Analysis of the U.S. Drug Market *

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To define market share for given drug company it is necessary to construct a model of U.S. pharmaceutical industry. For construct the model it is necessary to take into account its features.

Pharmaceutical industry has two main specific cost conditions: (1) very large sunk costs include the costs of bringing a product to market (doing basic research, winning patent approval, engaging in development, performing clinical trials, obtaining final approval from FDA); (2) the marginal costs of manufacturing for most traditional drugs are very small.

These cost conditions have implications for pricing. Patent protection gives firms the ability to influence price. One would expect price and marginal-cost conditions (P and MC) to approximate by Lerner markup relation as

$$(P - MC)/P = -1/\epsilon_P,$$

where ϵ_P is the demand price elasticity.

The pharmaceutical industry consists of a large number of firms that produce many different (and mainly nonsubstitutable) drug

products, ethical and over-the-counter, branded and generic. Production capacity for assembling active and inert ingredients into pills or capsules is largely fungible. Thus, although actual competitors for a given drug or therapy may be few, potential entrants are numerous.

Drug markets are divided on markets for prescription drug products (RX), markets for over-the-counter drug products (OTC), and markets for discontinued drug products (DISCN).

Marketing information stocks positively affect sales. The sales elasticity is largest for detailing, followed by journal pages of advertising, and is smallest for direct-to-consumer advertising.

Less then two decades ago competition among drug companies was focused on gaining the allegiance of prescribing physicians. More recently the doctor's prescription under the influence of information technology has become just the starting point in determining what drug the pharmacist dispenses.

To construct a model it is necessary to select a set of agents[1]. A model of US drug industry includes the next agents:

1. Drug companies that charge different prices to different groups of buyers.

2. Health maintenance organizations (HMOs).

3. Pharmacy benefit managers (PBMs).

4. Physicians (doctors).

5. Pharmacists.

6. Groups of buyers that substitute among alternative drug treatments (e.g., hospitals).

7. Patients.

References

1. *Pospelov I.G.* Modeling of economic structures. Moscow: Phasis, 2003. 194 p. (In Russian)