

A forecasted outlook of Indian Pharmaceutical Industry till 2030

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Abstract

The purpose of the research is to forecast the growth outlook of Indian Pharmaceutical Industry until 2030, investigating the pattern of growth since evolution. This Industry is said to be "the pharmacy of the world", it has travelled an elongated journey to become one. The pharmaceutical sector has registered tremendous growth in exports, per capita sale, total output and number of manufacturing units and revenue since 1970. The paper also shows the opportunity that the Indian pharmaceutical sector may witness for growth by 2030. A data of exports, per capita sale, total output and number of manufacturing units and revenue are taken into consideration for forecasting the growth of the industry. Python software is used for analysis and linear regression is applied for these forecasting. As a result, shows that there will be significant growth in the Indian pharmaceutical industry by 2030. It will be one of the biggest contributors to the Growth Domestic Product (GDP) of the country.

Keywords: Indian Pharmaceutical Industry, growth, forecasting, opportunity.

1. Introduction

The Pharmaceutical Industry is one of the most complicated sectors across the globe. Despite its potential to fight various illnesses and its ability to maintain the life expectancy and well-being of human life, it is also termed as one of the most expensive yet the most profitable one. (Taylor, 2015). The pharmaceutical sector has proven itself to be shining Armour in the eradication of many deadly diseases and epidemics like smallpox, polio, Spanish flu (1918-1920). It is a challenge to beat any illness, it mainly happens due to the time invested in formulations of antidote which undergoes various stages like research and development (R&D), clinical trials, patent and final production of the medicine which in turn results to an expensive way of survival due to its costing and affordability. Despite all expensive treatment and medications, there is no cyclical factor accompanying to the Pharmaceutical Industry say, for example, a person suffering from heart disease cannot skip his regular medication.

In a retrospective vision of the Indian Pharmaceutical industry, it has inherited its medicines from its Vedas. Ayurveda was the only ways of treating illness in ancient time. Ayurveda was the only hope of survival until the Britishers introduced India to English medication, i.e. allopathy in the 20th century. Indian set its first domestic industry 1901 named Bengal Chemicals in Calcutta, which is in existence even today as one of the government's pharmaceutical company (Umesh Chandra, 2016). The Indian pharmaceutical sector was covered under the Patent Act of 1911, which facilitated both product and process patent for as good as 16 years with extension of 10 more years resulting in domination of the multinational companies (Shah, 2012). It was only around 1970, Indian Government introduced a new patent act 1970 that enabled the Indian

pharmaceutical companies to patent their product based on its process giving an edge to the pharmaceutical companies to reverse the process of patented drugs worldwide and develop their product. It was the golden era of the Indian pharmaceutical sector. The production of bulk drugs showed tremendous growth of INR.15.18 Billion from merely INR 0.18 Billion in 1965-66 and formulations increased to INR 79.35 Billion from INR. 1.50 Billion. The share of total production showed significant growth of 24 per cent in 1994-95, which simply was 3.22 per cent in 1980-81. The patent act was subsequently modified in the year 2002 after India became the founding member of the World Trade Organization (WTO) and thus to follow the norms of WTO India changed its patent act from process to product patent.

The Indian pharma industry is an inspiration not only at the national level but also across the globe and especially to the developing countries. Indian pharma market was valued to US\$36.7 billion in 2018 and expects a growth of 22.4% resulting in US\$ 88billion market (Agency, 2020).

The major contributor in this sector, with 71 per cent of its share is (Kale, 2017) biosimilar or generic drugs. The generic drugs are a similar version of biological drugs which are patented. After the patent expires, a biosimilar drug is produced, known as a generic drug, since there is no research and development involved in the production of that drug. The Indian pharma growth depends on generic drugs as it contributes to the total domestic pharma revenue by 70 per cent, whereas the revenue generated by patented drugs is 21 per cent giving a minimal scope to them. The pharmaceutical market has shown tremendous growth; the market turnover recorded in 2018 was US\$ 18.12 billion with an incremental growth rate of 9.4 per cent from 2017. The sector is highly fragmented, it comprises of 3,000 registered pharma companies and around 10,500 manufacturing units, still, top 10% pharma companies cover 42.94% of sale in the domestic market, resulting in a clocked growth of 10% in December 2018 (Sohni Das, 2019).

India is said to be a world-class producer of generic drugs, giving an edge to it the exports of the pharma goods. Indian pharmaceutical sector is the world's third-largest in terms of volume and thirteenth largest in terms of value (Agency, 2020). The major reason is because of competitive pricing when compared to patent drugs. Indian generic medicines contribute to 20% of the global exports. It caters to 50% of global demand of vaccines (Magzine, 2018) and this sector has also marked its importance in the developed nations like United States Of America (USA), United Kingdom (UK) and Europe. India exports its generic drugs to USA fulfilling their demand for the same, 25 per cent of overall demand generated by the UK is accomplished by the Indian pharmaceutical sector. The export of generic medicines shall further grow as many blockbuster drugs have witnessed their patent drug expiry. The worth of these patented drugs was estimated to be USD 55 billion. Though in the case of unprivileged countries or low-income economies, India plays an outstanding benevolent role. United Nations International Children's Fund (UNICEF) in its annual supply report has accredited India in the procurement of fundamental medicines worth US\$ 529.6 million. India has played a significant role in Africa and other unprivileged countries to curb the spread of HIV-AIDS by providing all the essential medicines required. (Kochhar, 2014). India is also playing its role of being the biggest provider of generic drugs and vaccines for disease like ROTA virus, measles, and mumps.

2. Review of Literature

According to (Umesh Chandra, 2016) Indian pharma sector has a huge potential for growth. Though for better growth rate and ability to compete globally, India also needs to boulevard its approach towards various pharmaceutical fields. Indian pharmaceutical industry has the potential to grow in market size, as the lifestyle and urge of quality health gives a positive edge to it in order to increase its market share in the Indian economy. (Aktar, 2013; Dadhich, 2020) Indian pharmaceutical industry can cater around 70% of the domestic need for medications and is also able to supply to the world's demand. India needs to work more on research and development, clinical trials, and contract research manufacturing (CRM) so that Indian pharma will be able to cope up with the global needs and overcome from its biggest competitor China. Indian pharmaceutical Industry has a better opportunity as Indian manufacturing drug facilities match international quality standards like the US Food and Drug Administration (USFDA) and the UK Maritime and Coast guard Agency (UKMCA). (Life Sciences & IT Knowledge Banking, 2015)The report shows an edge to Indian Pharmaceutical Industry in various attributes of the sector mainly due to high-cost competitiveness and availability of white-collar scientific research labour. Strong growth in Indian GDP may result in a significant growth in Indian pharmaceutical Industry of 20% CAGR globally India is referred to as the most preferred destination for R&D outshining the biggest business rival China. (Foundation, 2018) The report has analyzed and forecasts the future of the pharmaceutical industries in India. According to the research, the government of India aims to invest around US\$70 million in the market to introduce new local players of biosimilars, as by 2030 the demand for the same is anticipated US\$ 40 billion domestically. India's Pharmaceutical Sector expects growth of US\$ 180 billion by 2025. The biotech industry has also pledged the government to support and invest in infrastructure and research activity so that the expected market size by 2025 can be achieved. The market size of hospitals is also expected to grow to US\$ 200 billion by 2024. It is also noticed that patient pool may increase by 20% by the next ten years mainly due to change in lifestyle. The biggest advantage to India is that it is the only country outside the USA to have 22% of overall USFDA approved manufacturing plants, making India a central hub for manufacturing of generics. (Kapur, 2020) Indian pharma has out passed China in providing formulations drug to countries of Africa in the survival of HIV (AIDS), tuberculosis, malaria giving a blind spot to India to provide medicine for COVID-19 also in future. The aim of Indian Pharmaceutical Industry is to grow its revenue to US\$ 120-130 billion by 2030 as compared to its current revenue of US\$ 38 billion a CAGR of 11-12%. Diversifying its export market, terms and product is providing a major expansion to Indian Pharmaceutical Industry. (Vara, 2020) The world is suffering from a pandemic of coronavirus 2020, which emerged from Wuhan, China giving its impact on the Indian Pharmaceutical Industry as it procures major raw materials from them—causing major trouble for the production of formulation drugs. It also gives an edge to the Indian Pharmaceutical Sector to capture the market share of China- its competitors. (Biswas, 2020) Once the vaccine is developed for COVID-19, the world will have a significant demand of the same. Say for example if there is a requirement of 100s of millions of doses, in such a situation only Indian vaccine makers can get a hand over it via contract manufacturing services because of their extra manufacturing capacity.

3. Objectives of the Study

The objective of the study is to forecast the growth outlook of Indian Pharmaceutical Industry until 2030 by investigating the pattern of growth since evolution.

Hypothesis:

Ho1: There will be no significant growth in new or extended lines manufacturing unit and total output of Indian Pharmaceutical Industry sector by 2030.

Ho2: There will be no significant growth in total exports of Indian Pharmaceutical Industry by 2030.

Ho3: There will be no significant growth in sale per capita of Indian Pharmaceutical Industry by 2030

Ho4: There will be no significant chances that total revenue of Indian Pharmaceutical Industry will reach US\$ 90 by 2030.

4. Research Methodology

The paper has adopted a descriptive methodology and has used extensively secondary data sourced from authentic government and industry report.

A Big Data approach for forecasting the growth of the Indian Pharmaceutical industry until 2030 was considered and Python software version 3.7.0. was used for undertaking regression. The formula used for undertaking linear regression was $Y=mx+b$, where the value of b is intercept m is the tangent of the degree of line angle, x is the given years and Y is the predicted value.

The accuracy of the model is derived for a part of given secondary data. Suppose we take data from 1998 to 2006, then the above formula is implied to check the accuracy of values from the know years, i.e. 2007 to 2016. This way, we attain the accuracy of the models. The linear regression algorithm tries to fit multiple lines to the given data resulting in an outcome with least errors.

5. Results and Analysis:

Data of total output and number of active manufacturing units was taken for the period between 1998 till 2016. Considering 2016 as the base year for forecasting the output of pharma industry shall grow to become 50.96 Million by 2030, and the number of manufacturing units or enhancement in existing lines shall increase to 6671 Units nationwide. The probable accuracy of the models were 94% and 99% respectively.

The total export of Indian pharmaceutical industry is inclusive of ayurvedic and herbal products, bulk drugs and formulation drugs. Data of total exports was taken for forecasting from the year 2009-2017. Till 2030 the pharma exports will increase to US\$ 29,991 million. The deduced model was found to be 93 per cent accurate. The said model also forecasts the export growth of Ayurvedic drugs and herbal products to US\$ 89.84 million; Bulk formulations may witness a downfall in export to US\$ 2483.20 million, whereas formulation drugs may show tremendous growth and reach US\$ 26,572.6 million.

Data from the year 2008 till 2016 was taken for forecasting per capita sale. The accuracy of the model was found to be 97 per cent. The forecasted per capital sale of the pharmaceutical industry until 2030 was found to achieve an incremental growth to US\$ 64.7.

Data of total revenue taken for prediction is from the year 2011 till Estimated figures of 2019. The regression model thus generated predicts the total revenue of the Pharma Industry to reach US\$ 75.4 billion to US\$90 Billion. The accuracy of the model used for prediction is 85.7per cent.

The results show there will be significant growth in total output, new or line extensions in manufacturing units and total exports of Indian pharmaceutical industry, therefore, Ho1, Ho2, Ho3 stand rejected. On the other hand, Ho4 that says that the total revenue of the pharmaceutical industry will not be US\$ 90 billion is accepted, and the alternative hypothesis thus stands rejected.

6. Conclusions and Discussions

India is an emerging economy and is projected to become the world's third-largest GDP by 2030. In order to do so Indian Pharmaceutical Sector will play an essential role in the growth (Times E., 2019). The result of forecasting of the Indian Pharmaceutical Industry show there will be significant growth of total output and number of new manufacturing units, including the extension of existing units shall be visible. In this case, it will be necessary to have more USFDA approved manufacturing units. The said approval will assure the quality of output, giving India an upper hand per se the global competition. The government has extended incentives in this sector of INR 13.76 billion for the eradication of barriers of finance and infrastructure. The aim is to motivate young local manufacturers in the sector.

SARS Covid-19 crises have emphasized the role of China in the production of generic drugs produced in India, thus in order to grow significantly by 2030 Indian pharmaceutical industry needs to work more towards the bulk formulation of drugs for which it is dependent on China by more than 70% (Dadhich, 2020). Even the result shows that if bulk exports are considered individually, then there is a downward hunch in its growth, reducing the total growth capacity of exports. In order to become the global leader Indian pharmaceutical sector needs to tap the less explored areas of the market like patent drugs, Over the Counter products (OTC) research and development and clinical trials (SEKHAR, 2012).

India and its pharmaceutical industry have emerged as a humanitarian in the pandemic by fulfilling the demand for formulation drugs, i.e. generic medicines, surgical and Personal Protection Equipment (PPE) kits. This act will improve India's political tie-ups with the world opening gates for the new global markets. Post corona there will be a change in lifestyle. People will move towards healthy and hygienic living resulting to an increase in demand of pharmaceutical products like sanitizers, masks, vitamins, which will give an edge to the revenue and per capita sale of the Pharmaceutical industry.

Growth in Indian Pharmaceuticals industry will results in increase jobs, development of infrastructure, revenues and may reduce the deficit of exports in balance of payments. The situational effect of COVID 19 will allow the sector in exploring new markets as the world is retaliating from China.

Overall it seems difficult that Indian Pharma sector Revenues will exceed USD. 100 Billion by 2030.

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Figure 1: Forecast of total output from 2020 till 2030

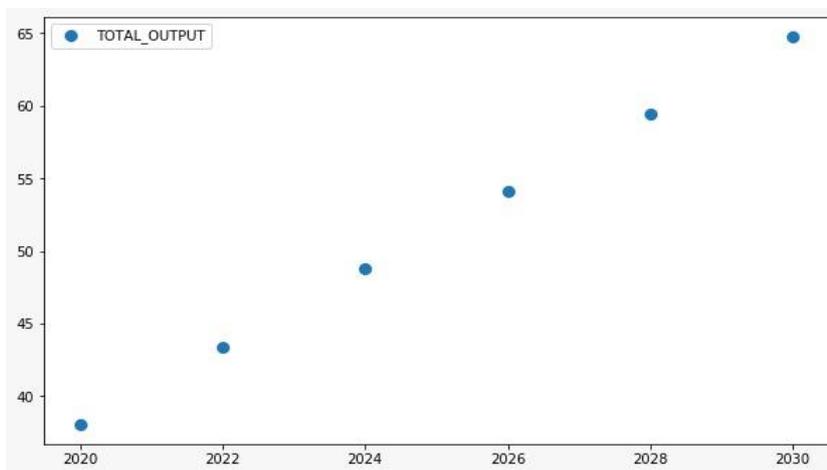


Figure 2: Forecast of manufacturing units from 2020 till 2030.

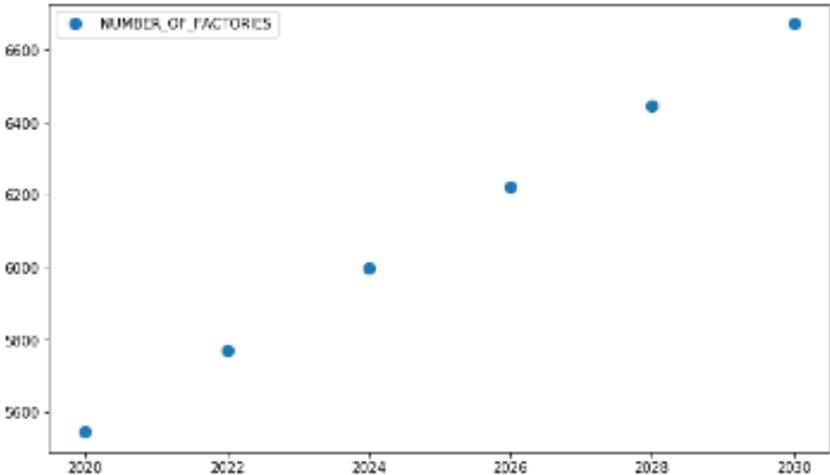


Figure 3: Forecast of total exports from 2020 till 2030

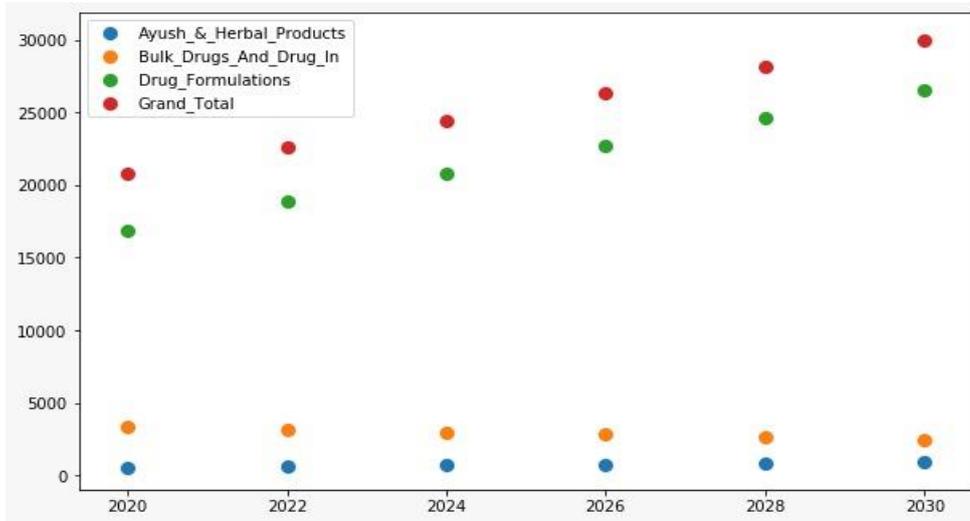


Figure 4: Forecast of per capita sale from 2020 till 2030.

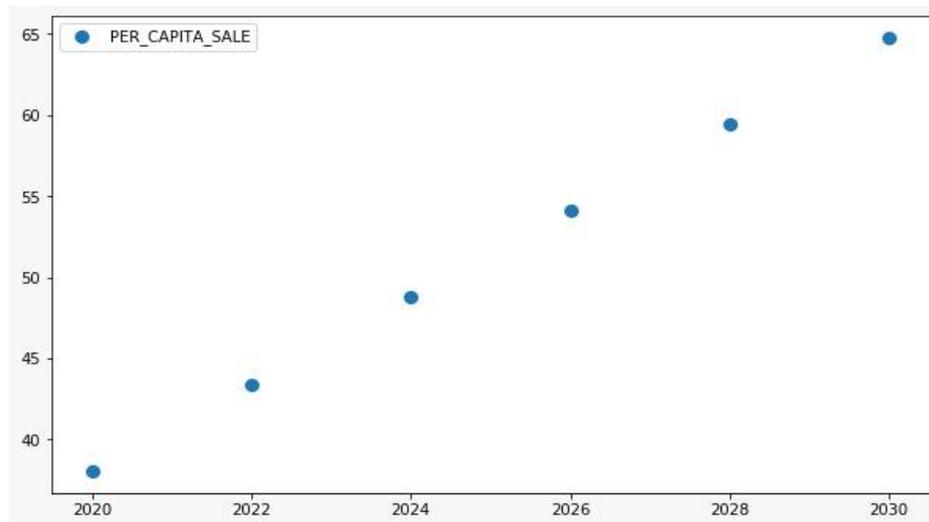


Figure 5: Forecast of per capita sale from 2020 till 2030.

