

## Chapter 8.20

# Social Institutional Explanations of Global Internet Diffusion: A Cross-Country Analysis

**Hongxin Zhao**

*Saint Louis University, USA*

**Seung Kim**

*Saint Louis University, USA*

**Taewon Suh**

*Texas State University - San Marcos, USA*

**Jianjun Du**

*University of Houston - Victoria, USA*

### ABSTRACT

This study attempts to examine empirically how social institutional factors relate to Internet diffusion in 39 countries. Based on nine-year cross-country data, the analytical results show that the rule of law, educational systems, and industrialization significantly influenced the global Internet diffusion, while the economic system did not exert significant impact. Uncertainty avoidance as a national cultural phenomenon significantly inhibited the Internet diffusion. This significant and negative effect is particularly true with less developed countries (LDCs).

### INTRODUCTION

One of the most significant technological developments in the last century is the emergence of the Internet. According to the World Bank, between 1995 and 1998, worldwide communication markets connected 200 million telephone lines, 263 million mobile subscribers, and 10 million leased lines. Internet connections increased nearly 65 fold, exploding from 15 million in 1994 to 972.5 million by November, 2005. The adoption of the Internet also grew at a fast rate. It took the World Wide Web (WWW) only four years to reach 50 million users, while it took the telephone close

to 45 years, radio 38 years, and TV 13 years to reach the same number of users (Hannemyr, 1998). The development of the Internet provides unprecedented opportunities and challenges to the private as well as the public sectors in both developed and less developed countries. The Internet provides a platform for a global marketplace, supporting electronic commerce. In this setting, as more suppliers and buyers enter the arena at low cost but with fast immediate outcomes, the benefits of participation grow exponentially.

Understanding diffusion of the Internet is important because it creates new venues for social interactions and new business opportunities. Total retail e-commerce in the United States (U.S.) alone exceeded \$45 billion in 2002 (Bajari & Hortacsu, 2004) and achieved an estimated growth of 25% (eMarketer, 2006). E-commerce outside of the U.S. reached \$1,584 billion in 2004 (www.idc.com). According to the company's latest research, Internet traffic will rise from 180 petabits per day in 2002 to 5,175 petabits per day by the end of 2007. By 2007, the International Data Corporation (IDC) expects Internet users will access, download and share the information equivalent of the entire Library of Congress more than 64,000 times over, every day.

There is an increasing amount of research that studies the factors contributing to the rapid diffusion of the Internet. However, the empirical analyses appear only infrequently in the literature (Dutta & Roy, 2003) and need a broad-spectrum interdisciplinary approach (Lu, 2005). An explication of many studies show that they still primarily rely on descriptive and correlation studies (Dutta & Roy, 2004) based on the assumption that later adopters of innovation are increasingly likely to imitate early adopters over time (Rogers, 1995). Rai et al., (1998) were able to show that the contagion models, like logistic and Gompertz models, that ignore external factors, such as government involvement and technological development had poor predictability.

To expand this under-investigated and narrowly-focused research stream that lacks a coherent explanatory framework, the current study attempts first to contribute to the current body of literature by offering a social institutional explanation of Internet diffusion. The fundamental proposition is that the phenomenon of Internet diffusion is far from being the outcome of the operation of technological advances only. Instead, its occurrence is also embedded in social institutional systems that prescribe the acceptance and rejection of it and determine rate of diffusion. The application of social institutional theory to explain Internet diffusion adds new perspectives to the research domain and our understanding of rapid Internet diffusion as a fairly recent global phenomenon. An understanding of the social institutional influences is important because of the nature and profound impact of the Internet on the possibilities of economic leapfrogging (Steinmueller, 2001), on firm and industry competitive dynamics (Dinlersoz & Yorukoglu, 2004), on the welfare gains to consumers (Brynjolfsson et al., 2003), and on export orientations (Clarke, 2002). As a result, researchers examining Internet diffusion should be aware of social institutional factors. The present study assists with this goal and also provides a significant contribution to future research dealing with the broad issues associated with Internet technology. In addition, our social institutional approach to the study of Internet diffusion, to a certain extent, echoes the call for examining the broader context in which innovation takes place in order to overcome the "most serious shortcoming" or the so-called "pro-innovation bias" in diffusion research (Rogers, 1995). Thus, this study not only adds new empirical evidence to this quantitatively under-researched area (Dutta & Roy, 2003; 2004), but also offers a broader social institutional perspective for understanding Internet diffusion.

This article is organized as follows. The next section presents the review of literature and the hypotheses derived from it. The third section ex-

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