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## VIRTUAL WORLDS, REAL RULES

CAROLINE BRADLEY\* & A. MICHAEL FROOMKIN†

In virtual worlds such as Ultima Online and Everquest, the Internet may accidentally provide an environment that lends itself well to the testing of legal rules.

A growing literature suggests that there is a relationship between certain legal rules and economic well-being.<sup>1</sup> Indeed, data about the economic consequences of such rules would enormously enrich debates over economic regulation. Unfortunately, in the real world, experimenting with legal rules can be costly and risky. Some scholars of comparative law attempt to draw lessons by comparing the diverse experiences of different countries,<sup>2</sup> but these efforts too often fall prey to errors of cultural, not to mention legal, translation.<sup>3</sup>

Virtual worlds could permit experiments without the real world costs of bad rules or regulatory competition. Existing role-playing games tend to include internal market regulations that resemble those seen in Western capitalist economies. Such regulations could be changed, or different versions of the game might use different variants of particular rules. Online role playing games

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1. On the relationship between finance and growth, see, for example, ROSS LEVINE, *FINANCE AND GROWTH: THEORY AND EVIDENCE* (National Bureau of Econ. Research, Working Paper No. 10766, Sept. 2004), available at <http://papers.nber.org/papers/w10766.pdf>. For a discussion of the importance of law to finance see, for example, Stephen J. Choi, *Law, Finance, and Path Dependence: Developing Strong Securities Markets*, 80 TEX. L. REV. 1657 (2002).

2. See, e.g., HIDEKI KANDA & CURTIS J. MILHAUPT, *RE-EXAMINING LEGAL TRANSPLANTS: THE DIRECTOR'S FIDUCIARY DUTY IN JAPANESE CORPORATE LAW* (Columbia Law School Center for Law and Economic Studies, Working Paper No. 219, Mar. 2003), available at <http://www2.law.columbia.edu/law-economicstudies/papers/WP219.pdf>.

3. See Caroline Bradley, *Transatlantic Misunderstandings: Corporate Law and Societies*, 53 U. MIAMI L. REV. 269 (1999).

would provide better data than economic models because games can be designed to reduce the number of assumptions involved. Moreover, game participants are likely to care more about outcomes than participants in laboratory based experiments, if only because resource constraints force laboratory testing to be conducted for low stakes.

This article considers the extent to which massively multi-player online role playing games (hereinafter, "MMORPGs" or "virtual worlds") might be designed to allow the testing of legal rules. The increasing popularity of online role playing games such as Ultima Online and other virtual worlds has prompted a wave of articles discussing the legal relationships among players and player-characters within the games and between gamers and game owners. Several commentators also address the extent to which relationships within games might interact in legally significant ways with relationships in "meat space."<sup>4</sup> This article takes a different tack from that burgeoning literature. Rather than examine legal relationships within or arising from existing games, we discuss whether this dynamic new ludic phenomenon might be harnessed to solve a long-running, and (we argue) worsening problem in the design of legal rules — the barriers to experimentation.

Legal rules are extraordinarily difficult and expensive to test in the field.<sup>5</sup> There are no such things as controlled conditions. Despite the saying that states are little laboratories of democracy,<sup>6</sup> the reality is that any real life experimentation happens slowly, in real time, and runs the risk that real costs may fall entirely on the innocent if something goes wrong. Despite these risks, countries frequently experiment with new rules, and the development of legal institutions over time involves significant expenditures. Accordingly, legislatures, law reform commissions, agencies, committees, and consultants must be provided with the resources to carry out

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4. "Meat space" is what is commonly regarded as the "real world."

5. See generally, Symposium, *Empirical and Experimental Methods in Law*, 2002 U. ILL. L. REV. 791.

6. Justice Brandeis actually said, "It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country." *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting). As Justice Brandeis well understood, even if the rest of the nation was insulated from risk, the experimenters were not.

their functions. Bad choices, however, involve further expense if a new rule fails to achieve its objectives or imposes excessive costs on the regulated economies or on bystanders. Therefore, better information about the economic consequences of rules would enormously enrich debates over economic regulation.

In this very preliminary effort we do not seek to define the precise conditions for a suitably controlled online experiment, nor is it our goal to identify specific legal rules that are ideally suited for testing. Rather, we have three modest objectives. First, to make the case that a test bed for legal rules would be useful at any time, and is increasingly necessary as legal harmonization marches on. Secondly, to suggest that online games might serve as a superior platform on which to test legal rules. We conclude with some schematic thoughts as to what types of rules might lend themselves to this sort of testing and which do not.

## I. INTRODUCTION: THE SEARCH FOR BETTER RULES

There is little debate that legal rules affect the quality of life, and that many rules affect economic success.<sup>7</sup> Bad rules can contribute to inefficiency; very bad rules enable or enforce waste or even tyranny. Good rules promote economic and social well-being, although too much of a good thing may have its own costs. The creation of good rules, and the improvement of existing ones, are agreed to be important objectives for policymakers, academics, and indeed, for everyone. Of course, when people disagree about fundamentals of social policy, the debate as to what is a good rule is primarily a debate between competing objectives. But even when people agree as to the basic objective that a particular law should serve, there can be great uncertainty and fierce debate as to what type of rule works best to achieve that goal.

For example, a growing literature suggests that, for any particular country, economic growth depends on the availability of capital.<sup>8</sup> Sophisticated financial systems underpinned by particular

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7. See, e.g., HERNANDO DE SOTO, *THE MYSTERY OF CAPITAL* (2000); Richard A. Posner, *Creating a Legal Framework for Economic Development*, 13 *WORLD BANK RESEARCH OBSERVER* 1 (1998), available at <http://www.worldbank.org/research/journals/wbro/obsfeb98/pdf/article1.pdf>.

8. See, e.g., DE SOTO, *supra* note 7, at 5 (“[T]he major stumbling block that keeps the rest of the world from benefiting from capitalism is its inability to produce capital.

legal rules generate capital by attracting investment.<sup>9</sup> Financial systems are constituted by a range of different types of rules from property<sup>10</sup> and contract law, through corporate law and financial regulation. These foundational rules that facilitate transactions and promote investor confidence have evolved differently in different countries over centuries.<sup>11</sup> Some economies are more successful than others, however, raising the possibility that some rules work better than others, and further, that transplanting those rules to less successful economies might promote economic success.

In the absence of reliable information as to what works best, national regulators face a bewildering set of conflicting pressures when designing legal rules. For example, globalization and technological development encourage transnational transactions.<sup>12</sup> Conversely, foreign (and even domestic) national regulatory schemes

Capital is . . . the lifeblood of the capitalist system, the foundation of progress, and the one thing that the poor countries of the world cannot seem to produce for themselves.”).

9. See, e.g., RUSSIAN CORPORATE GOVERNANCE ROUNDTABLE, WHITE PAPER ON CORPORATE GOVERNANCE IN RUSSIA 6 (2002), available at <http://www.oecd.org/dataoecd/10/3/2789982.pdf> (“During the last decade, policy makers, regulators and market participants around the world have increasingly come to emphasise [*sic*] the need to develop good corporate governance practices. The reason for this is an increasing amount of empirical evidence showing that good corporate governance facilitates corporate access to capital markets, improves investor’s confidence and contributes to corporate competitiveness. From this perspective, considerable effort at the national and international level has been invested to promote and assist efforts to improve corporate governance.”).

10. De Soto argues that Western capitalism depends on the “representational process” which allows assets to “lead an invisible, parallel life alongside their material existence.” DE SOTO, *supra* note 7, at 6. See also, e.g., Gerald P. O’Driscoll Jr. & Lee Hoskins, *Property Rights: The Key to Economic Development*, POLICY ANALYSIS No. 482, Aug. 7, 2003, available at <http://www.cato.org/pubs/pas/pa482.pdf>.

11. See, e.g., ANTHONY OGUS, *COMPARING REGULATORY SYSTEMS: INSTITUTIONS, PROCESSES AND LEGAL FORMS IN INDUSTRIALISED COUNTRIES* (Centre on Regulation and Competition Working Paper Series, Paper No. 35, Dec. 2002), available at <http://idpm.man.ac.uk/crc/wpdl149/wp35.pdf>. De Soto suggests that one difficulty in achieving the transition to capitalism is that Western capitalist nations which have achieved this transition do not have a clear recipe for transition. DE SOTO, *supra* note 7, at 164 (“As successful as those nations have been, they were not always conscious of what they were doing and left behind no clear blueprint.”).

12. See, e.g., Bernhard Grossfeld, *Global Accounting: Where Internet Meets Geography*, 48 AM. J. COMP. L. 261, 263-64 (2000) (“The globalization of communication networks creates a kind of instant knowledge of everything, opens new means of implicit cooperation through markets, and is crucial for the globalization of economic flows. Globalized financial information makes it inexpensive and easy to effect share transactions abroad.

may impede them.<sup>13</sup> Meanwhile, global or regional agreements to promote free trade in goods and services undermine the ability of nations to impose their own rules.<sup>14</sup> International institutions argue that harmonization of standards protects economic stability.<sup>15</sup> Academics offer policymakers equally conflicting advice.<sup>16</sup> Some advocates of free trade in goods and services argue for harmonization of legal rules in order to facilitate free trade and reduce regulatory arbitrage.<sup>17</sup> Others argue that markets, rather than bureaucrats, can produce the most efficient legal rules.<sup>18</sup> Unfortunately, in the real world, experimenting with legal rules can be costly and risky.

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Therefore, financial transactions take on an increasingly global character.” (footnotes omitted)).

13. See, e.g., Stephen Shaffer, *Reconciling Trade and Regulatory Goals: The Prospects and Limits of New Approaches to Transatlantic Governance Through Mutual Recognition and Safe Harbor Agreements*, 9 COLUM. J. EUR. L. 29, 31 (2002) (“[T]he challenge confronting political leaders is to reduce redundant regulatory barriers to trade, where possible, without sacrificing democratic choice regarding the appropriate allocation of risks and the appropriate strategies for addressing them.”).

14. See, e.g., Jonathan R. Macey, *Regulatory Globalization as a Response to Regulatory Competition*, 52 EMORY L.J. 1353, 1362 (2003) (arguing that financial regulators have been “forced to engage in the power sharing (and concomitant power reduction) that occurs during the process of regulatory globalization”).

15. See, e.g., BASLE COMMITTEE ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS, A REVISED FRAMEWORK 2 (Bank for Int’l Settlements, 2004), available at <http://www.bis.org/publ/bcbs107a.pdf> (“The fundamental objective of the Committee’s work to revise the 1988 Accord has been to develop a framework that would further strengthen the soundness and stability of the international banking system while maintaining sufficient consistency that capital adequacy regulation will not be a significant source of competitive inequality among internationally active banks. The Committee believes that the revised Framework will promote the adoption of stronger risk management practices by the banking industry, and views this as one of its major benefits.”).

16. Contrast, for example, John C. Coates IV, *Private vs. Political Choice of Securities Regulation: A Political Cost/Benefit Analysis*, 41 VA. J. INT’L L. 531, 582 (2001) (arguing that financial industry interests may benefit from regulatory harmonization), with Stephen J. Choi & Andrew T. Guzman, *Portable Reciprocity: Rethinking the International Reach of Securities Regulation*, 71 S. CAL. L. REV. 903 (1998) (suggesting that issuers of securities should be allowed to choose what legal rules apply to them as a means of encouraging regulatory competition).

17. See, e.g., Grossfeld, *supra* note 12, at 273 (“The diversity of accounting standards does not fit into the concept of global corporate players on global corporate markets.”).

18. See, e.g., Stephen Choi, *Promoting Issuer Choice in Securities Regulation*, 41 VA. J. INT’L L. 815 (2001).

Similar conflicts occur on a smaller scale for many purely, or primarily, domestic rules. Traditional approaches to the design of legal rules include what one might call the experimental method, the social-scientific method, and the comparativist method. In theory at least, these approaches are broadly complementary rather than exclusive. Consider, for example, how each approach might deal with the design of a rule intended to prevent littering. The experimental method consists of writing a rule, perhaps one based on existing formal or informal rules for similar problems,<sup>19</sup> trying it for some time, and then altering it in light of experience. Thus, a rule to control littering might draw from the law of nuisances and impose fines for improper trash disposal. The social-scientific method begins by designing a rule thought to conform with one or more theories of human behavior. An antipollution statute informed by economic thinking might seek to internalize externalities by creating a market for trash or for the cleanup of trash. A similar statute informed primarily by psychological theories might regulate the design of public wastebaskets to make them pleasing to use, or would create a public anti-littering campaign to shame litterers into compliance with a social norm. A comparativist approach would seek to learn how other jurisdictions address the littering problem, with an eye to adapting — or adopting — a rule that has worked elsewhere.<sup>20</sup>

While each of these approaches has virtues, all have vices. The experimental method takes time, and for serious problems, a flawed rule is potentially costly in both lives and treasure. In addition, there is the danger of path-dependence and entrenchment. In a democratic system, the implementation of a flawed rule (“Version 1.0”) may create winners as well as losers, and those winners may be loath to give up their personal advantage for the sake of the

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19. For example, the UCC was based in part on existing customs of merchants. See, e.g., Posner, *supra* note 7, at 6.

20. Cf. FREDERICK SCHAUER, THE POLITICS AND INCENTIVES OF LEGAL TRANSPLANTATION 3 (CID Working Paper No. 44, Ctr. For Int'l Dev. at Harvard Univ., Apr. 2000), available at <http://www2.cid.harvard.edu/cidwp/044.pdf> (“[N]ations, especially new and transforming nations, may believe that indigenous law-making is an important marker of a successful transformation, and as a consequence may choose to reject extra-national influence, even under circumstances in which the extra-national influence is perceived to be valuable and well-meaning, in favour of ‘doing it themselves,’ even if that means doing it less well.”).

commonweal. If the benefit of an improved rule — Version 2.0 — is widely dispersed, but the advantages of Version 1.0 are more closely held, the initial beneficiaries may have both the incentives and the means to lobby against what might be a Kaldor-Hicks improvement<sup>21</sup> but not Pareto-superior<sup>22</sup> move, even if Version 2.0 would have been Pareto-superior to the status quo ante.

The social-scientific method suffers from the clashes between disciplines (is littering an economic, a psychological, a health, or a moral problem?) and within them — for example, economists disagree about how one should value the freedom to litter and the aesthetic value of litter-free streets, parks, and vistas.

It would seem that the comparative method has much to recommend it, at least as a complement to other approaches. Why not free ride on the experience of others?<sup>23</sup> Ideally, one might learn what works or, at least, learn what to avoid.<sup>24</sup>

One of the apparent advantages of borrowing a foreign legal rule is that there are data about the effects of the rules in the country of origin. Unfortunately, there may be many difficulties in finding and interpreting relevant data. In particular, those seeking to transplant a foreign rule may lack information about crucial characteristics of the rule's context — information which would affect how the rule would function when transplanted. For example, legal rules that require people to comply with standards of good faith and fair dealing or due care assume it is possible to identify relevant community standards, but even if there are relevant community standards, they may vary from place to place. For this reason, some commentators suggest that definite rules may be easier to transplant than vague standards because bright line rules are easier to

21. Named for Nicolas Kaldor and John Hicks, the Kaldor-Hicks improvement is "any alternative that increases the economic value of social resources." *Kaldor-Hicks efficiency*, WIKIPEDIA at [http://en.wikipedia.org/wiki/Kaldor-Hicks\\_efficiency](http://en.wikipedia.org/wiki/Kaldor-Hicks_efficiency).

22. A Pareto-superior move is one that makes at least one individual better off without making any other individual worse off. *Pareto efficiency*, WIKIPEDIA at [http://en.wikipedia.org/wiki/Pareto\\_efficiency](http://en.wikipedia.org/wiki/Pareto_efficiency).

23. See, e.g., ALAN WATSON, LEGAL TRANSPLANTS 7 (1974) ("[I]n the Western world borrowing (with adaptation) has been the usual way of legal development.").

24. Although WATSON, *supra* note 23, at 17, suggests that a rule which works badly in its original home may work well elsewhere.



administer, and will work whether or not appropriate community standards exist.<sup>25</sup>

Institutions matter,<sup>26</sup> and the institutional context for rules affects how they operate in the world.<sup>27</sup> Rules evolved in developed economies with highly developed institutions may not transplant well to developing economies with a substantial informal public sector.<sup>28</sup> Many comparative lawyers argue that these variations in legal culture make the transplantation of legal rules problematic.<sup>29</sup> A strong statement of this view would be that legal transplants are impossible.<sup>30</sup>

Moreover, the effects of a rule requiring people to comply with standards of good faith and fair dealing will differ depending on variables such as the extent to which informal social mechanisms<sup>31</sup> or the discipline of the market<sup>32</sup> constrain behavior. In some circumstances social networks or markets may enforce higher standards of behavior than legal rules.<sup>33</sup> Accordingly, focusing on a

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25. See, e.g., Posner, *supra* note 7, at 45.

26. See, e.g., DOUGLASS C. NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE AND ECONOMIC PERFORMANCE 10 (1990).

27. See, e.g., Pierre Legrand, *European Legal Systems are Not Converging*, 45 INT'L & COMP. L. Q. 52, 56 (1996) "[R]ules are pernicious to the extent that they present but a surface image of a legal system."

28. See, e.g., Allen Schick, *Why Most Developing Countries Should Not Try New Zealand Reforms*, 13 WORLD BANK RESEARCH OBSERVER 123 (1998), available at <http://www.worldbank.org/research/journals/wbro/obsfeb98/pdf/article7.pdf>.

29. See, e.g., Daniel Berkowitz, et al., *The Transplant Effect*, 51 AM. J. COMP. L. 163, 171 (2003) ("[T]he social, economic and institutional context often differs remarkably between origin and transplant country, creating fundamentally different conditions for effectuating the imported legal order in the latter. Transplant countries therefore are likely to suffer from the transplant effect, i.e. the mismatch between preexisting conditions and institutions and transplanted law, which weakens the effectiveness of the imported legal order.")

30. See, e.g., Legrand, *supra* note 27; Pierre Legrand, *What "Legal Transplants?"*, in ADAPTING LEGAL CULTURES 55 (David Nelken & Johannes Feest, eds., 2001).

31. See, e.g., BARAK D. RICHMAN, COMMUNITY ENFORCEMENT OF INFORMAL CONTRACTS: JEWISH DIAMOND MERCHANTS IN NEW YORK (Harvard John M. Olin Ctr. for Law, Econ., & Bus., Discussion Paper No. 384, 2002), available at [http://www.law.harvard.edu/programs/olin\\_center/papers/pdf/384.pdf](http://www.law.harvard.edu/programs/olin_center/papers/pdf/384.pdf).

32. See, e.g., Douglas W. Diamond, *Reputation Acquisition in Debt Markets*, 97 J. POL. ECON. 828 (1989).

33. This is a common justification for self-regulation. See, e.g., SRO CONSULTATIVE COMM., INT'L ORG. OF SECS. COMM'NS, MODEL FOR EFFECTIVE REGULATION 5 (2000), available at <http://www.iosco.org/library/pubdocs/pdf/ioscopd110.pdf> ("Incorporating self-regulation into the regulatory framework will result in better regulation because

single legal rule, isolated from a broader context which includes social and market constraints on behavior, risks simplistic conclusions.

Nevertheless, sometimes it is necessary to simplify to make a problem manageable. Even if one were to focus on legal rules without trying to model the greater social and economic context in which they operate, the means by which a law is enforced will affect its actual operation. Returning to our example, the effect of requiring compliance with standards of good faith and fair dealing will differ depending on the legal mechanisms for enforcing compliance with those standards. The risk of litigation will only act as a deterrent if people who are harmed by bad faith and unfair dealing have effective access to the courts to obtain a remedy. Effective access to the courts depends on factors such as the jurisdictional rules controlling acceptance of cases, arrangements for funding litigation, judicial attitudes about the desirability of hearing particular types of cases (e.g., are the judges concerned about opening flood-gates), the ways in which judges are appointed,<sup>34</sup> the extent of judicial corruption, and the training of lawyers. As an example, there is a substantial degree of similarity between the substantive rules of corporate law in Britain and many states in the United States, yet there is much less litigation about corporate law in Britain than in the United States.<sup>35</sup> Specifically, standards of behavior for corporate directors are less likely to be enforced through private litigation in Britain than in the United States. On the other hand, governmental authorities play an important role in disciplining cor-

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the statutory regulator's statute and rules are supplemented and enforced by those entities directly involved in the regulated activity, which will have more detailed knowledge of the operational or technical aspects of the activity. Additionally, self-regulation may result in better compliance with rules because it may be more easily accepted by the regulated parties.").

34. See, e.g., DEPARTMENT FOR CONSTITUTIONAL AFFAIRS, CONSTITUTIONAL REFORM: A NEW WAY OF APPOINTING JUDGES (2003), available at <http://www.lcd.gov.uk/consult/jacommission/index.htm>.

35. See, e.g., Geoffrey Miller, *Political Structure and Corporate Governance: Some Points of Contrast Between the United States and England*, 1998 COLUM. BUS. L. REV. 51. On comparisons between corporate law in the United States and Britain, see, for example, Bradley, *supra* note 3.

porate directors in Britain.<sup>36</sup> Different systems may allocate enforcement functions to private or to public entities.

Identifying optimal rules for economic success remains problematic. Individual rules exist in particular institutional and cultural contexts that are bound to affect how they operate.<sup>37</sup> Rules of contract law may work differently in different social contexts with different enforcement mechanisms.<sup>38</sup> There may not be a globally optimal rule for some issues as certain rules might work better in different contexts.<sup>39</sup> The idea that the context of rules matters has two sets of implications. First, scholars may attribute the success of a particular rule to the rule itself when in fact it is something outside the rule that has beneficial effects. Second, even if a rule is successful in one context, it might have different effects if transplanted to a new one.<sup>40</sup>

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36. See, e.g., Caroline Bradley, *Enterprise and Entrepreneurship: The Impact of Director Disqualification*, 1 J. OF CORP. L. STUD. 53 (2001) (suggesting that the United States relies on private monitoring of corporate directors whereas public authorities in the United Kingdom are more actively involved in disciplining directors through the director disqualification statute). Since the Enron scandal, the SEC has discovered a new interest in barring people from acting as directors of public corporations.

37. Cf. W.S. Holdsworth, *Case Law*, 50 L. Q. REV. 180, 195 (1934) ("The imitation of foreign examples . . . may result in changing the inconveniences which they know of for the greater inconveniences from which the virtues of our own laws and institutions have saved us."); Percy H. Winfield, *Law Reform*, 44 L. Q. REV. 289, 303 (1928) ("[I]t does not follow that, because the law about cheques works well in England, Germany should instantly adopt the same rules. Each legal rule must be considered in relation to its national surroundings.").

38. See, e.g., Paul Collier & Jan Willem Gunning, *Why has Africa Grown Slowly?*, 13 J. ECON. PERSP. 3, 11 (1999) ("The problem of contract enforcement thus makes markets less competitive and reduces the potential gains from trade, while tending to perpetuate the dominant position of minorities in business.").

39. See, e.g., Ugo Mattei & Alberto Monti, *Comparative Law and Economics: Borrowing and Resistance*, 1 GLOBAL JURIST FRONTIERS 5 (2001) ("Different legal traditions may develop alternative solutions for the same legal problem that are neutral from the standpoint of efficiency. In other words, the same legal rule may be efficient or inefficient depending on the institutional background it refers to and different legal rules may all turn out to be efficient when located in different institutional frameworks.").

40. Watson recognizes that transplanted rules may work differently in different places. Alan Watson, *Legal Transplants and European Private Law*, 4.4 ELECTRONIC J. COMP. L. (Dec. 2000), at <http://www.ejcl.org/44/art44-2.html> ("[F]rom early days I have argued that a rule once transplanted is different in its new home."); WATSON, *supra* note 23, at 5 ("[E]xcept where the systems are closely related the differences in legal values may be so extreme as to render virtually meaningless the discovery that systems have the same or a different rule.").

Therefore, if policymakers are going to change rules based on some idea that new rules will promote economic success it would be useful to be able to identify how and why rules work, and to explore how to carry out successful transplantations.<sup>41</sup>

Governments and international organizations now<sup>42</sup> accept that good governance is essential for economic success<sup>43</sup> and stability.<sup>44</sup> Good governance includes a range of different legal rules.<sup>45</sup>

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41. See KANDA & MILHAUPT, *supra* note 2, at 5 (“[T]here is little agreement among scholars on transplant feasibility and the conditions for successful transplants, or even how to define ‘success.’ Moreover, there is little analysis of how the success or failure of legal transplants relates to the achievement of larger goals, such as economic development.”).

42. See, e.g., Daniel Kaufmann, *Rethinking Governance, Empirical Lessons Challenge Orthodoxy*, (2003) (discussion draft) available at [http://www.worldbank.org/wbi/governance/pdf/rethink\\_gov\\_stanford.pdf](http://www.worldbank.org/wbi/governance/pdf/rethink_gov_stanford.pdf) (“Less than a decade ago, governance issues did not figure prominently in the agenda of international financial and development institutions.”).

43. See, e.g., UNITED NATIONS DEVELOPMENT PROGRAMME, HUMAN DEVELOPMENT REPORT 16 (2003), available at [http://www.undp.org/hdr2003/pdf/hdr03\\_complete.pdf](http://www.undp.org/hdr2003/pdf/hdr03_complete.pdf) (“There are many reasons economic development continues to bypass many of the world’s poorest people and places. One common reason is poor governance. When governments are corrupt, incompetent or unaccountable to their citizens, national economies falter. When income inequality is very high, rich people often control the political system and simply neglect poor people, forestalling broadly based development. Similarly, if governments fail to invest adequately in the health and education of their people, economic growth will eventually peter out because of an insufficient number of healthy, skilled workers. Without sound governance — in terms of economic policies, human rights, well-functioning institutions and democratic political participation — no country with low human development can expect long-term success in its development efforts or expanded support from donor countries.”); The Hon. Alexander Downer, MP, Minister for Foreign Affairs, Australia, Speech at the launch of the Economic Analytical Unit report *Changing Corporate Asia: What Business Needs to Know*, Sydney (Mar. 7, 2002), at [http://www.foreignminister.gov.au/speeches/2002/020307\\_fa\\_chnge\\_corp\\_asia.html](http://www.foreignminister.gov.au/speeches/2002/020307_fa_chnge_corp_asia.html) (“A rules-based business environment is essential for market economies to develop and grow. Shareholders, creditors, investors, input suppliers and consumers need to feel safe doing business with people they don’t know. The markets they create will ensure savings go to the best investments, maximising growth and living standards.”).

44. See, e.g., Kaufmann, *supra* note 42, at 4 (“The concern has ceased to be merely one of an economic nature, or one of altruism: failure to address such acute forms of misgovernance within a broad developmental framework is likely to further increase the likelihood of cross-national security threats in the future.”).

45. See, e.g., INT’L MONETARY FUND, GOOD GOVERNANCE, THE IMF’S ROLE (1997), available at <http://www.imf.org/external/pubs/ft/exrp/govern/govern.pdf>. For the International Monetary Fund (“IMF”), “reforms of market mechanisms would focus primarily on the exchange, trade, and price systems, and aspects of the financial system. In the regulatory and legal areas, IMF advice would focus on taxation, banking sector

Some studies examine governance broadly at the macro level across a wide range of countries. Kaufmann, Kraay, and Mastruzzi establish six different "governance indicators,"<sup>46</sup> focusing on "Voice and Accountability," "Political Stability and Absence of Violence," "Government Effectiveness," "Regulatory Quality," "Rule of Law," and "Control of Corruption."<sup>47</sup> The definitions of these indicators are rather vague and rely on subjective assessments rather than on objective data. For example, "Rule of Law" is "the extent to which agents have confidence in and abide by the rules of society."<sup>48</sup> A large number of entities now participate in producing governance ratings which are used in comparative governance studies,<sup>49</sup> and these ratings may also be used to implement lending policies.<sup>50</sup> As a result, countries that want to attract loans and investments have an incentive to change their rules to improve their governance rat-

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laws and regulations, and the establishment of free and fair market entry (e.g., tax codes and commercial and central bank laws). In other areas, however, where the IMF does not have a comparative advantage (e.g., public enterprise reform, civil service reform, property rights, contract enforcement, and procurement practices), the IMF would continue to rely on the expertise of other institutions, especially the World Bank. But, consistent with past practice, policies and reforms in these areas could, as appropriate, be part of the IMF staff's policy discussions and conditionality for the IMF's financial support where those measures were necessary for the achievement of program objectives." *Id.* at 4.

46. They define governance as "the traditions and institutions by which authority in a country is exercised." DANIEL KAUFMANN ET AL., *GOVERNANCE MATTERS III: GOVERNANCE INDICATORS FOR 1996-2002* 2 (June 30, 2003), available at <http://www.worldbank.org/wbi/governance/pdf/govmatters3.pdf>.

47. *Id.* at 3-4.

48. *Id.* at 4. The paper states that: "These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. Together, these indicators measure the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions, and importantly, the extent to which property rights are protected." *Id.* The paper does note the subjectivity of the assessments but states that in many cases it would be impossible to obtain objective data. *Id.* at 19-23.

49. See, e.g., *id.* at 4-7 (describing use of sources).

50. The Millennium Challenge Corporation is the result of a US proposal to channel funds to countries that "govern justly, invest in their people and encourage economic freedom." See, e.g., Colin L Powell, *Aid for the Enterprising*, WASHINGTON POST, June 10, 2003, at A21; Steve Radelet, *Will the Millennium Challenge Account Be Different?*, 26 WASHINGTON Q. 171 (2003). KAUFMANN ET AL., *supra* note 46, at 25, say that "the substantial margins of error associated with governance estimates mean that it is difficult to assign many countries to a definitive performance category according to their estimated level of governance."

ings, although they may not in fact find it easy to implement rule changes, or to persuade observers that changes are real,<sup>51</sup> or that they will persist over time.<sup>52</sup>

A growing academic literature seeks to identify which rules are most conducive to economic growth by examining differences between national rules. Rather than looking at governance indicators, some studies focus more narrowly on regulation,<sup>53</sup> or on particular areas of law such as corporate law and governance or property rights. Based on these comparisons, some scholars have suggested that rules of corporate law may have a significant impact on the success of a country's financial system, and that common law legal systems tend to produce stronger securities markets than civil law countries because of the strength of their investor protection rules.<sup>54</sup>

This story — that some legal rules are more conducive to economic success and stability than others — tends to encourage the convergence of legal systems. The United Nations, the IMF, regional development banks, the Organization for Economic Co-operation and Development (“OECD”), and the developed nations which belong to these organizations, all increasingly emphasize the importance of good governance systems.<sup>55</sup> Global harmonization

51. See, e.g., Collier & Gunning, *supra* note 38, at 20 (“even widespread policy reforms . . . might not be sufficient to induce a recovery in private investment, since recent economic reforms are never fully credible. Investment rating services list Africa as the riskiest region in the world. Indeed, there is some evidence that Africa suffers from being perceived by investors as a ‘bad neighborhood’”).

52. See, e.g., Timothy Frye, *The Perils of Polarization, Economic Performance in the Postcommunist World*, 54 *WORLD POLITICS* 308, 309 (2002) (“political polarization has made it difficult for governments to make credible commitments to respect existing and future property rights.”).

53. See, e.g., Hossein Jalilian et al., *CREATING THE CONDITIONS FOR INTERNATIONAL BUSINESS EXPANSION: THE IMPACT OF REGULATION ON ECONOMIC GROWTH IN DEVELOPING COUNTRIES — A CROSS-COUNTRY ANALYSIS* (Centre on Regulation and Competition Working Paper Series, Working Paper No. 54, 2003), available at <http://idpm.man.ac.uk/crc/wpdl5099/wp54.pdf>.

54. See, e.g., Rafael La Porta et al., *Law and Finance*, 106 *J. POL. ECON.* 1113 (1998).

55. See, e.g., INT'L MONETARY FUND, *supra* note 45; UNITED NATIONS DEVELOPMENT PROGRAMME, *supra* note 43; ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT ET AL., *BEST PRACTICES FOR THE DEVELOPMENT OF STOCK EXCHANGES IN TRANSITION ECONOMIES* (2002), available at <http://www.oecd.org/dataoecd/31/19/2078603.pdf>; Arthur Mitchell, *Fostering Legal Reform in Central Asia*, in *LAW IN TRANSITION 1* (2003), available at <http://www.ebrd.com/pubs/law/lit/sp03/litspr03e.pdf> (“the Asian Development Bank (ADB) and the European Bank for Reconstruction and Development

may have a certain value in itself as, all other things being equal, harmonization limits opportunities for regulatory arbitrage. Even so, if there is to be a substantial degree of convergence in governance around the world, it would be preferable to converge on the best rules possible.

As currently practiced, however, the Comparativist approach and the harmonization it tends to engender may be self-limiting. Specifically, the increase in legal harmonization is likely to preempt potentially useful experimentation with alternative rules. If harmonization precludes real world experimentation with rules, the argument for experimentation in virtual worlds is even stronger than in a world without significant harmonization, if only because of the lack of alternatives.

Legal harmonization happens in many ways. Conquerors impose their rules on the conquered.<sup>56</sup> Law reform organizations research rules in other places to inform their work. Businesses lobby for rules that exist in other places.<sup>57</sup> Some businesses may be able to relocate to jurisdictions with more desirable rules, creating a threat that may persuade governments to adjust their rules. Additionally, bureaucrats from different countries often get together in

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("EBRD") have been development partners in Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan for the past decade. Together they have helped improve the lives of the region's people by strengthening governance, economic management and transformation and introducing market orientation and competition.").

56. See, e.g., WATSON, *supra* note 23, at 89.

57. For example, consider the spread of the limited liability partnership. See, e.g., THE LAW COMMISSION CONSULTATION PAPER NO. 159, THE SCOTTISH LAW COMMISSION DISCUSSION PAPER NO. 111, PARTNERSHIP LAW, A JOINT CONSULTATION PAPER, ¶1.13 (2000), available at <http://www.lawcom.gov.uk/library/lccp159/cp159.pdf> ("The Act is a response to pressure from large professional firms, which are concerned about the unlimited liability of partners for very large legal claims, particularly for professional negligence. In large partnerships one partner may have no opportunity to assist another partner to avoid such claims. Partners may not know each other and one partner may have no knowledge of another partner's specialism. The result which is proposed is an entity giving limited liability to the partners other than the negligent partner."); Trade and Industry Select Committee, Draft Limited Liability Partnership Bill, Fourth Report HC 59 (999), ¶16 (referring to the idea that competition from other jurisdictions meant that "real problems . . . cannot wait for much longer"); Caroline Bradley, *Twenty-First Century Anglo-American Partnership Law*, 30 COMMON LAW WORLD REV. 330 (2001).

working groups to agree on common rules or standards.<sup>58</sup> International or regional organizations produce harmonized rules. Accordingly, three related sets of phenomena have intensified the tendency towards legal harmonization in recent years: developing regional integration, the increasing focus on issues of development, and the generalized fear that bad things that happen elsewhere will have negative effects at home.

The European Union ("EU") has spent many years working towards the harmonization of rules that support markets as part of its larger agenda of creating a single market. In recent years, the EU has endorsed the idea that it should focus on improving the competitiveness of European firms. The EU has generally focused on eliminating national rules that operate as barriers to the movement of goods, services, and capital across borders. Persuading the member states to go along with the elimination of these barriers, however, often requires the adoption of common standards. The European Commission's agenda for harmonizing legal rules within the EU has recently expanded beyond company law and financial regulation to harmonizing rules of contract law.<sup>59</sup> Within member states, commentators have diverging views about whether the harmonization of private law is a good idea or not.<sup>60</sup> Although Europe-

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58. For example, the Basle Committee on Banking Supervision. *See, e.g.*, JOHN BRAITHWAITE & PETER DRAHOS, *GLOBAL BUSINESS REGULATION* 104 (2000) (describing how central bank governors established what is now the Basle Committee on Banking Supervision in response to the failures of the Herstatt Bank and Franklin National Bank in 1974). *See also id.* at 156-57 (comparing the International Organization of Securities Commissions with the Basle Committee).

59. EU COMMISSION, COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT: EUROPEAN CONTRACT LAW 255/01 (Sept. 13, 2001), *available at* [http://europa.eu.int/eur-lex/pri/en/oj/dat/2001/c\\_255/c\\_25520010913en00010044.pdf](http://europa.eu.int/eur-lex/pri/en/oj/dat/2001/c_255/c_25520010913en00010044.pdf); EU COMMISSION, COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL: A MORE COHERENT EUROPEAN CONTRACT LAW - AN ACTION PLAN 63/1 (Mar. 15, 2003), *available at* [http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/c\\_063/c\\_06320030315en00010044.pdf](http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/c_063/c_06320030315en00010044.pdf).

60. *E.g.*, Pierre Legrand, *Against a European Civil Code*, 60 *MOD. L. REV.* 44 (1997). *Compare with, e.g.*, STUDY GROUP ON A EUROPEAN CIVIL CODE, *THE CONTRIBUTION OF THE STUDY GROUP ON A EUROPEAN CIVIL CODE TO THE EUROPEAN CONVENTION* (Apr. 4, 2002), *available at* [http://europa.eu.int/futurum/forum\\_convention/documents/contrib/acad/0022\\_r\\_en.pdf](http://europa.eu.int/futurum/forum_convention/documents/contrib/acad/0022_r_en.pdf) ("A uniform body of rules in those areas of private law which underpin business activity in the EU is essential to convert the quilt of separate national markets into a genuinely common market and ensure enterprises compete on a level playing field.").



ans have different views about how much harmonization is necessary, and others wonder how effective attempts at convergence are, a significant amount of legal harmonization is happening in the EU.

The harmonization trend is not limited to the EU or to OECD countries. The nations of the former Soviet Bloc have been working on developing legal systems to serve as the basis for developed financial markets and economic growth as part of their transitions to capitalism, and this, too, has encouraged harmonization. International financial institutions have encouraged these transitions with technical assistance in policymaking.<sup>61</sup> Other international organizations have also set up programs to encourage economic development throughout the world,<sup>62</sup> with work on governance as an essential element.<sup>63</sup> Invariably, international financial institutions advise newly capitalist economies to adopt rules already used in more established market economies. Commentators from different perspectives have criticized these activities. For example, critics of the IMF write that the IMF's recipes for economic success have left people who live in developing countries without access to clean water because they cannot afford to pay the price.<sup>64</sup> An increasing body of literature focuses on how transitions in different countries

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61. See, e.g., IMF, *IMF TECHNICAL ASSISTANCE: TRANSFERRING KNOWLEDGE AND BEST PRACTICE* (May 2003), available at <http://www.imf.org/external/pubs/ft/exrp/techass/techass.htm>.

62. See, e.g., United Nations Development Programme Press Release, Secretary-General Kofi Annan launches Commission on Private Sector and Development, July 25, 2003, available at <http://www.undp.org/dpa/pressrelease/releases/2003/july/25jul03.html>.

63. See, e.g., UN Press Release, In Message to Fourth Global Forum on Reinventing Government, Secretary-General Stresses Vital Role of Dialogue, Partnerships, Dec. 11, 2002, available at <http://www.un.org/News/Press/docs/2002/SGSM8553.doc.htm> ("The United Nations is deeply engaged in the global effort to 'reinvent government,' particularly in developing countries and countries with economies in transition. Activities include policy research and analysis, training programmes and advisory services. The United Nations Online Network in Public Administration and Finance, known as UNPAN, facilitates access to information, disseminates knowledge about 'good practices' and provides an international forum for the exchange of experiences.")

64. See, e.g., Martha T. McCluskey, *Subsidized Lives and the Ideology of Efficiency*, 8 AM. U. J. GENDER SOC. POL'Y & L. 115, 133-35 (2000) (discussing consequences of the IMF's structural adjustment policies). See also *id.* at 134 n.97 ("neoliberal policies often result in rising prices for non-luxury goods, such as food and water").

have produced different results.<sup>65</sup> In particular, central European countries and Russia initially made slow progress in developing a “market-oriented legal structure.”<sup>66</sup> It is possible that the advice to duplicate existing rules was not ideal given the circumstances.

During the 1990s, problems in the Asian financial markets and in Latin America led policymakers to worry about financial stability.<sup>67</sup> Countries that had attracted large amounts of foreign investment found that the foreign investors’ views could change suddenly, resulting in sudden capital outflows.<sup>68</sup> Financial authorities in the G7<sup>69</sup> developed economies established the Financial Stability Forum<sup>70</sup> (“FSF”) to address issues of international financial stability. The FSF concluded that international standards for rules, in-

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65. See, e.g., Frye, *supra* note 52; János Kornai, *What the Chance of System From Socialism to Capitalism Does and Does Not Mean*, 14 J. ECON. PERSP. 27, 33 (2000) (identifying three types of political transition from socialism to capitalism).

66. See, e.g., Jan Svejnar, *Transition Economies: Performance and Challenge*, 16 J. ECON. PERSP. 3, 7 (2002) (“This lack of a market-oriented legal structure appears to have been the Achilles’ heel of the first dozen years of transition. Many policymakers underestimated the importance of a well-functioning legal system or believed too readily that free markets would take care of any major problems.”).

67. See, e.g., Lawrence H. Summers, *Reflections on Managing Global Integration*, 13 J. ECON. PERSP. 3, 12 (1999) (“Financial disturbances have propagated nationally and internationally with a virulence perhaps greater than at any time in the past 50 years. Even nations thought to be managing their economies well, such as those in east Asia, have seen financial disturbances wipe away years of economic progress and create massive economic insecurity among their citizens.”).

68. See, e.g., Michel Camdessus, Managing Director, IMF, *Challenges Facing the Transition Economies of Central Asia*, Speech at a conference on Challenges to Economies in Transition, Bishkek, Kyrgyz Republic (May 27, 1998), available at <http://www.imf.org/external/np/speeches/1998/052798.htm> (“But if globalization offers many opportunities, it also holds two major risks. The first can be seen in the recent experience of Thailand, Korea, and Indonesia, all of which have suffered major financial crises during the last year, when investors lost confidence in their economies and large capital inflows turned into massive capital outflows. Countries that attract large volumes of private capital are more vulnerable to sudden shifts in investor confidence, which can be very destabilizing to their own economies and have negative effects on other countries, as well.”).

69. The Group of Seven major industrial democracies: the United States, the United Kingdom, France, Germany, Italy, Japan, and Canada. G7, WIKIPEDIA, at <http://en.wikipedia.org/wiki/G7>. Russia joined the organization in 1998, forming the G8. *Id.*

70. See, e.g., Financial Stability Forum, at <http://www.fsforum.org/home/home.html> (“The Financial Stability Forum (FSF) was convened in April 1999 to promote international financial stability through information exchange and international cooperation in financial supervision and surveillance.”).

cluding corporate governance standards and accounting standards, would make a significant contribution to financial stability.<sup>71</sup>

Harmonization is happening. The participants in the legal transplants debate may disagree about how effective transplantation of legal rules is, but many factors combine to promote attempts at harmonization. At the same time, the various decision processes for agreeing on harmonized rules, which are often political or bureaucratic processes, may or may not take account of whether the harmonized rules are efficient.

Some commentators argue against harmonized rules for this very reason, and suggest that competition in rulemaking is more likely to produce efficient rules than top-down imposition of a single rule-set. For example, many United States commentators writing about corporate law argue that competition between the states to attract incorporations may create a "struggle to the top."<sup>72</sup> Others argue in favor of extending this competition to securities regulation, for example by devolving greater regulatory power to non-state entities,<sup>73</sup> or by allowing issuers of securities to choose the securities laws that will apply to them,<sup>74</sup> so that investors would, in theory, have to take account of differences in securities regulation regimes in making their investment decisions. Self Regulatory Organizations ("SROs") suggest that they would like to compete for the business of providing "market regulation services."<sup>75</sup>

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71. See, e.g., Caio Koch-Weser, Interim Chairman of the Financial Stability Forum, Statement at International Monetary and Financial Committee Meeting (Apr. 12, 2003), available at <http://www.fsforum.org/press/IMFCstatement10.04.03.pdf> ("Members concurred that high-level international principles in the areas of corporate governance, auditing, accounting and disclosure are invaluable to restoring confidence in financial markets and to achieving a level of convergence in regulatory approaches that could eventually form the basis for mutual recognition across jurisdictions.")

72. See, e.g., ROBERTA ROMANO, *THE GENIUS OF AMERICAN CORPORATE LAW* (1993). Although compare with Marcel Kahan & Ehud Kamar, *The Myth of State Competition in Corporate Law*, 55 *STAN. L. REV.* 679 (2002).

73. See, e.g., Paul Mahoney, *The Exchange as Regulator*, 83 *VA. L. REV.* 1453, 1455 (1997) ("I will argue . . . that the benefits of regulatory competition would be most effectively achieved by devolving more regulatory authority to the bodies that were the first regulators — the securities exchanges themselves. In particular, exchanges should be the primary writers and enforcers of rules relating to disclosure by listed companies, standards of conduct for member broker-dealers, and market structure.")

74. See, e.g., Choi, *supra* note 18.

75. See, e.g., Robert R. Glauber, NASD Chairman and CEO, Remarks To The Bond Market Association Legal and Compliance Conference (Jan. 9, 2002), available at

Competition between rule systems is limited in the real world by concerns about the costs of error and the costs of success, most notably the danger of setting off a harmful “race to the bottom.” But eliminating competition between rule systems, particularly in a world with increasing levels of legal harmonization, risks entrenching inefficiency. The following section describes the virtual worlds we suggest could be used to test alternate rules.

## II. VIRTUAL WORLDS

Virtual worlds are more formally known as massively multi-player online role-playing games (“MMORPGs”). Before explaining how virtual worlds may serve as useful test beds for legal experimentation, it is useful to outline briefly some of the most salient features of the leading games. We do not attempt here to describe the experience of playing online. Nor do we discuss the legal consequences of in-game behavior, which is already addressed in a growing literature.<sup>76</sup> Here, we seek first to persuade the perhaps

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[http://www.nasd.com/news/sp/pp1\\_27.html](http://www.nasd.com/news/sp/pp1_27.html) (“NASD will seek these new exchanges as customers for our market regulation services. And building on our international reputation, we will offer these same market regulation services to exchanges and regulators in other countries.”). Canada has an organization called Market Regulation Services, Inc., which provides regulatory services to the Canadian markets. See RS Market Regulation Services, Inc., at <http://www.regulationservices.com/default.asp?location=home>.

76. See, e.g., Yochai Benkler, *Coase's Penguin, Linux, or, Linux and the Nature of the Firm*, 112 YALE L.J. 369, 389 (2002) (discussing collaborative online gaming platforms like Ultima Online and EverQuest as examples of “value-added” peer production and large-scale collaborative works done over the Internet); EDWARD CASTRONOVA, VIRTUAL WORLDS: A FIRST-HAND ACCOUNT OF MARKET AND SOCIETY ON THE CYBERIAN FRONTIER (CESifo Working Paper Series No. 618, 2001) (describing the Everquest universe and giving an overview of the economic and social impacts these games have generated in the real world), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=294828](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=294828) (last visited Sept. 26, 2003) (hereinafter “THE CYBERIAN FRONTIER”); EDWARD CASTRONOVA, THEORY OF THE AVATAR (CESifo Working Paper Series No. 863, 2003) (arguing that participation in virtual-world games like Everquest and Ultima Online have “positive net effects” on the well being of players, and allows participants to experience varieties of social roles and normative values), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=385103](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=385103) (last visited Sept. 26, 2003); EDWARD CASTRONOVA, THE PRICE OF ‘MAN’ AND ‘WOMAN’: A HEDONIC PRICING MODEL OF AVATAR ATTRIBUTES IN A SYNTHETIC WORLD (CESifo Working Paper Series No. 957, 2003) (utilizing price data from online auctions of “avatars” used in the game Everquest to show that sex biasness persists even in the virtual world), available at [http://papers.ssrn.com/sol3/delivery.cfm/SSRN\\_ID415043\\_code030617590pdf?abstract=415043](http://papers.ssrn.com/sol3/delivery.cfm/SSRN_ID415043_code030617590pdf?abstract=415043) (last visited Sept. 26, 2003); Arthur J. Cockfield, *Designing Tax Policy for the Digital Biosphere: How the Internet is Chang-*

skeptical reader that these games are an important and growing phenomenon, that many people already play these games with seriousness and intensity,<sup>77</sup> and that while existing games are of course very simplified representations of reality, they nonetheless involve substantial in-game economic activity.

MMORPGs are, as the name suggested, widely shared games. The first "Multi-User Dungeon," or MUD, was written in 1979 by Richard Bartle and Roy Trubshaw.<sup>78</sup> Most of the original MMORPGs involved imaginary worlds populated by elves, dwarves,

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*ing Tax Laws*, 34 CONN. L. REV. 333, 355 (2002) ("For example, tens of thousands of gamers simultaneously play online role-playing games such as Everquest, and develop their own value systems through the way they interact with others in their online universe."); Dan Hunter, *Cyberspace as Place and the Tragedy of the Digital Anticommons*, 91 CAL. L. REV. 439, 456 (2003) (describing how society tends to visualize the Virtual World as a "place," an example being the idea that people "explore" imaginary worlds on the internet through online gaming communities such as, Everquest, Ultima Online, Star Wars Galaxies, and Asheron's Call); Dan Hunter & Gregory F. Lastowka, *The Laws of the Virtual Worlds*, 92 CAL. L. REV. 1 ("In this Article, we provide a brief history of virtual worlds and examine two legal questions raised by virtual world societies. First, we ask whether virtual objects might be understood as constituting legal property. Second, we discuss whether democracy and governance are concepts that might be applied meaningfully to social conflicts that arise within virtual worlds."); Joseph P. Liu, *Copyright Law's Theory of the Consumer*, 44 B.C. L. REV. 397, 418 (2003) (mentioning consumer contributions to existing multi-player game platforms and recent cases that have attempted to resolve who retains ownership rights in derivative works); Daniel C. Miller, Note, *Determining Ownership in Virtual Worlds: Copyright and License Agreements*, 22 REV. LITIG. 435 (2003) (discussing in part the impairing effects of end user license agreements (EULA) on online-gaming participants' abilities to copyright characters or items created within virtual world such as Everquest or Ultima Online); Elizabeth Phillips Marsh, *Purveyors of Hate on the Internet: Are We Ready for Hate Spam?*, 17 GA. ST. U. L. REV. 379 (2000) (explaining that an individual could use "avatar" space as a means of spreading messages of hate); Molly Stephans, Note, *Sales of In-Game Assets: An Illustration of the Continuing Failure of Intellectual Property Law to Protect Digital-Content Creators*, 80 TEX. L. REV. 1513 (2002) (analyzing recent online practices that circumvent intellectual property protections expected by digital-content creators); Timothy Wu, *Application-Centered Internet Analysis*, 84 Va. L. Rev. 1163, 1197 (1999) (arguing that state regulation of the internet is unnecessary and redundant when the specific internet environment is already self-regulated by a "private contractual order," and that, "the really 'pure' examples of this are the popular online games like Ultima Online or network Quake, which are multi-user versions of computer video games").

77. We address the question of representativeness of the players later in this section.

78. See Alexander P. Macris, *Imaginary Worlds, Real Communities: Understanding the Future Architecture of Cyberspace Through the Study of Massively Multiplayer Games* (Feb. 1999) (unpublished manuscript, on file with N.Y.L. SCH. L. REV.) (citing Lauren P. Berka, *The MUDex*, <http://www.apocalypse.org/pub/u/lpb/muddex/>).

and various types of monsters. MMORPG players can take on roles as various types of people, and many games also allow players to choose non-human “avatars.” While MMORPGs vary, the most popular ones give the player either a rich, three-dimensional, virtual reality image as if seen from the avatar’s perspective or — especially in older games — a flatter, two-dimensional perspective akin to what one gets when looking at a board game, with the avatars represented by little graphical characters known as “sprites.” In general, the greater the graphical artistry, the greater the demands on the player’s hardware. Fancier graphics do not, however, necessarily result in a proportionate increase in the load on a server, because the user’s computer performs part of the work of drawing the images.

Ultima Online went live on February 12, 1998.<sup>79</sup> Its graphics are the most limited of the major English-language games, using a fixed camera view showing two-dimensional sprites with isometric perspective.<sup>80</sup> (The graphics in the Asian Lineage game are also limited.) From the start, however, Ultima Online featured a relatively complex economy based on players developing craft skills, such as building houses, making goods, mining and smelting minerals, and generally engaging in trade.<sup>81</sup> Everquest, developed by Verant for Sony PlayStation, was the second MMO game to go online, in February 1999. Everquest verges on a virtual reality experience, using “3D first-person perspective graphics comparable to those in the game *Quake*.”<sup>82</sup>

By 1999, there were more than 350 MMORPGs in use or development.<sup>83</sup> Not all MMORPGs rely on a fantasy world. The Sims Online, an outgrowth of the highly popular stand-alone game, invites people to replicate features of real life, albeit potentially glamorized. (“Build a home and a livelihood. Build your dream home, the trendiest boutique, or the hottest neighborhood hangout around . . . . Be roommates and colleagues. Develop a network of friends, go into business with your housemates, or improve the

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79. *Id.* at 8.

80. *Id.* at 9 (1999 data).

81. *Id.* at 12.

82. *Id.* at 9 (stating Everquest had over 200,000 in 1999).

83. *Id.* at 6.

neighborhood.”)<sup>84</sup> Even without monsters, the Sims Online garnered 80,000 subscribers.<sup>85</sup>

Virtual worlds have evolved far beyond their origins as “sword and sorcery” games and now employ complex rule-based economies in which hundreds of thousands of (sometimes fanatical) players engage in production, investment, and asset accumulation. Millions of people play them. As a result, they are an important revenue source for game companies. More importantly for our purposes, the larger games involve a world of fantasy trade and production that, if it were valued at the rate of exchange suggested by online auction prices for virtual assets, suggests the existence of a substantial economic base. Indeed, the gross national product (“GNP”) of one virtual world for 2001 is estimated at \$135 million — \$2,266 per capita, making it richer per capita than China or India, neither of which is inhabited only part-time.<sup>86</sup>

Virtual worlds differ from stand-alone computer games in several ways. Like some computer games, players begin by selecting their avatar — a game character whose movements through the

84. The Sims Online website states:

The Sims Online is an online world where the Sims are real. You get to be yourself or whoever you want to be. In this world you have your own piece of land to do with as you please. So, you can create a house, coffee bar, dance club, museum or whatever else you can imagine. You can explore the neighborhoods around you and meet other real Sims along the way. You'll also be able to develop a network of real Sim friends to enhance your power, wealth, reputation and social standing.

...

The Sims placed you in control of an entire neighborhood of Sims. In The Sims Online, players create up to three Sims but only control one at a time, meaning that the relationship between a player and their Sim is much closer. The game not only makes it possible for Sims to leave their house but there is a whole user-created world to explore. Not only can each player build a house for their Sim and have friends over to visit, they can also invite friends to move in. The economic and social interaction system is built to take advantage of having thousands of real people playing. The game incorporates text chat, instant messaging and a wide variety of new gestures for your Sim to use when communicating with other Sims.

<http://www.eagames.com/official/thesimsonline/features/top-april02.jsp?ncc=1>.

85. Brad King, *Online Games Go Multicultural*, WIREd, Jan. 30, 2002, available at <http://www.wired.com/news/games/0,2101,50000,00.html>.

86. CYBERIAN FRONTIER, *supra* note 76, at 33.

games space the player will control.<sup>87</sup> The MMORPG game designers define a continuously running (“persistent”) shared play space — the world — which consists of one or more shared spaces for avatars to explore and use. Like stand-alone games players typically have to complete some set of tasks, perhaps killing monsters or finding treasure, in order to win game-based rewards such as more powers for their character or game funds. Unlike stand-alone games, however, thousands of players use the world simultaneously. While players are online, they interact with each other — they converse, they cooperate, they fight, and they transact. Unlike stand-alone games, when a player logs off, the world does not stand still; it continues to change under the influence of other players who remain active in the game space.<sup>88</sup>

Like stand-alone games, most MMORPGs depend on a complex client program that runs on the user’s computer. Each instance of the program communicates with a server, sending it information about changes in the game arena that the avatar can perceive. Most of the popular virtual worlds allow players considerable scope to build homes (or, in the case of the sword-and-sorcery games, castles), to amass economic resources, and to train their avatars in various skills. Skills are not limited to fighting, or healing wounded fighters, but include a range of productive skills such as mining, building, and making useful objects such as clothing. Most games follow the convention that as avatars gain experience from completing certain tasks, they get promoted to higher “levels” and gain power and abilities.

As Edward Castronova has documented, large numbers of people spend very large amounts of time immersed in virtual worlds.<sup>89</sup> As the structure of many virtual worlds makes it difficult, time-consuming — and even boring — to “level up” avatars to the point where they have substantial skills and resources, some people reach for shortcuts. Valuing time over money, these players go outside

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87. For a thorough discussion of the economics of avatar selection, see EDWARD CASTRONOVA, *THEORY OF THE AVATAR* (CESifo Working Paper No. 863, 2003), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=385103](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=385103).

88. Games do differ on what happens to avatars when their owner is not playing. Many have some convention that protects the absent player’s avatar from coming to (fatal) harm when its owner isn’t looking.

89. See CYBERIAN FRONTIER, *supra* note 76.



the game to purchase game-based resources or high-level avatars. The volume of transactions in Everquest coinage and characters allowed Castronova to estimate the exchange rate for Norrath's platinum coins against the US dollar at 1.07 cents per platinum coin.<sup>90</sup> Based on his estimates of the amount of time it takes to create virtual value, and the trading prices of avatars on dollar denominated outside-of-game markets, Castronova also estimated the GNP of Norrath to be as high as \$135 million. In per capita terms, Everquest's world had a GNP of as much as \$2,266 per head. Using a range of estimating techniques, Castronova gave Norrath a GNP per capita somewhere between Russia and Bulgaria.<sup>91</sup> Using survey data, Castronova estimated an average hourly wage for Norrath avatars at 319 platinum pieces per hour, which at the market rate of exchange worked out to \$3.42 per hour.<sup>92</sup>

Virtual worlds are a substantial and rapidly growing segment of the gaming market. MMORPGs aimed at North American clients generate revenue by monthly subscription billed on a per-user basis, and the more successful ones have very large numbers of subscribers. Everquest is the largest English-language game, with more than 200,000 participants.<sup>93</sup> Lineage, popular in South Korean and neighboring Asian states, claims more than 4 million users.<sup>94</sup> Lineage, however, charges by the IP number, not by the user, reflecting a usage pattern in which players log in from cybercafes.<sup>95</sup>

According to the Themis Report on online games, MMORPGs earned revenues in 2001 of about \$275 million, of which about three-quarters were from monthly or annual subscription fees. A small number of popular games earned the lion's share of this in-

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90. *Id.* at 32.

91. *Id.* at 32-33.

92. *Id.* at 35. He also noted that:

The average Earth wage . . . among the self-identified residents of Norrath . . . is \$17.57. If we treat the conditions of life in Norrath as a compensating differential, this suggests that for the average Norrath resident, an hour in Norrath produces utility worth \$14.15. This figure is more than the fee of \$10 per month that users pay to access Norrath. Norrathians gain a substantial consumer surplus from the world's existence.

*Id.*

93. Macris, *supra* note 78, at 8.

94. *NCsoft, Lineage*, at <http://www.lineage.com/nci/nci.html>.

95. THEMIS GROUP, THE THEMIS REPORT 2002, at 14 (hereinafter "THEMIS REPORT").

come. Themis projected virtual world revenue to nearly triple in 2002, with much of the sector's growth due to the entry of new games, and to triple again by 2006, by which point it could reach \$1.84 billion worldwide.<sup>96</sup> Of the circa 100 million worldwide who regularly play some form of online game, about half are in the United States.<sup>97</sup> Of these, as many as 7.5 million people may be "hard-core" players of virtual worlds — playing twenty or more hours per week (and sometimes forty or even eighty hours per week)<sup>98</sup> — with between 2-3.5 million hard-core players in the United States.<sup>99</sup> Indeed in 2001, Edward Castronova estimated that up to a third of EverQuest players spend more time playing the game than they spent in paid real world employment.<sup>100</sup> These hard-core players also account for the bulk of the sector's revenue.<sup>101</sup> Another estimated 15-22.5 million people, a third of whom are in the United States, are "moderate" players, who play fewer different games per person and spend fewer hours on virtual worlds per week.

Whatever their intensity of use, players in North America pay on the order of \$10-13 per month for subscriptions.<sup>102</sup> Players elsewhere, notably in South Korea, a hotbed of virtual world activity, ordinarily pay considerably less. In addition, most games require that users acquire a copy of the client that runs the game; if acquired at retail in North America this can usually cost between \$10-\$40.<sup>103</sup>

If nothing else, these figures demonstrate that current players will pay to play; it also suggests that there are a substantial number of people who might be willing to participate in online legal experiments in exchange for a discount on their gaming bills. The value of this army of potential experimental subjects depends on the extent to which they are representative of the population at large.

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96. *Id.* at 2.

97. *Id.* at 3.

98. *Id.* at 7.

99. *Id.* at 3.

100. *CYBERIAN FRONTIER*, *supra* note 76.

101. *THEMIS REPORT*, *supra* note 95, at 5.

102. *Id.* at 9.

103. *Id.* at 9-10.

In the United States, virtual world players are a subset of computer gaming enthusiasts, themselves a subset of computer and Internet users. By contrast, in parts of Asia, virtual world penetration has reached epidemic proportions. Multi-player games claim one out of four teenagers in South Korea.<sup>104</sup> Of its 4 million players, perhaps three-quarters are in South Korea, with another million or so in other nations, primarily Taiwan. NCsoft also recently began marketing the game in China,<sup>105</sup> and hopes for tens of millions of subscribers there as well,<sup>106</sup> although data on actual takeup does not seem to be publicly available.

With the notable exception of the Sims Online, the virtual worlds most popular in North America involve fantasy, magic, and violence. It seems, therefore, that they may attract an unbalanced sample of the population unless, of course, the taste for fantasy, magic, and violence is in fact very widespread. This suspicion seems particularly plausible given the excesses in the most violent of the virtual worlds. For example, a leading game industry expert once described Ultima Online's community as "a Hobbesian war of all against all, a chastening reminder of anarchy and lawlessness" marked by "a palpable feeling of terror in the streets. . . [that] makes you appreciate cops, or at least, makes you realize the value of living in a society that is policed."<sup>107</sup> This does not sound like a good model on which to base tests of the Uniform Commercial Code ("UCC"), although it might have some use if one were seeking to model police strategies for the most dangerous neighborhoods in the United States — which might actually be a good idea, as current policing policies seem unable to make them safe.

Ultima Online is the extreme case. Other games either do not allow players' avatars to kill each other, or limit the gankage<sup>108</sup> to well-demarcated kill zones. Many other games, such as Everquest, do not allow characters to kill one another. In the less extreme

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104. See Soo-Jeong Lee, *Online Game Craze Sweeps South Korea*, ASSOCIATED PRESS, May 12, 2003, available at [http://www.bizreport.com/article.php?art\\_id=4394](http://www.bizreport.com/article.php?art_id=4394).

105. See <http://www.lineagechina.com/about/customer.html>.

106. SINA and NCsoft Enter Definitive Agreement to Form Online Game Joint Venture in China, at <http://www.us.sina.com/news/press/2002/1122/press.html>.

107. Macris, *supra* note 78, at 15 (quoting GREG COSTIKYAN, *FUTURE OF ONLINE GAMES* 57 (1999)).

108. To gank is to kill another player's avatar. Gankage is the noun meaning the process of ganking.

games, the only players who may attack each other are those who have explicitly and mutually assumed the risk of injury caused by inter-player mayhem, or those who choose to play on predefined “player-killer” servers.<sup>109</sup> It may be that people with violent tendencies gravitate to games like *Ultima Online*, where player-killing is allowed.<sup>110</sup> In other games, where players have a choice as to whether they venture into “kill zones” where players are allowed to kill each other, only a small fraction of the players choose this option.<sup>111</sup> Indeed, many players avoid the games with rampant player-killing.<sup>112</sup>

In fact, Hobbsean violence is a characteristic of only a small subset of the Virtual World population.<sup>113</sup> One game development

109. Macris, *supra* note 78, at 9.

110. *See id.* at 22-23.

111. This is 10% of the players in *Everquest*. *See id.* at 23. On the other hand, the relative unwillingness of players in *Everquest* to risk kill zones may be an economically rational calculation based on the chance of being killed as a function of population density:

[T]he number of violent encounters between players will go up as roughly the square of the increase in population. And it's not hard to accept the assumption that being killed in PvP is a more frustrating experience than having to wait in line to kill a popular item-dropping mob. . . . [T]his theory . . . would predict that if the amount of territory available on a “Zek” server [an *Everquest* server with a ruleset that allowed players to attack each other at any time] was increased, then so would the population. . . .

[When the *Everquest* Scars of Velious expansion pack] came out, and the populations of the Zek servers rose significantly, then stabilized at a higher level. The theory that all of the players in EQ who wanted to play PvP, already were, was disproven, and the theory that the lower populations of “hardcore” servers were lower due to different parameters of population pressure was strengthened.

Dave Rickey, *If You Can't Say Anything Nice* . . . , *Engines of Creation* #6 (Aug. 12, 2003), at <http://www.skotos.net/articles/engines06.shtml>.

112. For example, Macris quotes Tessa, described as “a high-level *Everquest* player” as writing:

I don't think I'm overgeneralizing to say that 90% of those who've moved to EQ from UO did so because of a cowardly refusal on the game designers' part to “protect players from aggression before the fact” (to use Koster's phrase), i.e., to deal with the PK problem straightforwardly, as EQ has done. I came to absolutely detest, loathe, hate, abominate UO for that reason.

Macris, *supra* note 78, at 17 (quoting Tessa, *Gamers General Forum*, at <http://eq.stratics.com>).

113. Macris finds evidence for all three of the following hypotheses: (1) human nature becomes more violent in *Ultima Online* than it is in real-space (virtual sociopathy), (2) a disproportionately large number of humans who are violent in real-space

pioneer suggests there are four types of people attracted to online shared environments, “achievers, explorers, socialisers and killers,” who are those attracted respectively to “achievement within the game context,” “exploration of the game,” “socialising with others,” and “imposition upon others.”<sup>114</sup> Others have emphasized the social nature of online gaming.<sup>115</sup> These commentators suggest that what goes on when people play games is much more complicated than simply venting murderous urges.<sup>116</sup>

In addition, Castronova’s work, noted above, documents the extent to which virtual behavior mimics the real life experience of labor, even labor at repetitive and boring tasks. Furthermore, there is evidence suggesting that whatever the demographics of MMORPG players, the population of online game players more closely reflects the population at large.<sup>117</sup> The earliest adopters of the Internet were predominantly a certain type of white male, but now Internet users more closely reflect the US population as a whole, and some day may comprise nearly the entire population. It may be only a matter of time before the MMORPG population undergoes a similar transformation, although this is certainly an issue that requires careful monitoring and study.

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play Ultima Online (player-killers), or (3) the level of violence in Ultima Online would occur in real space but for some non-architectural factor (laws and norms.) *Id.*

114. Richard Bartle, *Hearts, Clubs, Diamonds, Spades: Players Who Suit MUDs*, at <http://www.brandeis.edu/pubs/jove/HTML/v1/bartle.html> (suggesting that each ludic type approaches the game differently: Achievers see them as games like chess or tennis; explorers see them as hobbies akin to gardening and cooking; socializers see them as entertainment; and killers treat them as sports like hunting or fishing. Unfortunately, these categories don’t seem sharp enough to be useful).

115. *E.g.*, Mikael Jakobsson & T.L. Taylor, *The Sopranos Meets EverQuest: Social Networking in Massively Multiplayer Online Games*, at <http://hypertext.rmit.edu.au/dac/papers/Jakobsson.pdf> (“social networks form a powerful component of the gameplay and the gaming experience”).

116. Arguably the *virtuality* of the killing in the more violent MMORPGs such as Ultima Online liberates or encourages antisocial behaviors that people would not engage in real life: “Killing an *Ultima* character does not kill the *Ultima* player, just his avatar. The result is a guilt-free opportunity to commit mayhem which *Ultima Online* players seem to revel in at least part of the time.” Macris, *supra* note 78, at 21.

117. *E.g.*, *Adult Women Like to Play Games*, REUTERS, Aug. 27 2003, at <http://www.wired.com/news/games/0,2101,60204,00.html>.

Game designers can influence the sorts of behaviors virtual worlds encourage by making architectural choices in the design of the game environment:<sup>118</sup>

So game design can influence social order, although not always in predictable ways. Social dynamics seem to be inherently emergent, with effects many stages removed from their causes, and the line of causality is rarely clear. Nonetheless, influence is being exerted, and sometimes in quite dramatic ways. The question becomes how much our control of this influence can be refined?<sup>119</sup>

This fact bodes well for the ability of would-be rule mechanics to design more realistic environments in which participants act ever more normally. It also tends to support the claim that rules affect outcomes.

The similarities and differences between virtual worlds and reality are particularly noticeable in the economic realm. In most sword and sorcery games, players seek to raise their characters' experience scores, to make them more powerful, and to amass game currency (e.g., gold, platinum), which allows their characters to acquire useful items. Especially in the initial phases of a game, this can involve performing an extremely lengthy series of fairly boring and repetitive tasks, such as slaying hundreds of small vermin, or mining for metals. In fact, games are often designed to encourage some players to choose to have their characters specialize in some form of craft, such as baking or smithing.<sup>120</sup> Here again, practice makes more perfect. If trade is only a part of the sword-and-sorcery experience, it is an even larger component of the Sims. In that game, as players seeking the revenue they need to improve their virtual real estate compete with each other to provide interesting accommodations and diversions for other players, each temporary

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118. See Bartle, *supra* note 113 ("To appeal to achievers, for example, one approach might be to introduce an extensive level/class system (so as to provide plenty of opportunity to reward investment of time) and to maximise the size of the world (so there is more for them to achieve).").

119. Rickey, *supra* note 111.

120. See Julian Dibbell, *The Unreal Estate Boom* WIREd, Jan. 2003, available at <http://www.wired.com/wired/archive/11.01/gaming.html>.

“houseguest” earns the host players revenue (measured in Simoleans).<sup>121</sup>

Some observers focus solely on a given game’s differences from reality. Castronova, for example, observes that economic life in virtual worlds is “different in important ways from life on Earth.”<sup>122</sup> Castronova offers the example of price controls. In real life, price controls are difficult to enforce and tend to have perverse effects. In a virtual world, however, price controls are easy to enforce (within the game at any rate). Furthermore, quantities are easy to manipulate because game controllers can create or destroy any amount of virtual goods at near-zero cost by entering the right commands into the game engine. Castronova concludes that given the ease of administration, “price controls may actually be good policy” in virtual worlds,<sup>123</sup> but this does not tell us much about the utility of price controls in “meat space.” On the other hand, Castronova also acknowledges areas in which the internal economic behavior of virtual worlds mimics reality. For example, “in Britannia, the world of the game Ultima Online, avatars can make shirts and sell them. Once upon a time, a certain agent decided to collect and hoard 10,000 shirts.”<sup>124</sup> As a result, the price of shirts rose.<sup>125</sup>

Other observers find substantial similarities between aspects of current games and real life social practices.<sup>126</sup> Within the games, sales of virtual chattels and virtual real property mimic real world markets. Goods are alienable, and many games offer intermediating institutions designed to facilitate exchange, such as market places or auction houses, although market places seem to go in and

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121. See F. Gregory Lastowka & Dan Hunter, *The Laws of the Virtual Worlds*, 92 CAL. L. REV. 1 (2004).

122. EDWARD CASTRONOVA, ON VIRTUAL ECON. 3 (CEFifo Working Paper No. 752, 2002), available at <http://ssrn.com/abstract=338500>.

123. *Id.* at 4.

124. CASTRONOVA, *supra* note 87, at 14.

125. *Id.*

126. Note, however, that in the Asian Lineage game, the social and economic setup is basically feudal, with most players voluntarily choosing to be commoners, a role that excludes any possibility that character becoming royalty and leading a faction in the game. See J. C. Herz, *The Bandwidth Capital of the World*, WIRED 10.08 (Aug. 2002). We leave to others the research required to see to what extent this actually reflects the social structure in Asia.

out of fashion rather quickly.<sup>127</sup> Consider also Lastowka and Hunter's observation that:

[p]erhaps the most striking feature of the property systems of the virtual worlds is how closely they mirror the real world, or at least the subset of the real world known as Western capitalist economies. No virtual world, not even a community-conscious, social MUD like LambdaMOO, has an entirely communal property system. Private property is the default. Capitalists feel right at home here because virtual worlds assume the timeworn metaphor of property being a bundle of fundamental rights usually rendered as the rights to use, exclude, and transfer.<sup>128</sup>

There are a number of reasons for this mirroring. One may be, as Lastowka and Hunter suggest, that player/customers object to unfamiliar, or unpopular, economic systems. Lastowka and Hunter note that the Sims Online "began as an exception to the free market rule and people generally found it unpleasant for this reason. One purchased chattels from something like a central government agency that refused to negotiate on price." When players rebelled, the Sims Online introduced a freer market.<sup>129</sup>

Another set of reasons for the similarity of most virtual markets to Western capitalism may have to do with the identity of the game designers. When forced by the needs of a game to find a way to facilitate transactions, designers brought up in the United States may naturally have mimicked what they knew. In Ultima Online, for example, the designers have replicated the registered bond,<sup>130</sup> the promissory note,<sup>131</sup> and the commission agent.<sup>132</sup>

Thus, while virtual worlds might be an opportunity to test alternate property systems (maybe market socialism?),<sup>133</sup> the players' openness to alternate forms of economic organization imposes

127. See Lastowka & Hunter, *supra* note 121, at 30.

128. *Id.*

129. See *id.* at 31.

130. See *Commodity Deeds*, at [http://guide.uo.com/trade\\_1.html](http://guide.uo.com/trade_1.html).

131. See *Scam Prevention*, at <http://support.uo.com/scam.html> (describing bank checks).

132. See *Vendors*, at [http://guide.uo.com/trade\\_4.html](http://guide.uo.com/trade_4.html).

133. See Lastowka & Hunter, *supra* note 121, at 31-32. Cf. OSKAR LANGE, ON THE ECONOMIC THEORY OF SOCIALISM (Benjamin E. Lippincott, ed., 1938).



some attitudinal constraints. These constraints, however, strongly resemble constraints that would confront any real life attempt to adopt similar rules.

The ease with which MMORPGs can be replicated makes them particularly suited for experimentation. Popular virtual worlds have more players than can comfortably be accommodated in one virtual world. The game operators' solution has been to clone the world — in the case of Everquest more than forty times. Multiple copies of the world (called "shards" in Ultima Online) may be identical, or they may have different rules.<sup>134</sup> Thus, for example, the rules in one shard may allow anti-social behavior such as robbery and murder, while others with the same maps and environment, may not.

### III. USING VIRTUAL WORLDS TO TEST RULES

Given that the adoption of less than optimal rules involves costs, it is desirable to test rules before adoption to examine their likely effects. As noted, real world empirical studies of the effects of actual rules suffer from the risk that a study will not identify crucial factors affecting the operation of the rules in practice. In particular, studies that leave out specific institutional and cultural factors may suggest erroneous conclusions. Some studies on the effects of social programs do seek to experiment with and compare different policy interventions, but these studies tend to focus on disadvantaged groups.<sup>135</sup> Economic models can give some indications about how rules may work, but are always subject to the risk that their assumptions are inaccurate and that any inaccuracies in the assumptions undermine the reliability of the test results.

Behavioral economists have begun to examine the behavior of economic actors empirically using relatively simple studies where "real subjects make decisions with real monetary consequences in

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134. See CYBERIAN FRONTIER, *supra* note 76, at 29 ("The other four servers are player-killer servers, where, because of the frequency of murder and robbery, property rights are feeble. Predictably, markets on these servers are poorly developed.").

135. See, e.g., David Greenberg et al., *The Social Experiment Market*, 13 J. ECON. PERSP. 157, 159 (1999) ("The scarcity of experiments involving the middle and upper class is extraordinary.").

carefully controlled laboratory settings.”<sup>136</sup> These studies suggest, for example, that people may not always behave in the self-interested way that traditional economic theory would suggest; instead of simply being economic maximizers, many people are concerned about fairness.<sup>137</sup> In the “Ultimatum Game,” involving two participants, one player (the proposer) must suggest to the other player (the respondent) how she proposes to divide a sum of money between them. The respondent decides whether to accept the proposed allocation, in which case both would receive shares in accordance with the proposal, or not, when neither player would receive anything.<sup>138</sup> In these experiments, players tend to propose arrangements more favorable to respondents than economic theory would suggest. Some games test other ideas, such as how trusting people are.<sup>139</sup> Researchers also test whether players from different cultural backgrounds play games differently.<sup>140</sup> Results of some experiments suggest that people in some countries are more trusting than others.<sup>141</sup>

These experiments focus on people’s behavior, rather than on the effect of legal rules, and are oriented to the testing of economic assumptions about behavior. Thus, they are important for academic lawyers who are interested in the economic effects of legal rules. In particular, academic lawyers are interested in how people value assets differently in different contexts. A person may be willing to pay much less for a thing than the amount he or she would

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136. ERNST FEHR & KLAUS SCHMIDT, THEORIES OF FAIRNESS AND RECIPROCITY – EVIDENCE AND ECONOMIC APPLICATIONS 4 (Institute for Empirical Research in Econ., Univ. of Zurich, Working Paper No. 75, 2001), available at <http://www.iew.unizh.ch/wp/iewwp075.pdf>.

137. See, e.g., *id.*

138. See, e.g., Marc J. Knez & Colin F. Camerer, *Outside Options and Social Comparison in Three-Player Ultimatum Game Experiments*, 10 GAMES AND ECON. BEHAV. 65, 67 (1995).

139. Joyce Berg et al., *Trust, Reciprocity and Social History*, 10 GAMES AND ECON. BEHAV. 122 (1995).

140. See, e.g., Hessel Oosterbeek et al., *Cultural Differences in Ultimatum Game Experiments: Evidence from a Meta-Analysis* (2003), available at [http://www1.fee.uva.nl/scholar/mdw/sloof/Ultimatum MetaMarch03.pdf](http://www1.fee.uva.nl/scholar/mdw/sloof/Ultimatum%20MetaMarch03.pdf); Rachel Croson & Nancy Buchanan, *Gender and Culture: International Experimental Evidence from Trust Games*, 89 AM. ECON. REV. 386 (1999).

141. See, e.g., Marc Willinger et al., *A Comparison of Trust and Reciprocity Between France and Germany: Experimental Investigation Based on the Investment Game*, 24 J. OF ECON. PSYCH. 447 (2003) (suggesting that Germans are more trusting than the French).

expect to receive to give it up.<sup>142</sup> This cultural difference has implications for ideas of property rights and for a range of rules of business organization law.

The design of behavioral experiments may affect the results — which raises questions about how much they tell us about the real world. Game experiments often use students as the participants in the games rather than a range of people with different characteristics.<sup>143</sup> The student test subjects may volunteer for the experiment,<sup>144</sup> and may receive small payments for participating.<sup>145</sup> Experiments to test endowment effects may involve testing how students value the mugs the researchers give them.<sup>146</sup> The context, however, makes a difference.<sup>147</sup> Students may respond differently to ownership of a mug depending on whether they “feel their status as owners has an independent moral justification.”<sup>148</sup> Using students as test subjects may skew test results. If one wanted to test levels of trust, age and life experience might make a difference. As a result, the controlled settings for the experiments necessarily mean that they are artificial.<sup>149</sup>

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142. See, e.g., Jennifer Arlen et al., *Endowment Effects Within Corporate Agency Relationships*, 31 J. LEGAL STUD. 1, 2 (2002) (“[T]he maximum amount a nonowner would be willing to pay for an entitlement is often significantly less than the minimum amount she would demand to part with it if she initially owned it.”); Russell Korobkin, *Empirical Legal Realism: a New Social Scientific Assessment of Law and Human Behavior: the Endowment Effect and Legal Analysis*, 97 NW. U. L. REV. 1227, 1228 (2003).

143. See, e.g., Willinger et al., *supra* note 141, at 456-57; Berg et al., *supra* note 138, at 129.

144. See, e.g., Willinger et al., *supra* note 141, at 456-57.

145. See, e.g., Berg et al., *supra* note 139, at 129. Research suggests that even small payments may have an effect on participants in the experiments.

146. See, e.g., Daniel Kahneman et al., *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325 (1990).

147. See, e.g., Korobkin, *supra* note 142, at 1242 (“[L]egal scholars need to take care to ensure the closeness of their contextual analogies and not to lose sight of the fact that their conclusions will often be contingent on the soundness of such analogies.”).

148. Arlen et al., *supra* note 142, at 9.

149. See, e.g., Arlen et al., *supra* note 142, at 33 (“[E]xperimental research is necessarily constrained within a specific, controlled environment, purposely isolated from other aspects of the real world. This isolation is both its great strength and its profound weakness. Observing a predictable behavioral pattern within a controlled experimental setting enables researchers to make causal claims with minimal fear that unobserved phenomena or reverse causality are driving their results. Yet this very controlled setting makes it difficult to generalize to real-world settings that are the focus of policy reform proposals.”).

Virtual worlds could be a better venue for testing legal rules and people's responses to those rules.<sup>150</sup> Behavioral experiments tend to rely on a pool of available students who are willing to participate rather than being enthusiastic about the experiments. Any experiment that used virtual worlds could attract a large number of enthusiastic — even fanatical — players who would have a real investment in the game. Their investment in the game would be closer to an investment in real life than the types of investments students tend to have in simple games. Some virtual world participants prefer to live in the online world than in the real world.<sup>151</sup> Indeed, some players become “immersed” in the games and begin to take their virtual life so seriously that they forget that it is a game.<sup>152</sup> Of course, any attempt to harness a virtual world as an experimental tool would require the informed consent of the experimental subjects — a somewhat ironic problem for any experiment that might be designed to test consumer comprehension of rules.

Although they are artificial, virtual worlds are artificial in different ways than are experiments such as ultimatum games, trust games, and mug studies. Yet, virtual worlds are similar to these games in that they are more controllable and modifiable than the real world. Virtual worlds are more complex than simple experimental games (making them more like the real world) and yet they are, for now, simpler than the real world (making them more manageable). Virtual worlds are also more easily manipulated than are real world experiments: the game's designers can choose which variables to modify while leaving the others constant. Different versions of the game, or “shards,” can run at the same time, thus allowing for testing of how rule variations affect players' behavior.<sup>153</sup>

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150. The idea that virtual worlds might have something to teach us about reality has not escaped other commentators. See, e.g., Lastowka & Hunter, *supra* note 121, at 33 (“A third reason for exploring the laws of virtual worlds is that they represent an amazing experiment in law-making, and provide a serious challenge for real life legal systems.”). Our aim in this paper is to make the case and to discuss where it is most and least likely to work.

151. See generally *supra* text accompanying notes 76-101.

152. See Jane McGonigal, “This is Not a Game”: *Immersive Aesthetics and Collective Play* (2003), at <http://hypertext.rmit.edu.au/dac/papers/McGonigal.pdf>.

153. Unless the purpose of the experiment was to see which rule system players preferred, players would have to be randomly assigned to different rule systems.

One can imagine different ways of structuring the experiment. In one version the operator of the game might allocate players to different shards at random; in another, players could choose which rule set they preferred *ex ante*; in another, players could participate in the development of the rules by expressing their views about what proposed changes to the rules they would like to see. In this version, the game would not merely test different rules identified by the experimenters but would also harness player creativity to design better rules.

While virtual worlds have characteristics that make them look like useful test beds for legal rules, existing games do have characteristics that may limit their usefulness. Virtual worlds seem like the real world in that they are interactive, social environments.<sup>154</sup> But in a number of ways the assumptions built into the games may not track reality. Games may assume scarcity, whereas in the real world some things are scarce and others are not. Games may assume that it is better to cooperate than to work alone.<sup>155</sup>

To the extent that virtual worlds' usefulness as test beds for legal rules is based on their similarity to the real world they also threaten to raise the legal transplants issue mentioned earlier — just because a rule works well in Norrath does not mean that it would work in the same way in Newark, much less Nepal. But the very simplifications that make game worlds possible also allow researchers to decide what to model, what to leave out, what to hold constant, and what to vary. Thus transplanters of legal rules from a virtual world into a real world context might find it easier to think about how the conditions in the real world differ from those in the virtual world than would be the case in a real world to real world transplant. Moreover, virtual worlds themselves allow researchers to experiment with how different conditions affect the application of the rules. Furthermore, if experimenters are able to control the nationality of who plays in their shard, virtual worlds offer the additional advantage that the players can be drawn from the same soci-

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154. “[S]ince the VWs are inherently social, the achievements are relative: it is not having powerful weapons that really makes a difference in prestige, but in having the most powerful weapons in the world. In a postindustrial society, it is social status, more than anything else, that drives people to work so diligently all their lives. In this respect, VWs are truly a simulacrum of Earth society.” *CYBERIAN FRONTIER*, *supra* note 76.

155. See *CYBERIAN FRONTIER*, *supra* note 76.

ety as the one for which the rule is being tested. Any unknown and unstated cultural assumptions are likely to be replicated in the model, rather than being missing from it, because the players naturally bring their assumptions with them. Thus, rather than have to trust that Newark's rule fits Nepal, one need only have reason to believe that Newark's gamers, or the United States's more generally, act online in ways that sufficiently resemble their earthbound selves.

We think we could use virtual worlds to test a wide variety of questions about how law works, but not all of them.<sup>156</sup> In this section, we suggest which types of rules are most likely to lend themselves to testing in virtual worlds, and which types of rules are less easy to test in this manner. In general, virtual worlds would seem to be more useful for testing relatively simple rules and also more complex rules in relatively simple contexts. Even with this substantial limitation, however, virtual worlds provide a fertile testing ground for a number of existing legal beliefs and potential innovations.

#### A. *What Should Work?*

Virtual worlds generate a range of different transactions, and participants in these worlds inflict harm on other participants in various ways. Virtual worlds therefore inherently invoke ideas of property, contract, and tort. A player in *Ultima Online* or *Everquest* owns weapons, may buy and sell those weapons, and may use them to hurt other players. As a result, the game needs to have rules regulating the types of property rights a player can have in weapons, the ways in which transactions in weapons may be accomplished, and the consequences of inflicting harm on another player.

*Real and Chattel Property Regimes.* De Soto and others who focus on development emphasize the significance of property rights on

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156. Virtual worlds could also shed light on some economic issues, such as how to identify people who would be likely to be successful entrepreneurs. People who showed entrepreneurial approaches to playing online games by developing new strategies that took advantage of particular characteristics of the games might also be successful entrepreneurs in meat-space. Venture capitalists could decide to allocate capital to people who showed success in making simoleans. Note that this would only work if one could guarantee that the simoleans were self-made rather than bought on eBay.

economic success. Participants in virtual worlds own property, and some items of the property they own are more valuable than others. But perhaps the property rights thesis could be tested — or sharpened — by having parallel virtual worlds with different types of property rights. One version of a game might be designed to see how players would react to a wide range of different rights that could exist with respect to a particular item of property. Players might be able to lease their property to others for a number of days or weeks or for certain hours in the day. Lease contracts might allow sub-leases, or they might not. A player with many swords might get into the business of leasing swords to other players. A player might sell swords on credit and expect to have a security interest in the transferred, but not yet paid-for sword, allowing for investigation of different arrangements for security interests and for rules about the transfer of risks. Different versions of a game might demand compliance with formal requirements for the transfer of property, or could allow recognition of informal transfers. A virtual world could experiment with socialism and dispense with individual ownership of property, or provide for redistribution of property.

*Tax Policy.* In the same way that virtual worlds might allow for testing of different allocations of property rights, they might also allow for testing of some basic general ideas of tax policy. Clearly it would be difficult, if not impossible, to test detailed technical rules in a virtual world, but different shards of a game could have different tax regimes. One shard could impose taxes at a flat rate, while another could have a progressive tax system, allowing the experimenter to compare the results. One could also measure players' attitudes towards different trade-offs between tax regimes and social expenditures. For example, one could measure the effect on player satisfaction of making healers more effective in a game with higher tax levels.

*Transactional law.* Characters in virtual worlds enter into simple transactions with each other. They meet to buy and sell items in the game, or agree that they will journey together to a new place in order to find a needed item. Games may be structured so that success at a particular task requires a number of different skills that one character alone is unlikely to have. Therefore, players would need to negotiate how to obtain the benefit of another character's

skills. Such agreements may look like agency or employment relationships, or even partnership, if the players agree to share the profits of the expedition. Thus, in virtual worlds one could not only expect to see simple transactions involving buying and leasing of property, and perhaps loans of money, but also simple business relationships. It would be possible to run different versions of the virtual world where some had limited liability business forms and others did not, although these different arrangements would clearly be sensitive to tort rules in the game. One could explore the relationships between tort and contract rules by testing, for example, the effects of allowing tort damages for breaches of contract (which seems to match the expectations of many non-lawyers). Different versions of a game could implement different arrangements for the enforcement of contractual obligations.

*Tort.* Characters in virtual worlds can suffer physical harm and economic losses, although the implications of physical harm are different. Virtual worlds would not be useful test beds for rules about the measure of damages — characters may have to pay for the services of healers, but this is unlikely to be as expensive or complicated, and certainly not as physically painful, as acquiring the services of doctors and hospitals in the real world. On the other hand, it should be possible to test the effects of having, or not having, an economic loss rule precluding damages for economic loss except where there is physical damage. Virtual worlds could also be used to supplement the results of simpler experiments investigating endowment effects, or status quo effects, which would be interesting for many areas of law that rely on the Coase theorem,<sup>157</sup> including environmental law.

*Insurance.* Players in virtual worlds might want to insure against the risks of harm or economic loss, so the games could be used to test different rules about what risks are insurable and different arrangements for dealing with moral hazard.

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157. The Coase theorem holds that if private parties can bargain over the distribution of resources without cost, then the parties will allocate the costs of externalities in a manner that efficiently allocates resources. It follows that if the bargain cannot be reached, or if there are transactions costs, efficient allocation in the face of externalities may require the intervention of a third party. See Ronald Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960), available at <http://www.sfu.ca/~allen/CoaseJLE1960.pdf>.



*Dispute Resolution.* Virtual worlds may also provide a test bed for some features of dispute resolution mechanisms. In the real world, judges may tailor the rules they develop in order to limit the number of disputes that may come to court in the future. In virtual worlds, one could experiment with costless access to courts. In this model, players would experience the costs of dispute resolution primarily as costs in time, rather than money. Comparing the litigiousness of participants to a different shard in which litigation was expensive (or even to similarly situated real life litigation) might provide valuable information about the sensitivity of quantity of litigation to financial cost.

*Jurisprudence.* Virtual worlds might also allow testing of various moral intuitions at the foundation of important strands of modern political philosophy, although some obstacles would need to be overcome. A major theoretical move in John Rawl's *Theory of Justice* presupposes an imaginary "veil of ignorance" that prevents rational actors in a hypothetical "original position" from knowing what their physical, cognitive, familial, racial, national, and economic endowments will be in society, and then asks what rules they would choose if ignorant of their actual role and abilities.<sup>158</sup> Rawls — implicitly taking people to be risk-averse rather than risk-loving — argues from the premise that rational people behind the veil of ignorance would agree on two principles of justice.<sup>159</sup> Their first principle would affirm an equality of basic rights.<sup>160</sup> Their second principle, known as the difference principle, would hold that all inequalities are unjust, unless removing them would worsen the situations of the worst-off members of society.<sup>161</sup> It would be trivially easy to design a virtual world in which players were unaware of their future avatar's characteristics and endowments. Faced with the prospect of participating in such a game, players could be polled, or even asked to come to an agreement, as to their preferences for how abilities and endowments should be handed out, and what social policies should dominate the game. Since players would be making these choices before the game started, however, it might be difficult

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158. JOHN RAWLS, A THEORY OF JUSTICE (Belknap 1999) (1971).

159. *Id.*

160. *Id.*

161. *Id.*

to get them to take it as seriously as they would take rules that affected an avatar in which they had expended substantial effort. In particular, in order for the experiment to be meaningful, players would need to believe that they could not simply quit the game and start another one if they got stuck with a lousy avatar.

### *B. What Might Not Work?*

We can identify a number of different factors that would get in the way of using virtual worlds to test real world rules. In essence, these factors are all consequences of the ways in which virtual worlds (inevitably?) differ from the real world. Virtual worlds are less complex than the real world and relationships in virtual worlds are different from relationships in "meat space." Virtual worlds do not (currently) have elected governments, and they do not have nations, although they do have tribes, factions, guilds, clans, and racial (or species) groupings.

*Complex Rules.* Virtual worlds are less factually complex than the real world. Any area of law dealing with highly complex factual situations in real life would be difficult to translate to the virtual world. In a virtual world, a player might seek a remedy for misrepresentation about the characteristics of an item for which they believe, after the transaction that they overpaid. But business enterprises in online games do not issue securities to other players, and even if players did offer people the opportunity to invest in their business activities in return for a share of the profits, the legal issues involved would look much more like those involving simple fraud than like complex securities regulation.

One set of implications of this lower level of complexity in virtual worlds is that they do not (so far) include lawyers.<sup>162</sup> While it is possible to conceive of the development of Everquest lawyers in response to a development of law, until that time it would be advisable to avoid using legal rules that would be so complex that players would need to consult a lawyer to understand them. In fact, this idea of using the games to examine the extent to which people can use legal rules without the involvement of lawyers could be interest-

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162. We would argue that this shows that game developers lack imagination when it comes to creating seriously aggressive monster classes.

ing,<sup>163</sup> but a range of complex rules — such as tax rules, and detailed rules of civil and criminal procedure — would fall outside the scope of testing through this sort of game.

*Family Law.* Many rules of law deal with relationships. We suspect that rules of family law and inheritance would not translate well to virtual worlds. Characters in virtual world games may “marry” other characters but these marriages are very different from real world marriages (players can select the gender of their avatars much more easily than people currently can), and are insulated from the stresses and strains of everyday life. Even if characters in virtual worlds have children, those children are never related to them biologically. Your real life kids may not play the same game, and if they do they are unlikely to want to play as your virtual kids (although they might want to be your parents!).

*Administrative Law and the Legislative Process.* Virtual worlds do not currently have elected governments — most seem anarchic, feudal, or mysteriously governed by “gods” who are in fact the game operators. Some have authorities that exercise police powers, and different games could include different rules limiting the freedom of action of the policing authorities. It might be possible to imagine a virtual world in which players elected representatives who would act as legislators within the world, but they would do so within a system run by designer/gods/experimenters who set the fundamental rules, and are not term-limited, so there would inevitably be a limit to what the player/legislators could decide. Legislators in the real world are often limited by a constitution, but designer/gods/experimenters of virtual worlds are unlikely to want to allow the players to amend the worlds’ constitutions. In the real

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163. The Canadian province of British Columbia recently proposed introducing a new simpler system of securities regulation. See, e.g., BRITISH COLUMBIA SECURITIES COMMISSION, NEW CONCEPTS FOR SECURITIES REGULATION, A NEW WAY TO REGULATE 5 (2002), available at [http://www.bsc.bc.ca:8080/Historycomdoc.nsf/0/ffb85755a68dce2e88256b64005970f8/\\$FILE/New\\_Concepts.pdf](http://www.bsc.bc.ca:8080/Historycomdoc.nsf/0/ffb85755a68dce2e88256b64005970f8/$FILE/New_Concepts.pdf); BRITISH COLUMBIA SECURITIES COMMISSION, SECURITIES REGULATION THAT WORKS. THE BC MODEL, COMMENTARY ON DRAFT LEGISLATION 3 (2003), available at [http://www.bsc.bc.ca/Publications/BC\\_Model/Commentary.pdf](http://www.bsc.bc.ca/Publications/BC_Model/Commentary.pdf). Issuers suggested that they would be more likely to interpret simpler, “plain language” rules themselves rather than consulting a lawyer. CHRISTINA WOLF, BETTER DISCLOSURE, LOWER COSTS, A COST-BENEFIT ANALYSIS OF THE CONTINUOUS MARKET ACCESS SYSTEM 16 (2002), available at [http://www.bsc.bc.ca/Publications/CBA\\_Report.pdf](http://www.bsc.bc.ca/Publications/CBA_Report.pdf).

world constitutional change may be arduous or bloody, but it can happen. On the other hand, the operators of virtual worlds may change their worlds in response to market pressures. If players dislike particular constitutional features in one world they may migrate to another. To the extent that we could examine constitutional and administrative law issues in virtual worlds, we would run again into the fact that the virtual worlds are less complex than the real world.

*Transnational and International Law.* The absence of anything resembling modern governments in the major virtual worlds means that even when separate nations exist in current virtual worlds, their relationships are unlikely to be meaningful representations of international law. Thus, a range of issues in transnational and international law arising in the real world cannot be reproduced in existing virtual worlds. Because virtual worlds have no international trade, there is no scope for international trade law other than, perhaps, tariff law. There is no need for rules of public or private international law.<sup>164</sup> Moreover, one could imagine a need for admiralty law only in games with substantial sea-based trade.

*Zoning.* Some real world property problems may be too complicated to model in virtual worlds. In games like the Sims Online where players try to make simoleans by attracting customers/renters to the properties they develop, it might be possible to experiment with different zoning regimes. Two shards of the same game could have different zoning arrangements: one unregulated and the other with zoning controls. One could then study the patterns of development under the different systems and test which outcome players preferred.<sup>165</sup> Clearly, however, zoning in the real world is very different from zoning in a virtual world, and the implications of having a toxic waste dump next to your apartment building in the real world are likely to feel very different from the same experience in a game.

*Intellectual Property.* Like zoning, intellectual property involves complex technical issues in the real world that a game could not

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164. Migration between different shards is very different from immigration in the real world.

165. One could run the test either by seeing which system players preferred to enter initially, or by allowing players to move from one shard to the other.

test. However, arguments about IP law often center on arguments about whether strong IP rights are necessary to encourage entrepreneurial activity. We think it is possible that one could test such claims in virtual worlds, although it would be necessary to run the games for a long time in order to obtain useful data.

#### IV. CONCLUSION

In a world where real world experimentation with legal rules is likely to be useful, but also difficult and expensive, experimentation with legal rules in virtual worlds may be a valuable substitute. Large numbers of enthusiastic players in virtual worlds could test legal rules in an environment closer to the real world than many of the experiments that behavioral economists run to test economic behavior. The cost of running these experiments would involve the expense of developing the games, but one could free ride on the existing market for games. One would, however, want to sell the games, because giving them away would risk undermining the market for existing games. Experimenting with rules in virtual worlds also avoids the real world economic and psychological costs of experimenting with interesting, but ultimately harmful, rules.