

# Are Adolescents Addicted to Smartphones? A Perspective Using the Rational Addiction Model

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## ABSTRACT

This empirical study shows how people use their smartphones by employing the rational addiction model of Becker and Murphy. The analysis uses micro-level panel data on the monthly usage of smartphone applications (so-called “apps”) derived from 10,337 users in South Korea, from 2012 to 2016. The authors find that smartphone users are “addicted” to mobile phone apps, in the sense that their prior usage has significantly influenced their current use. Nonetheless, people in the sample seem to use their smartphones in a forward-looking manner, adjusting consumption over time to maximize their utility. On the other hand, the study’s result rejects the conventional belief that younger individuals behave more myopically than older ones. Furthermore, only the mother’s smartphone use was found to generate a positive externality for her children.

## KEYWORDS

Adolescents, App Usage Data, Panel Data Analysis, Parental Effect, Rational Addiction Model, Smartphone Addiction, Smartphone Use, South Korea

## INTRODUCTION

Smartphones are no longer just one of many communication devices; most people's daily lives revolve around them. The variety of applications and inherent mobility of smartphones enable people to do a wide variety of tasks, anywhere and at any time. Concurrently, the usefulness of smartphones has made people substantially dependent on them. According to Saad (2015), 46% of U.S. adults agreed with the statement "I can't imagine my life without my smartphone." The German Federal Drug Agency suggested that 28% of children in the country either are addicted to their smartphone or soon will be. It seems to be a global phenomenon, considering the road signs and advertisements in Germany, Taiwan, Sweden, and South Korea that warn "Smombies" (the abbreviation of smartphone zombie) not to use smartphones on the road for safety.

Previous literature has usually focused on the detrimental health hazards of addictive smartphone use and support that it is not self-controllable as other addictive goods. Lee, Chang, Lin, and Cheng (2014) find that compulsive behaviors of smartphone users are connected to psychological disorders. Demirci, Akgonul, and Akpinar (2015) indicate that depression, anxiety, and sleep quality may be associated with smartphone overuse. Darcin et al. (2016) also point out that those with psychosocial problems such as social phobia might be vulnerable to excessive use of smartphones. However, addictive use of smartphones is caused not only by a user's compulsive behavior but also by the device's usefulness. A smartphone offers a wide range of benefits from its use and there are some studies that justify it. Kavetsos and Koutroumpis (2011) find that ownership of a mobile phone is associated with significantly higher levels of subjective well-being, measured by individual self-reported life satisfaction. Smith, Spence, and Rashid (2011) argue that the benefits of using a smartphone are far beyond the economic perspective, enabling one of the greatest expansions of human capabilities in history. Cho (2015) also examines the noteworthy role of smartphone apps in reducing social isolation and improving the personal lives of individuals.

The purpose of this study is to examine whether smartphone addiction can be accounted for by users' rational decisions in the economic sense, even though the behavior entails psychological disorders. Further, we compare the behavioral pattern between adolescent users and older generations by subgroup analysis to see if there is a parental effect on adolescents' excessive use of smartphones. To take into account both the benefits and costs of smartphone usage, this study uses the rational addiction model of Becker and Murphy (1988). This model assumes that addictive goods have two distinctive effects—immediate satisfaction and long-term harmful effects—and that the consumer sets a balance between the two effects to maximize his/her utility. For Becker and Murphy (1988), consumer behavior is addictive if and only if increases in past consumption make current consumption rise. The behavior is also considered to be rational when current consumption is determined by future consumption. Therefore, our main interest is the decision and usage pattern of smartphone users who are aware of not only detrimental health problems but also benefits of smartphones rather than psychological traits of smartphone addiction. Specifically, this study focuses on

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