-KQK6>].

²⁶⁰ *Cf.* Drummond & Sauer, *supra* note 2, at 530.

²⁶¹ See AUSTL. SENATE REPORT, *supra* note 38, at 20 (noting that players can “lose” when purchasing loot boxes by receiving worthless or duplicate items, or items for which sale on the secondary market would not garner return of consideration paid for the loot box).

²⁶² See *id.*; see also Per Binde, *Gambling, Exchange Systems, and Moralities*, 21 *J. GAMBLING STUD.* 445, 467 (2005) (describing “Big Win” psychological trigger of lotteries).

buying loot boxes because of the inferior perceived value of the most common rewards.

The consensus of several social-science studies and the developing literature on virtual goods and loot boxes support a clear conclusion: people are spending real-world money on loot boxes for the hope of winning a prize of *perceived* value.²⁶³ This emerging body of research proves that the cash-out rule cannot fully account for behavior in the virtual world.²⁶⁴ And when state gambling laws that were written for a past generation cannot keep up with today's realities, it is time they be properly updated.

B. Loot Boxes as Gambling: The Value of the Prize

The perceived value that drives virtual markets is further evidenced by the evolution of virtual goods becoming a commodity currency in some virtual worlds. There are several different types of currency, including commodities like gold, from which the exchange value is derived from the value of the commodity based on natural or artificial scarcity within that marketplace.²⁶⁵ In this sense, even cigarettes could serve as a form of currency, as they have served in prisoner of war camps,²⁶⁶ because they have all the necessary features of being an acceptable medium of exchange.²⁶⁷ So while money and value are indeed different concepts practically, things of value can actually become money under interesting circumstances.

As virtual worlds have evolved, so too have their monetary schemes. In what might seem like a prehistoric era in virtual history, one community traded virtual chairs as a form of currency when there was no other medium of exchange.²⁶⁸ In today's virtual worlds, while there is indeed virtual in-game money that can be used, players still

²⁶³ See, e.g., Drummond & Sauer, *supra* note 2, at 532.

²⁶⁴ See *id.* This is also true for many gamblers, which studies have showed do not always gamble for pecuniary gain, but also for the enjoyment, emotional arousal, escapism, and dopamine rush. See generally Andrew Brady & Garry Prentice, *Are Loot Boxes Addictive? Analyzing Participant's Physiological Arousal While Opening a Loot Box*, 16 *GAMES & CULTURE* 419 (2019) (citing R.I.F. Brown, *Arousal and Sensation-Seeking Components in the General Explanation of Gambling and Gambling Addictions*, 21 *INT'L J. ADDICTIONS* 1001, 1001–16 (1986)).

²⁶⁵ See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 179, 184.

²⁶⁶ See Boon Seng Tan & Kin Yew Low, *Bitcoin—Its Economics for Financial Reporting*, 27 *AUSTRAL. ACCT. REV.* 220, 221 (2017).

²⁶⁷ See Joseph M. Ostroy & Ross M. Starr, *The Transactions Role of Money*, in 1 *HANDBOOK OF MONETARY ECONOMICS* (Benjamin M. Friedman & Frank H. Hahn eds., 1990) (highlighting ideal characteristics of good forms of currency).

²⁶⁸ See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 177–78 (describing virtual community in *Habbo Hotel* exchanging chairs as a type of currency in virtual bartering transactions).

exchange gifts and even barter with one another using virtual goods. The fact that developers often prohibit sales of items on a secondary market, yet allow players to transfer items amongst themselves, shows the true intent of developers to allow such gift/bartering transactions. And even though they occur in the virtual world without any “cash-out” ability, giving gifts of significance and bartering for goods and services is a clear indication of perceived value.

In the more sophisticated virtual world of *Counter Strike: Global Offensive* (“CS:GO”), virtual goods are even used in gambling transactions.²⁶⁹ These transactions are referred to as “skin gambling,” using artistic and aesthetic designs that can be used to customize the appearance of avatars and their weapons as consideration and prizes in gambling transactions.²⁷⁰ Before players face off in battle, players participating and those on the sidelines will wager skins of differing value based on their aesthetics and scarcity.²⁷¹ And after the match, like in a sports betting wager, the victor collects the spoils as a prize.²⁷² Indeed, the use of loot box contents and other virtual goods to gamble is an emerging behavior in gaming. Players could wager money, or even virtual dollars or gold, but instead they have assigned even more desirable value to the aesthetic skins at play.²⁷³ This is yet another example of how players assign value to virtual goods; a good transforming into a form of currency is a hallmark example of assessing its value.²⁷⁴

The literature highlights the key role of trading virtual goods in establishing their monetary value.²⁷⁵ As the CS:GO community shows, not only are virtual goods given as mere gifts to improve social rela-

²⁶⁹ See Holden & Ehrlich, *supra* note 151, at 566.

²⁷⁰ See GROVE, *supra* note 153, at 2–3 (providing an overview of what skins are and their purpose in the video game industry). See generally Hardenstein, *supra* note 153 (arguing that CS:GO skin betting should be regulated as gambling because skins are used as consideration in gambling transactions).

²⁷¹ See GROVE, *supra* note 153, at 2.

²⁷² *Id.*

²⁷³ See Macey & Hamari, *supra* note 1, at 25 (noting that skins have replaced real-world currency in CS:GO gambling transactions).

²⁷⁴ See Joshua Brustein & Eben Novy-Williams, *Game-Maker Valve Moves to Choke off \$7.4 Billion Gambling Market*, BLOOMBERG (July 13, 2016, 6:18 PM), <https://www.bloomberg.com/news/articles/2016-07-13/game-maker-valve-moves-to-choke-off-7-4-billion-gambling-market> [https://perma.cc/3PAQ-W5AD] (reporting that skin gambling was worth over \$7 billion before game developer stepped in to curb its practice); see also Ryan Haar, *Why Do Bitcoins Have Value?*, TIME: NEXTADVISOR (Sept. 7, 2021), <https://time.com/nextadvisor/investing/cryptocurrency/why-do-bitcoins-have-value> [https://perma.cc/2CVB-T5NL].

²⁷⁵ Donghee Yvette Wohn, *Spending Real Money: Purchasing Patterns of Virtual Goods in an Online Social Game*, in CHI '14: PROCEEDINGS OF THE SIGCHI CONFERENCE ON HUMAN

tionships between friends, they are also bartered as a commodity currency in gambling transactions. If consumers are openly bartering with goods or transferring these virtual goods in exchange for services, this actually shows the tremendous monetary value they have.²⁷⁶ And if people are willing to gamble *for* and *with* these virtual goods, this is tantamount to a prima facie case for why these items have value.

C. *Loot Boxes as Gambling: The Social Costs*

Perceived value helps clarify why people spend money on loot boxes, and the results are beginning to mirror the very behavior that traditional gambling regulations seek to mitigate. David Zendle and Paul Cairns have authored several studies that have found a statistically significant “link between loot box spending and problem gambling.”²⁷⁷ In fact, when examining the relevance of “cashing out,” Zendle and Cairns found that “cashing in” was a more significant factor that correlated with problem gambling.²⁷⁸ In other words, the amount of real-world money spent to purchase loot boxes in a hybrid virtual economy had a higher statistical link to problem gambling than a player’s ability to cash out in an open virtual economy.²⁷⁹ This has led some scholars to question whether the real-world value of virtual goods is a strong motivator for betting on loot boxes at all.²⁸⁰

This link between loot boxes and problem gambling behavior has produced many of the same troubling effects. Children in particular are especially vulnerable to the loot box craze. They are the quintessential example of why a cash-out rule makes little sense when regulating loot boxes. Children do not seek to cash out prizes from loot boxes; instead, they value these prizes according to how they might enhance their social, expressive, or utility value in the virtual world.²⁸¹ As just a few anecdotal examples illustrate, the issue of loot boxes is not just one of gambling but of child protection from developing risky

FACTORS IN COMPUTING SYSTEMS 3359, 3363 (2014), <https://doi.org/10.1145/2556288.2557074> [<https://perma.cc/CP7Y-PC4R>]; Hamari et al., *supra* note 255, at 541–44.

²⁷⁶ For example, popular games like *Rocket League*, *EVE Online*, and *Path of Exile* do not officially allow players to “cash-out” virtual winnings and goods but allow players to trade and transfer virtual items amongst themselves. See Xiao, *supra* note 245 (discussing trading versus “cash-out” systems).

²⁷⁷ See Zendle et al., *supra* note 246, at 190.

²⁷⁸ See *id.* at 188.

²⁷⁹ See *id.* (finding that “cash-out” feature was still correlated with problem gambling but at a lower correlation ratio than “cash-in” feature).

²⁸⁰ See Xiao, *supra* note 245.

²⁸¹ See SELECT COMMITTEE ON THE SOCIAL AND ECONOMIC IMPACT OF THE GAMBLING INDUSTRY, *supra* note 35, at 113–14.

spending habits. For example, a seventeen-year-old spent nearly \$8,000 on his father's credit card buying card packs in *FIFA*.²⁸² In another sports video game, a sixteen-year-old spent £2,000, and his parents did not realize the extent of this spending habit until they tried to use their credit card and it was declined.²⁸³ A twelve-year-old spent £700 on the *Clash of Clans* mobile game,²⁸⁴ and a child as young as seven years old spent \$6,000 on a *Jurassic Park* mobile game.²⁸⁵ Some families even admitted that their children's unmonitored loot box spending forced them to remortgage their homes to cover the looming debt.²⁸⁶ There are hundreds of such anecdotes serving as signposts all along the internet superhighway, warning other players in virtual worlds to be wary of these loot box hazards.

But troubling statistics show this problem goes further than mere anecdotes. In a recent survey of several hundred children in the United Kingdom, over one-third of respondents indicated that they started buying loot boxes before they turned thirteen due to the lack of age restrictions.²⁸⁷ A similar percentage admitted that they did not realize how much money they were spending when purchasing loot boxes,²⁸⁸ leading 13% of them to go into personal debt and 15% to steal money from their parents.²⁸⁹ From a psychological perspective, 24% of children reported they believed they were addicted to loot boxes and 44% reported they felt feelings of frustration and anger more often buying loot boxes than they otherwise would have.²⁹⁰

This only bolsters developers' strategies that incentivize them to target children.²⁹¹ By labelling loot boxes as mere entertainment,²⁹² children are less capable of differentiating the game from the gam-

²⁸² See Sarah Fields, *Son Charges Dad's Credit Card for \$8,000 on FIFA Microtransactions*, GAMERANT (Jan. 11, 2016), <https://gamerant.com/8000-fifa-microtransactions-charge/> [<https://perma.cc/FTP5-LTJP>].

²⁸³ See Zoe Kleinman, 'My Son Spent £3,160 in One Game,' BBC NEWS (July 15, 2019), <https://www.bbc.com/news/technology-48925623> [<https://perma.cc/6Y2S-VYBB>].

²⁸⁴ See *id.*

²⁸⁵ See Fields, *supra* note 282.

²⁸⁶ See GAMBLING HEALTH ALL., WHAT IS THE FINANCIAL IMPACT OF LOOT BOXES ON CHILDREN AND YOUNG PEOPLE? 5.

²⁸⁷ *Id.* at 3.

²⁸⁸ *Id.* at 4.

²⁸⁹ *Id.* at 5.

²⁹⁰ *Id.* at 2.

²⁹¹ See, e.g., Meyer et al., *supra* note 26 (noting industry pattern targeting children for in-app purchases). Recently, *FIFA* card packs were advertised in a children's toy magazine, showing a clear targeting of young children to engage with these gambling mechanics. See Vikki Blake, *Fans Hit Out at EA for Promoting FIFA Microtransactions in Magazines for Children*, EUROGAMER (Sept. 30, 2020), <https://www.eurogamer.net/articles/2020-09-27-fans-hit-out-at-ea>

bling.²⁹³ Children also do not have the same cognitive or social appreciation of the amount of money—usually belonging to their parents—that they spend on loot boxes.²⁹⁴ Further, studies have found a troubling negative correlation between age and likelihood to spend money buying virtual goods.²⁹⁵ This means that the younger a player is, the more likely they are to spend money on loot boxes.²⁹⁶ Gambling studies corroborate these worrisome conclusions, finding that teenagers are three times more likely to become problem gamblers than adults when exposed to gambling activities due to the unique stage of neuroplasticity of teenage cognitive development that forms stronger associative bonds in the brain.²⁹⁷ Given the growing consensus linking loot boxes to problem gambling behavior and the staggering statistic that over one-fifth of the American video gaming player base are under eighteen years old,²⁹⁸ regulating loot boxes is an issue of generational importance.

Although protecting children from these gaming or gambling habits is a priority, adults are also suffering from problematic gambling behavior. Take for example the thirty-two-year-old who spent \$10,000 on *FIFA* card packs,²⁹⁹ or the nineteen-year-old that spent a

for-promoting-fifa-microtransactions-in-magazines-for-children [https://perma.cc/QM6F-GEAM].

²⁹² The video game industry has taken efforts to label games with gambling mechanics through a rating system, which has proven to have little effect on limiting children's access to them. See *Ratings Guide*, ENT. SOFTWARE RATING BD., <https://www.esrb.org/ratings-guide/> [https://perma.cc/SGT6-GGFF] (providing that a game will receive an "Adults Only 18+" rating only if it contains "[r]eal [g]ambling . . . including betting or wagering real cash or currency"); Erik Kain, *The ESRB Is Wrong About Loot Boxes and Gambling*, FORBES (Oct. 12, 2017, 7:00 AM), <https://www.forbes.com/sites/erikkain/2017/10/12/the-esrb-is-wrong-about-loot-boxes-and-gambling> [https://perma.cc/GKQ5-YV65] (quoting ESRB denial to classify loot box sales as gambling activity in ratings); Andrew Robertson, *PEGI Rating for Gambling Descriptor Is Now Always 18+*, ASK ABOUT GAMES: VIDEO GAME NEWS (Sept. 1, 2021, 4:50 PM), <https://www.askaboutgames.com/news/pegi-rating-for-gambling-is-now-always-18> [https://perma.cc/5PR2-VBJ3] (describing European video gaming rating system and its treatment of rating games containing gambling elements).

²⁹³ See GUNTER, *supra* note 157, at 59–60.

²⁹⁴ *Id.* at 63 (studying children's inability to assess risk properly, which exacerbates gambling tendencies).

²⁹⁵ See Marc von Meduna, Fred Steinmetz, Lennart Ante, Jennifer Reynolds & Ingo Fiedler, *Loot Boxes Are Gambling-Like Elements in Video Games with Harmful Potential: Results from a Large-Scale Population Survey*, 63 *TECH. SOC'Y* 1, 8 (2020).

²⁹⁶ See *id.*

²⁹⁷ See Gabaldon, *supra* note 157, at 259.

²⁹⁸ See ENT. SOFTWARE ASS'N, 2020 ESSENTIAL FACTS ABOUT THE VIDEO GAME INDUSTRY 4 (2020), https://www.theesa.com/wp-content/uploads/2021/03/Final-Edited-2020-ESA_Essential_facts.pdf [https://perma.cc/X7H7-4C3X].

²⁹⁹ Yin-Poole, *supra* note 78.

similar amount across several different mobile games.³⁰⁰ In one study, such problem gamblers spent nearly ten times the amount on loot boxes than the average player;³⁰¹ the more severe a person's problem gambling is, the more money they spend on loot boxes.³⁰² This relationship is unique to loot box spending because studies show that problem gamblers do not overspend on other types of microtransactions; instead, they only exhibited strong compulsive spending when purchasing loot boxes.³⁰³ This shows just how similar the neurological triggers are between loot boxes and other gambling activities.

Although data connects loot boxes with problem gambling behavior, it is too early to prove causation; in other words, researchers cannot yet prove that buying loot boxes causes problem gambling behavior.³⁰⁴ But research convincingly shows that the psychological triggers of loot boxes serve as a possible gateway into problem gambling behavior.³⁰⁵ This wealth of evidence is what led Keith Whyte, the Executive Director of the National Council on Problem Gambling, to conclude that "every study published to date on the connection between loot boxes and gambling has found an association" between loot boxes and gambling problems.³⁰⁶

This is all by design. Loot boxes account for nearly one-fifth of the video game industry's profits and projected growth,³⁰⁷ which in-

³⁰⁰ Kellen Beck, *19-Year-Old Gambling Addict Lays Out a Case Against Video Game Microtransactions*, MASHABLE (Dec. 1, 2017), <https://mashable.com/2017/12/01/19-gaming-gambling-addict/> [<https://perma.cc/5578-WKC7>] (reporting that receipts from 2015 and 2016 showed a nineteen-year-old man "spent around \$10,000 on video game content, ranging from \$0.99 to \$100 on games like *Clash of Kings*, *Counter-Strike: Global Offensive*, *Hobbit: Kingdom of Middle-earth*, *Pokémon Go*, and more").

³⁰¹ See David Zendle & Paul Cairns, *Video Game Loot Boxes Are Linked to Problem Gambling: Results of a Large-Scale Survey*, PLoS ONE, Nov. 21, 2018, at 1, <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0206767&type=printable> [<https://perma.cc/PS7V-CCDP>].

³⁰² See *id.* at 6.

³⁰³ See *id.* at 7–8.

³⁰⁴ See Aaron Drummond, James D. Sauer & Lauren C. Hall, *Loot Box Limit-Setting: A Potential Policy to Protect Video Game Users with Gambling Problems?*, 114 ADDICTION 935, 935–36 (2019).

³⁰⁵ See Drummond & Sauer, *supra* note 2, at 532 (finding that, because of similar psychological conditioning, loot boxes created a "ripe breeding ground" for problem gambling behavior).

³⁰⁶ See FTC Workshop, *supra* note 70, at 188 (statement of Keith Whyte, Executive Director, National Council on Problem Gambling); see also Meduna et al., *supra* note 295, at 9 (finding strong correlation between players who engage in gambling activity and those who engage in purchasing loot boxes, with up to 80% of loot box purchasers being categorized as problem gamblers according to adjusted Problem Gambling Severity Index score).

³⁰⁷ See *supra* notes 53–56 and accompanying text.

centivizes developers to expand user engagement even further.³⁰⁸ As one industry insider admitted, these loot boxes are specifically designed to trigger the optimum dopamine rush to players, which plays on the same neurological triggers that makes gambling so addictive.³⁰⁹ And when comparing this to the social costs of gambling—which includes devastating outcomes such as mental health conditions, financial issues, breakdowns of relationships, criminal activity, increased substance abuse, and even suicide³¹⁰—regulators must take necessary action.

IV. CLOSING PANDORA'S LOOT BOX: DRAWING LINES AND CREATING LIMITS

The best way to predict the future is to create it.

—Abraham Lincoln³¹¹

³⁰⁸ For many tech companies incentivized to boost profits by increasing user engagement, designing addictive technology is part of their business model. See Langvardt, *supra* note 42, at 134–36, 138 (discussing social media companies' incentives to design addictive software); Vikram R. Bhargava & Manuel Velasquez, *Ethics of the Attention Economy: The Problem of Social Media Addiction*, 31 BUS. ETHICS Q. 321, 322 (2021) (arguing that such addictive software design is unethical).

³⁰⁹ See Ali Jones, *Desire, Competition, or Addiction—Why Do We Buy Loot Boxes?*, PC-GAMESN (Apr. 3, 2018), <https://www.pcgamesn.com/loot-boxes-gambling-addiction> [<https://perma.cc/9393-HX6K>] (“[E]very time you open a loot box, your situation is getting better, but it’s getting better in unexpected ways, so that hits all the little cheap instant dopamine buttons.” (quoting Luther Patenge, former developer who helped design loot box system)); see also AUSTL. SENATE REPORT, *supra* note 38, at 35–36 (reviewing evidence that game designers are looking at similar analytics to maximizing loot box monetization in the same way slot machine and electronic poker machines have been studied).

³¹⁰ See Nancy M. Petry, Yola Ammerman, Jaime Bohl, Anne Doersch, Heather Gay, Ronald Kadden, Cheryl Molina & Karen Steinberg, *Cognitive-Behavioral Therapy for Pathological Gamblers*, 74 J. CONSULTING & CLINICAL PSYCH. 555, 555 (2006) (finding that online gamblers in general suffered from poor mental and physical health); Felicity K. Lorains, Sean Cowlshaw & Shane A. Thomas, *Prevalence of Comorbid Disorders in Problem and Pathological Gambling: Systematic Review and Meta-Analysis of Population Surveys*, 106 ADDICTION 490, 490, 495 (2011); Jon E. Grant, Liana Schreiber, Brian L. Odlaug & Suck Won Kim, *Pathological Gambling and Bankruptcy*, 51 COMPREHENSIVE PSYCHIATRY 115, 115–18 (2010); Nicki Dowling, David Smith & Trang Thomas, *The Family Functioning of Female Pathological Gamblers*, 7 INT’L J. MENTAL HEALTH & ADDICTION 29, 30–31 (2009); Rina Gupta & Jeffrey L. Derevensky, *An Empirical Examination of Jacob’s General Theory of Addictions: Do Adolescent Gamblers Fit the Theory?*, 14 J. GAMBLING STUD. 17, 23, 34, 41 (1998) (citing higher risks for crime and delinquency amongst adolescents with problem gambling habit); Gabaldon, *supra* note 157, at 260 (noting documented increase in crime in places where gambling is legalized); Stephen C. Newman & Angus H. Thompson, *A Population-Based Study of the Association Between Pathological Gambling and Attempted Suicide*, 33 SUICIDE & LIFE-THREATENING BEHAV. 80, 80–81, 86 (2003). See generally McGrody, *supra* note 28 (recounting stories of those who spent too much money on microtransactions, including individuals who considered suicide).

³¹¹ DUSTIN HANSEN, *GAME ON!: VIDEO GAME HISTORY FROM PONG AND PAC-MAN TO MARIO, MINECRAFT, AND MORE* 337 (2016) (attributing quote to Abraham Lincoln).

Thus far, this Article has used the new valuation framework of perceived virtual value to argue for the expansion of the prize/value element in state gambling law to include loot boxes. But this is only the first step. Once loot boxes are properly categorized as a gambling activity by courts, the door opens for the full range of gambling regulation to penetrate the magic circle.³¹²

If developers want to continue to sell loot boxes, they may do so under the proper limitations. Like the current state of gambling, complete prohibition would be ineffective.³¹³ Instead, developers would have to take on additional costs to meet the new burdens that come with running a gambling operation.³¹⁴ Given the enormous revenue generated by loot boxes,³¹⁵ it is unlikely that these added burdens will render the practice unprofitable. But if developers determine that compliance is too costly, they can stop selling loot boxes. In countries where loot boxes have been banned or regulated, developers have followed suit and disabled those game features.³¹⁶ This weakens any argument that regulation would be so burdensome that it would be practically or financially untenable for the industry.

This Part explores these possible regulations with the precision of a scalpel as opposed to the brunt of a hammer.³¹⁷ A framework that differentiates loot boxes from traditional gambling regulation and other technology industries is necessary in order to tailor regulatory tools that minimize loot box harms but maximize their benefits for industry growth and innovation.³¹⁸ The nuanced balance between

³¹² See GUNTER, *supra* note 157, at 88 (arguing for appropriate regulation of any particular type of behavior that can be potentially harmful, including gambling).

³¹³ Prohibition, especially in this context, is not a realistic or effective response. See, e.g., LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 149–50 (explaining follies of prohibition in other economic contexts); Adrian Parke & Mark Griffiths, *Why Internet Gambling Prohibition Will Ultimately Fail*, 8 GAMING L. REV. 295, 296 (2004) (arguing that prohibiting online gambling is likely to fail because technology outpaces legislation).

³¹⁴ See generally RESPONSIBLE GAMING, *supra* note 221 (outlining dozens of states' statutes and regulations for licensing, advertisements, age-restrictions, spending limitations, and other regulations on gambling businesses); STATE OF THE STATES *supra* note 226, at 8–15 (same).

³¹⁵ See *supra* notes 55–56 and accompanying text.

³¹⁶ See Hong, *supra* note 42, at 81 (recording different developers who altered games to regulate loot boxes within certain jurisdictions).

³¹⁷ See LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 8 (“[S]olutions that work in conventional economic design can be destructive if transported wholesale into virtual economy design, despite both being based on the same understanding of human behavior.”).

³¹⁸ See Brett Abarbanel, *Gambling vs. Gaming: A Commentary on the Role of Regulatory, Industry, and Community Stakeholders in the Loot Box Debate*, 22 GAMING L. REV. 231, 231 (2018) (“A successful regulatory policy will control risk while encouraging positive social behavior”); cf. Glen Atkinson, Mark Nichols & Ted Oleson, *The Menace of Competition and*

these different considerations requires careful reliance on virtual economic realities to outline a regulatory framework that limits certain types of loot boxes through several interventions.³¹⁹

A. *Building a Framework: The Unique Considerations of Virtual Regulation*

This Section considers the following three things when tailoring regulations for loot boxes, all of which must be supported with sufficient, reliable, and persuasive evidence:³²⁰ (1) the problem; (2) the balancing; and (3) the solutions. By exploring these different phases of regulatory design, this Section also addresses criticisms that do not meet the burdens of evidence mentioned above.

The first step toward regulation is that there must be a problem of sufficient size or scope that justifies the time and study of regulators. This promotes the economy and time of the regulatory decisionmaker. Advocates must present evidence to earn the necessary attention to effect a change on society. If the purported problem does not meet this initial threshold, industry or government regulators may deem it unworthy of their time based on the minor scope of the problem, or the lack of evidence detailing the problem. This is one of the biggest roadblocks for regulating loot boxes. Not enough decisionmakers understand the problem;³²¹ not enough parents understand their children are at risk;³²² and not enough adults understand

Gambling Deregulation, 34 J. ECON. ISSUES 621, 621–22 (2000) (recognizing importance of identifying the type of behavior gambling regulators want to alter before issuing regulations).

³¹⁹ See GUNTER, *supra* note 157, at 32 (recognizing need for multiple interventions based on multiple factors that underpin gambling behavior); see also *id.* at 142–44 (identifying spectrum of potential regulatory models).

³²⁰ Scholars and economists have explored many theories of regulation, including public interest theories that seek to correct market failures; contract theories maintaining that private orderings and litigation are more efficient; capture theories that argue regulations seek to benefit interest groups; and enforcement theories that regulations seek to impose social control through distinct strategies. See Andrei Shleifer, *Understanding Regulation*, 11 EUR. FIN. MGMT. 439, 440–45 (2005) (outlining theories of regulation).

³²¹ See *Am. Librs. Ass'n v. Pataki*, 969 F. Supp. 160, 161 & n.1 (S.D.N.Y. 1997) (noting, in cyberspace law case, that “[j]udges and legislators faced with adapting existing legal standards to the novel environment of cyberspace struggle with terms and concepts that the average American five-year-old tosses about with breezy familiarity,” and that the case had “afforded [her] a window into an entirely unknown world”); see, e.g., Chris Cillizza, *How the Senate’s Tech Illiteracy Saved Mark Zuckerberg*, CNN (Apr. 11, 2018, 3:58 PM), <https://www.cnn.com/2018/04/10/politics/mark-zuckerberg-senate-hearing-tech-illiteracy-analysis/index.html> [<https://perma.cc/FJA5-QUCJ>] (describing technical illiteracy of congress people while questioning tech decisionmakers); see also Bartle, *supra* note 128, at 31 (detailing game developers’ fears, that if regulators “don’t understand what they’re regulating, how can they hope to regulate it”).

³²² See FTC Workshop, *supra* note 70, at 178 (statements of Patricia Vance, President, En-

the video game industry's size and impact. And while there have been a small handful of politicians that have tried to shine light on the dark practices of loot boxes,³²³ domestic politics has not budged.³²⁴ This is in contrast with the dozens of special reports, legislative hearings, executive actions, and consumer lawsuits in the international community.³²⁵

The era of ignoring loot boxes, however, will be short lived. Decisionmakers and regulators are starting to pay more attention to the shifting tides of dark software design and addictive technologies.³²⁶ Congress has impaneled hearings because of the growing concern of the dangers of social media.³²⁷ Popular media is starting to take notice of these trends as well.³²⁸ We no longer live in a time, as our ancestors did, when the goal of technological design was to enhance the human experience by cutting down trees, crossing oceans, and entertaining our imaginations. Instead, we are entering a dark new age where the market has incentivized software design that seeks to control the human experience by exploiting psychological weaknesses.³²⁹ Loot

tainment Software Rating Board) (admitting that parents have “low awareness of what a loot box is”); *id.* at 202–03 (statements of Ariel Fox Johnson, Senior Counsel, Common Sense Media) (stating that many parents “do not realize that a kid has access to their credit card,” and they do not know how to turn off in-app purchases or how to tell if a game requires them).

³²³ See Cillizza, *supra* note 321.

³²⁴ See LASTOWKA, *supra* note 11, at 70 (stating that technologies that are perceived to threaten state power or social stability receive more attention from regulators, whereas entertainment technology is often seen as harmless).

³²⁵ See, e.g., Moshirnia, *supra* note 23, at 99–107; AUSTL. SENATE REPORT, *supra* note 38, at 9–14 (detailing international attention drawn by loot boxes); see also *supra* note 240 and accompanying text.

³²⁶ See Cillizza, *supra* note 321 (although many congressmen do not fully understand the problem, they nevertheless are holding hearings acknowledging that there is a problem of sufficient scope regarding social media that warrants their consideration).

³²⁷ See *id.*

³²⁸ See, e.g., THE SOCIAL DILEMMA (Exposure Labs 2020) (exploring addictive design of social media and its pernicious business model selling user data); see also Hilary Andersson, *Social Media Apps Are ‘Deliberately’ Addictive to Users*, BBC NEWS (July 4, 2018), <https://www.bbc.com/news/technology-44640959> [<https://perma.cc/F45A-GAAZ>] (documenting admissions from former Facebook executives explaining design features they invented to exploit weaknesses in human psychology); Olivia Solon, *Ex-Facebook President Sean Parker: Site Made to Exploit Human ‘Vulnerability,’* GUARDIAN (Nov. 9, 2017, 3:11 PM), <https://www.theguardian.com/technology/2017/nov/09/facebook-sean-parker-vulnerability-brain-psychology> [<https://perma.cc/A4FT-26NV>] (discussing Sean Parker’s admission that Facebook exploits human weakness by giving users dopamine hits).

³²⁹ See, e.g., ROGER McNAMEE, ZUCKED: WAKING UP TO THE FACEBOOK CATASTROPHE 9–10 (2020) (describing Facebook’s ethically dubious business model of using AI to keep users engaged and nudging them in directions that Facebook wants them to go); Manoel Horta Ribeiro, Raphael Ottoni, Robert West, Virgílio A. F. Almeida & Wagner Meira Jr., *Auditing Radicalization Pathways on YouTube*, ARXIV (2019), <https://arxiv.org/pdf/1908.08313.pdf> [<https://arxiv.org/pdf/1908.08313.pdf>]

boxes are merely one piece of this larger trend in dark patterns on the web. This includes a variety of human-to-computer program interactions whereby a computer program can trick or confuse users to make decisions against their own preferences,³³⁰ and can even induce compulsive or addictive online behavior.³³¹ These dark patterns—bolstered by the use of behavioral analytics and big data—are already being used in other industries. Online databases for shopping websites collect such data in order to tailor unique direct messages and marketing campaigns to individual consumers.³³² Even the online gambling industry makes great use of these techniques for both marketing and player-tracking purposes. Gambling operators can now use player information to track their spending and behavior, and can create synergies by gleaning from other data sources such as a player’s social media and geolocation.³³³ As those in power become more technologically aware, so too will they become more troubled by what they discover if loot boxes continue unchecked.³³⁴

The size and scope of the loot box problem is what separates it from other “surprise mechanics.”³³⁵ For example, Kinder Eggs are a popular chocolate candy that have different collectible toys inside

/perma.cc/T2P5-95XQ] (detailing different communities and videos that are susceptible to radicalization when following YouTube’s algorithm to keep consumer watching videos on the platform); Langvardt, *supra* note 42, at 141–46 (describing software industry and consulting companies that seek to make tech and apps more addictive).

³³⁰ See generally Jamie Luguri & Lior Jacob Strahilevitz, *Shining a Light on Dark Patterns*, 13 J. LEGAL ANALYSIS 43 (2021) (establishing taxonomy and assessing gradations of dark patterns in various online and digital marketplaces).

³³¹ See Arunesh Mathur, Gunes Acar, Michael J. Friedman, Elena Lucherini, Jonathan Mayer, Marshini Chetty & Arvind Narayanan, *Dark Patterns at Scale: Findings from a Crawl of 11k Shopping Websites*, PROC. ACM ON HUM.-COMPUT. INTERACTION, Nov. 2019, at 81:1, 81:2 (citing Press Release, Deb Fisher, U.S. Sen. for Neb., Senators Introduce Bipartisan Legislation to Ban Manipulative ‘Dark Patterns’ (Apr. 9, 2019), <https://www.fischer.senate.gov/public/index.cfm/2019/4/senators-introduce-bipartisan-legislation-to-ban-manipulative-dark-patterns> [<https://perma.cc/49Z7-CZ6Z>]).

³³² GUNTER, *supra* note 157, at 123.

³³³ See Griffiths, *supra* note 27, at 346 (citing Mike Buck, *Bookmaking Technology That Handles High Volume*, GAMBLING INSIDER FRIDAY, 5 May 2017).

³³⁴ Members of Congress have already sent letters to several major gaming companies inquiring about whether microtransactions and loot boxes comply with American and foreign laws. See, e.g., Letter from Lori Trahan, Member of Cong., Kathy Castor, Member of Cong., & Edward J. Markey, U.S. Sen., to Robert Kotick, Chief Exec. Officer, Activision Blizzard Inc. (Aug. 10, 2021), https://trahan.house.gov/uploadedfiles/final_game_letters_-_combined.pdf [<https://perma.cc/PL5D-HXCU>].

³³⁵ See Jamie Madigan, *What the Heck Are Surprise Mechanics?*, FORBES (Aug. 19, 2019, 8:16 AM), <https://www.forbes.com/sites/jamiemadigan/2019/08/19/what-the-heck-are-surprise-mechanics/> [<https://perma.cc/Z6Z4-MF59>] (explaining surprise mechanics in video games by comparing them to other products that have a randomized treat or prize).

each chocolate egg; McDonald's Happy Meals offer toys with every meal; and as previously discussed, Pokémon and sports trading cards continue to sell physical card packs to children with tiers of rare and valuable cards inside.³³⁶ At their root, these everyday products entice children and their parents to buy a product with the hope of getting a coveted prize without knowing what prize they will get. There are indeed many anecdotes³³⁷ that suggest these surprise mechanics in non-gaming industries are also problematic and should be regulated as gambling.

So, should these surprise mechanic products deserve the same regulatory attention as loot boxes? There are several reasons why the answer, at least at this point, should be no. First, these products lack sufficient market size, scope, and evidence that justifies such regulation. There are too few reliable studies conducted on these practices,³³⁸ and the millions at stake in these industries³³⁹ are relatively small when compared to the billions at stake with loot boxes.³⁴⁰ This is not meant to diminish the potential problems cited in these other surprise mechanic products, but only to diminish any comparison with the size, scope, and evidentiary wealth that justifies the regulatory attention for loot boxes. Second, loot boxes are materially different than Kinder Eggs or Happy Meals in presentation. There is a long line of research in both animal and human studies that various ranges of stimuli can reinforce, incentivize, and even change one's prefer-

³³⁶ See Halbfinger, *supra* note 182 and accompanying text.

³³⁷ See, e.g., Jennifer Warren, *My Kid Stole a Kinder Egg. I Tried to Make it a Teachable Moment. It Didn't Go Well*, CBC (Oct. 21, 2019, 4:27 PM), <https://www.cbc.ca/radio/docproject/kinder-surprise-1.5320982/my-kid-stole-a-kinder-egg-i-tried-to-make-it-a-teachable-moment-it-didn-t-go-well-1.5320986> [<https://perma.cc/D4LB-D27Q>] (detailing story of a child stealing Kinder Eggs for the prizes inside); Leigh Alexander, *Inside the Strange and Slightly Creepy World of 'Surprise Egg' Videos*, N.Y. MAG.: INTELLIGENCER (Apr. 29, 2016), <https://nymag.com/intelligencer/2016/04/inside-the-world-of-the-surprise-egg-videos-that-kids-love-more-than-cartoons.html> [<https://perma.cc/Q3J9-UGFQ>] (discussing popularity of videos showing opening of Kinder Eggs to reveal prize inside).

³³⁸ In fact, most serious academic inquiries that mention Kinder Eggs are papers studying loot boxes. See, e.g., Abarbanel, *supra* note 318, at 232; Nielsen & Grabarczyk, *supra* note 33, at 176. In these contexts, Kinder Eggs are only referenced as a similar product.

³³⁹ See Alyse Thompson, *Kinder Brand Seeing Success in U.S. Confectionery Market*, CANDY INDUS. (Nov. 22, 2019), <https://www.candyindustry.com/articles/88889-kinder-brand-seeing-success-in-us-confectionery-market> [<https://perma.cc/JWX9-VD7V>] (tracking \$200 million success of Kinder Joy brand product); Bill Shea, *How the Billion-Dollar Sports Card Industry Collapsed and then Rebounded*, ATHLETIC (May 20, 2020), <https://theathletic.com/1812753/2020/05/20/how-the-billion-dollar-sports-card-industry-collapsed-and-then-rebounded/> [<https://perma.cc/RFN2-J5W8>] (tracking collapse of \$80 billion sports card industry).

³⁴⁰ See *supra* notes 55–56 and accompanying text.

ences.³⁴¹ The stimuli of sounds, flashing colors, and computer generated texts and effects of loot boxes are similar to that of slot machines and other virtualized forms of gambling.³⁴² Although other surprise mechanic products may also mimic these celebratory effects to increase dopamine reward centers in the brain, they are a far cry from the visual and auditory deluge that are meticulously designed by gambling experts to increase spending.³⁴³ Finally, loot boxes and other virtual gambling platforms benefit from real-time data that other surprise mechanic products do not. Loot boxes may benefit from using big data collected from the buying habits and responses of consumers, and can use that data to perfect just the right amount of stimuli, pricing, and other factors to increase profits and maximize user experience.³⁴⁴ While the marketing teams of the trading card industry, McDonalds, and Kinder Eggs are incredibly robust and talented, they cannot compete with the algorithms produced by real-time big data that make loot boxes that much more addicting.

This is the double-edged sword of regulating emerging technology: big data is used to bolster the expansion of the technology, but it can also be used to study and regulate that same technology. Undoubtedly, there is tremendous amounts of data from decades of sales of Kinder Eggs or trading cards, but it is not as readily accessible to researchers seeking to find correlations between these sales and problem gambling behavior. And if these problems are supported by sufficient and persuasive evidence, then they should be properly regulated. With loot boxes, however, reliable data exists that has helped researchers uncover many of the troubling findings outlined in Part III.³⁴⁵ Use of this data might lead to the ironic result that emerging technologies are regulated faster than older practices that have been around for decades, but there is nothing particularly problematic about that. Emerging technology benefits from the use of big data to sell, target, and sometimes exploit consumers.³⁴⁶ So too should that

³⁴¹ See, e.g. Calvin Bierley, Frances K. McSweeney & Renee Vannieuwkerk, *Classical Conditioning of Preferences for Stimuli*, 12 J. CONSUMER RSCH. 316, 317 (1985) (showing that visual and auditory stimuli can condition people's choices when choosing between multiple arbitrary items); George T. Taylor, *Stimulus Change and Complexity in Exploratory Behavior*, 2 ANIMAL LEARNING & BEHAV. 115, 115 (1974) (showing effects of physical stimuli to change animal behavior).

³⁴² See *supra* notes 73–74 and accompanying text.

³⁴³ See *id.*

³⁴⁴ See *supra* note 27 and accompanying text.

³⁴⁵ See *supra* Part III.

³⁴⁶ See *supra* note 344 and accompanying text.

same data be used to study and mitigate potential social harms being caused by that technology.

A second step toward regulation is that there must be proper balancing of interests, which promotes efficiency. An ideal framework will recognize that the potential costs of a regulation should not outweigh the benefits.³⁴⁷ An overly burdensome framework might regulate an industry out of business or significantly cut into profits, which can result in losses of tax revenue, jobs, goods and services, and a host of other direct or indirect costs.³⁴⁸ This is especially delicate when dealing with emerging and growing industries; regulation should not be so burdensome as to stifle research and development for future innovation.³⁴⁹ In the context of loot boxes, the video game industry has tremendous economic interests at stake and relies on loot box revenues to usher in the next generation of growth.³⁵⁰ This must be balanced, however, with the benefits to society, which is to lessen the emerging harms that have manifested from loot box behavior.³⁵¹ Society has long recognized that gambling activity should be regulated according to this balancing of interests,³⁵² and loot boxes should be no different. Therefore, allowing loot boxes to be sold under tailored regulatory tools is ideal.

A third step toward regulation is that there must actually be a way to solve or mitigate the problem, which promotes efficacy. Regulatory tools are often necessary when the normal market behavior of rational economic actors cannot solve the problem absent intervention.³⁵³ For instance, if there is a poorly designed product on the market, consumers will act rationally by not supporting the product, which

³⁴⁷ See Cass R. Sunstein, *The Cost-Benefit State* (Coase-Sandor Inst. for L. & Econ., Working Paper No. 39, 1996) (applying cost-benefit analysis when designing regulatory tools); see also Steven L. Schwarcz, *Regulating Complacency: Human Limitations and Legal Efficacy*, 93 NOTRE DAME L. REV. 1073, 1097–98 (2018) (recognizing need for sorting mechanism to balance benefits of deterring dangerous behavior with costs of impeding market growth).

³⁴⁸ See, e.g., Gregory N. Mandel, *Regulating Emerging Technologies*, 1 L. INNOVATION & TECH. 75, 82 (2009) (“Excessive regulation could limit the development of an extremely promising technology and foreclose potentially great social, health, environmental and economic benefits.”).

³⁴⁹ See *id.*

³⁵⁰ See *supra* notes 53–56 and accompanying text.

³⁵¹ See *supra* Section III.C.

³⁵² See GUNTER, *supra* note 157, at 31–32.

³⁵³ See generally Richard A. Posner, *Theories of Economic Regulation*, 5 BELL J. ECON. & MGMT. SCI. 335 (1974) (describing the “public interest” theory of regulation, in which regulations are imposed by government to correct market failures, and contrasting this with the “capture” theory where regulations are formed according to interest group politics). This market self-correction, which accounts for the market reaching equilibrium on its own, might also be consid-

would result in discounting prices to match demand or the product being taken off the market due to lack of demand. When a product like loot boxes, however, is specifically designed to induce compulsive or addictive spending to the point that it actually targets problem spenders, normal market behavior by rational actors will not impact the viability of the addictive product because only a small niche consumer base can create a profit.³⁵⁴ Market segmentation would ensure this.³⁵⁵ A shocking 2% of mobile players account for 90% of virtual item revenue.³⁵⁶ In other words, even if 98% of gamers repudiated the practice of loot boxes,³⁵⁷ there would still be enough of a market left to reap large profits from the addictive product of loot boxes.

If loot boxes are a problem, they require an effective solution that can deliver on the stated goals of the proposed regulation. This is a high burden to meet to show that there are effective tools that can properly mitigate the social harms of this gambling activity.

B. *Building the Tools: Virtual Regulations for a Virtual World*

As gambling experts have acknowledged, there are many tools that can be used to control the complex social, psychological, and eco-

ered under the second factor because these market mechanisms would be more efficient than costs spent on designing and enforcing regulatory tools.

³⁵⁴ Economists have proposed differing views on how to classify addiction within rational choice economic theory. Compare LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 33 (discussing addiction as “a big contributor to economic irrationality” and the differences between stated and revealed preferences), with Gary S. Becker & Kevin M. Murphy, *A Theory of Rational Addiction*, 96 J. POL. ECON. 675, 694–95 (1988) (arguing that addicts are rational actors who pursue their preferences for gratification through their addiction).

³⁵⁵ See MICHEL WEDEL & WAGNER A. KAMAKURA, *MARKET SEGMENTATION: CONCEPTUAL AND METHODOLOGICAL FOUNDATIONS* 3 (2d ed. 2000) (explaining market segmentation as realization that a heterogeneous market is actually made up of smaller homogeneous segments of consumers that have differing preferences); Byron M. Huang, *Walking the Thirteenth Floor: The Taxation of Virtual Economies*, 17 YALE J.L. & TECH 224, 234–36 (2015) (recognizing that different segments of gamers spend different amounts of money depending on their preferences to earn virtual goods through the work-to-reward ratio or skip the process and buy the goods).

³⁵⁶ See Andrei Klubnikin, *Microtransactions in Games: The Good, the Bad, and the Ugly*, GAMEANALYTICS (Feb. 14, 2018), <https://gameanalytics.com/blog/microtransactions-games-good-bad-ugly/> [<https://perma.cc/F2TC-Z9YE>]; Paul Tassi, *Why It's Scary When 0.15% Mobile Gamers Bring in 50% of the Revenue*, FORBES (Mar. 1, 2014, 4:28 PM), <https://www.forbes.com/sites/insertcoin/2014/03/01/why-its-scary-when-0-15-mobile-gamers-bring-in-50-of-the-revenue/> [<https://perma.cc/G53Y-A7VG>].

³⁵⁷ See, e.g., Joel Hruska, *Most Gamers Hate Buying Loot Boxes, So Why Are Games Using Them?*, EXTREME TECH (Oct. 13, 2017, 1:02 PM), <https://www.extremetech.com/gaming/257387-gamers-hate-buying-loot-boxes-games-using> [<https://perma.cc/3CT9-LU29>] (describing consensus that most players do not like paying for loot boxes).

conomic conditions that create the demand for gambling activities.³⁵⁸ But the virtual nature of loot boxes make them too different from traditional gambling activities to simply apply old gambling regulations to new technology. Instead, many gambling regulations can be modified to apply effectively to loot boxes without imposing an undue burden on the video game industry.

This Section proceeds under the assumption that the regulatory relationship between the video game industry and the government will be cooperative. It is unlikely that the video game industry can successfully self-regulate given its long history of only proposing self-regulatory tools when pressured by government regulators.³⁵⁹ Collaborating on regulatory tools would have the benefit of ensuring proper balancing between the parties negotiating their adverse interests and would heighten efficacy due to the expertise offered by the industry. In addition, regulators simply would not be able to keep up with the industry on their own because it grows more advanced every year.³⁶⁰ This explains why the government cannot be fully trusted to effectively regulate loot boxes, and why the industry cannot be fully trusted to effectively self-regulate the same.

1. *Virtual Age Verification*

One of the first things this partnership between the video game industry and Congress can do is to ensure that children do not have access to loot boxes. The mere rating and labeling of games according to age appropriateness is not effective.³⁶¹ Instead, age limits enforced through verification—a bedrock principle of gambling regulation—that can be properly modified for loot boxes in virtual worlds would be more effective.³⁶² Admittedly, age verification in cyberspace is

³⁵⁸ See GUNTER, *supra* note 157, at 32 (recognizing need for multiple interventions based on multiple factors that underpin gambling behavior).

³⁵⁹ See, e.g., HANSEN, *supra* note 311, at 106 (describing self-regulation of the industry in shadow of congressional hearings investigating violence in video games).

³⁶⁰ See Gary E. Marchant, Douglas J. Sylvester & Kenneth W. Abbott, *What Does the History of Technology Regulation Teach Us About Nano Oversight?*, 37 J.L. MED. & ETHICS 724, 726–27 (2009) (arguing for adaptive regulatory approaches due to speed of technological advancements and relatively slower legislative and regulatory process).

³⁶¹ See generally Lisa A. Robinson, W. Kip Viscusi & Richard Zeckhauser, *Consumer Warning Labels Aren't Working*, HARV. BUS. REV. (Nov. 30, 2016), <https://hbr.org/2016/11/consumer-warning-labels-arent-working> [<https://perma.cc/6C4Y-WF5V>] (finding that warning labels alone are ineffective to deter or warn consumers about risks associated with products).

³⁶² See generally COMM. ON THE SOC. & ECON. IMPACT OF PATHOLOGICAL GAMBLING, NAT'L RSCH. COUNCIL, *PATHOLOGICAL GAMBLING: A CRITICAL REVIEW* 283–84 (1999) (listing the age restrictions on gambling activity in each state).

much more difficult than at a physical casino because children can easily lie about their age on the internet and access a host of content that is not age-appropriate.³⁶³ Nevertheless, advanced technology can solve this problem with a bit of ingenuity.

Asking an online consumer to check a box or fill in their age is no longer enough, but effective resolutions might include real-time credit checks, bank account pin verification before purchases, voice verification, FaceTime or other streaming facial recognition software, and even 48-hour waiting periods to verify employment to ensure both age and financial ability to engage in loot box spending.³⁶⁴ Financial verification tools might prove to be more cumbersome, and consumers would have to agree to these invasive credit and employment checks through EULAs. Nevertheless, they would be effective at weeding out minors, unless the minor was using fraudulent techniques to beat a credit, income, or employment check.³⁶⁵ The physical verification tools might prove more efficient because smart phones, gaming consoles, and personal computers already have the necessary hardware, such as cameras and microphones, to enable face and voice recognition. In fact, many of these security software capabilities are already being perfected on all the same technologies that gamers use to access virtual worlds and loot boxes.³⁶⁶

Age verification should also have an impact on in-game advertisements. If a player has not passed an age verification test, the game should not advertise loot boxes to them in the virtual world. Neither should promotional materials be sent to this player's virtual account or email. Similar to how the traditional gambling industry limits advertising to limit exposure to children,³⁶⁷ the same should be implemented in virtual worlds so as to not trigger a child's curiosity. And

³⁶³ See, e.g., GUNTER, *supra* note 157, at 11 (documenting the failure of age-verification software to prevent children from accessing online gambling).

³⁶⁴ See Jenna F. Karadbil, Note, *Casinos of the Next Millennium: A Look into the Proposed Ban on Internet Gambling*, 17 ARIZ. J. INT'L & COMP. L. 413, 443 (2000) (describing model regulations that require several age verification techniques such as credit checks, voice verification, and bank record checking).

³⁶⁵ See VICTORIA NASH, RACHEL O'CONNELL, BENDERT ZEVENBERGEN & ALLISON MISHKIN, EFFECTIVE AGE VERIFICATION TECHNIQUES: LESSONS TO BE LEARNT FROM THE ONLINE GAMBLING INDUSTRY 21, 26–30 (2013).

³⁶⁶ See, e.g., Raul Garcia-Martin & Raul Sanchez-Reillo, *Vein Biometric Recognition on a Smartphone*, 8 IEEE ACCESS 104801, 104801 (2020), <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9108276> [<https://perma.cc/7XSR-KZP6>] (describing advances in biometrics in smartphones such as facial and voice recognition).

³⁶⁷ See RESPONSIBLE GAMING, *supra* note 221, at 4 (stating that states may impose advertising restrictions prohibiting advertising that targets minors).

with existing loot box advertising campaigns—which include advertising in children's toys magazines³⁶⁸—tying age verification to loot box advertising in virtual worlds would be a good place to start.

Using age verification tools to protect children will undoubtedly raise the responsibility of parents in these regulatory debates. After all, why should the government regulate what parents can supervise? Following this logic, it might be more efficient to dedicate the same amount of resources that would be used to fund these regulations to instead educate parents and children about loot boxes.³⁶⁹ Research shows, however, that such educational campaigns may not be effective.³⁷⁰ Parents simply do not pay close enough attention to their children's gaming habits. And how can they? Should they be expected to physically look over their child's shoulder for entire play sessions? And even more problematic is that parents do not understand the need to supervise their children because they do not appreciate the potential financial and psychological harm of loot boxes.³⁷¹ Parents do indeed bear much responsibility for monitoring their children,³⁷² but dealing with these powerful technologies requires more than a Puritan lecture on good parenting and self-control.³⁷³ This is especially true when these technologies are used to specifically target children and can even override the cognitive safeguards of rationale adults.

2. *Virtual Spending Limits*

Another set of tools are those that help players track and limit their spending in real time. As noted above, this is contrary to loot box design because developers profit from disassociating real money from virtual tokens.³⁷⁴ The current design serves the purpose of ensuring that players will not be able to track their real-money spending, which in turn maximizes developer profits.³⁷⁵ Allowing players to

³⁶⁸ See, e.g., Blake, *supra* note 291 (describing ads in European toy catalogue encouraging children to buy *FIFA* card packs).

³⁶⁹ See, e.g., GUNTER, *supra* note 157, at 125.

³⁷⁰ See *id.* at 143.

³⁷¹ See FTC Workshop, *supra* note 70; Robert Ladouceur, Christian Jacques, Francine Ferland & Isabelle Giroux, *Parents' Attitudes and Knowledge Regarding Gambling Among Youths*, 14 J. GAMBLING STUD. 83, 83–90 (1998).

³⁷² See Abarbanel, *supra* note 318, at 233 (acknowledging responsibility of parents as one of many actors that must take responsibility in solving spending problems in virtual worlds).

³⁷³ The gambling industry has historically made similar arguments that they cannot be held responsible for consumers' lack of self-control. See NATASHA DOW SCHÜLL, *ADDICTION BY DESIGN: MACHINE GAMBLING IN LAS VEGAS* 17–18 (2012).

³⁷⁴ See *supra* note 70 and accompanying text.

³⁷⁵ See *id.*

track in real time how much real-world money they have spent has been shown to mitigate overspending by problem gamblers, who actually want to be able to keep track of their losses.³⁷⁶

This is closely related to a spending-limit tool, in which players can set spending limits at the beginning of every play session. If these players wanted to later spend above that limit, they would have to go through several burdensome security settings, or even be cut off for a cool-down period of an hour or more to dissipate any dopamine or adrenaline rush that is so often associated with impulsive gambling behavior.³⁷⁷ One study of an online gambling outlet showed that only 0.3% of problem gamblers exceeded spending limits they set for themselves.³⁷⁸ FIFA developers also recently instituted a similar spending limit tool that allows players to set weekly limits and track spending, but the tool only tracks or limits spending of virtual coins.³⁷⁹ Once again, these self-regulatory tools proposed by the industry are rarely effective because this still disassociates players from accurately tracking and limiting real-world money spending.

Spending notifications and spending limits can also benefit from partnering with online payment middlemen, such as Paypal or credit card companies. These companies facilitate online transactions and are often linked with players' mobile phone and online accounts.³⁸⁰ It is already required that gambling operators issue transaction codes that include a gaming merchant category, so gambling transactions can be easily identified and categorized by these payment companies.³⁸¹ Additionally, these companies already have sophisticated tools to notify their customers of potential fraud, suspicious account activity, and can even decline to facilitate transactions in real time to protect against potential fraudulent transactions.³⁸² Partnering with these

³⁷⁶ See GUNTER, *supra* note 157, at 25; accord Michael Auer, Sigrun Høvik Reiestad & Mark D. Griffiths, *Global Limit Setting as a Responsible Gambling Tool: What Do Players Think?*, 18 INT'L J. MENTAL HEALTH & ADDICTION 14, 16 (2020) (reviewing gambling literature and finding consensus that player-set limits are overwhelmingly supported by gamblers).

³⁷⁷ CYNTHIA LUCAR, JAMIE WIEBE & KAHLIL PHILANDER, *MONETARY LIMITS TOOLS FOR INTERNET GAMBLERS: A REVIEW OF THEIR AVAILABILITY, IMPLEMENTATION AND EFFECTIVENESS ONLINE* 39-42 (2013).

³⁷⁸ See GUNTER, *supra* note 157, at 129 (citing efforts of *bwin Interactive Entertainment*).

³⁷⁹ See Wesley Yin-Poole, *FIFA 21 Will Soon Let You Track and Set Limits on How Many FIFA Points You Buy from the In-Game Store*, EUROGAMER (Nov. 12, 2020), <https://www.eurogamer.net/articles/2020-11-12-fifa-21-will-soon-let-you-impose-strict-limits-on-the-amount-you-play-and-spend> [<https://perma.cc/L5L2-LU3D>].

³⁸⁰ See Parke & Griffiths, *supra* note 313, at 296.

³⁸¹ See *id.* at 297-98.

³⁸² See Masoumeh Zareapoor & Pourya Shamsolmoali, *Application of Credit Card Fraud*

companies to expand their review of suspicious activity, or to limit spending, could be a useful step. Gambling research has shown that partnerships between gambling providers and payment companies are effective at reducing overexpenditures associated with gambling.³⁸³ And researchers have expressed optimism that such spending-limit tools could be effective for loot boxes.³⁸⁴

3. *AI Targeting to Release Whales*

Another effective regulation tool might be a novel repurposing of AI targeting. Currently, AI is being used predatorily to identify high spenders and “whales” based on their in-game spending habits with near 87% accuracy.³⁸⁵

Developers use this data to “manipulate the nature and presentation of loot boxes to maximize the likelihood of players making purchases.”³⁸⁶ This very same AI being used against problem gamblers for their exploitation could be repurposed for their protection. By flipping the switch the other way, these incredibly powerful and accurate AI tools could be used to flag players who exhibit problem-gambling or problem-spending behavior.³⁸⁷ And instead of customizing gameplay to extract maximum revenue from these players, developers could instead customize gameplay by cutting these players off, offering customized notifications of spending habits, or imposing other spending limits like those mentioned in the preceding Section.³⁸⁸

These AI tools already exist for the dark purpose of identifying and taking advantage of players’ psychological weaknesses. Not only would these tools be efficient and uncostly to repurpose, but society would benefit from their ever-increasing accuracy. Developers could then combine the various tools to help players set spending limits or give real-time spending data to players that exhibit these problem

Detection: Based on Bagging Ensemble Classifier, 48 *PROCEDIA COMPUT. SCI.* 679, 680 (2015) (describing various methods used to detect credit card fraud and other suspicious activity).

³⁸³ See Jinghui (Jove) Hou, Keehyung Kim, Sung S. Kim & Xiao Ma, *Disrupting Unwanted Habits in Online Gambling Through Information Technology*, 36 *J. MGMT. INFO. SYS.* 1213, 1223 (2019) (describing novel use of information technology tools, such as limiting use of credit cards, to combat problem gambling).

³⁸⁴ See Drummond et al., *supra* note 304, at 935.

³⁸⁵ See Walker, *supra* note 27. The gambling industry also employs sophisticated data technology to extract money from high spenders online. See Griffiths, *supra* note 27, at 346.

³⁸⁶ See *AUSTL. SENATE REPORT*, *supra* note 38, at 34.

³⁸⁷ See Langvardt, *supra* note 42, at 129–30 (arguing that software can be used to monitor consumers using technology to help prevent overuse or burnout).

³⁸⁸ Cf. GUNTER, *supra* note 157, at 123 (noting that online databases for shopping websites collect customer data to tailor unique direct messages and marketing campaigns).

spending behaviors. And while targeting and limiting the spending of these so-called “whales” would significantly cut into developer revenues, it would also ensure that players do not burn out, which has been proven to increase return customers.³⁸⁹

4. *Real-World Pigouvian Taxation*

Another interesting intervention is that of a government-issued Pigouvian tax to help offset the negative externalities caused by loot boxes.³⁹⁰ Consumers would not be restricted from buying loot boxes but would have to pay an additional surcharge collected by developers, who would then pass this tax to the government. The added cost might dissuade players from buying loot boxes or reduce their profitability, and those that do buy loot boxes would be contributing to a government fund that could offset harms.³⁹¹ In an alternative or overlapping model, the government could simply tax the developers directly, which holds them directly responsible for their contribution to the social harms that loot boxes cause.³⁹² Although developers might pass on those costs to players, the result would likely be similar; the added costs would dissuade some from buying loot boxes and would make them less profitable.

There are a few worthy programs into which the government could invest this newfound revenue. The government could award grants to establish rehab centers for those who exhibit addictive or problematic gambling behavior due to loot boxes.³⁹³ These programs could be successfully managed as outpatient programs and could even be run virtually. The government could also invest in academic and independent research, awarding grants to social scientists, engineers,

³⁸⁹ See Langvardt, *supra* note 42, at 154 (describing technologies used by gambling industry to prevent customer burnout to build and maintain lifelong return customers).

³⁹⁰ See Anton Korinek, *Taxation and the Vanishing Labor Market in the Age of AI*, 16 OHIO ST. TECH. L.J. 244, 252 (2020) (explaining societal goals of Pigouvian taxation).

³⁹¹ See Jonathan Klick & Gregory Mitchell, *Government Regulation of Irrationality: Moral and Cognitive Hazards*, 90 MINN. L. REV. 1620, 1642 (2006) (describing imposition of taxes on certain items to discourage consumers from buying them).

³⁹² Cf. LEHDONVIRTA & CASTRONOVA, *supra* note 60, at 144 (citing examples of bars and liquor stores only paying a small part of the true social costs associated with alcohol consumption).

³⁹³ Rehab centers for gaming addiction already exist in countries like South Korea. See Melia Robinson, *Korea's Internet Addiction Crisis Is Getting Worse, as Teens Spend up to 88 Hours a Week Gaming*, BUS. INSIDER (Mar. 25, 2015, 9:37 AM), <https://www.businessinsider.com/south-korea-online-gaming-addiction-rehab-centers-2015-3> [<https://perma.cc/LM78-UXBZ>].

and others to dive deeper into the loot box problem to continue to innovate policy for the next generation of loot boxes.³⁹⁴

This Part's brief foray exploring regulatory tools tailored to mitigate the social harms of loot boxes only scratches the surface and is not meant to be exhaustive.³⁹⁵ Designing effective regulation requires carefully exploring many considerations, which are best handled through transparent partnerships between the video game industry and the government.³⁹⁶ But to do nothing, as the United States has, is sending the wrong signal.³⁹⁷ By combining extensive research from the gambling industry and virtual worlds, the tools detailed above can strike the right balance to protect children, problem gamblers, and other indulgent consumers while allowing developers to continue selling loot boxes responsibly and profitably.

V. EXPANDING VIRTUAL VALUE

This Article's contribution of perceived virtual valuation can and should be an important policy tool for the future of the virtual world. So far, this Article has focused on using the new virtual valuation tools offered by perceived value to argue why loot boxes should be regulated as a gambling activity and what such regulations might look like. But analyzing loot boxes is only one of many applications perceived virtual value can have in law and policy. The goal of this Part is not to exhaust the potential of perceived virtual value, but instead to start a scholarly conversation about the many effects it can have in the real and virtual world.

An opening consideration is from the perspective of an investor. If virtual worlds were classified merely as colorful, creative, and imag-

³⁹⁴ See, e.g., Haydn Taylor, *Parliamentary Committee Recommends Banning Loot Box Sales to Children*, GAMESINDUSTRY.BIZ (Sept. 11, 2019), <https://www.gamesindustry.biz/articles/2019-09-11-parliamentary-committee-recommends-banning-loot-box-sales-to-children> [https://perma.cc/5Q27-BKFZ] (reporting that the United Kingdom's Committee on Digital Culture, Media and Sport proposed a similar Pigouvian tax on developers to fund further research into the effects of loot boxes and its links to problem gambling behavior).

³⁹⁵ See, e.g., ALEX BŁASZCZYŃSKI, AUST. GAMING COUNCIL, HARM MINIMIZATION STRATEGIES IN GAMBLING: AN OVERVIEW OF INTERNATIONAL INITIATIVES & INTERVENTIONS 6–7 (2003), https://www.researchgate.net/publication/239548997_Harm_minimization_strategies_in_gambling_An_overview_of_international_initiatives_interventions [https://perma.cc/Q9WE-UTJV] (outlining dozens of regulatory interventions commonly employed to limit gambling activity).

³⁹⁶ See Abarbanel, *supra* note 318, at 234 (“The rapid evolution of technology vastly outpaces research and empirical evidence of its impacts . . .”).

³⁹⁷ See Michael Kirby, *The Fundamental Problem of Regulating Technology*, 5 INDIAN J.L. & TECH. 1, 13 (2009) (stating that doing nothing when confronting rapidly expanding emerging technologies is to make a decision).

inactive deposit boxes, the valuation of virtual goods would necessarily permeate all aspects of our financial lives. Might investors start parking money in these virtual worlds? This is incredibly unlikely given the EULAs currently in place. Virtual goods are not appreciating assets, but instead their value fluctuates on the whims of developers who can adjust their artificial scarcity with a few keystrokes.³⁹⁸ This Article argues that it is actually more likely that virtual goods would depreciate with time. While they do not degrade physically, new virtual goods, games, and updates constantly flood the virtual world so as not to make any virtual good particularly valuable, as is an investment holding. There are, of course, exceptions. *Star Citizen* is a video game that has made headlines for the millions of dollars it has raised from crowdfunding, with some contributors spending tens of thousands of dollars to buy expensive virtual spaceships.³⁹⁹ One of the most expensive virtual goods ever sold was an entire virtual planet for a reported \$6 million.⁴⁰⁰ But these investments are far too risky and offer little control to investors. At any point, developers could shutter the game or amend the virtual world in a way that renders the virtual goods within worthless. Further, there are only a minority of people buying such assets for investment purposes; rather, most big spenders are not investors seeking pecuniary gain, but gamers seeking virtual perceived value.⁴⁰¹

Another set of considerations relates to criminal law and other areas of law that seek to assign liability for wrongdoing. For example, popular video game marketplaces have already been exploited by criminals to launder their money through buying and exchanging virtual goods with and through other players.⁴⁰² Given that the unregulated space of virtual value in these games has become a haven for money laundering, it is not far-fetched to expect to see an expansion of this type of behavior. Could virtual assets become the new tax havens of the future? Could buying virtual assets be a new strategy for

³⁹⁸ See *supra* Section I.A.

³⁹⁹ See, e.g., Tyler Wilde, *Meet a Fan Who Has Spent \$30,000 on Star Citizen Ships*, PC-GAMER (Nov. 6, 2015), <https://www.pcgamer.com/meet-a-fan-who-has-spent-30000-on-star-citizen-ships/> [<https://perma.cc/9JYC-MA4V>] (interviewing man spending tens of thousands on virtual spaceships).

⁴⁰⁰ *Most Expensive Virtual Items in Video Games*, SUCCESSSTORY, <https://successstory.com/spendit/most-expensive-virtual-items-in-video-games> [<https://perma.cc/5G75-LNHE>] (documenting several expensive virtual purchases, including a virtual planet purchased for \$6 million).

⁴⁰¹ See, e.g., Walker, *supra* note 27; Wilde, *supra* note 399.

⁴⁰² See John Paul Kong, *In-Game Virtual Items as a Form of Criminal Money*, MONEYNESS (Nov. 28, 2019), jpkoning.blogspot.com/2019/11/in-game-virtual-items-as-form-of.html [<https://perma.cc/VST8-U2MY>].

people to hide assets and become judgment proof? Could virtual assets even become a part of an investment strategy in diversifying portfolios? All of these questions, hopefully, will not go unanswered in the future if regulators take the responsible approach in properly assessing virtual value not only as it relates to the real world, but also it relates to the virtual world.

Criminal law might have to expand as well to punish hackers who unlawfully access player accounts and steal virtual goods; not only could they be prosecuted for violating cybercrime laws, but also for violating laws that protect personal property.⁴⁰³ And the difference between theft and grand theft of virtual goods might be determined based on the real-world value of the goods on a primary or secondary market. Torts such as conversion and intentional infliction of emotional distress might also serve as appropriate remedies given the psychological distress that could be caused by the perceived value of virtual goods. These expansions into criminal and tort law are not particularly worrying.

Although adding even more potential charges—like that of virtual burglary and/or hacking—to existing criminal acts is troubling, it might be most appropriate if the penalty for virtual burglary was a fine or another penalty of a restorative nature to ensure that the victim recovered the virtual good or its commensurate real-money's worth. In addition, these added methods of accountability might serve to deter some cybercriminals if their crimes would be subject to these additional penalties. This would undoubtedly require yet another partnership between government and industry, with game developers assisting in law enforcement investigations of such crimes. Not all developers will be so willing,⁴⁰⁴ but cooperation with law enforcement in most cases will help developers' bottom line by keeping their law-abiding virtual citizens happy and their accounts safe.

The law of debtors might also need to grapple with virtual valuation if virtual goods were to be considered assets of an estate. Bankruptcy courts would have to value virtual assets in personal bankruptcy cases and how to best divide these assets to repay credi-

⁴⁰³ See generally Lastowka & Hunter, *supra* note 50 (acknowledging the contrast between holding cybercriminals accountable under hacking laws, and applying traditional criminal laws against virtual persons).

⁴⁰⁴ For example, companies may assert privacy protections to resist cooperating with law enforcement. See, e.g., Arjun Kharpal, *Apple vs FBI: All You Need to Know*, CNBC (Mar. 29, 2016, 10:54 AM), <https://www.cnbc.com/2016/03/29/apple-vs-fbi-all-you-need-to-know.html> [<https://perma.cc/N7QR-Z2RW>] (detailing Apple's refusal to help unlock iPhones connected with criminal activity).

tors. And on the other side of bankruptcy, if a developer filed for bankruptcy and wished to wind down their business, a court might have to take control and manage their virtual world because the developer would have fiduciary duties to protect and maintain virtual assets under its care.⁴⁰⁵ Family law courts might have to start considering virtual assets when determining terms of separation, alimony payments, and child support.⁴⁰⁶ These family law considerations would also implicate wills and trusts in passing on virtual assets of value to the next generation. Even the perceived value of virtual family heirlooms could be in play.

Government benefits may also be affected if virtual wealth offsets real-world poverty. For students applying for need-based government loans, valuable virtual goods that would count toward their total net worth could affect their eligibility. The same might be true for other need-based government programs, such as welfare.

From a value theory perspective, none of these potential expansions of how the real-world processes value is problematic for perceived virtual value. Real-world parties and institutions would only be concerned with assessing real-world value because they would only be concerned with determining real-world wealth to count or divide assets, or to determine eligibility for programs. Consequently, many of these real-world considerations are irrelevant to the perceived value of virtual goods. Real-world markets will continue to determine the real-world value of virtual goods; perceived virtual value will continue to determine the virtual value of virtual goods. The two value constructs are not related and do not overlap, so accounting for perceived virtual value is unlikely to create unintended consequences in the real world.

This is not to say that perceived virtual value would have a small impact on the real world; rather, it would have a large impact in any situation in which emotional or psychological attachments to assets are being considered. If a virtual good is stolen or damaged, the emotional or psychological damage caused can be measured in part and justified by perceived virtual value. Perceived virtual value could also play a role as a negotiation strategy. Debtors might have tremendous emotional, social, and other valuable attachments to a car, a house, or

⁴⁰⁵ See Balkin, *supra* note 47, at 96 (contemplating bankruptcy of virtual world game developers).

⁴⁰⁶ See Bradley & Froomkin, *supra* note 49, at 232–39 (briefly exploring transplanting legal rules into the virtual world from disciplines of property, tax, transactions, family law, administrative law to name a few).

a family heirloom. The same might be true in the family court context or in the division of an estate. These proceedings are always subject to negotiation with adverse parties; if the adverse party agrees to leave certain assets alone, that is their right to forfeit. So too should this be true for the perceived value that some may have in virtual goods. However, strategic parties could also target virtual goods that have significant virtual value in order to sway negotiations and pressure concessions in other parts of the estate.

Switching back to real-world value, a more robust treatment of virtual goods in the real world should not bring burdensome change. First, it is unlikely that any court or institution would count virtual goods as part of a portfolio of assets because of the question of ownership. EULAs prevent players from owning these virtual goods, and any unauthorized sale or transfer of these virtual goods is a violation of this private contract.⁴⁰⁷ From a legal perspective, few if any institutions would force players to liquidate or be held responsible for the value of such assets if they have no ownership, or if such a liquidation ordered by the court would in turn violate a valid contract.

Second, even if the future birthed a quasi-ownership regime for virtual goods, there is little reason to treat virtual goods differently from real-world goods. As virtual goods become more commodified, players benefit. They would be able to sell their coveted virtual goods in primary and secondary marketplaces if they wanted extra income or needed it on a rainy day. These virtual goods need not be taxed on an ongoing basis, other than perhaps sales tax at the point of acquisition, which is like most chattel properties. And like chattel properties, they might only be taxed upon resale because they generated an income over a *de minimus* amount.⁴⁰⁸ In addition, chattel properties can be divided as assets according to their resale value in divorce proceedings, but are usually not taken into account when determining things like child support and alimony, which is income-based.⁴⁰⁹ Virtual goods would be treated similarly in other income-based assessments,

⁴⁰⁷ See Lehdonvirta & CASTRONOVA, *supra* note 60, at 76 (describing ownership limitations in EULAs).

⁴⁰⁸ See *supra* notes 119–23 and accompanying text.

⁴⁰⁹ See Ira M. Ellman & Sanford L. Braver, *Lay Intuitions About Child Support and Marital Status*, 23 CHILD & FAM. L.Q. 465, 468–69 (2011) (explaining framework of determining child support and alimony based, in part, on income); Kelly Frawley & Emily Pollock, *Alimony and Child Support: What Judges Consider About Your Income*, FORBES (Apr. 30, 2019, 2:27 PM), <https://www.forbes.com/sites/frawleypollock/2019/04/30/alimony-and-child-support-what-judges-consider-about-your-income/> [<https://perma.cc/5YXK-LHFB>] (providing overview of income subject to most states' child support and alimony decisions).

such as eligibility for loans, social services, and unemployment; regardless of chattel holdings, these need-based programs do not require families to sell everything they have as an exhaustion requirement to become eligible for government programs.

Fundamentally, these concerns of expanding virtual value primarily question effects on real-world wealth based on the assessments of real-world institutions and interests but do little to undermine the importance of virtual perceived value. Nevertheless, these questions are interesting thought projects that should be explored by a new renaissance of virtual law scholars studying tax, property, constitutional, criminal, technology, and a whole host of other implications for the next generation.

CONCLUSION

It's inevitable: soon we will all be gamers.

—Rob Fahey⁴¹⁰

Soon, we will all hold virtual goods and value them according to our preferences. The impact of virtual worlds is growing and is beginning to overlap with many aspects of our lives.⁴¹¹ This Article ushers in a new and unique inquiry in legal scholarship, building on the study of virtual worlds to apply a new concept of perceived virtual value and its psychological importance when thinking about the impact that virtual goods have in the real world. When applied to the emerging trend of loot boxes, this Article has shown that the perceived virtual value of loot box rewards drives players to take on the same risks and creates the same negative externalities as the gambling industry it mimics. Because antiquated state gambling laws do not credit how perceived virtual value drives consumer behavior in virtual worlds, they have failed to keep pace with the emerging monetization scheme of loot boxes that so closely resembles an unregulated form of virtual gambling. By further exploring regulatory tools that update best practices from gambling regulation to apply in the virtual worlds, this Article shows that solving the problem of loot boxes and assessing the future impact of the perceived value of virtual goods is a game that everyone can win.

⁴¹⁰ MCGONIGAL, *supra* note 9, at 12 (quoting Rob Fahey, *It's Inevitable: Soon We Will All Be Gamers*, SUNDAY TIMES (July 7, 2008, 1:00 AM), <https://www.thetimes.co.uk/article/its-inevitable-soon-we-will-all-be-gamers-sn0v2p5lfc7> [<https://perma.cc/22VH-6DZP>]).

⁴¹¹ *See id.* at 125 (recognizing numerous overlaps between real and virtual worlds).