Games and Economic Behavior 72 (2011) 400–426

Contents lists available at ScienceDirect

Games and Economic Behavior

www.elsevier.com/locate/geb

Social distance in a virtual world experiment ☆

Marina Fiedler [a], Ernan Haruvy [b,*], Sherry Xin Li [c]

[a] School of Management and Economics, Institute for Management, People and Information, University of Passau, Innstr. 27, 94032 Passau, Germany
[b] School of Management, SM32, University of Texas at Dallas, 800 West Campbell Road, Richardson, TX 75080-3021, United States
[c] Economic, Political & Policy Sciences, University of Texas at Dallas, 800 West Campbell Road, Richardson, TX 75080-3021, United States

ARTICLE INFO

Article history:
Received 6 August 2008
Available online 18 September 2010

JEL classification:
C93
C99
D63

Keywords:
Experiments
Social distance
Trust
Partner selection
Communication
Cheap talk
Virtual worlds

ABSTRACT

We conduct a quasi-field experiment in a virtual world environment to investigate the impact of social distance on economic choices. We design trust games with partner selection, in which the proposer chooses between a familiar responder and a stranger with a higher multiplier. When choosing between the two responders, the proposer faces tradeoffs between economic opportunities and social distance. Comparing participants' behaviors to those in a standalone trust game, we find that in the virtual world experiment the proposers are more likely to select the socially closer responders despite the lower rate of investment returns, and the latter reciprocate by returning a higher proportion than the socially distant responders. Virtual communication also plays an important role on the proposers' choice and the responders' reciprocity. In contrast, social distance and virtual communication have less impact in the lab with a student sample.

1. Introduction

Social distance is defined as the perceived distance, or perceived dimension of closeness between interacting individuals or groups (Dufwenberg and Muren, 2006). It is an important concept in management, psychology, sociology, anthropology and political science. Akerlof (1997) points out that social distance needs to be incorporated into economic modeling to explain individual decisions bearing social consequences. Empirical studies show that social distance can greatly affect economic outcomes (Rao and Schmidt, 1998; Eckel and Wilson, 2002; Cox and Deck, 2005; Charness et al., 2007). Specifically, it may influence individual choices between alternative partners in economic interactions, and result in a selection of partners that are perceived as socially closer and hence more trustworthy (Eckel and Wilson, 2000; Slonim and Garbarino, 2006). While previous literature focuses on the impacts of social distance on economic behaviors in the *physical* world, few studies have examined its impacts in the fast growing *virtual* worlds.

Over the past decade, the concept of social distance has been enriched and even transformed by the rapidly growing popularity of virtual worlds. Virtual worlds are computer-mediated online communities where registered human users can interact via their computerized graphical representations called avatars. The largest virtual worlds, for example, World of Warcraft and Everquest, have attracted tens of millions of registered users from all over the world. A virtual world simulates

☆ We are indebted to Rachel Croson and the behavioral/experimental economics reading group at UT–Dallas for helpful advice. We thank Tian Yu, Silvia Heer, Timo Thoennissen, Olga Ryannel and Yufei Ren for excellent research assistance. Li gratefully acknowledges the financial support from the National Science Foundation through grant no. SES 0720936.

* Corresponding author.
E-mail addresses: marina.fiedler@uni-passau.de (M. Fiedler), eharuvy@utdallas.edu (E. Haruvy), sherry.xin.li@utdallas.edu (S.X. Li).

0899-8256/$ – see front matter
doi:10.1016/j.geb.2010.09.004

many aspects of the physical world. Groups of users may meet to play games, share information, discuss mutual interests, shop, or carry out business (Bloomfield, 2007). Different from in the physical world, virtual worlds make it possible for users to meet others from geographically distant locations, in many cases from different countries, without having to physically travel thousands of miles. In many virtual communities, users interact via their avatars without exposing their real-world identities. Virtual worlds not only have become an important form of modern socialization but also have become a fast growing sector of the economy. Users may trade a wide range of commodities varying from virtual goods (e.g., a speeder bike on an online computer game Star Wars Galaxies) to labor (e.g., service to develop virtual real estate). These economic activities have created vast world markets where such large volume of *real* incomes have been generated that the U.S. Congress started looking into the tax non-compliance issue related to the virtual economy.[1] In sum, virtual worlds have made it possible for people to engage in social and economic activities that are not constrained by geographic boundaries or nationalities at such low costs that no one could imagine before. The size and scope of the virtual worlds has made them a new front for socialization and an important sector of the global economy, and therefore an interesting new arena for economic research.

How does the vast physical distance among users and the (possible) anonymity nature of the social interactions influence the perceived social distance in virtual worlds? How does the perceived social distance in turn impact economic decision making? This study contributes to the literature by investigating these questions using a quasi-field experiment complemented by a lab experiment. Specifically, we examine the impact of social distance and virtual communication on individuals' decisions in trust games that involve partner selection. In the trust games the social distance is varied between the proposer and two potential responders, and the investment multiplier *increases* with the social distance. The proposer chooses between two trust games with two different responders, facing a tradeoff between economic opportunities and social distance. We construct a theoretical model to incorporate partner selection into the trust games. We compare results to the benchmark standalone trust game and investigate three questions. To what extent are the proposers willing to sacrifice potential payoffs in favor of lower social distance? To what extent does social distance affect the amount sent by proposers to the responders? How does the social distance influence the responders' reciprocation?

We implement this experiment in a 3D virtual world called Second Life. Second Life is a very popular virtual community for social gathering. It is so popular that in order to reach the large population of potential voters on Second Life, then Presidential candidate Hilary Clinton established her presence during the 2010 Presidential campaign. Second Life suits our study also because of its rapidly growing economic components. Economics activities range from virtual to economic transactions (trading virtual real estates, providing or consuming entertainments). There are many shopping malls, entertainment venues, banks, and other businesses, and several in world active stock markets. Many major corporations (e.g., IBM, Well Fargo, and Nike) and educational institutions have established their virtual presence on Second Life. According to Second Life's economic statistics (http://secondlife.com/statistics/economy-data.php), in April 2010, about 492,000 customers spent some money on Second Life (in-world). More than half of these customers spent under 2000 L$ (just under US$8) for that month, whereas about 20 percent of the customers spent more than 10,000 L$ (about US$38) for the month. About 5 percent spent more than 50,000 L$ (US$190) for the month. The currency on Second Life, Linden dollars, is exchangeable with U.S. dollars.

This study also contributes to the literature from the methodological front. Compared to the traditional laboratory setting for studying social distance and partner selection, the virtual worlds provide a natural social context for a large body of users that is far more diverse than the college students sample in many aspects, e.g., age, education level, race, ethnicity, and country of origin. On the one hand, the presence of the vast physical distance amongst users (many users come from different countries) offers researchers greater flexibility to try out various experimental manipulations of social distance while preserving participants' anonymity. On the other hand, it offers researchers reasonable control while allowing social interaction to occur in a natural environment that is familiar to virtual world users (Bainbridge, 2007; Bloomfield, 2007; Castronova, 2001), a combination of features not previously available in a traditional laboratory (Bainbridge, 2007). Previous studies on partner selection are conducted in the lab and involve pre-play observation (Mulford et al., 1998) or communication (Frank et al., 1993) through face-to-face interaction. The problem is that the face-to-face interaction introduces social confounds (Eckel and Wilson, 2000). The alternative, proposed by Eckel and Wilson (2000), is to substitute faces with experimenter-generated smiley or frowning faces. This design removes confounds inherent in face-to-face interaction but also removes the information about the partner that comes with communication. In contrast, virtual worlds offer the possibility for users to have virtual-face-to-virtual-face communication without compromising real-world anonymity.

We acknowledge that the use of a virtual world as a platform for an economic experiment is unconventional, and the advantages it presides come with shortcomings — particularly some loss of control. To address comparability issues to other lab studies, we complement the quasi-field experiment on Second Life by a lab study using university students. Although results in both experiments are largely consistent the effects of social distance and virtual communications are substantially more salient in the virtual world setting than in the lab. The contrast of the results, as will be discussed in detail in Section 5, reveals great potentials of online communities as a *complementary* platform for the laboratory for research on social distance.

[1] See the National Taxpayer Advocate's 2008 Annual Report to Congress. URL: http://www.irs.gov/advocate/article/0,,id=202276,00.html.