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A FINANCIAL PERSPECTIVE ON THE PHARMACEUTICAL INDUSTRY

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ABSTRACT

As a result of the epidemics in the world in recent years the importance of the health sector has once again emerged and countries have started to invest more in the health sector. In addition to developed countries, underdeveloped and developing countries are investing more in the health sector and technology and governments are trying to control increasing health expenditures. One of the important and dynamic sub-sectors of the health sector is the pharmaceutical sector. States and international companies are investing more in the pharmaceutical sector in order to combat the epidemics in recent years and are conducting more R&D studies by utilizing the developing technology. In this study in the light of the data published by the OECD, it is examined whether there is a similar relationship between the change in the share of health expenditures in the GNP (Gross National Product) of OECD countries between 2010 and 2022 and the change in the size of the pharmaceutical sector in OECD countries. The change in the size of the pharmaceutical sector and the change in the share of health expenditures in GNP have not yielded similar results in each OECD country. It is thought that different factors such as demographic characteristics, geographical location and economic conditions of countries should be taken into consideration when evaluating the relationship between these two variables.

KEYWORDS: Pharmaceuticals, Public Health, Finance, Financial Markets.

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1. Introduction

Health, which is one of the issues that the human world has emphasized from the past to the present, is defined as the state of complete physical mental and social well-being of people. According to the World Health Organization (WHO), healthcare is defined as the services provided for people to live a good life physically, mentally and socially. People's perceptions of the definition of health vary according to their cultural, religious or social status. People living in underdeveloped countries and people living in developed countries do not have similar perceptions of illness and discomfort [1]. Services aimed at preventing and protecting people from illness also fall within the scope of health [2]. What is meant by health services is the diagnosis and treatment of health problems, rehabilitation services, prevention of disease and promotion of individual and social health services. At this point, efforts to improve health are also considered to be

within the scope of health services [3].

With globalization, important steps have been taken in health expenditures in developing and underdeveloped countries as well as developed countries. The steps taken in recent years to control many infectious diseases in the world, to prevent infant mortality in underdeveloped countries and the increase in the life expectancy of people living in these countries are important indicators of the increase in health expenditures. Important developments in the technological field such as the prevention of serious health problems such as heart disease, the increase in organ transplants with the innovations such as magnetic resonance imaging device and x-ray brought by technology, the prevention of fertility problems and the spread of aesthetic services are important developments in the field of health [4].

With the development of technology, there have been developments and significant expenditures in the field of

health in all states in the world. Rather than being seen as a problem the increase in health expenditures is seen as a cause of improvements in health outcomes. Governments are making great efforts to control these increasing health expenditures because the health sector is one of the development indicators of countries and is seen as one of the determining factors that cannot be ignored in the development of countries. Due to the various diseases that have emerged in recent years and the changes in people's living conditions, there have been changes in the expenditure items related to health. In this context pharmaceutical expenditures take a significant part of the expenditures made in the field of health [5].

The pharmaceutical sector is one of the most important and dynamic sectors of the world economy [5]. After the COVID-19 pandemic, the global pharmaceutical sector has grown dramatically and the pharmaceutical sector of each country has continued to change. Countries such as the United States of America (US), the United Kingdom and China which are among the leaders of the global pharmaceutical market, compete with many other countries. As a result of the COVID-19 pandemic, China has shown significant growth in this sector and increased its market share globally. The US as approximately 50% of the global pharmaceutical industry and has important companies such as Pfizer, AbbVie, Johnson&Johnson. These companies spend more than 20% of their revenues on additional research and development [6]. There are nearly 5,000 small and medium-sized companies operating in China's pharmaceutical sector [7]. The United Kingdom (UK) accounts for about 2-3% of the global pharmaceutical sector and spends relatively less on research and development than the US [8].

On the other hand changes in technology with globalization and the increasing importance of information have led to an increase in drug prices and countries spending more on drugs [9]. It is thought that countries should take necessary measures due to the costly expenditures against diseases and the spread of epidemics that endanger the society [10]. The economic size of the countries, the development of the pharmaceutical sector in the country, and the methods used in the fight against epidemics have not been at the same level in every country. To explain this situation, Gostin [11] cited as an example the fact that only 4% of Africans were vaccinated while the American people were preparing to receive the 3rd dose of vaccine as of September 2021 within the scope of the fight against COVID-19. This situation shows that not all citizens of each country have equal conditions in the fight against the pandemic in the international arena.

In developed countries auctions to determine the supply of medicines have been seen as a specific policy, an important tool for reducing the costs of purchased medicines and achieving significant cost savings [12-15]. This situation brings transparency to the forefront of determining drug prices [15]. The participation of a large number of companies in the tenders has led to a more favorable price level [14] the supply of medicines to patients at affordable prices and the careful monitoring of the prices of medicines. The point to be considered here is that the number of companies participating in the tender should not fall below a certain number because the participation of a small number of companies in the tender

will prevent the price to be determined for drugs from falling to a reasonable level [16]. It is thought that these tenders for the purchase of medicines will enable developing and underdeveloped countries to obtain cheaper medicines [15].

The emerging health problems in underdeveloped and developing countries, the change in emerging health needs, the increase in public expectations and the goals set by the new health system are being significantly addressed by the development of high quality health systems [15]. In these countries weak supply chains, insufficient specialized skills and lack of accurate data management systems are the problems faced in the supply of quality products [17]. These countries need to grow economically, have adequate health services and be committed to government health policies. As a result, these countries need to take firm steps to strengthen their pharmaceutical procurement capacity [18]. However, in underdeveloped and developing countries there are a number of unfavorable circumstances in ensuring the supply of medicines. These countries are dependent on the private sector to obtain medicines, have a market with a low level of competition and obtain medicines at high prices [15]. As can be seen, tenders for the procurement of medicines lead to more cost-effective procurement of medicines and more transparent conditions for the reasonable market prices [19]. Bonnifield et al. [18] also emphasized the need to strengthen the pharmaceutical procurement and supply chain of less developed and developing countries monitor the market and cooperate globally when needed.

In 1994, the World Trade Organization (WTO) signed the "Treaty on Related Intellectual Property Rights" (TRIPS) to protect the existence of intellectual property rights in the pharmaceutical sector, making it mandatory to grant patents to innovations made in this sector. This made medicines costly and therefore difficult to access. Due to such problems, millions of people have died in underdeveloped and developing countries dealing with epidemics such as AIDS. In order to eliminate this negative situation, the Doha Declaration was published by the WTO in 2001 to ensure that governments take the necessary measures in terms of health and access to medicines globally. This declaration had an impact on international and national policies, allowing a series of measures to be taken to protect patents and increasing the number of patented products. The importance of the Declaration is the determination of policy to address access problems related to intellectual property, reducing R&D costs and lowering the prices of health products such as pharmaceuticals [20].

To create a more efficient and robust health sector worldwide, sectors such as pharmaceuticals need to be strengthened. Disasters such as epidemics have brought along the problem of how strong the pharmaceutical industry is. In order for the pharmaceutical industry to be strong, it must have high intellectual property power, be free from the political structure of countries, have intellectual power at the point of innovation and have great financial power. In this context, companies in the pharmaceutical industry have important property rights such as earning high profits, building new factories, using information at a level that can affect the political decision-making mechanism of countries, conducting

high-cost R&D studies, and storing valuable and confidential information in terms of competition [10]. However, the small number of firms in the pharmaceutical sector and the limited number of suppliers of pharmaceuticals to countries, as well as the fact that this market is a monopoly, allow pharmaceutical companies to set prices as they wish [21]. Consequently, in every country, citizens obtain medicines at a higher cost than they should [22]. However, in some countries, the cost of medicines is not high due to the existence of institutions that regulate medicine prices. As can be seen, not all countries in the world have equal access to medicines.

2. Purpose of the Study

This study will try to examine whether there is a significant relationship between health expenditures and pharmaceutical expenditures in the gross national product of OECD countries in the light of data from OECD. After analyzing the change in the share of health expenditures in gross national product in OECD countries in the period 2010-2022, the change in pharmaceutical expenditures will be analyzed. Within the scope of the results obtained. it will be examined whether the change in the share of health expenditures in GNP in all OECD countries and the change in the size of the pharmaceutical sector are similar.

3. Methodology of the Study

The data shown in the health section of the OECD indicators page on the OECD's own website were utilized. Based on the data of OECD countries, the change in the share of health expenditures in GNP and the change in pharmaceutical expenditures were compared and the relationship between them was analyzed.

According to the 2011 IMF (International Monetary Fund) report [23] 28 countries such as Australia, the UK, the US and 8 developing countries such as Chile, Colombia and Turkey are considered as OECD countries. In the light of the data obtained from OECD, the change in the share of health expenditures in GNP of these countries between 2010 and 2022 is shown in Table 1 and Chart 1. Table 1 shows the share of health expenditures of OECD countries in GNP between 2010 and 2022.

Table 1 shows that the countries where health expenditures in GNP decreased every year starting with 2010 are Costa Rica, Greece, Hungary, Luxembourg and Turkey, while the countries where health expenditures increased every year are Australia, Belgium, Chile, Israel, Japan, Korea, Sweden Switzerland and the United Kingdom. Looking at the OECD countries in general, it is seen that there is no significant change in the share of health expenditures in GNP between 2010 and 2022. However, while the United States of America has the highest share of health expenditures in GNP with an average of 16.7%, Turkey has the lowest share with 4.4%, as shown in Table 2.

During this period, the difference between the highest and the lowest share of health expenditures in the GNP of OECD countries was analyzed, with Ireland having the highest difference at 4.5% and Poland having the lowest difference at 0.4%, as shown in Table 3.

Chart 1, which is based on Table 1, shows the share of health expenditures in GNP of OECD countries from 2010 to 2022 as a separate chart, with the horizontal axis showing countries and the vertical axis showing health expenditures in percentage of GNP.

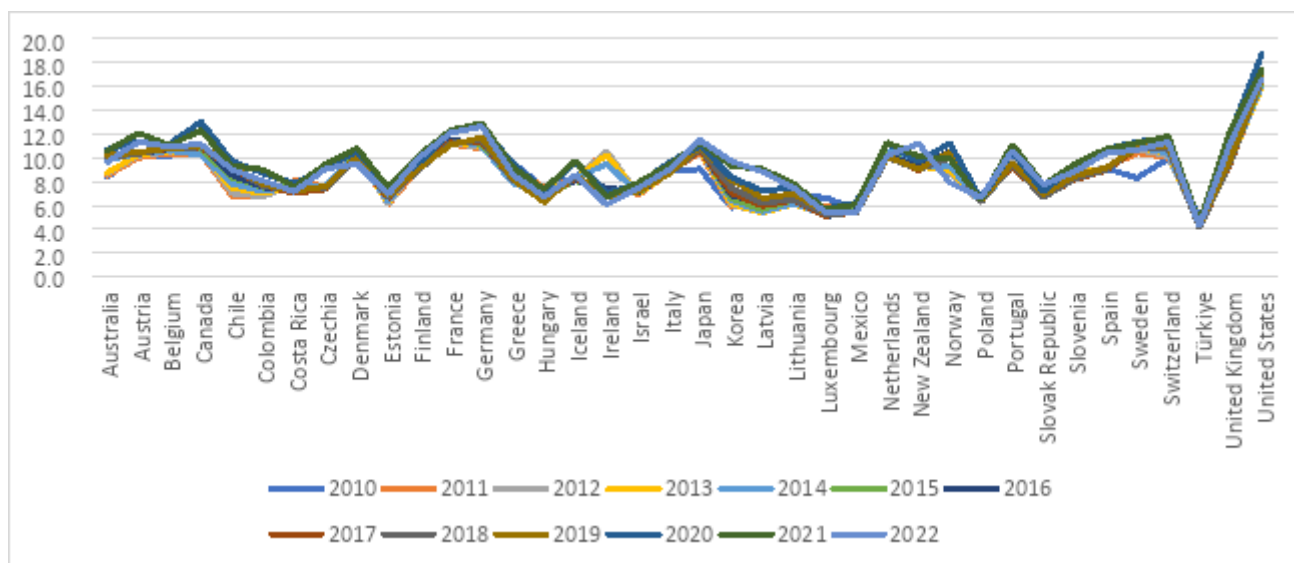


Chart 1. The share of health expenditures in GNP of OECD countries from 2010 to 2022 [24].

Table 1. Health Expenditure And Financing [24]

Function	Current expenditure on health (all functions)												
Measure	Share of gross domestic product (Percentage)												
Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Australia	8.4	8.5	8.7	8.8	9.8	10.2	10.1	10.1	10.1	10.2	10.7	10.6	9.6
Austria	10.2	10.0	10.2	10.3	10.4	10.4	10.4	10.4	10.3	10.5	11.4	12.1	11.4
Belgium	10.2	10.4	10.5	10.6	10.6	10.8	10.8	10.8	10.9	10.8	11.2	11.0	10.9
Canada	10.7	10.4	10.5	10.4	10.3	10.7	11.0	10.9	10.9	11.0	13.0	12.3	11.2
Chile	6.8	6.8	7.0	7.5	7.8	8.4	8.6	9.1	9.2	9.4	9.7	9.3	9.0
Colombia	7.1	6.8	6.7	7.0	7.2	7.5	7.5	7.7	7.6	7.8	8.7	9.0	8.1
Costa Rica	8.0	8.1	7.8	7.7	7.7	7.6	7.3	7.0	7.3	7.2	7.8	7.6	7.2
Czechia	7.6	7.6	7.6	7.5	7.6	7.4	7.4	7.4	7.5	7.6	9.2	9.5	9.1
Denmark	10.6	10.4	10.5	10.3	10.3	10.3	10.2	10.1	10.1	10.2	10.6	10.8	9.5
Estonia	6.6	6.1	6.1	6.3	6.4	6.6	6.7	6.6	6.7	6.8	7.6	7.5	6.9
Finland	9.1	9.2	9.6	9.8	9.8	9.6	9.4	9.1	9.0	9.2	9.6	10.3	10.0
France	11.2	11.2	11.3	11.4	11.5	11.4	11.5	11.4	11.2	11.1	12.1	12.3	12.1
Germany	11.1	10.8	10.9	11.0	11.0	11.2	11.2	11.3	11.5	11.7	12.7	12.9	12.7
Greece	9.6	9.2	8.9	8.4	7.9	8.2	8.4	8.1	8.1	8.2	9.5	9.2	8.6
Hungary	7.4	7.5	7.4	7.2	7.0	6.9	7.0	6.7	6.6	6.3	7.3	7.4	6.7
Iceland	8.4	8.2	8.2	8.2	8.2	8.1	8.1	8.3	8.4	8.6	9.6	9.7	8.6
Ireland	10.5	10.6	10.6	10.3	9.5	7.3	7.5	7.1	6.9	6.7	7.1	6.7	6.1
Israel	6.9	6.8	7.0	7.0	7.0	7.0	7.1	7.2	7.2	7.2	7.7	7.9	7.4
Italy	8.9	8.8	8.8	8.8	8.9	8.9	8.7	8.7	8.7	8.7	9.6	9.4	9.0
Japan	9.1	10.5	10.7	10.7	10.7	10.8	10.7	10.7	10.7	11.0	11.0	11.3	11.5
Korea	5.8	5.9	6.0	6.2	6.4	6.6	6.9	7.0	7.5	8.2	8.4	9.3	9.7
Latvia	6.1	5.7	5.4	5.4	5.5	5.7	6.1	6.0	6.2	6.6	7.2	9.0	8.8
Lithuania	6.8	6.5	6.3	6.1	6.2	6.5	6.6	6.5	6.5	7.0	7.5	7.8	7.5
Luxembourg	6.7	6.0	5.3	5.2	5.2	5.1	5.1	5.1	5.3	5.5	5.7	5.7	5.5
Mexico	5.7	5.5	5.7	5.8	5.6	5.7	5.6	5.5	5.4	5.4	6.2	6.1	5.5
Netherlands	10.2	10.2	10.5	10.6	10.6	10.3	10.3	10.1	10.0	10.1	11.2	11.3	10.2
New Zealand	9.6	9.5	9.7	9.4	9.4	9.3	9.2	9.0	9.0	9.1	9.7	10.1	11.2
Norway	8.9	8.7	8.7	8.9	9.3	10.1	10.5	10.2	10.0	10.4	11.2	9.9	7.9
Poland	6.5	6.3	6.3	6.5	6.3	6.4	6.6	6.6	6.3	6.5	6.5	6.4	6.7
Portugal	10.0	9.7	9.7	9.4	9.3	9.3	9.4	9.3	9.4	9.5	10.5	11.1	10.6
Slovak Republic	7.7	7.3	7.5	7.5	6.9	6.8	7.0	6.8	6.7	6.9	7.1	7.8	7.8
Slovenia	8.6	8.5	8.7	8.7	8.5	8.5	8.5	8.2	8.3	8.5	9.4	9.5	8.8
Spain	9.1	9.2	9.2	9.1	9.1	9.1	8.9	8.9	9.0	9.1	10.7	10.7	10.4
Sweden	8.3	10.4	10.7	10.9	10.9	10.8	10.9	10.8	10.9	10.8	11.3	11.2	10.7
Switzerland	9.9	10.0	10.1	10.4	10.4	10.8	11.0	11.0	10.8	11.1	11.7	11.8	11.3
Turkey	5.0	4.7	4.4	4.4	4.3	4.1	4.3	4.2	4.1	4.4	4.6	4.6	4.3
United Kingdom	9.7	9.7	9.8	9.9	9.9	9.8	9.7	9.6	9.7	10.0	12.2	12.4	11.3
United States	16.2	16.1	16.1	16.0	16.2	16.5	16.8	16.8	16.6	16.7	18.8	17.4	16.6

Table 2. Average Share of Health Expenditures in GNP for the Period 2010-2022 [24]

Country	Average Share of Health Expenditures in GNP in the Period 2010-2022 (Percentage)	Country	Average Share of Health Expenditures in GNP in the Period 2010-2022 (Percentage)
Australia	9.7	Japan	10.7
Austria	10.6	Korea	7.2
Belgium	10.7	Latvia	6.4
Canada	11.0	Lithuania	6.8
Chile	8.4	Luxembourg	5.5
Colombia	7.6	Mexico	5.7
Costa Rica	7.6	Netherlands	10.4
Czechia	7.9	New Zealand	9.6
Denmark	10.3	Norway	9.6
Estonia	6.7	Poland	6.4
Finland	9.5	Portugal	9.8
France	11.5	Slovak Republic	7.2
Germany	11.5	Slovenia	8.7
Greece	8.6	Spain	9.4
Hungary	7.0	Sweden	10.7
Iceland	8.5	Switzerland	10.8
Ireland	8.2	Turkey	4.4
Israel	7.2	United Kingdom	10.3
Italy	8.9	United States	16.7

Table 3. The difference between the highest and the lowest share of health expenditures in GNP

Country	The difference between the highest and the lowest share of health expenditures in GNP in the 2010-2022 period (Percentage)	Country	The difference between the highest and the lowest share of health expenditures in GNP in the 2010-2022 period (Percentage)
Australia	2.3	Japan	2.4
Austria	2.1	Korea	3.9
Belgium	1.0	Latvia	3.6
Canada	2.8	Lithuania	1.7
Chile	2.9	Luxembourg	1.6
Colombia	2.3	Mexico	0.8
Costa Rica	1.1	Netherlands	1.3
Czechia	2.1	New Zealand	2.2
Denmark	1.3	Norway	3.3
Estonia	1.5	Poland	0.4
Finland	1.2	Portugal	1.8
France	1.2	Slovak Republic	1.1
Germany	2.2	Slovenia	1.3
Greece	1.7	Spain	1.8
Hungary	1.2	Sweden	3.0
Iceland	1.7	Switzerland	1.9
Ireland	4.5	Turkey	0.9
Israel	1.1	United Kingdom	2.8
Italy	1.0	United States	2.8

While the share of health expenditures in GNP in developed countries in the OECD ranges between 6% and 18%, the share of health expenditures in GNP in developing countries such as Turkey ranges between 4% and 8%.

Looking at the graph developing countries such as Turkey, Mexico and Hungary have a low share of health expenditures in GNP. When we look at the COVID-19 pandemic period 2021-2022, it is seen that there have been serious increases in health expenditures in all countries.

In the context of examining the development of the pharmaceutical sector which is one of the important sub-sectors of the health sector, in OECD countries. Table 4 shows the expenditures realized between 2010 and 2022 in the light of data obtained from OECD. The data shown in the table is evaluated in million dollars. Among the OECD countries where the share of health expenditures in GNP is analyzed, no data on the pharmaceutical sector of Colombia, Costa Rica, Greece, Israel, Lithuania, Poland and the US were found, and the data of other OECD countries are included in Table 4.

The table shows that the countries with the largest pharmaceutical sector size among OECD countries are the

US, Italy, Korea, Japan, Germany and France, which are not included in Table 4, while countries such as Chile, Iceland, Norway and Portugal have smaller pharmaceutical sectors than other OECD countries.

The COVID-19 disease, which affected the whole world in 2021-2022, affected the pharmaceutical sector in OECD countries in general, and this is shown in Chart 2. In these years, the pharmaceutical sector showed a significant growth trend in OECD countries such as Australia, Canada, France, Italy, Germany, Japan, Korea and Spain, while the growth in the pharmaceutical sector was slow in other OECD countries. Chart 2 was obtained in line with the data taken from the Table 4.

Table 4. Pharmaceutical Sector in OECD Countries between 2010-2022 [24]

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Country	Million\$	Million\$	Million\$	Million\$	Million\$	Million\$	Million\$	Million\$	Million\$	Million\$	Million\$	Million\$	Million\$
Australia	8,984.00	10,584.20	10,721.70	11,411.00	10,716.10	9,228.50	11,377.40	11,323.20	11,136.30	10,816.10	11,433.60	13,187.90	..
Austria	3,305.00	3,548.90	3,357.10	3,499.80	3,703.10	3,249.60	3,327.80	3,532.80	3,795.20	3,708.30	3,970.10	4,390.00	..
Belgium	7,797.20	8,342.40	7,630.90	7,899.50	7,901.20	6,869.70	6,910.00	7,391.70	7,890.00	8,234.10	8,751.50	9,523.00	9,484.80
Canada	..	..	24,313.20	23,860.10	23,097.60	21,212.60	21,374.50	22,941.20	23,617.30	23,989.80	25,545.50	29,380.50	30,689.30
Chile	1,619.00	2,438.20	2,565.90	2,921.60	2,711.40	2,788.00	2,989.70	3,187.00	3,581.80	3,588.70	3,392.70	3,707.00	3,225.90
Czechia	4,265.70	4,573.20	4,277.80	4,073.00	3,906.10	3,432.90	3,570.70	3,936.20	4,509.20	4,508.90	3,782.00	4,290.30	..
Denmark	3,764.40	3,825.90	3,532.10	3,636.20	3,816.20	3,254.80	3,284.50	3,474.50	3,774.00	3,681.40	3,862.80	4,058.50	..
Estonia	257.20	284.50	284.90	306.70	331.40	294.20	320.90	340.00	384.30	385.50	409.60	483.50	454.20
Finland	2,492.60	2,683.10	2,524.40	2,673.10	2,781.20	2,441.00	2,533.50	2,613.70	2,955.10	2,976.30	3,077.00	3,373.80	..
France	36,508.90	38,418.00	34,946.30	35,593.60	..	..	..	..	..	..	..	..	..
Germany	39,406.50	41,363.60	39,111.50	41,867.70	44,590.90	39,221.00	39,979.80	42,011.20	52,233.70	52,451.20	56,145.10	63,040.00	..
Hungary	2,395.50	2,563.00	1,974.90	1,923.00	1,904.30	1,669.70	1,772.00	1,796.50	1,853.20	1,815.20	1,809.90	1,873.80	1,603.20
Iceland	204.60	224.90	194.10	213.00	202.90	185.00	210.10	248.20	278.70	274.30	294.20	355.20	..
Ireland	2,717.70	2,723.50	2,627.10	2,602.60	2,542.40	2,202.50	2,298.00	2,399.90	2,674.60	2,693.70	2,808.20	3,100.50	..
Italy	..	27,162.70	24,511.00	25,825.30	26,420.60	25,092.00	25,215.90	25,552.00	26,408.00	25,591.10	26,444.00	28,199.10	26,114.00
Japan	77,228.40	87,553.30	87,437.90	70,638.50	62,200.00	55,749.30	60,885.00	59,922.90	62,556.80	87,050.10	86,762.80	83,643.00	..
Korea	17,573.30	19,900.70	19,289.90	20,600.10	22,481.20	21,758.10	21,876.60	23,834.80	26,262.70	26,628.30	27,555.00	30,337.50	..
Latvia	365.90	406.40	379.60	408.30	419.70	367.90	408.70	443.70	485.80	477.60	511.10	542.70	549.60
Luxembourg	251.10	265.00	251.50	258.90	254.10	213.70	215.70	219.20	234.60	228.90	238.90	283.50	270.90
Mexico	..	..	..	11,098.40	..	..	..	..	11,853.60	..	..	..	..
Netherlands	6,911.10	7,252.10	5,920.70	5,712.30	5,750.20	4,952.10	5,016.80	5,152.70	5,460.70	5,425.50	5,678.90	5,749.10	..
New Zealand	539.50	645.40	748.70	756.80	796.00	688.70	746.30	896.80	914.10	983.00	1,071.30	1,256.90	1,206.60
Norway	2,959.90	3,247.30	3,231.60	3,285.10	3,344.70	2,823.50	2,948.70	3,221.80	3,380.80	3,227.30	3,155.10	3,906.80	3,745.30
Portugal	4,292.50	4,096.00	3,358.40	3,200.10	3,185.20	2,764.10	2,800.90	2,886.60	3,103.40	3,123.10	3,208.70	3,457.20	3,357.00
Slovak Republic	1,479.10	1,570.90	1,418.70	1,632.50	1,749.90	1,536.20	1,741.50	1,765.70	1,924.10	1,936.90	1,898.00	2,116.30	..
Slovenia	628.90	654.30	583.80	599.10	574.30	494.90	516.60	547.00	610.20	606.90	649.00	725.30	715.50
Spain	17,550.90	17,199.10	14,225.20	14,170.80	15,015.60	12,652.50	13,098.00	13,629.50	22,431.10	22,397.90	23,760.20	26,044.90	24,148.60
Sweden	5,003.00	5,664.40	5,330.80	5,578.40	5,510.90	4,808.30	4,945.80	5,112.20	5,503.60	5,341.70	5,693.40	6,281.10	5,714.20
Switzerland	5,507.80	6,504.20	6,331.60	6,398.70	6,473.80	6,425.70	6,474.60	6,621.40	6,754.30	6,738.40	7,280.40	7,786.90	7,955.30
Turkey	10,372.80	8,458.20	7,527.70	7,530.10	7,173.10	6,729.20	7,249.10	6,975.50	6,635.40	7,414.80	7,129.10	7,322.50	..
United Kingdom	20,328.40	20,802.40	21,755.90	22,827.90	26,319.60	27,021.70	25,051.60	25,129.60	27,279.00	..	..	..	..

Table 5. Average Size of the Pharmaceutical Sector in OECD Countries between 2010 and 2022 [24]

Country	Average Size of the Pharmaceutical Industry over the Period 2010-2022 (Million\$)	Country	Average Size of the Pharmaceutical Industry over the Period 2010-2022 (Million\$)
Australia	10,910.08	Japan	73.469
Austria	3,615.64	Korea	23,174.85
Belgium	8,048.15	Latvia	443.62
Canada	24,547.42	Lithuania	-
Chile	2,978.22	Luxembourg	245.08
Colombia	-	Mexico	11476
Costa Rica	-	Netherlands	5,748.52
Czechia	4,093.83	New Zealand	865.39
Denmark	3,663.78	Norway	3,267.53
Estonia	348.99	Poland	-
Finland	2,760.4	Portugal	3,294.86
France	36,366.7	Slovak Republic	1,730.82
Germany	45,951.85	Slovenia	608.14
Greece	-	Spain	18,178.79
Hungary	1,919.55	Sweden	5,422.14
Iceland	240.43	Switzerland	6,711.78
Ireland	2,615.89	Turkey	7,543.13
Israel	-	United Kingdom	24,057.34
Italy	26,044.64	United States	-

Between 2010 and 2022, the countries with the highest increases in the share of health expenditures in GNP among OECD countries are the United States, France, Canada, Germany, Switzerland, the United Kingdom and Sweden, while the countries with the highest increases in the pharmaceutical sector are France, Germany, Japan, Italy, Korea, Canada, Spain and the United Kingdom. While countries such as the United Kingdom, Germany, France and Canada experienced increases in the share of health expenditures in GDP and increases in the pharmaceutical sector, other OECD countries in both tables did not experience similar situations. It is thought that the level of development of countries has an important impact here.

It is observed that when the share of health expenditures in GNP increases in developed countries, there is also an increase in the pharmaceutical sector. When all of these years are taken into consideration, it is seen that Turkey has the smallest pharmaceutical sector despite the fact that Chile, Estonia, Hungary, Iceland, Ireland, Lithuania, Luxembourg, Slovakia and Slovenia have the lowest share of health expenditures in GNP. In this case, the country with the lowest share of health expenditures in GNP is not ranked last among OECD countries in the pharmaceutical sector. Therefore, it cannot be said that the increase or decrease in the share of health expenditures in GNP affects the pharmaceutical sector in OECD countries in

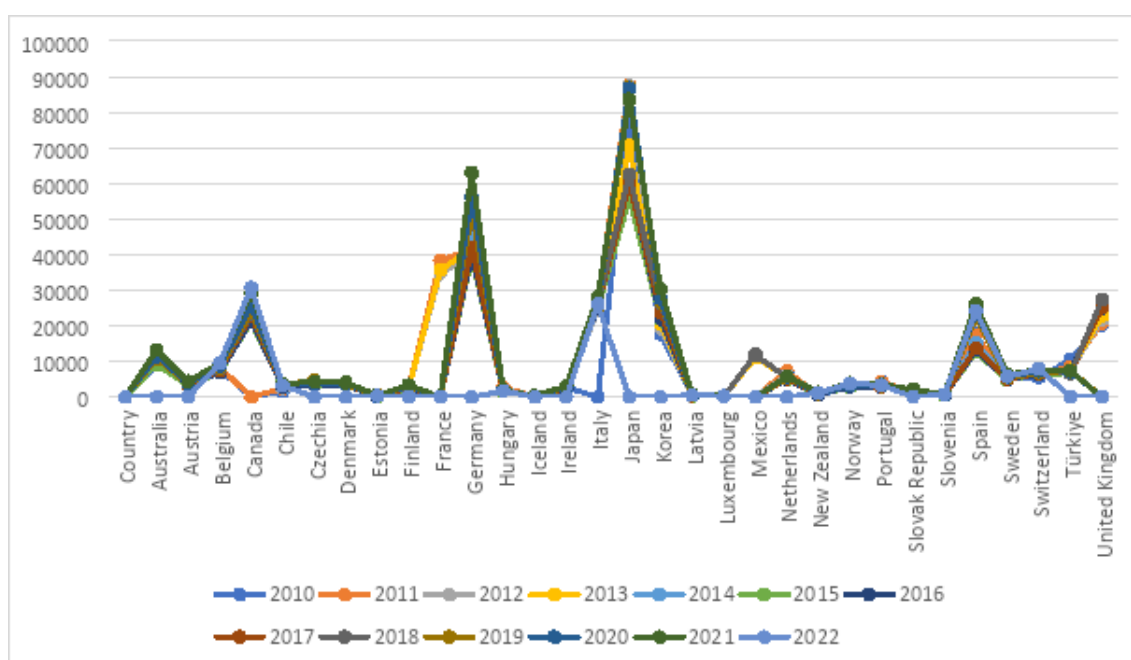


Chart 2. Pharmaceutical Sector in OECD Countries between 2010-2022 [24]

the same direction. Here, it is seen that it varies according to the level of development of the countries. While some of the developed countries have experienced growth in the pharmaceutical sector while their expenditures on health expenditures in GNP have increased, the same result has not occurred in others. It is thought that this situation may be affected by factors such as demographic characteristics, geographical location, economic conditions, etc. of the countries. In this direction, it is thought that it would be correct to take these different factors into consideration in the evaluations to be made.

4. Conclusions

When the data obtained from the OECD are evaluated, no information was found on the pharmaceutical sector in Colombia, Costa Rica, Greece, Israel, Lithuania, Poland and the US, which are among the countries where the share of health expenditures in GNP is shown. Based on 2010, the share of health expenditures in GNP decreased in countries such as Costa Rica, Greece, Hungary, Luxembourg and Turkey, while it increased in countries such as Israel, Japan, Korea, Switzerland and the United Kingdom. The average share of health expenditures in GNP was the highest in the OECD with 16.7% in the US and the lowest with 4.4% in Turkey. While the share of health expenditures in GNP is high in some OECD countries, it is low in countries such as Turkey and Mexico.

Between 2010 and 2020 the countries with the highest increases in the share of health expenditures in GNP were the United States, France, Canada, Germany, Switzerland, the United Kingdom and Sweden, while the countries with the highest increases in the pharmaceutical sector were France, Germany, Japan, Italy, Korea, Canada, Spain and the United Kingdom. As the share of health expenditures in GNP increased in developed countries such as the United Kingdom and Germany, the pharmaceutical sector also increased in a similar manner. However, no such relationship was found in other OECD countries. It is thought that the level of development of countries has an effect here. Among OECD countries countries such as Chile, Estonia, Hungary, Iceland, Ireland, Lithuania, Luxembourg, Slovakia and Slovenia have the lowest share of health expenditures in GNP, while Turkey has the smallest pharmaceutical sector size. As can be seen the change in the share of health expenditures in GNP and the change in the size of the pharmaceutical sector have not been realized in the same way in all countries. The OECD countries with a positive relationship between the size of the share of health expenditures in GNP and the size of the pharmaceutical sector are developed countries. It is thought that the relationship between the share of health expenditures in GNP and the size of the pharmaceutical sector can be evaluated in other academic studies by considering other factors.

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