

Chapter 13

Toward an Understanding of Software Piracy in Developed and Emerging Economies

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ABSTRACT

The software industry loses billions of dollars annually to software piracy and has raised awareness of the high software piracy rates worldwide, particularly in emerging economies. In this paper, the authors build a general model of software piracy that includes three economic and social factors suggested by the literature, including per capita GNI, the relative size of a country's IT market, and government corruption. The paper demonstrates that the relationship between national software piracy and per capita GNI is nonlinear, with additional gains in per capita GNI, producing marginally smaller reductions in software piracy. No structural variation is found in the model with respect to whether an economy is developed or emerging, using the OECD membership as a proxy. However, a structural break did exist with respect to the relative size of a country's IT market. The analysis suggests that the classification of an economy as developed or emerging does not necessarily advance the understanding of the causal mechanisms that give rise to software piracy. Findings suggest that more insight can be gained by focusing on strategies that take into account the relative size of a country's IT market.

INTRODUCTION

“While emerging economies account for 45 percent of the global PC hardware market, they account for less than 20 percent of the PC software market. If the emerging economies' PC software share were

the same as it is for PC hardware, the software market would grow by \$40 billion a year.” (Business Software Alliance, 2009)

The above quotation is from a joint report of the Business Software Alliance (BSA) and International Data Corporation (IDC), reflecting their belief that software companies suffer losses

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of their intellectual property rights (IPR) disproportionately in emerging economies. The BSA is the largest IT industry group and is comprised of 29 major software companies, such as Adobe, Microsoft, HP, and SAP. The BSA-IDC annual software piracy report highlights decreasing, but still remarkably high, piracy rates in certain developing economies such as China (80%), Indonesia (85%), and Venezuela (86%) (BSA, 2009). The BSA suggests that software piracy is inhibiting development in emerging economies and estimates that 600,000 new jobs would be created and \$24 billion in tax revenue would be generated if the piracy rate could be lowered by 10 percent over the next four years (BSA, 2008). The BSA and its members have worked with governments to encourage the enforcement of IPR with notable progress in key economies such as Russia and China. With billions of dollars at stake, few issues are of greater importance to the software industry than the protection of their IPR through a reduction of software piracy.

Whereas the software industry suggests that software piracy inhibits a country's economic development in terms of per capita gross national income (GNI), a number of researchers argue that the direction of this relationship is actually reversed; that is, increases in per capita GNI reduce software piracy (e.g., Banerjee, Khalid, & Sturn, 2005; Gopal & Sanders, 1988; Shin et al., 2004). The rationale for this perspective is straightforward: A key motivator of piracy is a desire to save money and the relative cost of software is much higher for people with low disposable income than for people with a high disposable income. We adopt this perspective in the current study, and examine the national software piracy rate as a function of per capita GNI. We also explore the effects of a strong national IT industry and government corruption, as suggested in the literature, on software piracy in both developed and emerging economies.

This paper complements existing research into software piracy in a number of ways. One stream

of prior research has examined behavioral mechanisms that lead to software piracy, and has suggested policies that can moderate such behavior. The papers making up this literature contain both complementary and contradictory aspects. Thong and Yap (1998) studied the role of deontological theories (which assume that a set of universal rules define what is right) and teleological theories (which address the rightness or wrongness of an action on the basis of its consequences) in forming intentions to pirate software. They found that both considerations play a role in the decision to pirate. Peace, Galletta, and Thong (2003) used survey research to test a model of intention to pirate, and found that individual attitudes, subjective norms, and perceived behavioral control are significant precursors. Moores and Chang (2006) used survey research student subjects to test a model of ethical decision making, and found that the deontological aspects of recognizing software piracy as an infringement of intellectual property rights did not play a strong role in deciding on the morality of piracy. Gopal and Sanders (1997) considered how preventive and deterrent controls (broadly aimed at enhancing deontological and teleological considerations) affect the profitability of software firms. They found that preventive controls can operate to increase profits, while deterrent controls actually decrease profits.

A second stream of literature, within which this paper fits, focuses on the economic precursors of software piracy (Bagchi, Kirs, & Cerveny, 2006; Banerjee, Khalid, & Sturn, 2005; Gopal & Sanders, 1998; Gopal & Sanders, 2000). Cheng, Sims, and Teegen (1997) determined that economic considerations play a strong role in motivating piracy, noting that "software too expensive" was the number one reason given for committing piracy. Sundararajan (2004) analyzed an analytical model to reveal how price interacts with deterrence in influencing piracy, and found that price discrimination can substitute for technological deterrence in managing piracy. This paper builds upon these

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