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## Policy questions raised by virtual economies

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### ABSTRACT

Over the past decade the number and scope of so-called *virtual* economies has risen rapidly. Careful study reveals that the label “virtual”, while useful in a descriptive way, does not identify anything economically unique. Virtual economies tend to behave like any other economy and also increasingly interact in predictable ways with the so-called *real* economy. Yet, these interactions raise important and unresolved questions for law and policy. While most of the legal questions have been addressed by scholars, at this point, most remain unresolved by the courts. In addition, there is little systematic analysis of policy issues for virtual worlds. This paper identifies a number of reasons why the boundaries between the real and virtual worlds are eroding. In doing so, it addresses a few of the major policy issues faced by virtual world operators as the boundaries of their creations push against the real world. It also demonstrates how the developers of virtual worlds already behave as policy makers, and how their own actions continue to blur the boundary between themselves and national governments.

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## 1. Introduction

Since the late 1970s, people in networked online environments have created, owned, and traded persistent digital things that have value for them. These activities – production, ownership, and exchange – meet every reasonable definition of *economy*. By the late 1990s, persistent online environments came to be labeled “virtual worlds” and hence the economies within them were called “virtual economies.” This was a labeling misstep. A 3D depiction of a car is (perhaps) usefully labeled as a virtual car – a car that is not quite real. But it is not as clear that an economy in a virtual world is not quite real. The “real” economy deals with things that are intangible all the time, as people buy, sell, and trade URLs, images, software, and ideas without second thought to the reality of the product. The items in a virtual world are not different. They are intangible, but they are also useful, scarce, and persistent.<sup>1</sup> In the context of a virtual world they have real value.

One of the more interesting aspects of virtual worlds is that they can be readily manipulated by changing the code. The rules (physical, social, or laws) of a virtual world can be defined more extensively and easily than the rules of the real world. Changing the properties of the game or world can alter the very nature of a virtual economy, often with profound consequences for players. For example, the developers of multiplayer online games occasionally take actions that raise all players’ base level of productivity in the game.<sup>2</sup> When that happens, the value of the marginal productivity provided by many items falls, leading to a substantial reduction in virtual wealth. This change can reverberate into the real world, where

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E-mail addresses: [castron@indiana.edu](mailto:castron@indiana.edu) (E. Castronova), [iknowles@indiana.edu](mailto:iknowles@indiana.edu) (I. Knowles).<sup>1</sup> How long these database entries should persist is one of the major policy questions that virtual worlds may have to face in the future.<sup>2</sup> A common method for doing this is raising the so-called ‘level cap’. This allows players to earn higher levels, which increases the power of their character.

virtual items are often bought and sold for real money. Thus, an increase in the base productivity may thus drastically improve a player's productivity in game, while simultaneously resulting in a (potentially) substantial financial loss in both the real and virtual economies. As this example illustrates, the designers of virtual economies are policy makers in a very real sense, and their decisions affect life both inside and outside of the game.

To players, “code is law” (Lessig, 1999). The power of designers to affect the in-game lives and wellbeing of players, in particular, far outstrips that of their real-world counterparts: the law-makers and enforcers of the real world. Contrast the merchant operating an intergalactic freight business in the virtual world EVE Online versus with a merchant operating an intercontinental freight business in the real world. Yes, the consequences of policy changes – at this period in time – are generally less severe for a merchant in EVE Online, than a merchant in the real world, but the developers of EVE Online control much more than just the laws and rules that bind the merchant. They control the weather, the number of pirates, and the size of the waves.

The conception of developers as policy makers has some interesting implications. Drawing the line between what is real and virtual is becoming increasingly complex, if not impossible. Virtual economies often mix with economies based on non-virtual goods. Some examples of this include reward points, token economies, art, frequent flier miles, antiques, baseball cards, and intellectual property. It is common for players of online games to exchange virtual for non-virtual goods (Lehdonvirta & Ernkvist, 2011). When this mixing occurs developers and philosophers of virtual worlds often deploy a concept called the *magic circle*, which was introduced by Dutch historian Johann Huizinga in his work *Homo Ludens* (Huizinga, 1955). The magic circle is the theoretical boundary between play activity and serious activity. Historically, virtual goods were only emergent features of play environments such as online games. However, as their genuine economic value became apparent, virtual goods began to be traded against other goods that were not within the magic circle. The trade of virtual for real blurs the distinction between what is play and what is serious.

The issues here are more than conceptual. Billions of dollars in transactions take place in virtual economies, and the production, exchange, and currencies of virtual economies now have implications for real world exchange, real world monetary policy, and real world governments. Though technically prohibited by most virtual world operators, the so-called “real-money trade” in the assets of virtual worlds was estimated to be roughly \$1.8 billion in 2007 (Heeks, 2009). While more recent estimates of the size of this trade are unavailable, it is almost certainly dwarfed by the revenues derived from direct sales of virtual assets to consumers. The rudimentary virtual worlds that function on top of social networks such as Facebook or Tencent's QQ network are estimated to have generated \$6 billion in revenue in 2013, a 31.9% increase over 2012 (Boyland, 2013). The markets for virtual currencies are so large and so liquid that some governments have felt it necessary to restrict their use. Witness, for example, China's ban on trade using Tencent's QQ coin when it became apparent that users were buying and selling real goods with the virtual currency (Rosenberg, 2009). The number of people engaged in virtual economic activity is also rising at a substantial clip, with industry research suggesting that in 2011, 170 million people spent some time playing in persistent or semi-persistent virtual worlds in the US and the UK alone (Information Solutions Group, 2011). In sum, the past decade has seen a dramatic increase in the trade in virtual economic assets, in the number of people exposed to or engaged in that trade, and in the importance of virtual economic activity for people and governments inside and outside virtual environments (Lehdonvirta & Ernkvist, 2011).

This overlap of the real and the virtual reveals a host of questions for entities in both realms. Governmental authority extends to all goods produced and exchanged in a country, and the regime of taxation and economic regulation is extensive, heavy, and critically implicated in the well-being of all the citizens. The conception of developers as policy makers and the blurring of the magic circle thus raises questions about the policy issues that developers are obligated to manage and the regulation of virtual worlds by outside forces. These questions are of immediate importance to governing agencies in both realms.<sup>3</sup>

The rapid integration of the real and virtual has not escaped the notice of other scholars, especially those in the field of law. Teitelbaum, Elders, and Alavian (2012) focus in particular on the legal questions and policy tools surrounding the management of virtual currencies by virtual world providers, while Arnold IV (2012) focuses on the difficulties of building a coherent tax policy to deal with virtual economic activity. Chambers (2011) provides an introduction to some of the ways that virtual economies can impact the real one, and argues that regulation by external agencies is both desirable and inevitable. Readers interested in more background on the legal side of this topic may wish to consult (Lastowka, 2010) and (Lastowka & Hunder, 2004).

The remainder of the paper is organized as follows. First, it briefly discusses the history of virtual economies, taking time to consider how the decisions of publishers have progressively blurred the boundaries between both worlds. It then identifies and discusses – more or less briefly – a host of questions that are raised by this new conceptualization. The final section concludes.

## 2. Virtual economies

Virtual economies were first identified within the genre of online multiplayer games, also known as virtual worlds. Two undergraduate students at the University of Essex – Richard Bartle and Roy Trubshaw – hold the distinction of designing the

<sup>3</sup> Nevertheless, the conception of developers as governors may have a short shelf-life if the issues we outline here motivate extensive intervention of regulators.

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