

Empirical Analysis of 3G Mobile Phone Diffusion by Focusing on Three Major Carriers in Japan

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Abstract

Technology is an important determinant in the development of mobile phone. Technological development, embodied in innovative functions developed from the first (1G) to third generation (3G) systems, has played significantly important roles in the growth and upheavals of the Japanese mobile phone market. In particular, the development in contents and value-added services such as entertainment, m-commerce and search engine are enabled by high speed data communications of 3G mobile phone. All these have made this small gadget an increasingly important part of daily life.

This paper heuristically analyzes the effect of technological innovations and competition policies on the diffusion of 3G mobile phones in Japan. In particular, this paper attempts to identify what are factors to promote the Japanese 3G mobile phone by using a linear dynamic panel data model. In constructing an estimation model, the number of subscribers to 3G mobile phone services is taken as a dependent variable, while the following three groups of variables (1) GDP and charges, (2) competition policies, (3) technological innovations, and (4) lagged dependent variable are selected as independent variables. The study examines not only the 3G market as a whole but also the three major carriers, namely, NTT docomo, au (KDDI) and SoftBank. In particular, the latter focuses on the different strategies of the three carriers toward innovations and competition. Monthly data related to 3G mobile phones from October 2001 to December 2008 is used for the analysis.

Keywords: 3G mobile phone; competition policy; MNP; panel data analysis; m-commerce; NTT docomo; au; SoftBank

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