Product incompatibility is commonplace in many complementary goods markets. For example, in the market of computers and operating systems, IOS can only be installed in Apple computers. In the market of game consoles and video games, exclusive contracts between game console manufacturers and game developers make new video games played in specific game consoles. Given the growing prevalence of complementary goods, addressing the effect of product incompatibility on market competition and consumer welfare is crucial for antitrust and intellectual property policies. However, the welfare effect of product incompatibility in complementary goods markets is a source of active debate and an open empirical question.


This paper studies the welfare effect of product incompatibility in complementary goods markets. Complementary goods are often incompatible across brands. Incompatibility imposes a choice constraint and increases consumers’ costs of switching or upgrading. Firms take advantage of incompatibility to lock in consumers. In this paper, I develop a dynamic consumer demand model and an oligopoly pricing game for complementary goods with incompatibility and estimate the model using an individual-level consumer panel data in the U.S. men’s shaving market. To investigate the welfare effect of incompatibility, I conduct counterfactual analyses in which razors and blades are compatible across firms and/or technologies within firms. Results show that two effects are presented when razors and blades are compatible: demand expansion effect and intensified competition between firms. Firms charge higher prices for both razors and blades since the demand expansion effect dominates the intensified competition effect. Consumer welfare is improved overall because the benefit consumers derive from expanded choices outweighs increased product costs.

2 Product Introduction under Incompatibility in Complementary Goods Markets (in progress)

This paper studies the effect of product incompatibility on product introductions in complementary goods markets. The key questions to be answered are: How often will firms introduce new products in complementary good markets given incompatibility. And whether product incompatibility speeds up or deters the new product introduction? I develop a dynamic oligopoly game of product introduction for complementary goods given incompatibility. I am working on estimating the dynamic game of product introductions using the Nilsen consumer panel data of shaving products. Estimates are going to be used to quantify the effect of product incompatibility on firms’ product introduction frequency and consumers’ welfare. Counterfactual market equilibriums where razors and blades are compatible are solved. The incompatibility between razors and blades come from the patent protection. In the counterfactual analysis, I assume there is no patent protection and firms
can make the horizontal and vertical compatibility decisions. Results will show whether or not product incompatibility speeds up new product introduction in the men’s shaving market. Given the counterfactual results, I will discuss the policy implications on patent protections (intellectual property). In particular, I will answer the question that whether patent protection spurs innovation.