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MEASURING EFFICIENCY OF PHARMACEUTICAL COMPANIES OF THE REPUBLIC OF UZBEKISTAN

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ABSTRACT

This paper presents a Data Envelopment analysis (DEA) for measuring efficiency of pharmaceutical companies. Letting each of fifteen companies in each year be a separate decision-making unit, and utilizing three inputs and one output, we measure annual efficiency values, slacks and target units of Uzbek local pharmaceutical companies for decade 2010-2019 as defined by the period of variables. Measuring efficiencies for every year together with slack values and suggested target monetary values, we empirically show that on average 5 firms (Reka med, Dentafil, Torimed pharm, SEEM and Uzgermed) out of 15 were inefficient every year. However, inefficiency was not significant, varying around 0.80-0.99. Throughout the study decade, most frequent slacks were depicted in excess input utilization rather than output usage.

Since the first years of independence, a strategy to reduce the state's share of the economy and privatize state property has been implemented in Uzbekistan. Such systems are largely intended to create a competitive market for small businesses and private investors and to build companies producing export goods. One of the ways to achieve these goals is to attract experience, investment and innovations from overseas, helping to establish new product manufacturing and becoming the foundation for developing domestic manufacturing capacity. This was the foundation for the financial industry in Uzbekistan to be developed. Developing the country's own medications with full use of local plant, organic, mineral and synthetic raw materials is an essential part of the national pharmaceutical development plan. The industry has therefore formed close relations with the Academy of Sciences and associated research institutions.

The novelty of this study is that there has not been conducted any research on pharmaceutical industry of Uzbekistan, despite the fact that there are quite many works about Asian countries that are mentioned in the literate analysis. Pharmaceutical industry needs deep analysis since many structural, economic and legal reforms have been executed since the days of the Independency. It is crucial to reveal firms' reaction to these changes so far. The pharmaceutical industry in Uzbekistan

is developing and is expected to continue to increasedue to rapid economic developme nt and increasing population demand.Uzbe kistan's pharmaceutical industry is one of t he fastest developingamong the CIS, after U kraine and Kazakhstan.Russia, Belarus, Aus tria, Italy, France and the United States are the main distributors of pharmaceutical pr oducts to Uzbkistan[1].

The drug market is dominated by fore ign manufacturers. In Uzbekistan, the drugs are in demand from firms such as Berlin Chemie / Menarine Pharma (Italy), Novartis (Switzerland), Sanofi-Aventis (France), etc. Despite the pharmaceutical industry's high growth levels in Uzbekistan, further advancement of this field is required. The production of drugs dependents on domestic scientific developments and regional raw materials is one of the exciting challenges. Promising is domestic producers ' growth by developing an efficient marketing and distribution network. By promoting products to the market through the participation of medical representatives, and also by implementing an effective promotional policy of domestic producers, it will be possible to achieve this objective. The Uzbek state-owned pharmaceutical firm announced objectives in 2016 to continue investing $65 million in local pharmaceutical industry advancement in 2018. The company has also created 10 extra programs to rise infusion solutions, dressings, and 20 unique generics production [1]. All of these initiatives are an essential part of the medium-term pharmaceutical industry development program. Because of these reasons, the flow into the nation of foreign direct investment should be greater than it has been experienced currently. The most successful growth fields of Uzbekistan's pharmaceutical industry are: increased financial expenditure in domestic research pharmaceutical creation; use of domestic raw materials for medicine production; effective advertising strategy of domestic pharmaceutical firms.

State support. Uzbekistan's pharmaceutical industry is facing systemic and regulatory transition. Over the past two years, Uzbekistan has taken various steps in this region, including setting up free economic zones for pharmaceutical companies, organizing public pharmacies, and implementing the revised list of essential medicines. Developing the required legal framework and providing tax incentives and benefits have allowed the pharmaceutical industry to establish a desirable environment for investment and development. The amount of drug companies increased by 2 in 1994 to 68 in 2002 and 130 in 2012. Throughout 2017, once opioid manufacturers were exempted from charging all taxes for 5 years, the latest boost was offered to the industry. In fact, businesses undertaking plans to create new production facilities and repair existing facilities have been given an exemption from payment of all customs duties while exporting technical equipment**.**

Pharmacies. According to the Ministry of Healthcare's Licensing Commission, as of December 2015, Uzbekistan has more than 7,500 dispensaries. They vary in size, efficiency, turnover and service quality. Some of them are truly modern and a large retail chain has been created. High-quality drugstores with a variety of products are mostly concentrated in the capital-Tashkent with 3.5 million residents and local administrative centers. Many national modern drugstore chains are based in

Tashkent and provinces. Regional trading companies who purchase pharmaceuticals either from overseas and regional suppliers have their own retail chains in some instances. JSC "DoriDarmon" operates the largest pool of 1300 drugstores in Uzbekistan. Tashkent's main drugstore chains include "Asklepiy," "Medicare," "Propharma," "Technopharm," "Oximed," "Grand Pharm," "Novo Pharma," "Jurabek."

Wholesale companies. Around 70 domestic and international wholesale companies are now supplying pharmaceuticals to the Uzbek market. "Grand Pharm Medical," "Dori-Darmon" JSC, "Asia Trade," "ATM partners," "Medicare," "Pharmed," "Lahisam," "Asklepiy," "Nika Pharm Service," "Atlas Pharm," "Farmexx," "Quramax Medical," "Med Import," etc.

Local pharmaceutical industry. Over the past few years, Uzbekistan's government has taken measures to grow national pharmaceutical industry and incremental replacement of imports. About USD 600 million was invested in the national pharmaceutical sector between 2010 and 2015. Uzbek government is trying to improve local manufacturing by granting manufacturing firms tax incentives and low interest loans. Actually, around 1800 varieties of medicines are manufactured by 121 local companies. In 2015, their overall production cost is reported at USD 230 million. That's the Uzbek market's approximately 20-22 percent price share5. Local companies initiated the development of 65 new medicines in 2015. Currently 26 joint ventures are active in Uzbekistan's drug industry with shareholders from Great Britain, Turkey, India, Germany, Japan, Poland, France, Russia, the UAE. Among them the most popular are "Novopharma Plus," "Nika Pharm," "DentaFill Plus," "Nobel Pharmsanoat," "Remedy group," "Jurabek Laboratories."

Representative offices of foreign pharmaceutical companies. A foreign drug company in Uzbekistan may open its Office of Representation (RO). Ro is not entitled to taxes. The Ministry of Foreign Economic Relations, Investment and Trade (MFERIT) accredits it. The fee for registration is USD 1300. While the RO is not permitted to perform commercial activity, it plays an important role in supporting the organization and its trademarks by developing business connections, marketing and disseminating product information and other representative roles. MFERIT must evaluate the request for accreditation of an RO for 10 days. In the event of a successful verdict, the accreditation certification will be given for a maximum of 5 days. Accreditation is typically given free for 3 years with the option of renewal. More than 60 international pharmaceutical firms are already in Uzbekistan with their branch divisions. Their operations target to explore and conquer the new industry, reinforce the role of their respective organizations and increase their market share. To this end, representative offices advertise and improve aimed contacts with national wholesalers, drug retail outlets, clinics and hospitals. Many interviews with people employed in Tashkent with international pharmaceutical companies suggest that establishing an RO helps foreign companies to gain a foothold in a rapidly growing sector and raise their profitability. The existence of only about 70 international pharmaceutical companies ROs appears evidently negligible for a dynamically emerging and promising market of nearly

32 million Uzbekistan. Currently, more than 100 foreign pharmaceutical companies are present in regions with a lower population density such as Azerbaijan and Kazakhstan, the number of registered pharmaceutical products has reached 10,000 (only 8,000 in Uzbekistan). It is clear, however, that there is a significant gap for western companies in the Uzbek sector. Because of growing public purchasing power, their high-quality products are expected to be more challenging.

Overall, Reka med, Dentafil, Torimed pharm, SEEM and Uzgermed were among most inefficient companies during study decade. Particularly, these firms attained inefficiency scores most frequently rather than others. Since the results advise appropriate benchmarks for inefficient units, slacks for excess input and output usage and target values, it is recommended that necessary government authorities responsible for improving overall health status of the population will react to this research and enact required legislation. In turn, it will lead to boosting pharmaceutical potential of the Republic of Uzbekistan. Additionally, firms themselves should consider the following result figures and reexamine input/output utilization in order to achieve efficient production. Especially, slack values will be beneficial while considering those changes, since these values indicate on the mistakes of the producers. Moreover, target values will help them to operate in productive frontier in the future [5].

Uzbekistan is one of the Commonwealth of Independent States (CIS)'s most promising pharmaceutical markets. Currently, more than 130 firms are involved in the pharmaceutical industry, selling more than one-third of all prescription drugs on the market, compared to the early 1990s when there were only three such businesses. Twenty years is a long time to build your own company or corporation. This time, though, is very limited when you build an industry with a diversified shipping, interaction and service network that was built using logistics. The new Republic had to establish a pharmaceutical industry practically from scratch over the years of independence, as well as lay the foundation for the production of highly skilled human capital. On the fast-growing market, a number of key Western drug companies are still missing, obviously there is tremendous opportunity to launch new products, significant investment reach, and a demand for nearly every product. Uzbek market's main advantages are generally low labor costs compared to neighboring Kazakhstan, equivalent or even less informal trade rates, relatively good infrastructure, fast-growing economy, diverse and professional young people. National drug use is marked by similar patterns in many CIS drug businesses: relatively low average cost per medication pack; the market is controlled by international producers in terms of value, with a rather small proportion of domestic producers; the INN and trade names Top lists are still defined by goods with a long record of use.

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