Impact of Parallel Imports on Product Launch and Pricing Decisions in Pharmaceutical Industry

Background and Motivation: In recent years, growing number of companies are facing new challenges with the emergence of parallel import activities. The price differentials between different geographic locations for the same product create the perfect opportunity for unauthorized parties to purchase the product from lower-priced regions and make profit by transferring and selling the product in higher-priced regions. Although this is a phenomenon observed in every industry, the pharmaceutical industry faces some unique challenges in both determining drug prices across different countries and dealing with parallel imports. While, in other industries, prices are determined mainly by the firm and market characteristics, in the pharmaceutical industry, there are other dimensions to pricing: first, part of the drug price is often reimbursed by the insurance firms, and second, the drug price sometimes has to be determined via a negotiation with the government. Consequently, there are always price differences among countries, which create the perfect platform for parallel importers to thrive. On the other hand, pharmaceutical industry is very heavily regulated including the restrictions on direct-to-consumer-ads (DTCA), regulation of marketing efforts to physicians and even regulation of physicians’ budget all of which have a direct impact on the most basic market characteristics. Moreover, this is an industry that is very research-and-development-intensive. Developing a “pioneer drug” (i.e., a leading innovative drug in a particular therapeutic area) is a very expensive process and takes years of effort and investment. Thus, profit losses due to ineffective management of parallel imports across markets have long-term implications for these firms, including the reduction of R&D budgets, which, in turn, could lead to fewer new drugs.

In this paper, we study how pharmaceutical firms can effectively manage parallel imports between the two countries through coordinating launch and pricing decisions. Prior literature has provided empirical evidence on this issue (Danzon and Wang (2005)). For example, Pfizer introduced the well-known cholesterol-lowering drug Lipitor in 1996, which, since that time, has become the best-selling drug of all time; it is known today as the most successful drug launch in the pharmaceutical industry\(^1\). Yet, Pfizer chose not to launch Lipitor in India during this period even though India is one of the largest demand centers for cholesterol medicines.

Managerially Relevant Research Questions: Although the literature provides some evidence that pharmaceutical firms may choose to delay or not to launch their new products in some countries due to parallel imports, there are still many unanswered questions. In this study, we ask the following research questions: (1) What is the structure of optimal joint launch and pricing strategy in the presence of parallel import? (2) Under what

conditions do firms make no-launch decisions instead of accommodating or deterring parallel imports with pricing? (3) What are the implications of optimal firm strategy for social welfare? What are the policy implications for the regulators? (4) What other strategies can firm implement to mitigate the negative effects of parallel imports?

Modeling Approach and Preliminary Findings: To answer these questions, we consider a pharmaceutical firm that has introduced a pioneering drug in a country that we will refer to as "Country 1." The selling price in this country already has been decided, and the firm is planning its launch in another country, referred to as "Country 2," which has different characteristics in terms of patient population, valuation, and insurance coverage all of which have been incorporated into our demand model to be able to question the resulting policy implications. We assume that both countries have patent protection. The perceived "quality" of the drug obtained through parallel importers is assumed to be lower than that of the drug obtained through authorized pharmacies. If the drug is purchased from an authorized source and the patient has insurance, part of the expenses is reimbursed by the insurer. We solve the resulting game backwards starting with stage 3 where the parallel importer determines, for a given country 2 price, how many units to bring to country 1; then market segmentation takes place in country 1 between the regular drugs sold at authorized pharmacies and the parallel imported drugs and finally the firm decides on its optimal launch and price strategy. We discuss the conditions under which the firm faces parallel import threat and its implications for policymakers and the firm. When there is parallel import threat, the firm has three strategies: (1) Launch and accommodate parallel import (2) Launch and deter parallel import with a "high price" (3) No-launch. We discuss these various conditions under which the firm may see pricing as an insufficient mechanism to control parallel import and, instead, decide not to launch.

Contributions and Key Findings: To the best of our knowledge, this is the first study that focuses on both pricing and launch decisions in an integrated framework for a pharmaceutical firm that faces parallel import threat and tries to contribute to the growing OM literature on pharmaceuticals (Kouvelis et al (2015). and King et. al. (2013)) and parallel imports (Ahmadi and Yang (2000)). This integrated approach not only helps us understand some of the ongoing debate on the issue but also offers various recommendations for the regulators and potential strategies for the firm. In terms of regulators, we observe that the out-of-pocket expenses set by the regulators in both countries have an impact not only on the short-term government expense but also on the level of parallel import. Very low reimbursement levels in any one country make firms choose not to launch the drug in the second country, especially when the second country’s patient population size is small. Lowering the reimbursement levels may help with the expenses in the short term, but it will make the firm more likely not to launch. We also argue that banning DTCA would lead to an increase in quality perception of the parallel imported drug, which in turn will lead to further no launch decisions. Moreover, we observe that strict regulations on
marketing efforts to physicians and physicians’ budget will have a direct negative impact on patient valuations and patient size which will potentially lead to more no-launch decisions as well.

There is an ongoing debate about the impact of parallel imports on social welfare. Based on our analysis, we show that Country 1 is always better off with parallel imports, which explains why there are quite many wealthy countries that do not ban parallel imports. In comparison, the situation in Country 2 is more interesting. We show that parallel import leads to a price increase in the second country and, hence, makes patients always worse off. We also identify scenarios in which the second country’s welfare actually improves through an improvement in government spending. Although firms are always worse off with a parallel import threat, we show that total welfare, which is the sum of the patient surplus from both countries net of government spending and firms’ profit, can improve under an accommodation strategy when the patient population in the first country is sufficiently large. It is clear that a no-launch strategy always leads to a reduction in total welfare and never makes any party better off motivating our focus on what can be done to induce firms use other strategies to manage parallel import threat.

When the second country’s price is determined through negotiation, we find that there exists a unique equilibrium to the generalized Nash-bargaining problem between the second country and the firm. We show that price setting through negotiation eliminates deterrence as a strategy and leads to more no-launch decisions. We also study a setting in which there is perfect competition among parallel importers, leading to more parallel import activity in the first country, and show how this can make the firm and the second country worse off. We also study a second kind of competition between branded and non-branded parallel importers and partially characterize firm’s launch and pricing decisions and argue how this type of competition can actually be a double-edged sword. We then extend our analysis to understand how the firm can use rebates in Country 1 as a post-launch strategy to mitigate the negative effect of parallel imports. This strategy is commonly used by many pharmaceutical companies to lower patients’ out-of-pocket expenses; in this paper, we show that optimal amount of rebate can help pharmaceutical companies improve its profits by acting as accommodation or deterrence strategies.

REFERENCES


