

# Pharmaceutical Price and Demand in Japan

## Abstract

This study investigates pharmaceutical price regulation and competition in Japan where government has controlled pharmaceutical prices by updating official prices of products for the transaction purpose of the universal National Health Insurance Plan. The price control has motivations to contain overall drug cost and to maintain profit required by pharmaceutical firms. The combination of the universal public health insurance and the price regulation of individual products would provide lessons with regulators who are facing the similar policy tradeoff.

This study investigates two empirical questions. First is to examine how the “official price” and the “price difference ratio” defined as the (listed) official price to its (market) wholesale price are determined. Second is to investigate how demand for each product is determined. We focus on product profiles including “age” as years after introduction, “corporation” selling products, “ingredient”, “form”, “strength”, “package volume for transaction”, “generic competition”, “co-promotion/co-marketing”. Using detailed transaction data on popular anti-infective and cardio-vascular products in two periods 1990-2002 when the aggressive price reduction had been pursued and 2003-2013 when less aggressive price reduction has been held.

We show that the price difference (Yakkasa Hiritsu) had played an important role in Japanese pharmaceutical price regulation. In specific, this study finds that the price difference ratio incorporates individual characteristics as in the framework of “hedonic price model.” The price ratio is found to be higher for “co-promoted products,” “higher strength products,” “larger package volume product,” “injection,” and “high priced product.” The ratio is found to be lower for products facing with generic competition (GE\_COMPETITION). The structural change is found around the early 1990s (1990-1994) and the rest of the period. Although old products (OLD\_PRODUCT) had enjoyed higher price ratio in the early 1990s, its effects disappeared in the late 1990s.

This study also finds that the price ratio is an important determinant of demand while individual characteristics do not capture demand variation. It might be due to the fact they are already reflected in the differences in the price ratio. Our model accounts for demand for “Capsule & Tablet” while it fails to explain demand for “Injection.”

This study concludes that Japanese pharmaceutical price regulation had significantly affected pharmaceutical prices and competition, but its impact has been decreased over time.

Key Words: Japan, pharmaceutical, price, regulation, competition

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