IEIS

PHARMACEUTICAL MANUFACTURERS ASSOCIATION OF TÜRKİYE

60 Years

2023 TURKISH PHARMACEUTICAL INDUSTRY

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Introduction

The pharmaceutical sector, directly related to human life and quality of life, is subject to very strict regulations and high standards from suppliers to marketing and promotion stages, both globally and in our country. The pharmaceutical sector is a dynamic sector that must continuously innovate itself in the face of new diseases, scientific developments, and technological advancements, and it must also be strong enough to maintain production during extraordinary situations such as natural disasters, epidemics, wars, or economic crises.

With over a century of experience, the Turkish pharmaceutical industry has met the citizens' pharmaceutical needs completely, despite recent global challenges such as the pandemic and supply crises, and domestic challenges including a major earthquake and rising costs, thus fulfilling its responsibilities and proving its strength and importance once again.

By the end of 2023, our industry comprises 870 organizations, including 109 pharmaceutical and radiopharmaceutical manufacturing facilities operating at international standards, 4 specialized medical nutrition facilities, and 13 raw material production facilities. The pharmaceutical industry, exporting to 185 countries, employs over 47,500 qualified personnel and provides around 15,000 health products to our country.

The developments we have experienced in the last few years, including the COVID-19 pandemic and earthquake disasters, reaffirm the need for our industry to have a stronger R&D structure, especially to continue the momentum gained through substantial investments in biotechnology, and to aim to transform our country into a regional and global pharmaceutical production and export hub through the implementation of sustainable and effective public policies alongside a comprehensive pharmaceutical ecosystem.

To achieve this goal, we, as the Pharmaceutical Manufacturers Association of Türkiye (İEİS), which is celebrating its 60th anniversary this year and has 54 members holding more than 51% of the market share in our country's pharmaceutical market by volume, are continuously working with the Turkish Biopharmaceuticals and Vaccines Platform and the Turkish Pharmaceutical Exporters Platform that we established and we are working diligently to implement regulations that will pave the way for our industry.

In this context, in our Turkish Pharmaceutical Industry 2023 Report, we have analyzed the period from 2015 to 2023. In our study, we analyzed the pharmaceutical and medical health products market under three categories: the pharmaceutical market, the special medicinal nutrition market, and the health products market.

We examined the Turkish pharmaceutical market in various categories, including reference/generic drugs, imported/local drugs, and biotechnological drugs, both in terms of market structure and pricing.

We also scrutinized the special medical nutrition market and the market for health products consisting of traditional herbal medicinal products approved by the Ministry

of Health, certain medical devices in pharmaceutical form, and vitamins, food supplements, and infant formulas approved by the Ministry of Agriculture and Forestry.

Our report includes information on licensing processes, investment incentives, R&D activities, pharmaceutical production, employment, foreign trade, pricing policies, and reimbursement related to the pharmaceutical sector.

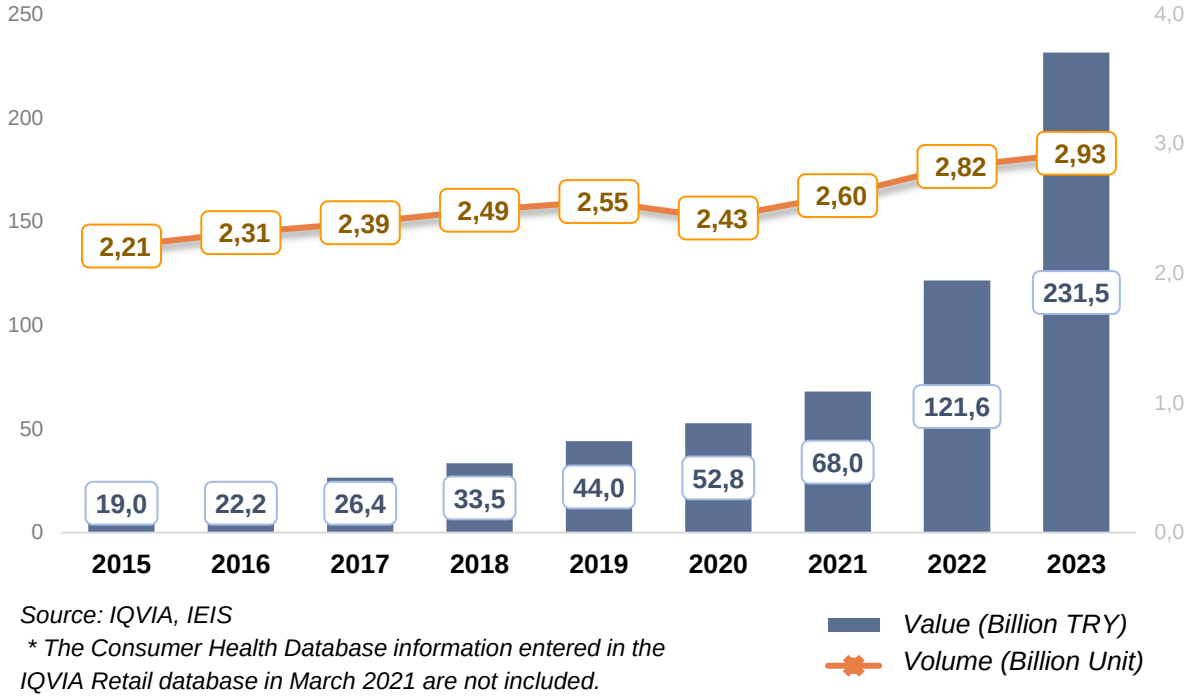
Compiling market and macroeconomic data for the pharmaceutical industry and converting it into a comprehensive analysis is seen as one of our primary activities to illuminate the path of our industry.

In this regard, we are pleased to present our Turkish Pharmaceutical Industry 2023 Report to the knowledge of stakeholders in the public sector, universities, and the private sector, hoping that it will be examined with interest, benefit the development of our industry, and translate into concrete steps that will increase its contribution to our country.

1. Turkish Pharmaceutical and Medical Health Products Market

The Turkish pharmaceutical and medical health products market grew by 90.4% to 231.5 billion TL in 2023, based on the hospital and pharmacy channel value scale, and by 3.6% to 2.93 billion units on a box scale. The market for health products consisting of Ministry of Health-approved products like drugs, special medical purpose diet foods, traditional herbal medicinal products, and Ministry of Agriculture and Forestry-approved infant formulas, vitamins, and food supplements had grown by 8.6% in boxes and 78.8% in value in 2022.

Chart 1- Turkish Pharmaceutical and Medicinal Products Market



Source: IQVIA, IEIS

** The Consumer Health Database information entered in the IQVIA Retail database in March 2021 are not included.*

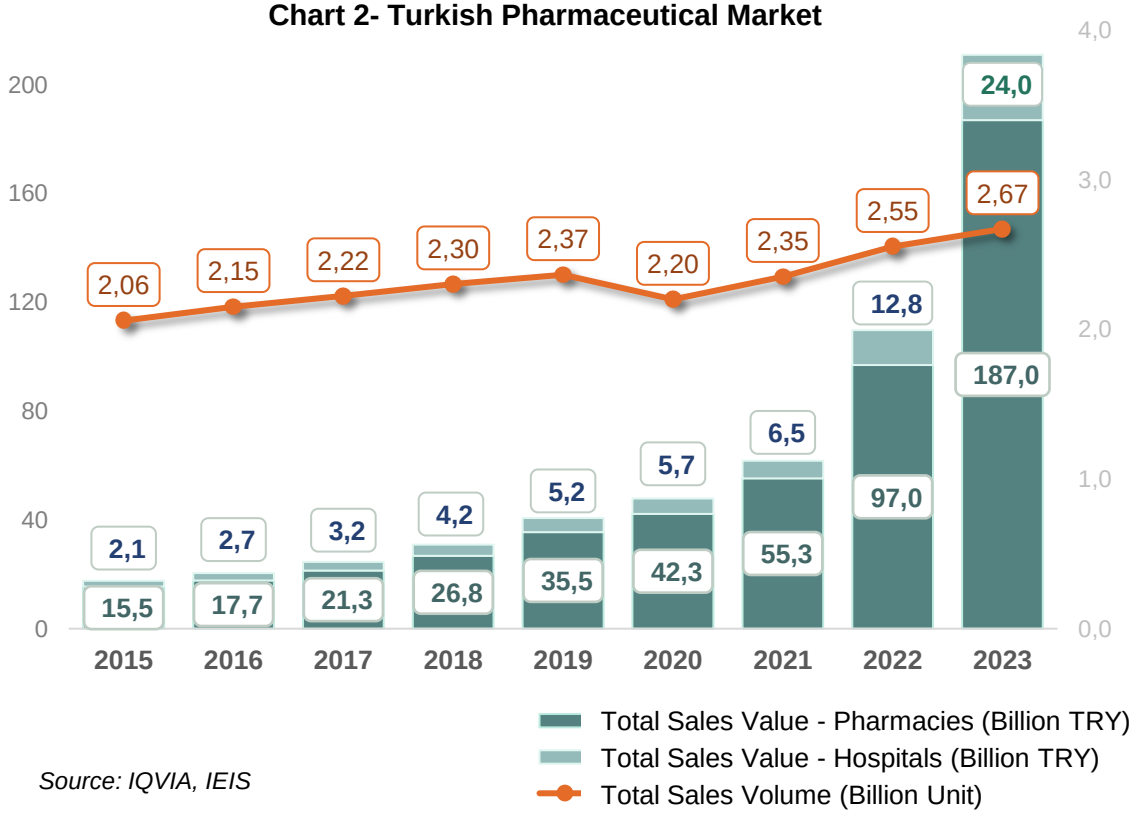
Over the nine-year period from 2015 to 2023, the pharmaceutical and medical health products market grew by 1,119% from 19 billion TL to a level of 231.5 billion TL. Despite a compound annual growth rate (CAGR) of 36.7%, when considering the producer price inflation that occurred between 2015 and 2023, the real growth rate is only 14.2%.

In terms of volume, the market has grown from 2.21 billion units in 2015 to 2.93 billion units in 2023, an increase of 32.4%. This increase represents a compound annual growth rate (CAGR) of 3.6%. The main factors contributing to this growth in volume are increased access to public health services and physicians, rising demand from an increasing and aging population, and an increase in available options, particularly non-pharmaceutical natural supplements and vitamins.

1.1 Turkish Pharmaceutical Market

In 2023, the Turkish pharmaceutical market in hospitals and pharmacies grew by 92.2% to 211 billion TL in value. In terms of units, it grew by 4.6% to 2.67 billion units.The market share for the hospital channel in 2023 was 11.4% in value and 7.2% in units.

Chart 2- Turkish Pharmaceutical Market



Source: IQVIA, IEIS

Over the period from 2015 to 2023, the pharmaceutical market grew from 17.6 billion TL to 211 billion TL, an increase of 1,102%. This growth, representing a compound annual growth rate (CAGR) of 36.5%, corresponds to only a 12.7% real growth when considering the 967% producer price inflation during the same period.

When examined in terms of volume between 2015 and 2023, the market increased from 2.06 billion units to 2.67 billion units, a 29.8% increase. This increase is at a compound annual growth rate (CAGR) of 3.3%.

Despite updates to the drug pricing in July and December due to rapid increases in exchange rates and costs, as seen in 2022, the pharmaceutical sector's ability to cope with its circumstances is weakening year by year. Despite a 29.8% growth in volume over a nine-year period, the fact that real growth in value remains at 12.7% indicates a continuous loss of strength each year.

When examining the pharmaceutical market in terms of concentration, it is observed that there are 230 distributor companies selling drugs in the market. In the Turkish pharmaceutical market, 38 companies exclusively offer imported drugs, while 121 companies are present in the market only with locally manufactured drugs. 71 companies, which own 60% of the drugs in the market, have both imported and locally

manufactured drugs and represent 68% of the market in terms of value and volume. In 2023, the market share of the top 50 companies in terms of value is 85%, and in terms of volume, it is 82%.

In 2023, the market value of drugs covered by reimbursement within the pharmaceutical market was 199 billion TL. In other words, 94.3% of the drugs sold in the market by value are used under reimbursement. The fourfold difference in the average prices between prescription drugs not covered by reimbursement and those that are covered is notably significant.

Table 1- Breakdown of the Pharmaceutical Market (2023)

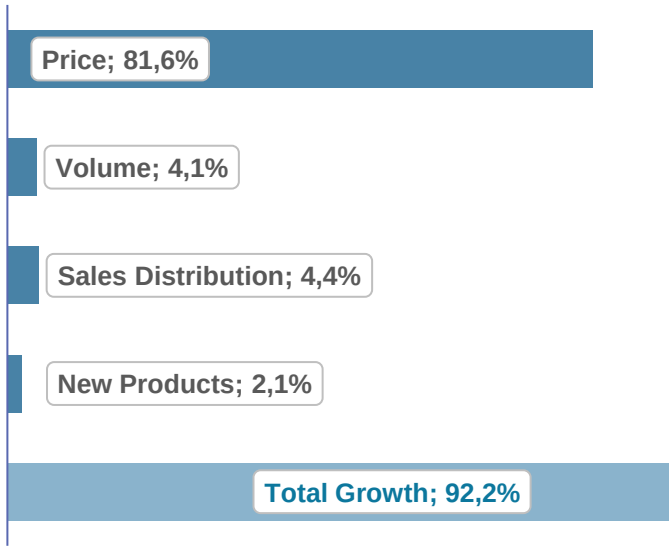
	Volume (Billion Unit)	Value (Billion TRY)	Average Price (TRY)
Turkish Pharmaceutical Market	**2,67**	**211,01**	**78,9**
Presciption	**2,64**	**209,08**	**79,3**
Reimbursed	2,60	198,05	76,1
Non- Reimbursed	0,04	11,02	304,6
Non- Presciption	**0,04**	**1,93**	**54,2**
Reimbursed	0,02	0,98	40,8
Non- Reimbursed	0,01	0,96	81,2

Source: IQVIA, IEIS

1.1.1 Market Growth and Sources

When examining the growth in the value scale of 2023, the four main factors are volume in the existing portfolio, price increases, changes in sales distribution, and new product entries into the portfolio, with price increases being the foremost factor.

Chart 3- Resources of Growth



Source: IQVIA, IEIS

The pharmaceutical exchange rate, which determines drug prices for 2023, was raised to 36.8% and implemented on December 15, 2022. Due to rising costs and rapid increases in foreign exchange rates, a 30.5% adjustment was made to the drug pricing effective from July 24, 2023, and the pharmaceutical exchange rate set for 2024 was implemented with a 25% increase on December 25, 2022. As a result of these increases, 81.6 points (89.6 billion TL) of the 92.2% growth were due to price increases based on these exchange rate adjustments.

In 2023, the 4.6% growth in units contributed 4.1 points (4.5 billion TL) to the growth in value terms.

Changes in the sales distribution of existing products in the market constitute the second largest component of growth. The shift in sales volume from lower-priced to higher-priced products has contributed 4.4 points (4.9 billion TL) to growth.

In 2023, a total of 338 new drugs, including 297 conventional and 41 biotechnological, entered the market, contributing 2.1 points (2.3 billion TL) to growth.

When examining the newly introduced drugs by number and ATC1, the treatment group with the largest share consists of 55 drugs (16.3%), which are antineoplastics and immunomodulatory agents and systemically used anti-infective drugs. Additionally, the top five treatment groups of drugs newly introduced to the market include 41 drugs for the nervous system (12.1%), 36 drugs for blood and blood-forming organs (10.7%), 35 drugs for the digestive system and metabolic drugs (10.4%), and 33 systemically used anti-infective drugs (9.8%), comprising 59.2% of the new entries.

In 2023, a total of 78 reference drugs entered the market, consisting of 43 conventional and 35 biotechnological drugs. Of these 78 products, 77 are imported and 12 have equivalents.

Of the remaining 260 equivalent drugs, 254 are conventional and 6 are biosimilars. Of the conventional drugs, 17, and of the biosimilars, 3 are in the imported product category. Consequently, among the new drugs, equivalent manufactured products have the largest share, accounting for 71% by quantity.

Table 2- Unit Distribution of the New Products in the Market (2023)

	2023
Drug	**338**
Reference	**78**
▪ **Generic exists**	12
Import	11
▪ **Generic non-exists**	66
Import	66
Generic	**260**
▪ **Import**	20
▪ **Local**	240

Source:TITCK, IQVIA, İEİS

1.1.2. Market Structure

A. Originator-Generic Products

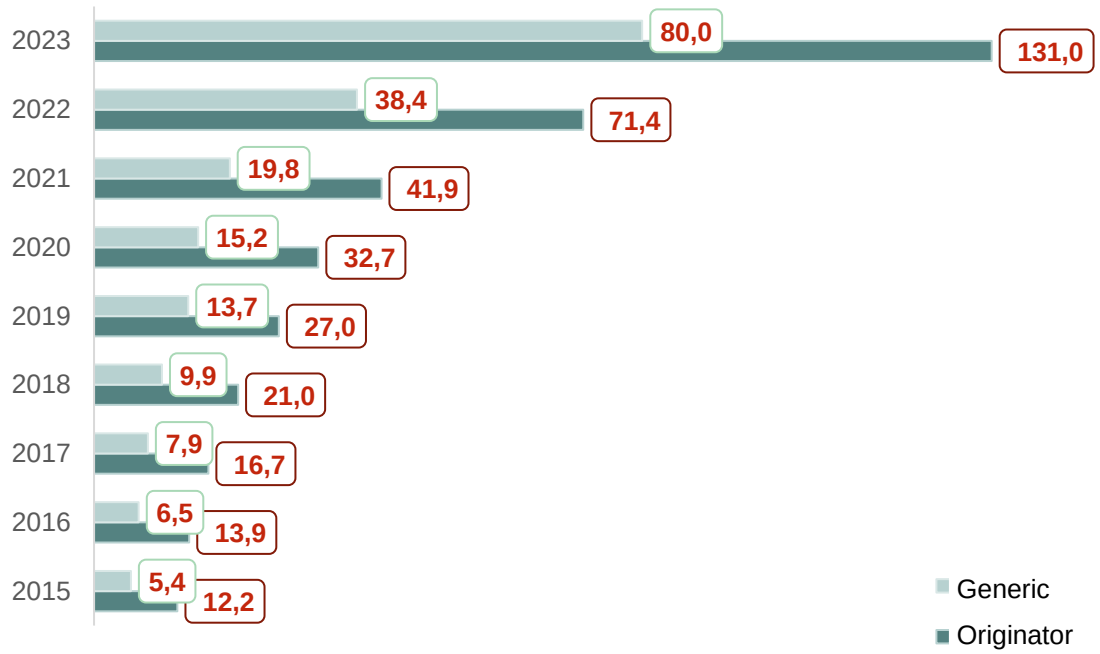
The originator drug market increased by 83.4% in 2023, from 71.4 billion TL to 131 billion TL. In terms of units, it decreased by 1.8%, from 0.99 billion units to 0.97 billion units.

The generic drug market grew by 108.4% in 2023, reaching 80 billion TL from 38.4 billion TL. In terms of units, generic drugs grew by 8.7%, reaching a volume of 1.7 billion units.

Between 2015 and 2023, the total growth in value of originator drugs was 976.1%. This growth represents a compound annual growth rate (CAGR) of 34.6%, which corresponds to a growth of 0.9% when adjusted for inflation. In terms of units, the growth rate for originator drugs during the period is 8.5%.

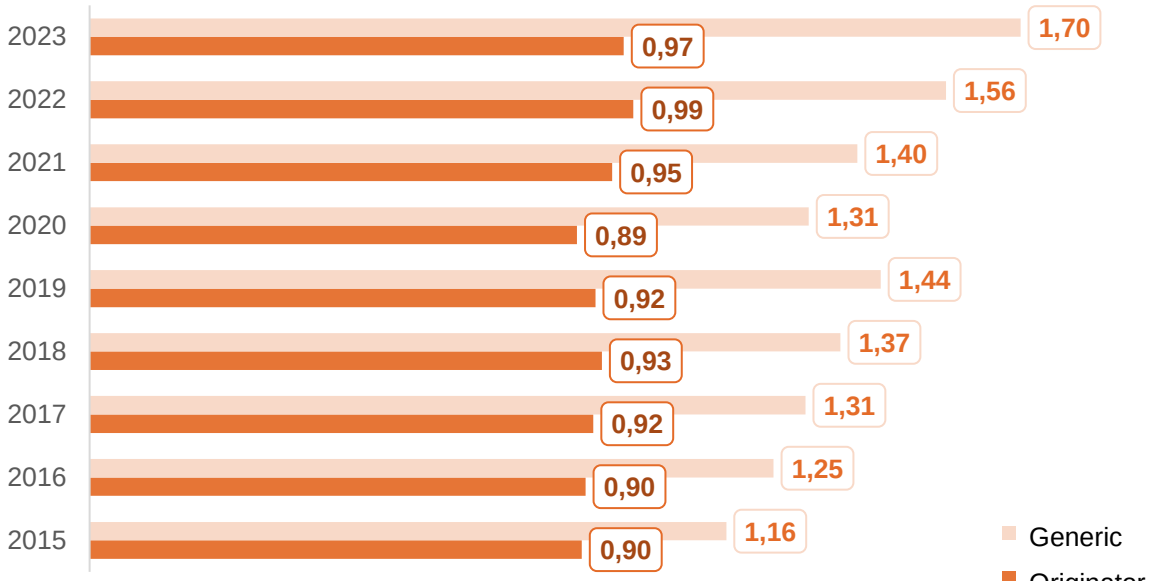
Generic drugs have shown a performance above that of originator drugs, with a total growth of 1,387.5% over the period from 2015 to 2023. When examining the compound annual growth rate (CAGR), it shows an increase of 40.1%. In contrast, when adjusted for inflation, the real growth from 2015 to 2023 is at the level of 39.4%. In the same period, the growth in units for originator drugs is at 46.2%.

Chart 4- Generic – Originator Drugs (Value - Billion TRY)



Source: IQVIA, IEIS

Chart 5- Generic – Originator Drugs (Volume - Billion Unit)

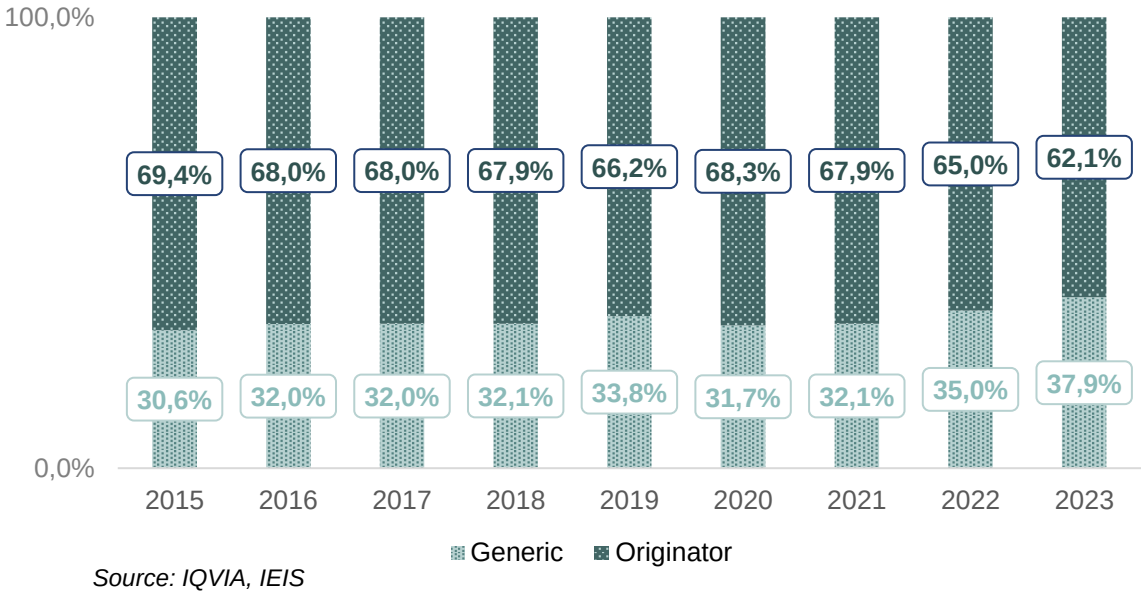


Source: IQVIA, IEIS

Generic drugs have increased their value share from 30.6% in 2015 to 37.9% in 2023, and their unit share from 56.4% to 63.5% in the same period.

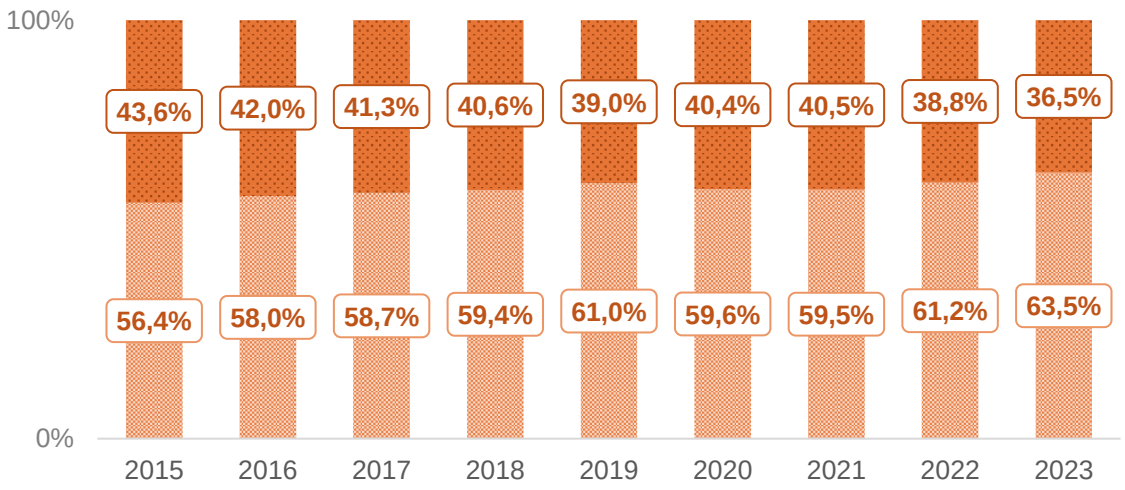
For originator drugs, the value share has decreased from 69.4% to 62.1%, and the unit share from 43.6% to 36.5%.

Chart 6- Generic – Originator Drugs Market Share (Value)



Source: IQVIA, IEIS

Chart 7- Generic – Originator Drugs Market Share (Volume)



Source: IQVIA, IEIS

In the division between imported and locally manufactured originator-generic products, 65.7% of the value of originator products and 3.5% of generic products were made up of imports in 2023.

Table 3- Generic – Originator Products Breakdown on Value

Value									
Generic	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Local (Billion TRY)	**5,04**	**6,17**	**7,47**	**9,49**	**13,27**	**14,60**	**18,97**	**36,92**	**77,22**
Import (Billion TRY)	**0,34**	**0,35**	**0,39**	**0,43**	**0,48**	**0,59**	**0,83**	**1,47**	**2,79**
Generic Local Rate	*93,7%*	*94,6%*	*95,0%*	*95,7%*	*96,5%*	*96,1%*	*95,8%*	*96,2%*	*96,5%*
Generic Import Rate	*6,3%*	*5,4%*	*5,0%*	*4,3%*	*3,5%*	*3,9%*	*4,2%*	*3,8%*	*3,5%*
Originator	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Local (Billion TRY)	**2,44**	**2,90**	**3,75**	**5,42**	**7,93**	**9,71**	**13,39**	**23,09**	**44,91**
Import (Billion TRY)	**9,74**	**11,00**	**12,94**	**15,60**	**19,05**	**23,03**	**28,55**	**48,32**	**86,09**
Originator Local Rate	*20,0%*	*20,9%*	*22,5%*	*25,8%*	*29,4%*	*29,7%*	*31,9%*	*32,3%*	*34,3%*
Originator Import Rate	*80,0%*	*79,1%*	*77,5%*	*74,2%*	*70,6%*	*70,3%*	*68,1%*	*67,7%*	*65,7%*

Source: IQVIA, IEIS

In terms of units, the proportion of imported originator products has decreased to 21.2%, while nearly all (98.7%) of generic products are domestically produced. From 2015 to 2023, the production of originator products in our country has rapidly increased. Indeed, while only 20% of originator drugs were produced domestically in 2015, this rate reached a considerably high level of 34.3% by the end of 2023. This situation is significant as it demonstrates the rapid increase in value-added drug production in our country over the years.

Table 4- Generic – Originator Products Breakdown on Volume

Volume									
Generic	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Local (Billion Unit)	**1,12**	**1,21**	**1,27**	**1,34**	**1,42**	**1,29**	**1,38**	**1,54**	**1,68**
Import (Billion Unit)	**0,04**	**0,04**	**0,04**	**0,03**	**0,02**	**0,02**	**0,02**	**0,02**	**0,02**
Generic Local Rate	*96,6%*	*97,0%*	*97,2%*	*97,8%*	*98,5%*	*98,5%*	*98,4%*	*98,6%*	*98,7%*
Generic Import Rate	*3,4%*	*3,0%*	*2,8%*	*2,2%*	*1,5%*	*1,5%*	*1,6%*	*1,4%*	*1,3%*
Originator	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Local (Billion Unit)	**0,51**	**0,51**	**0,52**	**0,59**	**0,65**	**0,64**	**0,71**	**0,77**	**0,77**
Import (Billion Unit)	**0,39**	**0,40**	**0,39**	**0,35**	**0,27**	**0,25**	**0,25**	**0,22**	**0,21**
Originator Local Rate	*56,6%*	*56,1%*	*57,0%*	*62,7%*	*70,7%*	*72,4%*	*74,2%*	*77,5%*	*78,8%*
Originator Import Rate	*43,4%*	*43,9%*	*43,0%*	*37,3%*	*29,3%*	*27,6%*	*25,8%*	*22,5%*	*21,2%*

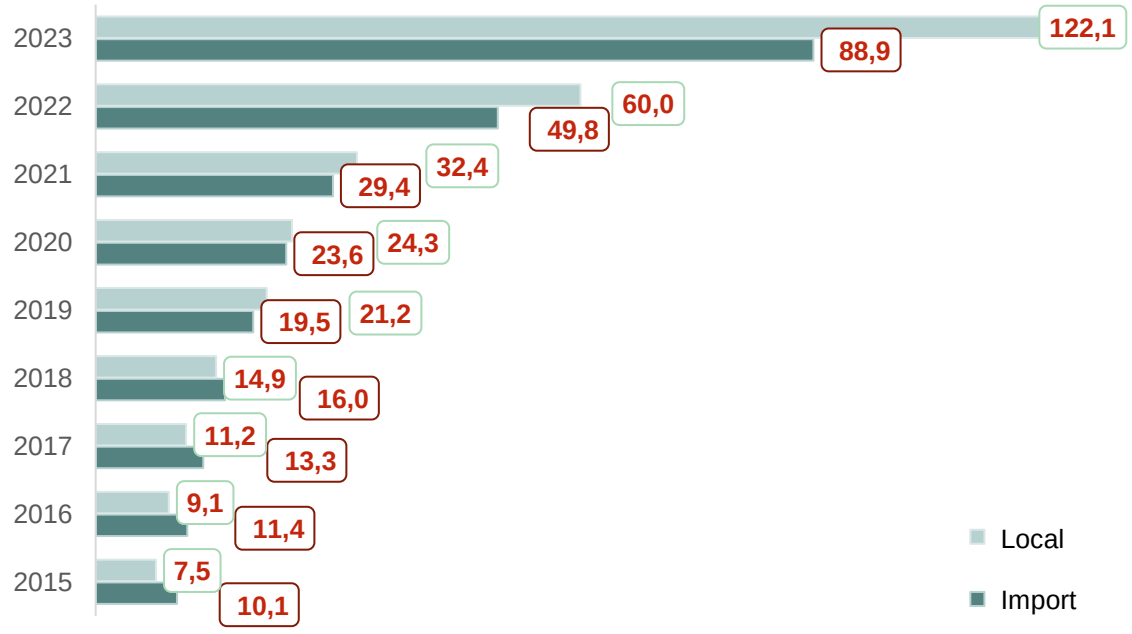
Source: IQVIA, IEIS

B. Imported - Local Products

The market size of imported drugs reached 88.9 billion TL in 2023, an increase of 78.5%. Between 2015 and 2023, the value of imported products increased by 782.1%. This increase represents a compound annual growth rate (CAGR) of 31.3%, but when adjusted for inflation, it shows a decrease of 17.3% over the same period.

In 2023, local drugs exceeded the average growth rate with an increase of 103.5%, reaching 122.1 billion TL. Between 2015 and 2023, local drugs increased in value by 1,533.5%, with a compound annual growth rate (CAGR) of 41.8%. The inflation-adjusted real growth between 2015 and 2023 is indicated to be 53.1%.

Chart 8- Local – Import Drugs (Value - Billion TRY)

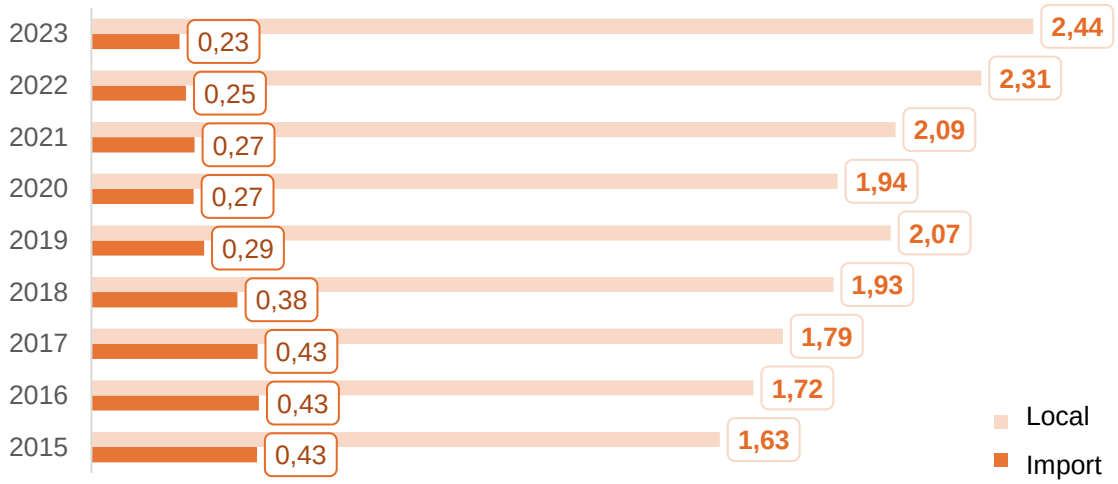


Source: IQVIA, IEIS

In 2023, in terms of volume, imported drugs saw a 6.7% decrease, with sales of 0.23 billion units. From 2015 to 2023, there was a 46.7% decrease in the number of units of imported drugs.

In 2023, local drugs grew by 5.9%, resulting in sales of 2.44 billion units. Between 2015 and 2023, local drugs showed a 49.9% growth in units.

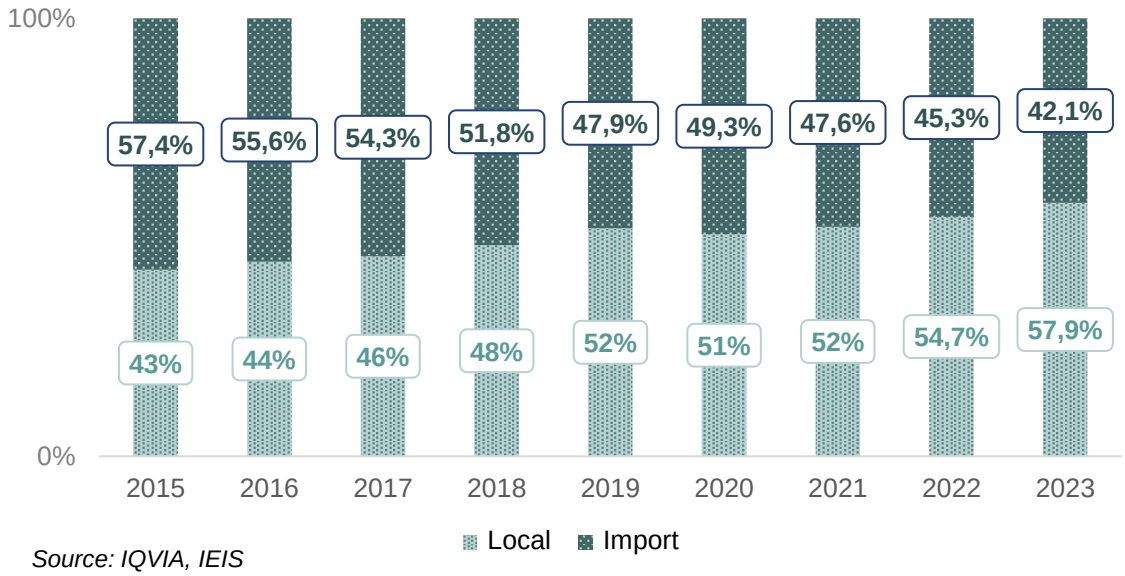
Chart 9- Local – Import Drugs (Volume - Billion Unit)



Source: IQVIA, IEIS

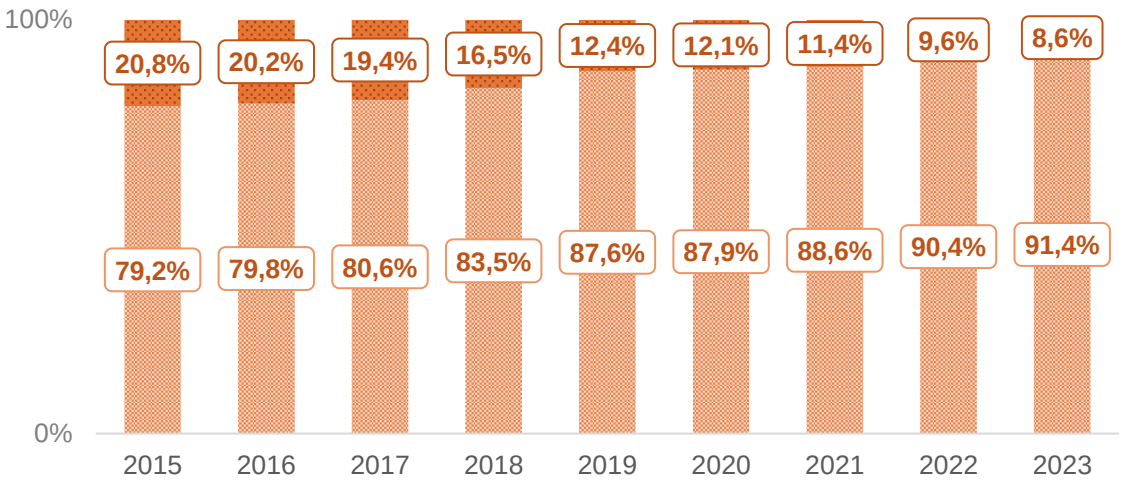
With the localization initiative started in 2016, local drugs rapidly increased their value share from 42.6% in 2015 to over 50% for the first time in 2019. Although the localization process was halted before its full completion, slowing down the growth rate of local drugs, the share still reached a record level of 57.9% in 2023. In terms of units, the share of local drugs rose from 79.2% in 2015 to 91.4% in 2023.

Chart 10- Local – Import Drugs Market Share (Value)



Source: IQVIA, IEIS

Chart 11- Local – Import Drugs Market Share (Volume)



Source: IQVIA, IEIS

In 2023, when examined by value, 96.9% of imported products were reference products, while this rate was 36.8% for local drugs. The share of generic drugs is 3.1% within imported drugs and 63.2% within local drugs.

Table 5- Local – Import Products Breakdown on Value

Value									
Local	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Generic (Billion TRY)	**5,04**	**6,17**	**7,47**	**9,49**	**13,27**	**14,60**	**18,97**	**36,92**	**77,22**
Originator (Billion TRY)	**2,44**	**2,90**	**3,75**	**5,42**	**7,93**	**9,71**	**13,39**	**23,09**	**44,91**
Local Generic Rate	*67,4%*	*68,0%*	*66,6%*	*63,7%*	*62,6%*	*60,1%*	*58,6%*	*61,5%*	*63,2%*
Local Originator Rate	*32,6%*	*32,0%*	*33,4%*	*36,3%*	*37,4%*	*39,9%*	*41,4%*	*38,5%*	*36,8%*
Import	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Generic (Billion TRY)	**0,34**	**0,35**	**0,39**	**0,43**	**0,48**	**0,59**	**0,83**	**1,47**	**2,79**
Originator (Billion TRY)	**9,74**	**11,00**	**12,94**	**15,60**	**19,05**	**23,03**	**28,55**	**48,32**	**86,09**
Import Generic Rate	*3,4%*	*3,1%*	*2,9%*	*2,7%*	*2,4%*	*2,5%*	*2,8%*	*3,0%*	*3,1%*
Import Originator Rate	*96,6%*	*96,9%*	*97,1%*	*97,3%*	*97,6%*	*97,5%*	*97,2%*	*97,0%*	*96,9%*

Source: IQVIA, IEIS

In terms of units, reference drugs constitute 90.2% of imported products, while they represent 31.4% of local drugs. In 2023, 68.6% of the drugs produced in our country are generics, compared to only 9.8% of imported products..

Table 6- Local – Import Products Breakdown on Volume

Volume									
Local	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Generic (Billion Unit)	**1,12**	**1,21**	**1,27**	**1,34**	**1,42**	**1,29**	**1,38**	**1,54**	**1,68**
Originator (Billion Unit)	**0,51**	**0,51**	**0,52**	**0,59**	**0,65**	**0,64**	**0,71**	**0,77**	**0,77**
Local Generic Rate	*68,8%*	*70,5%*	*70,8%*	*69,6%*	*68,5%*	*66,7%*	*66,1%*	*66,7%*	*68,6%*
Local Originator Rate	*31,2%*	*29,5%*	*29,2%*	*30,4%*	*31,5%*	*33,3%*	*33,9%*	*33,3%*	*31,4%*
Import	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Generic (Billion Unit)	**0,04**	**0,04**	**0,04**	**0,03**	**0,02**	**0,02**	**0,02**	**0,02**	**0,02**
Originator (Billion Unit)	**0,39**	**0,40**	**0,39**	**0,35**	**0,27**	**0,25**	**0,25**	**0,22**	**0,21**
Import Generic Rate	*9,2%*	*8,6%*	*8,4%*	*8,1%*	*7,5%*	*7,5%*	*8,3%*	*9,2%*	*9,8%*
Import Originator Rate	*90,8%*	*91,4%*	*91,6%*	*91,9%*	*92,5%*	*92,5%*	*91,7%*	*90,8%*	*90,2%*

Source: IQVIA, IEIS

C. Biotechnological Products

Biotechnological drugs, in their simplest definition, are drugs produced using living systems and organisms. Biotechnological production in the pharmaceutical industry began with the creation of penicillin by Alexander Fleming in 1928 and was first used in diabetes treatment with human insulin produced by recombinant DNA technology in the early 1980s.

Because the raw materials for biotechnological products are not chemically derived but from living organisms, both their development and production require significant innovation, technological expertise, and large-scale investment.

Biotechnological drugs are shaping the present and future of the global pharmaceutical industry. Treatments for many diseases that conventional drugs cannot remedy are now possible thanks to this development. Consequently, the market share of these products is increasing day by day, both globally and in our country. It is expected that the market share of biological/biotechnological drugs, which already exceeds 30% in the global pharmaceutical industry, will continue to increase in the coming years.

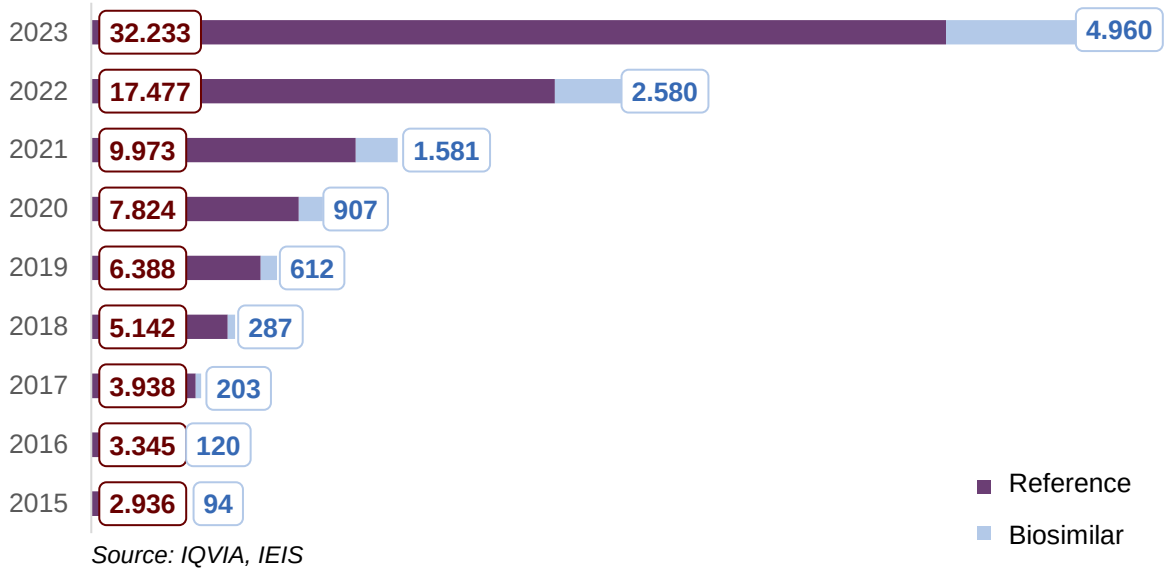
In our country, biotechnological drugs, which began to increase their market share during the pandemic, have entered a period of stagnation in the last two years. Despite this stagnation in the market, biosimilar drugs have grown at an annual compound rate (CAGR) of 21.7% from 2015 to 2023, significantly outperforming the overall drug market growth of 3.3% and the biotechnological drug market growth of 3.1%. As of 2023, when examined solely, biotechnological drugs in Türkiye account for 1.2% of the market by volume with 31.4 million units, and approximately 17.6% by value with 37.2 billion TL.

As of the end of December 2023, in Türkiye, there are 276 forms of reference biotechnological drugs under 138 brands and 113 forms of biosimilar drugs under 37 brands. The biotechnological drug market comprises a total of 389 forms of drugs under 175 brands. The production of 34 drugs, consisting of all forms from 9 biosimilar brands, is carried out in our country.

Developing and producing these import-dependent products in our country will not only facilitate patients' access to these drugs but will also reduce the pressure on public finances from imported drugs and contribute significantly to the economy by reducing the trade deficit.

In 2023, an examination of the biotechnology market shows that reference drugs grew by 84.4%, reaching a level of 32.23 billion TL. The biosimilar drug market has shown a 92.2% increase in 2023, reaching 4.96 billion TL.

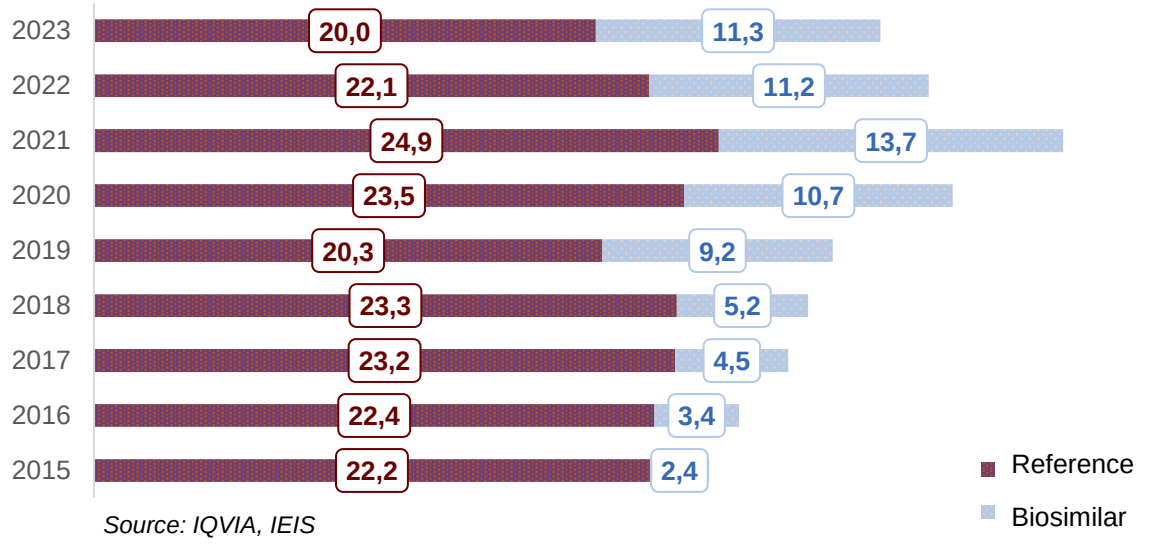
Chart 12- Biotechnological Drugs (Value - Million TRY)



Source: IQVIA, IEIS

In terms of units, the total volume of biotechnological drugs decreased by 5.8% in 2023, dropping to 31.4 million units. Sales of reference biotechnological drugs decreased by 9.6% compared to the previous year, while sales of biosimilar drugs increased by 1.7%. In 2023, biosimilar drugs continuously increased their share within biotechnological drugs with sales of 11.3 million units.

Chart 13- Biotechnological Drugs (Volume - Million Unit)

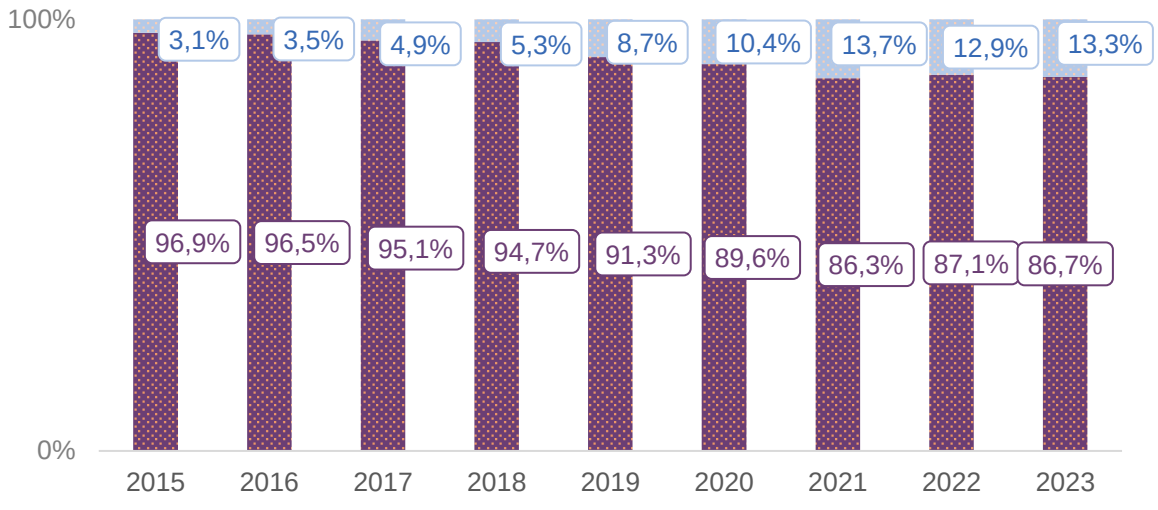


Source: IQVIA, IEIS

In Türkiye, biosimilar products containing abciximab, adalimumab, bevacizumab, enoxaparin sodium, epoetin alfa, epoetin zeta, eptacog alfa, etanercept, filgrastim, infliximab, insulin glargine, rituximab, somatropin, and trastuzumab are licensed, with those produced in Türkiye including enoxaparin sodium, epoetin alfa, filgrastim, infliximab, insulin glargine, and trastuzumab.

In 2015, biosimilars accounted for 3.1% of the biotechnological drug market by value, which increased more than fourfold to 13.3% by 2023.

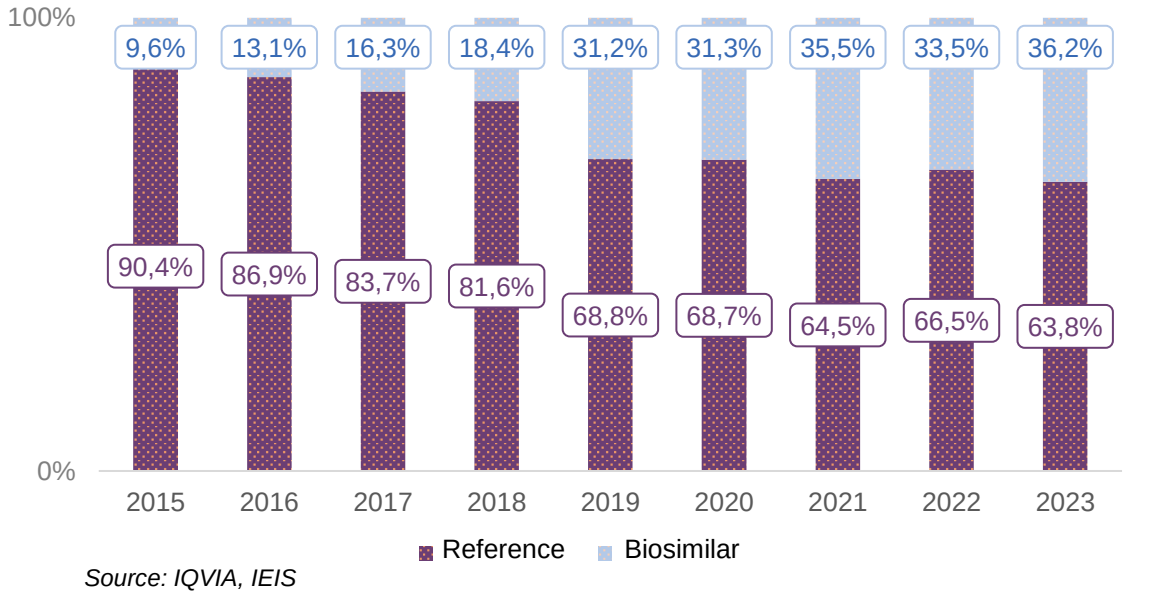
Chart 14- Reference-Biosimilar Drugs Market Share (Value)



Source: IQVIA, IEIS

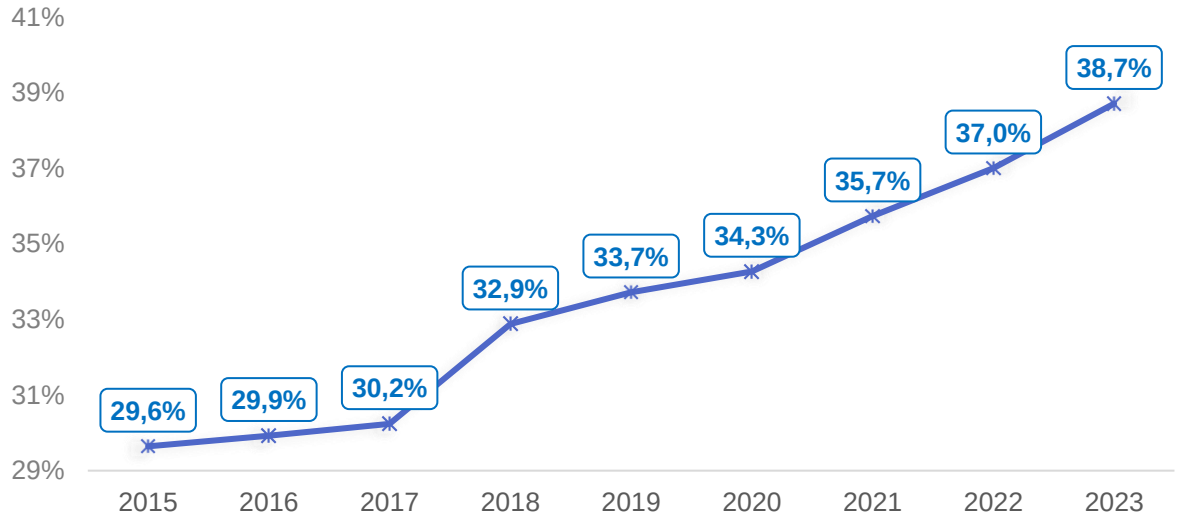
In terms of units, the share of biosimilars increased from 9.6% in 2015 to 36.2% in 2023.

Chart 15- Reference-Biosimilar Drugs Market Share (Volume)



Source: IQVIA, IEIS

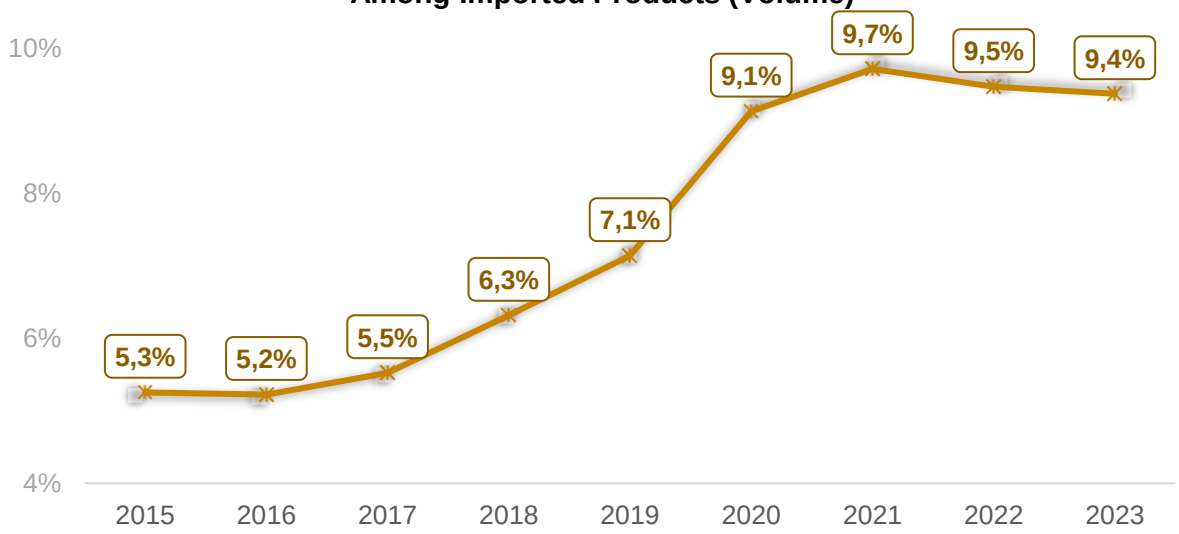
Chart 16- The Share of Imported Biopharmaceuticals Among Imported Products (Value)



Source: IQVIA, IEIS

In 2023, the share of biotechnological drugs among imported drugs reached 38.7% by value and 9.4% by units.

Chart 17- The Share of Imported Biopharmaceuticals Among Imported Products (Volume)



Source: IQVIA, IEIS

Antineoplastics and immunomodulators rank first among biosimilars and reference biotechnologicals by value. In second place are blood and blood-forming products for biosimilars, and digestive system and metabolism drugs for reference biotechnologicals.

Table 7- Biotechnological Products

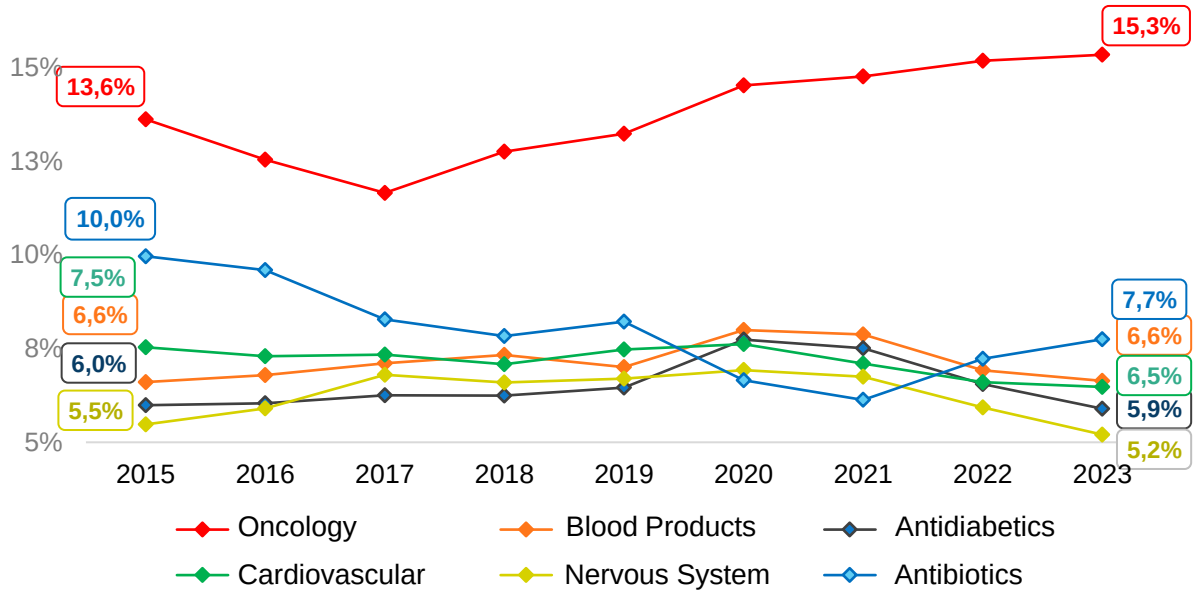
	Unit	Value
Biosimilar	**100%**	**100%**
Antineoplastics and immunomodulatory agents	86,1%	49,1%
Blood and hematopoietic organs	11,3%	46,7%
Systematic Hormonal Preparations (Excluding Sex Hormones and Insulins)	1,3%	3,3%
Digestive system and metabolism products	1,3%	0,9%
Reference	**100%**	**100%**
Antineoplastics and immunomodulatory agents	10,7%	49,6%
Digestive system and metabolism products	68,6%	21,8%
Blood and hematopoietic organs	3,9%	7,4%
Genito Urinary System and Sex Hormones	6,5%	5,0%
Respiratory System	2,9%	3,6%
Sensory Areas	1,2%	2,8%
Muscle-Skeleton System	2,2%	2,7%
Systematic Hormonal Preparations (Excluding Sex Hormones and Insulins)	2,9%	2,4%
Nervous System	0,4%	1,9%
Dermatology	0,3%	1,6%
Systematically Used Anti-infectives	0,5%	1,2%
Cardiovascular System	0,0%	0,0%

Source: IQVIA, IEIS, calculated at ATC1 level

D. Treatment Groups

When examining the top 6 groups, which hold 47.2% of the market by value, it is seen that oncology drugs, which clearly maintain their top position, have increased their share from 13.6% to 15.3% over the last 9 years. The fact that oncology drugs have the highest share among biotechnological drugs by value is a primary reason for their leading position in the overall market. Between 2015 and 2023, only antibiotics and cardiovascular drugs saw a decline in their market share, while other therapeutic groups showed an increasing trend.

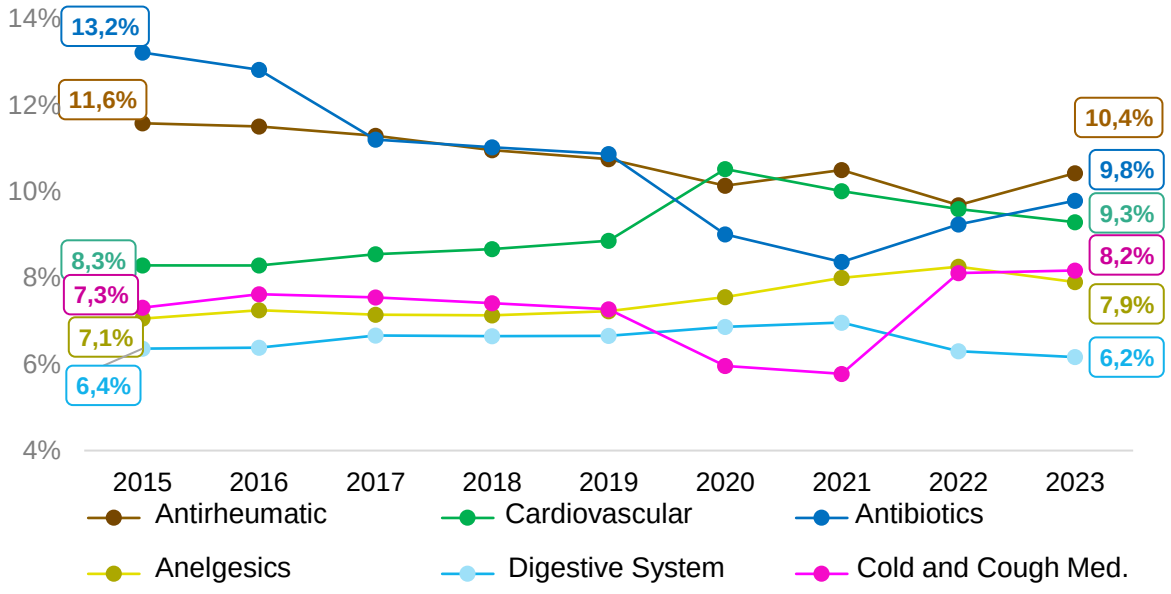
Chart 18- Therapeutic Groups on Value Scale



Source: IQVIA, IEIS "Antibiotics: ATC groups of Antibacterial, Antimycotics and Antivirals"

In 2023, in terms of units, the leading therapeutic groups in the market were antirheumatic drugs at 10.4% and antibiotics at 9.8%. Particularly, the decline in prescribed groups like antibiotics and cold medicines due to COVID-19 pandemic measures has returned to pre-pandemic levels by 2023.

Chart 19- Therapeutic Groups on Volume Scale



Source: IQVIA, IEIS "Antibiotics: ATC groups of Antibacterial, Antimycotics and Antivirals"

E. Average Prices

Between 2015 and 2023, the average price of drugs increased by 826.6% to 78.9 TL. This change indicates a real decline of 13.1% when adjusted for inflation.

Comparing average drug prices between 2022 and 2023, growth was observed at 83.6% in the drug market, 86.7% in reference drugs, 91.7% in generics, 91.4% in imported drugs, and 92.3% in domestically manufactured drugs.

In 2023, due to increases in costs and rapid rises in exchange rates, a second adjustment to drug prices was made in July as in the previous year, and the 2024 pharmaceutical exchange rate was implemented in December. Despite two adjustments to the pharmaceutical exchange rate, when adjusted for inflation, the rate of increase in average prices between 2022 and 2023 was 39.6% in the drug market, 41.9% in reference drugs, 45.7% in generics, 45.4% in imported drugs, and 46.1% in manufactured drugs.

Table 8- Distribution of Average Product Prices (TRY)

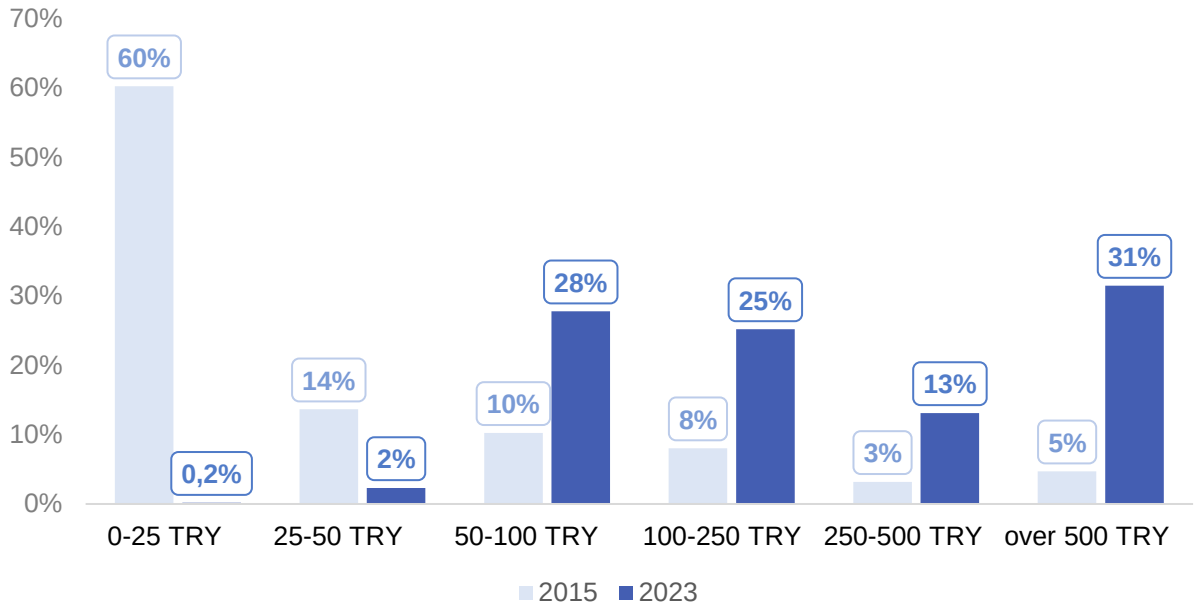
	Medicine	Originator	Generic	Import	Local
2015	8,5	13,6	4,6	23,5	4,6
2016	9,5	15,4	5,2	26,1	5,3
2017	11,0	18,2	6,0	30,9	6,3
2018	13,4	22,5	7,2	42,3	7,8
2019	17,2	29,2	9,5	66,8	10,2
2020	21,8	36,8	11,6	89,0	12,6
2021	26,2	44,0	14,1	109,7	15,5
2022	43,0	72,0	24,6	202,8	26,0
2023	78,9	134,4	47,1	388,2	50,0
Change Rate					
2015-2023	**826,3%**	**891,6%**	**917,4%**	**1553,9%**	**989,6%**
2022-2023	**83,6%**	**86,7%**	**91,7%**	**91,4%**	**92,3%**
Real Change Rate					
2015-2023	**-13,2%**	**-7,1%**	**-4,6%**	**55,0%**	**2,1%**
2022-2023	**39,6%**	**41,9%**	**45,7%**	**45,5%**	**46,1%**

Source: IQVIA, IEIS

F. Retail Price Ranges

Looking at the distribution of retail sales prices per unit of drugs in the market, due to adjustments made because of currency-related price increases between 2015 and 2023, the proportion of products in the 0-25 TL price range has nearly reached zero. In 2023, the market share of products priced at 50 TL and below has dropped to 2.5%, while products priced above 500 TL have achieved the largest share in the market at 31%.

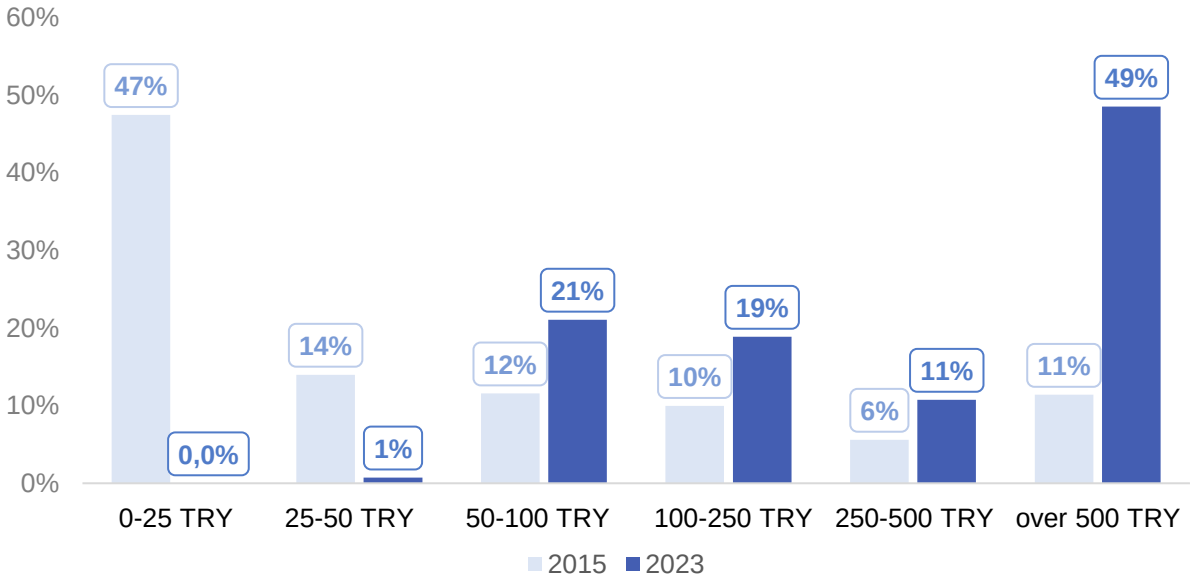
Chart 20- Retail Price Distribution



Source: TITCK, IQVIA, IEIS

Over the last 9 years, no reference drugs remain under 25 TL, and the share of reference drugs under 50 TL has also dropped to 1%. Reference products priced over 500 TL constitute the most significant portion, at 49%, by unit.

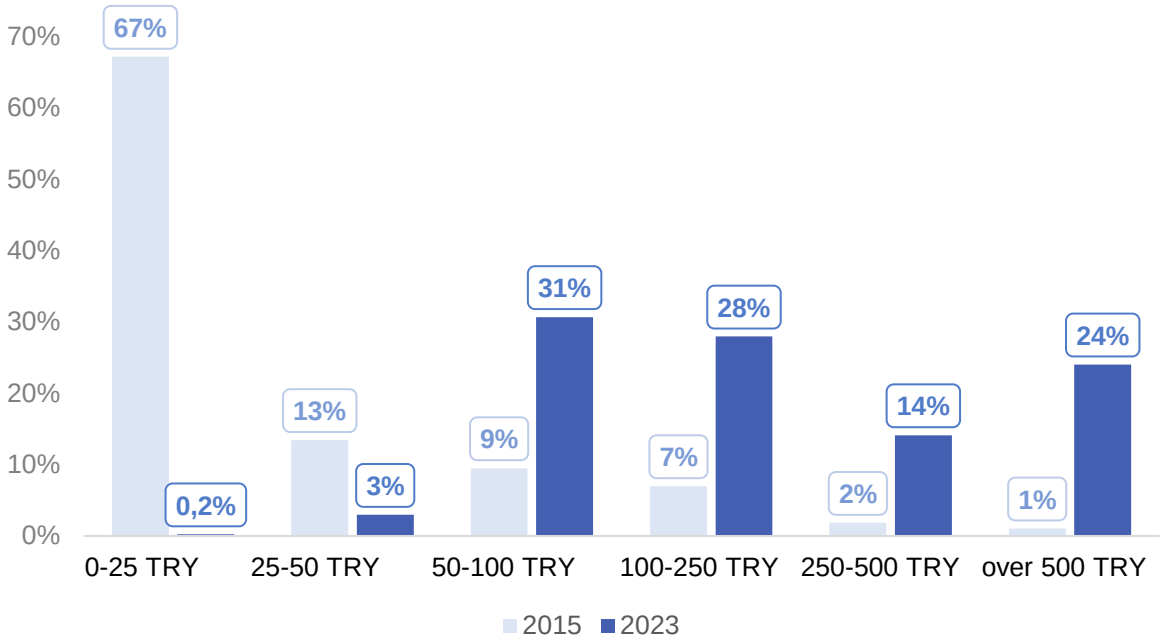
Chart 21- Price Breakdown of Originator Products



Source: TITCK, IQVIA, IEIS

In 2023, drugs in the under 25 TL price range among generic products account for only 0.2%, and those under 50 TL make up 3.2%. The product group with the largest market share among generic products, comprising items priced between 50 and 250 TL, accounts for 59%.

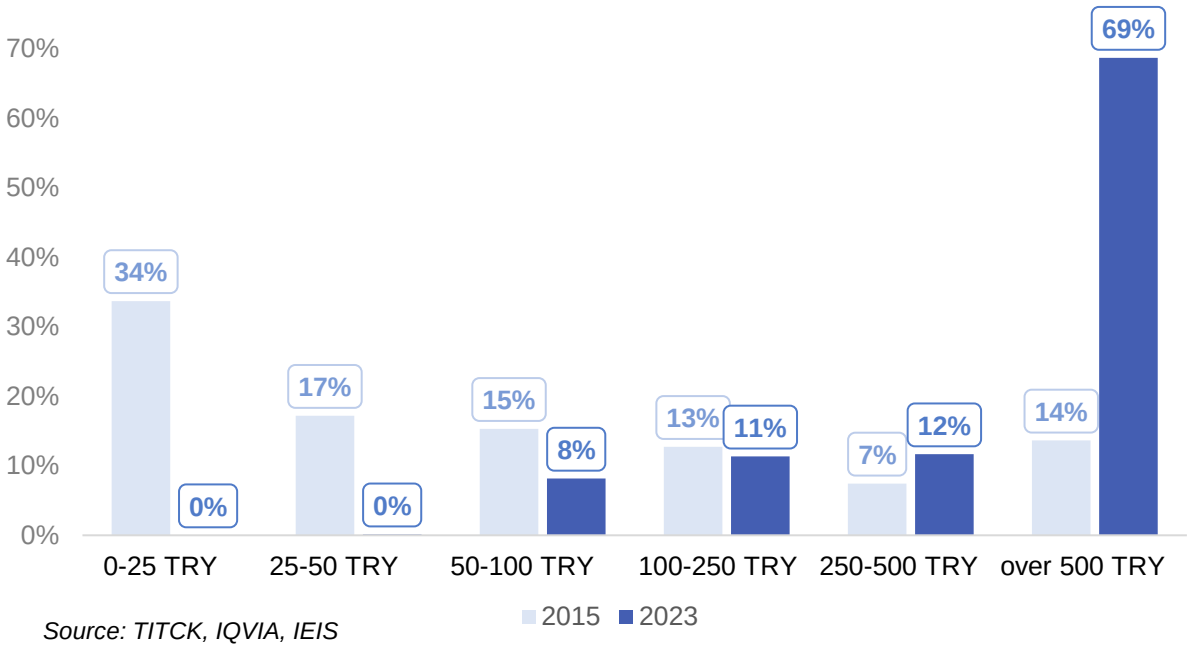
Chart 22- Price Breakdown of Generic Products



Source: TITCK, IQVIA, IEIS

In 2023, there are only two imported drugs priced under 50 TL, with drugs priced over 500 TL taking the largest share at 69%.

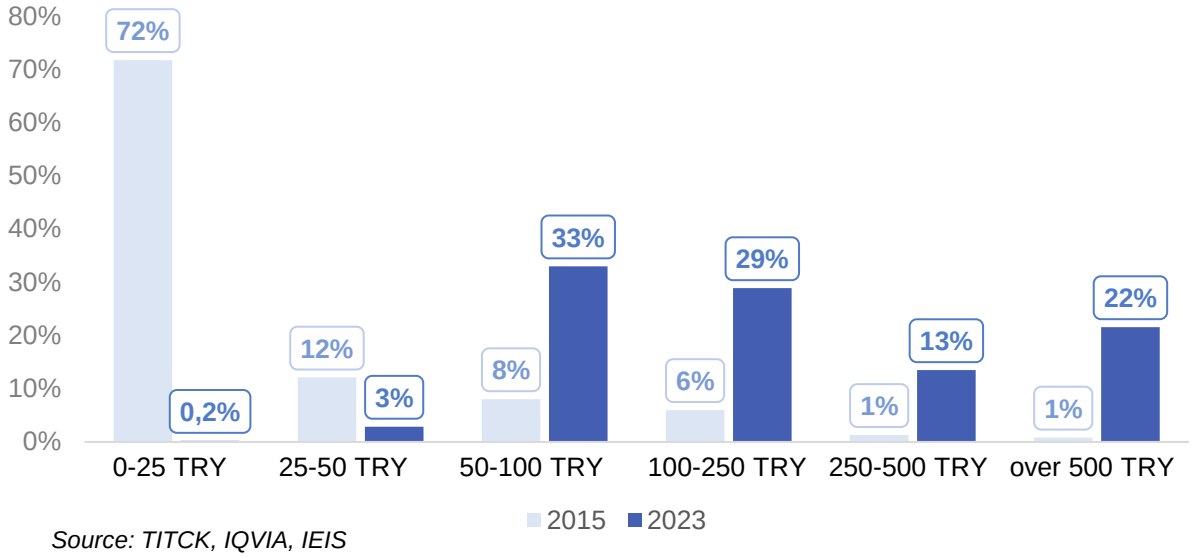
Chart 23- Price Breakdown of Import Products



Source: TITCK, IQVIA, IEIS

Within domestically manufactured products, the group with the highest share is the 50-100 TL price range, accounting for 33%. In 2023, products priced at 50 TL and below constitute 3.1% of the domestically manufactured drug market.

Chart 24- Price Breakdown of Local Products



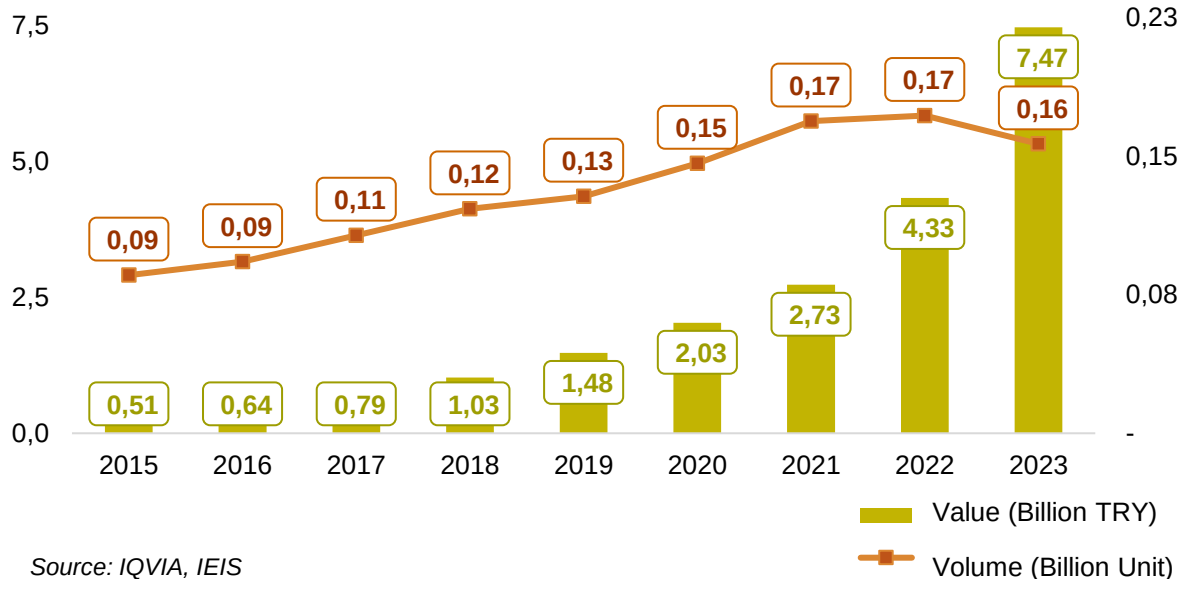
Source: TITCK, IQVIA, IEIS

1.2. Medical Nutrition Market

The medical nutrition market consists of Ministry of Health-approved enteral nutrition products and medical-purpose formulas. These products are designed to meet the nutritional needs of individuals affected by disease, health disorders, or medical conditions, and are used primarily for supportive therapy rather than health improvement.

In this product group, the Turkish market consists entirely of reference products, and they are also covered by reimbursement at 98.4% by value and 99% by units. The medical nutrition market reached 7.47 billion TL in 2023, growing by 72.6% by value. Between 2015 and 2023, the total growth was 1353.3%, with a compound annual growth rate (CAGR) of 39.7%. When adjusted for inflation, the growth during the same period corresponds to a real increase of 36.2%.

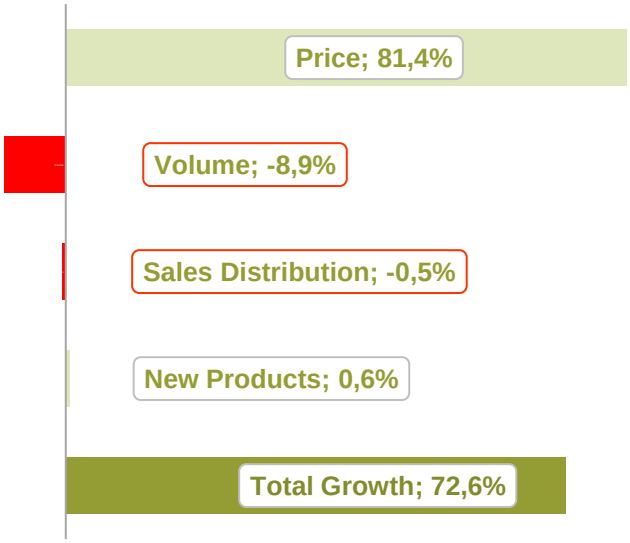
Chart 25- Medicinal Nutrition Market



Source: IQVIA, IEIS

When examined by units, the medical nutrition market contracted by 8.9% in 2023, but growth from 2015 to 2023 was at 83%.

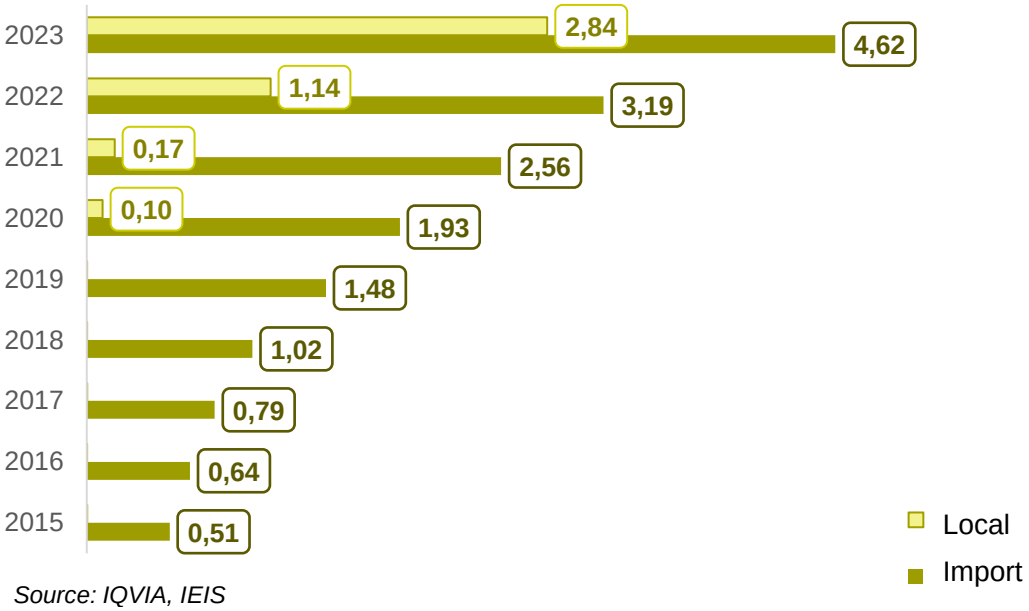
Chart 26- Sources of Medicinal Nutrition Market Growth



Source: IQVIA, IEIS

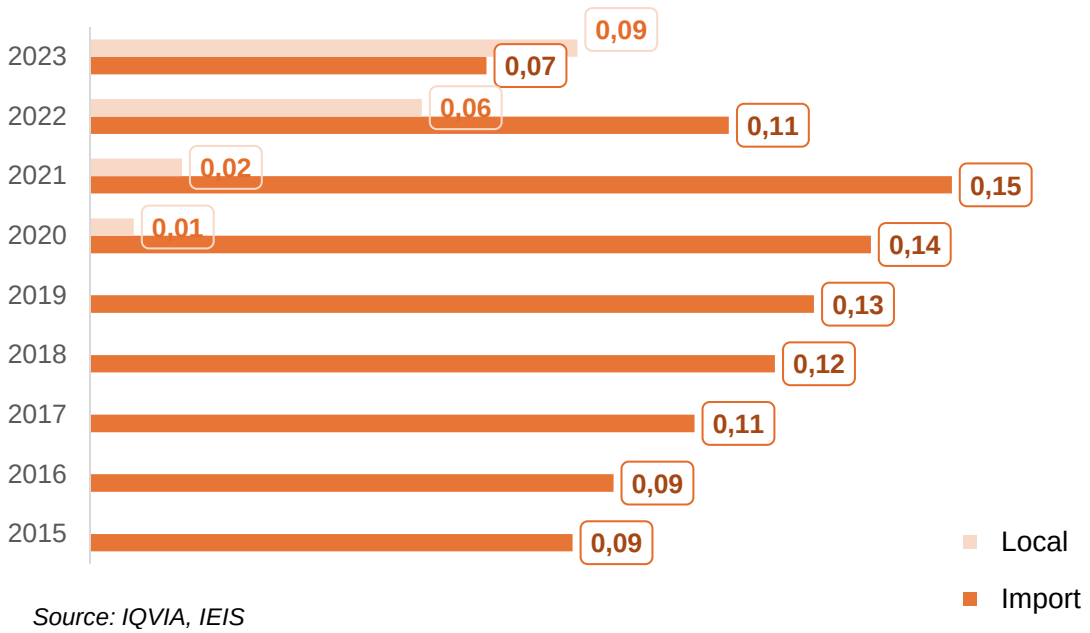
Until recent years, the market, which consisted entirely of imported reference products, has seen a rapid increase in the share of domestically manufactured products as four production facilities have become operational in our country, surpassing imported products in terms of units.

Chart 27- Local – Import Medicinal Nutrition Market (Value - Billion TRY)



Source: IQVIA, IEIS

Chart 28- Local – Import Medicinal Nutrition Market (Volume - Billion Unit)

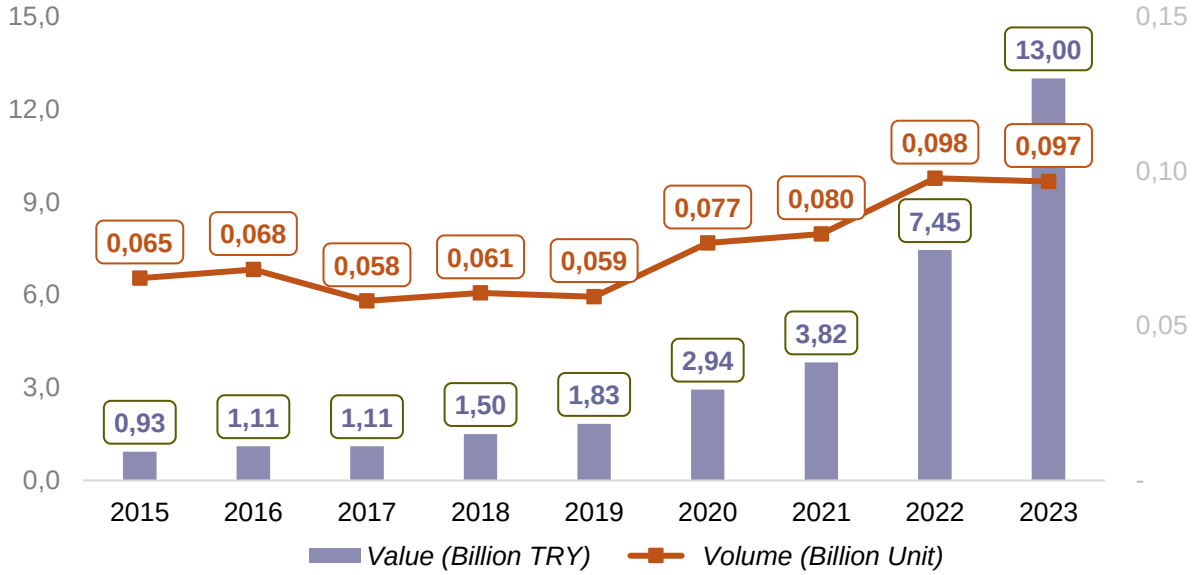


Source: IQVIA, IEIS

1.3. Medical Products Market

This market includes traditional herbal medical products approved by the Ministry of Health, some medical devices in pharmaceutical form, and supplements, vitamins, and infant formulas approved by the Ministry of Agriculture and Forestry, which are also part of pharmaceutical companies' portfolios.

Chart 29- Medicinal Products Market

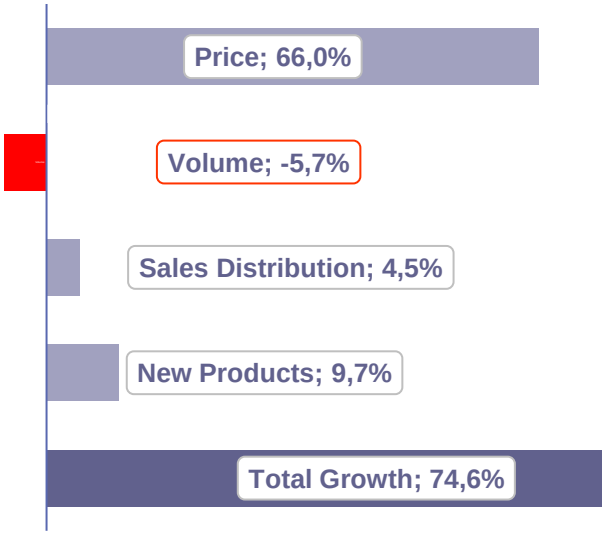


Source: IQVIA, IEIS

Following the COVID-19 pandemic, with much information on strengthening immune systems circulating heavily through social media, this rapidly growing market since 2020 has seen a 1.1% decrease in volume to 97 million units in 2023, but has grown

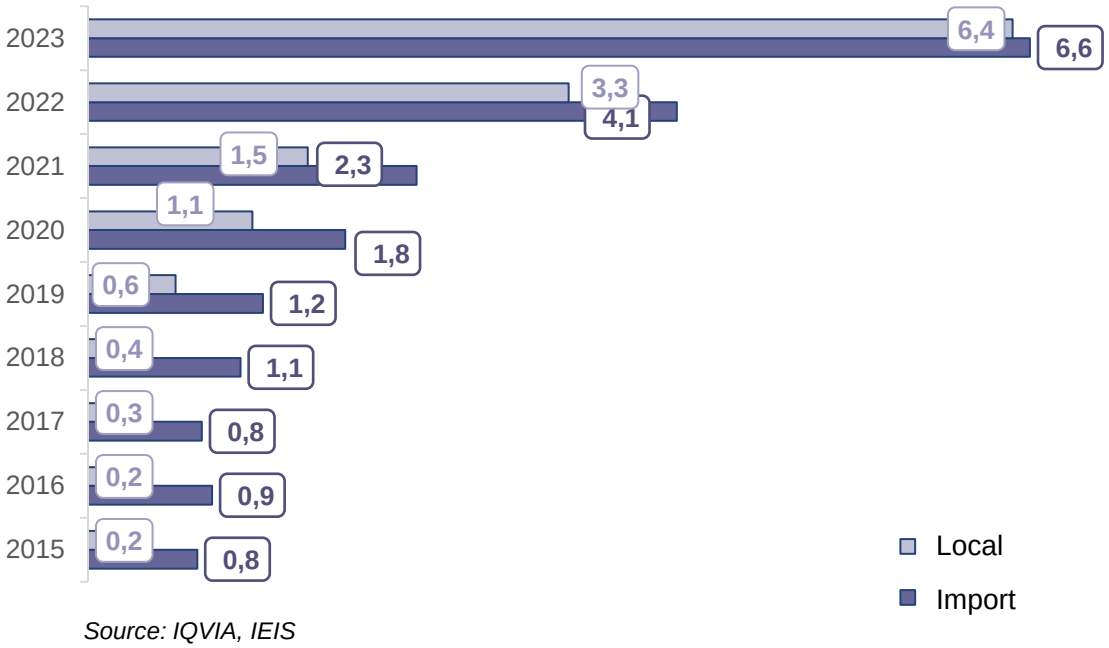
by 75% in value, reaching 13 billion TL. From 2015 to 2023, the medical products market, composed 75% of vitamins and dietary supplements in terms of units, has grown 14-fold by value.

Chart 30- Sources of Medicinal Products Market Growth



Source: IQVIA, IEIS

Chart 31- Local – Import Medicinal Products Market (Value - Billion TRY)

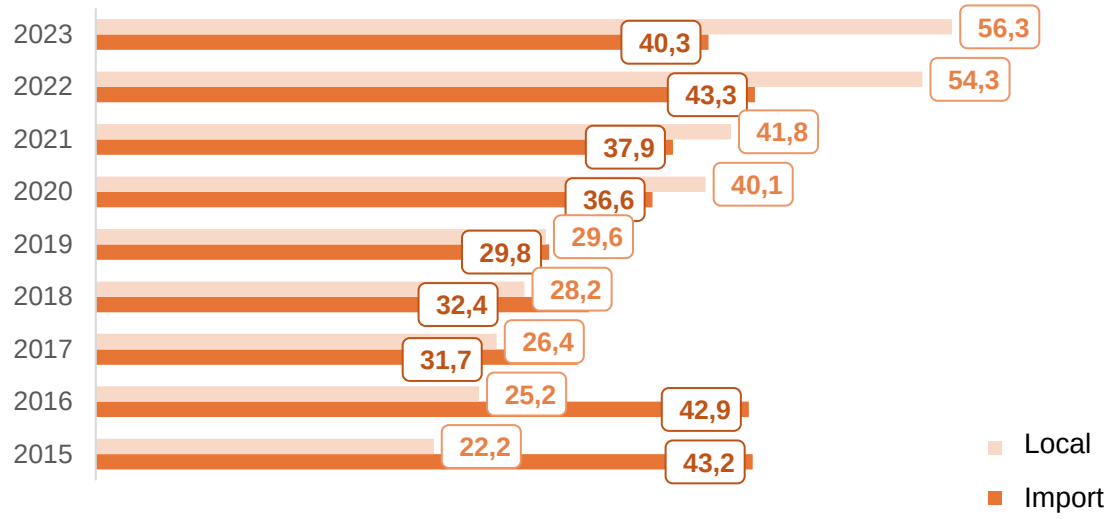


Source: IQVIA, IEIS

In 2023, imported medical products in the market grew by 60% in value to 6.6 billion TL, while domestically manufactured products grew by 92.4% to 6.4 billion TL. Between 2015 and 2023, imported products grew by 762.5% by value, while domestically manufactured products grew by 3704.8%. Although the total medical products market grew by 1297.9% during the same period, real growth remained at 31% when adjusted for inflation.

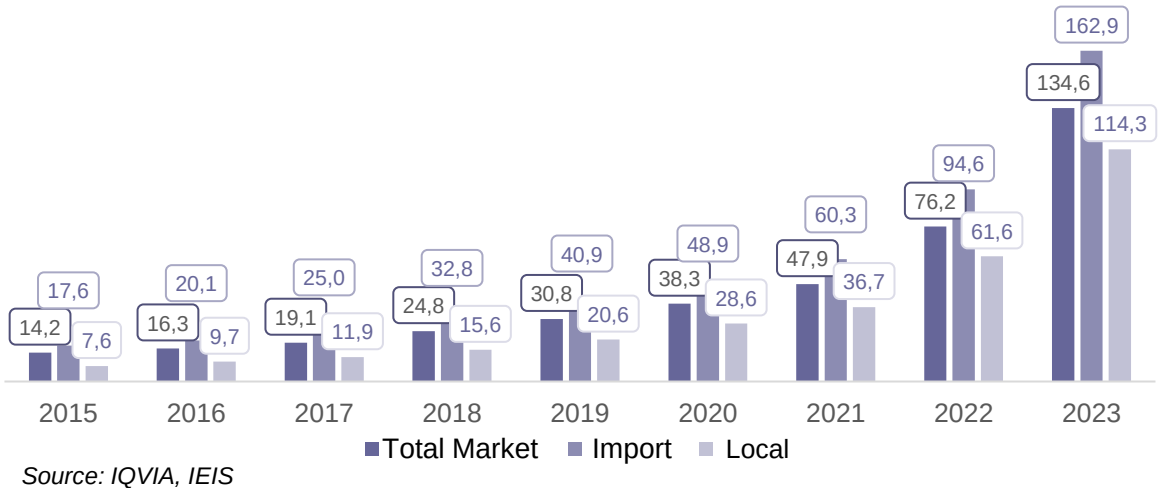
In 2023, the medical products market saw a 7% decrease in imported products to 40.3 million units, while domestically manufactured products grew by 3.6% to 56.3 million units. Between 2015 and 2023, imported products decreased by 6.7% in units, while domestically manufactured products grew by 153.4%, and the total medical products market grew by 47.7%.

Chart 32- Local – Import Medicinal Products Market (Volume - Billion Unit)



Source: IQVIA, IEIS

Chart 33- Medicinal Products Market Average Price Distribution (TRY)



Source: IQVIA, IEIS

The average price, which was 14.2 in 2015, has increased by 846.6%, reaching 134.6 in 2023. During the same period, the average price of imported products increased by 824.7% from 17.6 TRY to 162.9 TRY, and the average price of domestically manufactured products increased by 1401.4% from 7.6 TRY to 114.3 TRY.

2. Licensing Processes

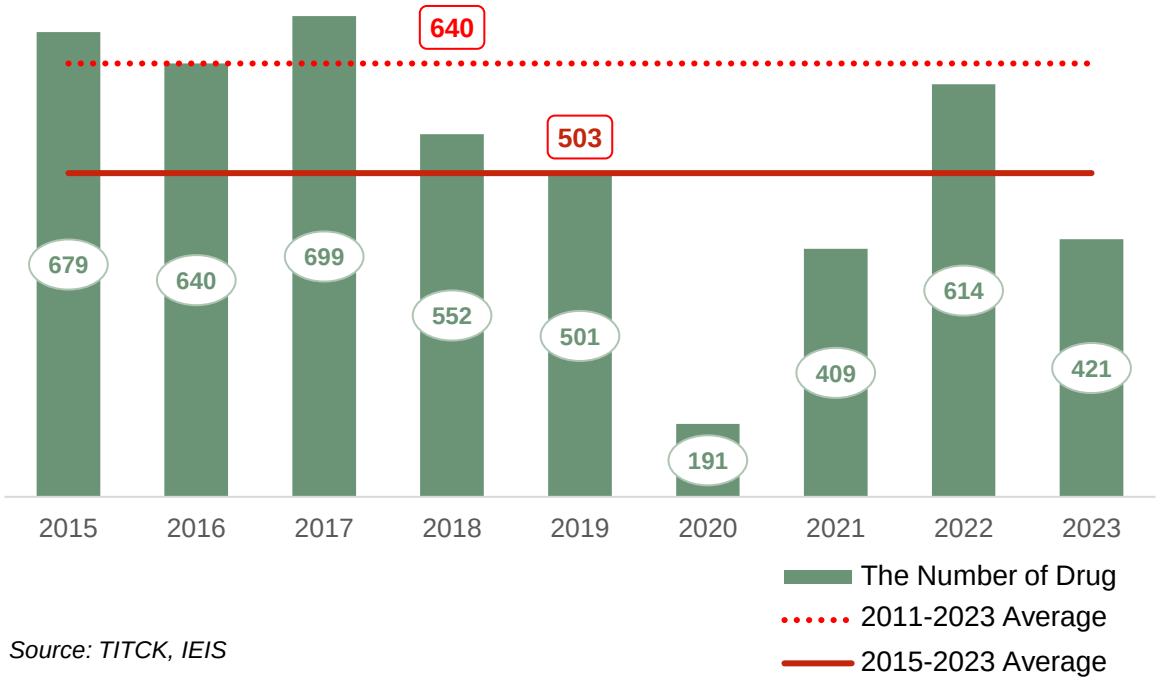
In recent years, problems with licensing new drugs have been one of the main issues hampering the industry. Although the problem peaked in 2020 and showed signs of recovery over the next two years, a decline in 2023 has increased concerns in the industry.

Indeed, in 2023, the number of new licenses issued fell to 421, well below the average of 640 licenses for the 2011-2023 period.

The prolongation of the licensing process and the inability to introduce new drugs not only undermine companies' future investment and planning but also delay consumer access to alternative medications. Additionally, the failure to introduce new drugs affects public finance and exports negatively due to production, employment, and Social Security Institution purchases.

The pharmaceutical industry in our country, which adequately fulfilled its heavy responsibilities during the pandemic and earthquake disasters, faces increasing costs and exchange rate issues while the resurgence of problems in obtaining licenses, a solution it hoped to reach, has become one of its most significant challenges.

Chart 34- Number of Novel Product Licenses



Source: TITCK, IEIS

3. Investment Incentives

In 2009, with the implementation of Cabinet Decree No. 2009/15199, investment incentives previously applied in various forms by different public institutions underwent significant positive changes and began to be managed under the coordination of the Ministry of Trade. With this decision, in addition to general and regional incentives, the priority investment scope was aimed to include investments in biotechnological drugs, oncological drugs, and blood products within the pharmaceutical industry.

With the amendment made in Cabinet Decree No. 2012/3305 in 2015, pharmaceutical investments were classified under the advanced technology category and became eligible for incentives in the 5th Region. As a result of these developments, a total of TRY 60.9 billion of fixed investment incentives were granted in the pharmaceutical industry between 2015 and 2022. It is estimated that these investments will create employment opportunities for 13,008 individuals.

The fixed investment amount, which was TRY 674 million in 2015, reached a level of TRY 4.8 billion in 2022.

Table 9- Investment Incentives in the Pharmaceutical Industry

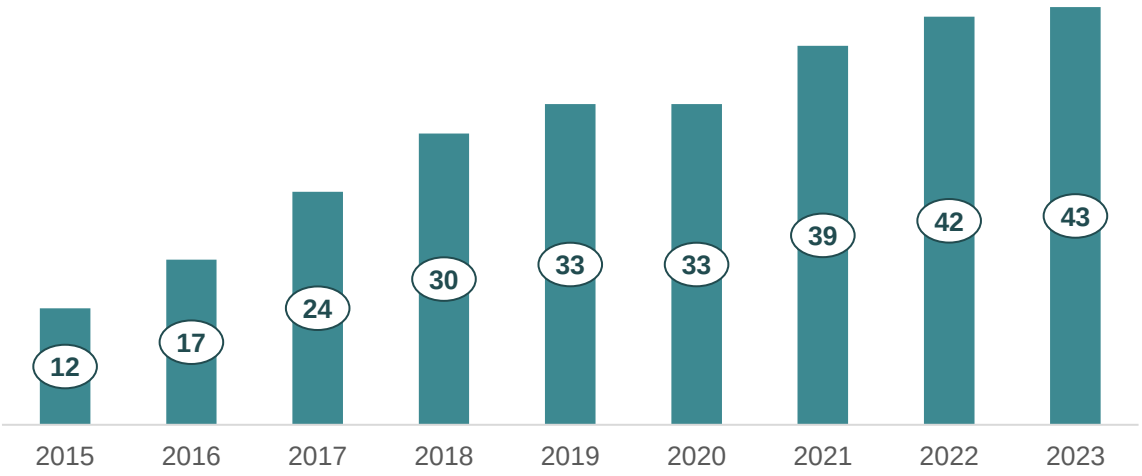
	Number of Documents		Fixed Investment (Million TRY)			Employment via Investment		
	Medicine	Total	Medicine	Total	Share	Medicine	Total	Share
2015	21	3.722	3.406	580.496	0,59%	913	132.302	0,69%
2016	15	4.707	3.891	551.327	0,71%	889	157.940	0,56%
2017	31	6.841	41.183	1.003.770	4,10%	2.108	227.231	0,93%
2018	28	5.501	4.473	756.467	0,59%	1.118	265.606	0,42%
2019	36	5.406	9.332	550.816	1,69%	1.073	197.089	0,54%
2020	48	10.152	33.419	811.047	4,12%	3.369	300.564	1,12%
2021	40	12.485	12.049	847.040	1,42%	2.455	370.889	0,66%
2022	32	13.540	5.720	1.334.829	0,43%	1.096	361.311	0,30%
2023*	36	11.868	27.016	1.961.277	1,38%	1.879	259.866	0,72%

Source: Ministry of Industry and Technology (09.30.2023 data set), IEIS

4. R&D Activities

The pharmaceutical industry, with 43 R&D centers accredited by the Ministry of Industry and Technology and approximately 2,320 R&D employees, is among the priority sectors contributing significantly to our country's industrial transformation. Advances in R&D will enable the domestic production of products we currently depend on imports for.

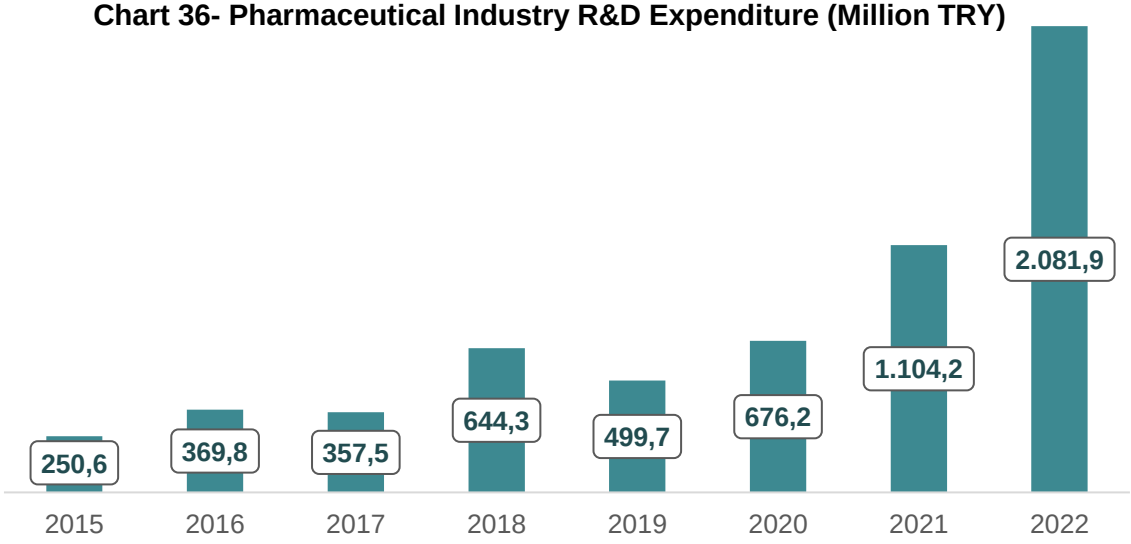
Chart 35- Number of Accredited R&D Centers in the Pharmaceutical Industry



Source: STB, IEIS

The amount of incentives received by pharmaceutical R&D centers has increased from 250.6 million TL in 2015 to 2,081.9 million TL in 2022, a rise of 731%.

Chart 36- Pharmaceutical Industry R&D Expenditure (Million TRY)



Source:TUIK, IEIS

5. Pharmaceutical Production

The Turkish pharmaceutical industry, with a century-old history, high production technology, capacity, and skilled workforce, is a strong industry that continuously invests in advanced technologies to maintain its power in global competition. As of December 2023, there are 109 production facilities in our country, including 99 for pharmaceuticals and 10 for radiopharmaceuticals, along with 13 raw material production facilities.

Additionally, in recent years, production has started in our country at four facilities for medical nutrition products used to support the nutrition and treatment of individuals with nutritional disorders caused by illness or medical conditions.

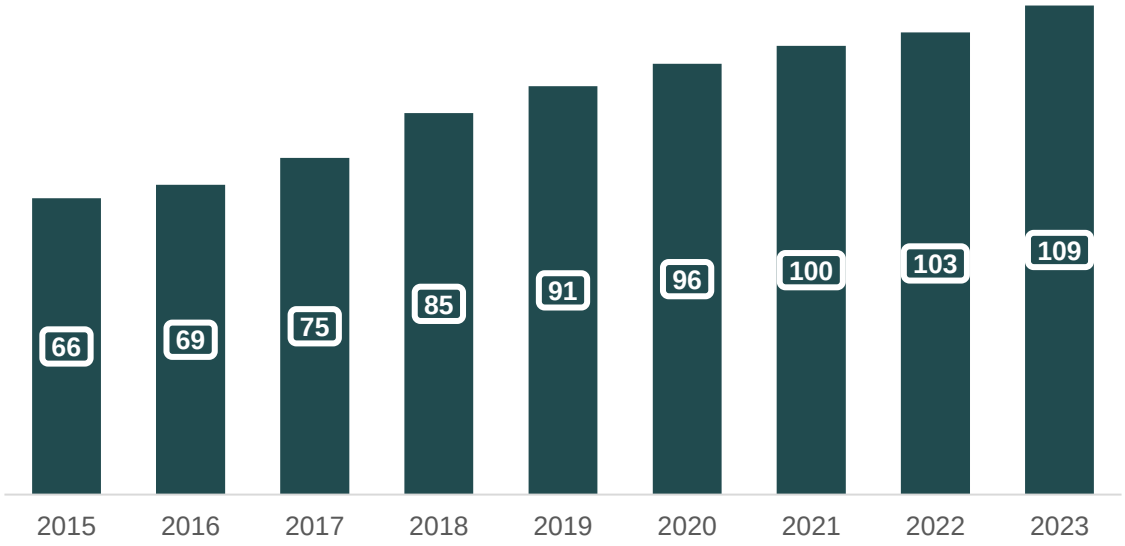
One of the industry's priority topics on the agenda is domestic production. The Medium-Term Program published in the Official Gazette No. 31943 on September 4, 2022, (Repeated Issue) for 2023-2025 includes support for projects aimed at developing vaccines, pharmaceuticals, medical devices, diagnostic kits, and artificial intelligence-based health technologies to enhance our global competitiveness and reduce dependence on imports.

Additionally, the 2023 Presidential Annual Program published in the Official Gazette No. 31994 on October 25, 2022, (Repeated Issue) describes pharmaceuticals as a strategically important field, highlighting the capacity and diversity of the pharmaceutical sector and its ability to respond quickly to emergencies, as well as the significance of R&D activities. Additionally, the mentioned Program emphasizes that the need for localization policies in vaccines, pharmaceuticals, protective equipment, and medical devices has become more apparent.

Consequently, developing sustainable localization policies for ensuring supply security in pharmaceuticals and vaccines is critical; this includes strengthening the production

infrastructure for raw materials, intermediates, active ingredients, and packaging materials to secure supply.

Chart 37- Number of Production Facilities

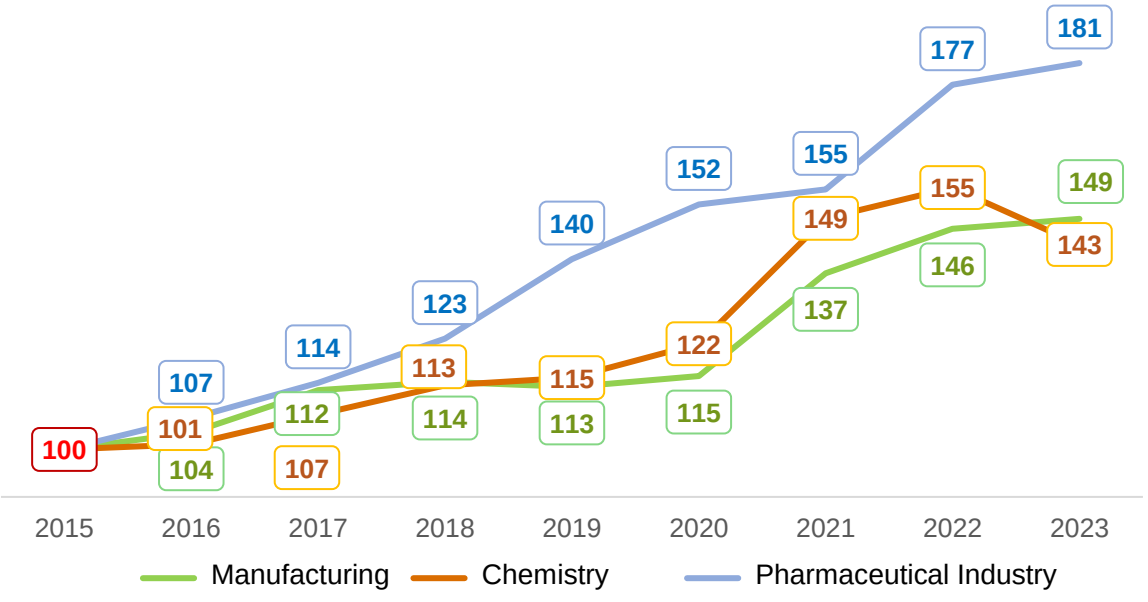


Source:TUIK, IEIS

Despite the pressures of global supply challenges and high cost increases starting in 2021, the Turkish pharmaceutical industry continues uninterrupted production, prioritizing drug supply security and access to medication for our citizens.

According to industrial production index data, in 2023, the manufacturing sector grew by 1.4% to 149 points, while the chemical sector decreased by 7.7% to 143 points. The pharmaceutical sector continued to increase its production, growing by 2.6% to 181 points. Between 2015 and 2023, production in the manufacturing sector grew by 48.6%, in the chemical sector by 43.2%, while in the pharmaceutical sector it increased by 81.3%.

Chart 38- Industrial Production Index Change (2015-2023)

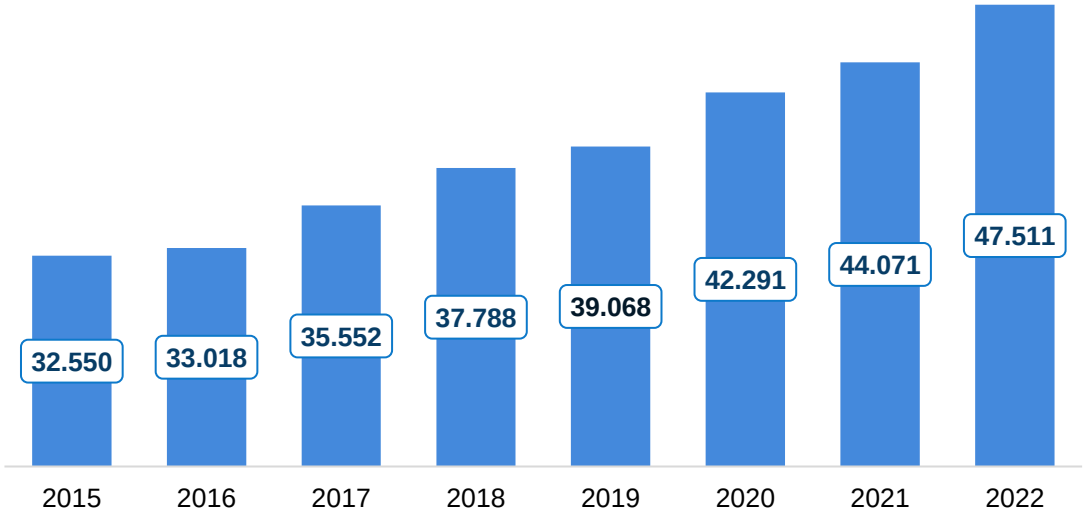


Source:TUIK, IEIS

6. Employment

In 2022, total employment in Türkiye increased by 6.6% compared to 2021. In the same period, employment in the pharmaceutical industry increased by 7.8% to 47,511 people..

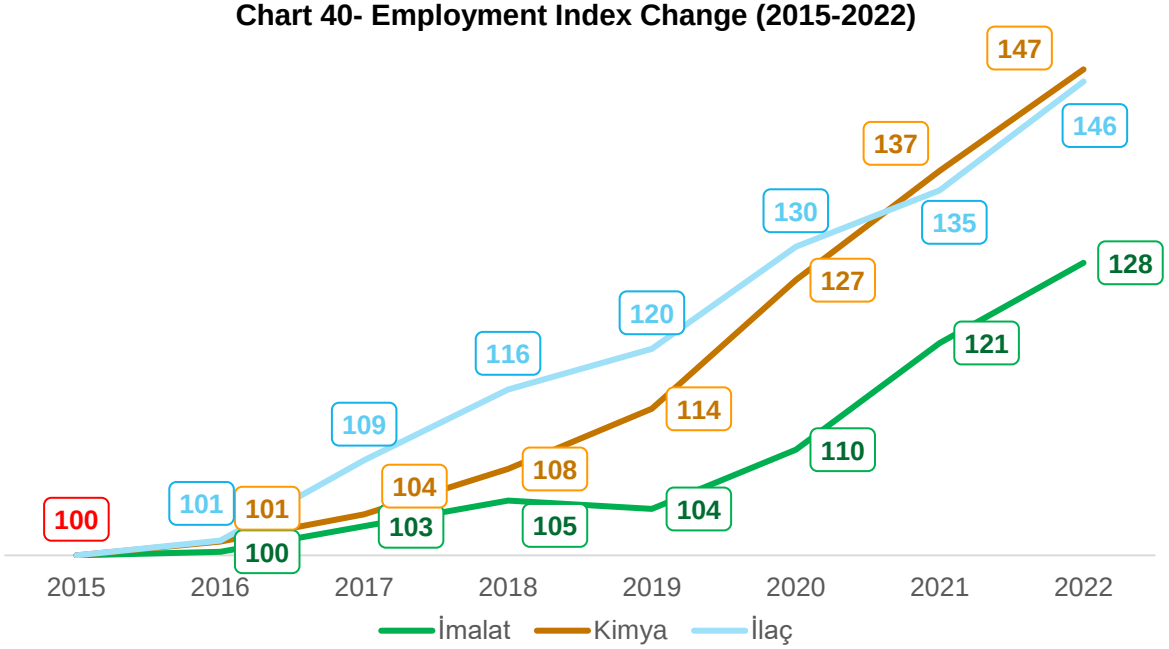
Chart 39- Employment in the Pharmaceutical Industry (Number of People)



Source:TUIK, IEIS

When employment data is indexed between 2015 and 2022, the pharmaceutical sector has shown strong performance, growing by 46%, which is above the 23% growth in overall Turkish employment during the same period.

Chart 40- Employment Index Change (2015-2022)

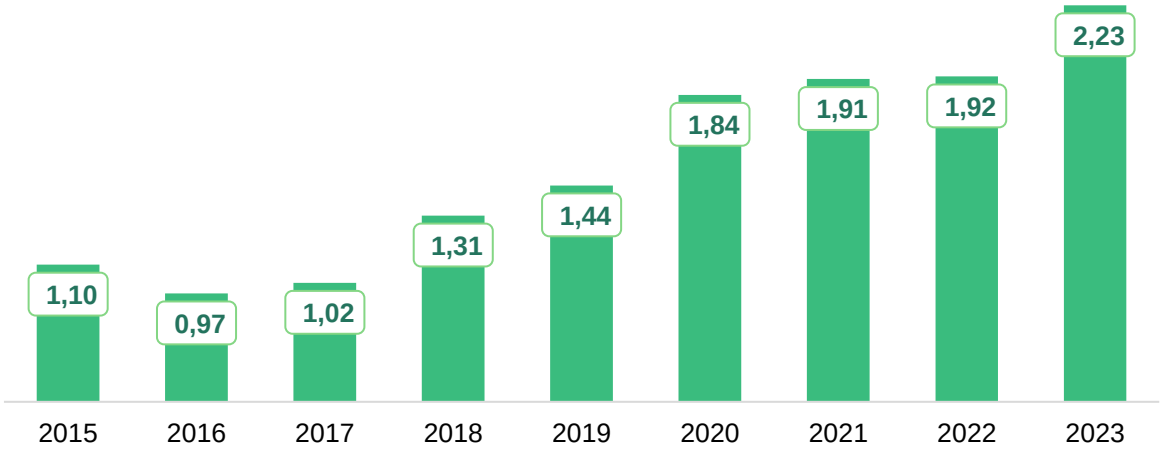


Source:TUIK, IEIS

7. Foreign Trade

Over the past three years, pharmaceutical exports have remained stable but grew by 16.2% in 2023 to reach an all-time high of $2.23 billion. Additionally, from 2015 to 2023, while Türkiye's total exports grew by 69.4%, pharmaceutical exports showed a strong performance above the national average, increasing by 102.9% despite challenges.

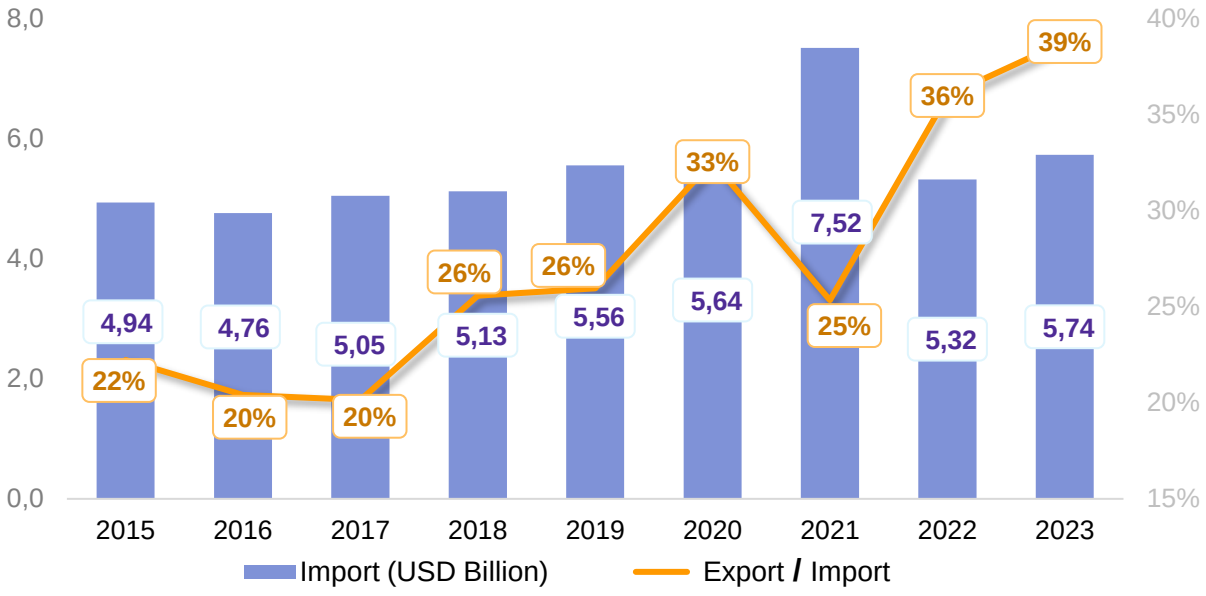
Chart 41- Export Value in the Pharmaceutical Industry (Billion USD)



Source:TUIK, IEIS

In 2023, pharmaceutical imports increased by 7.8%, reaching $5.74 billion. Between 2015 and 2023, the growth rate of pharmaceutical imports was 16.2%. During the same period, the ratio of pharmaceutical exports to imports rose from 22% to 39% by 2023.

Chart 42- Import Value in the Pharmaceutical Industry

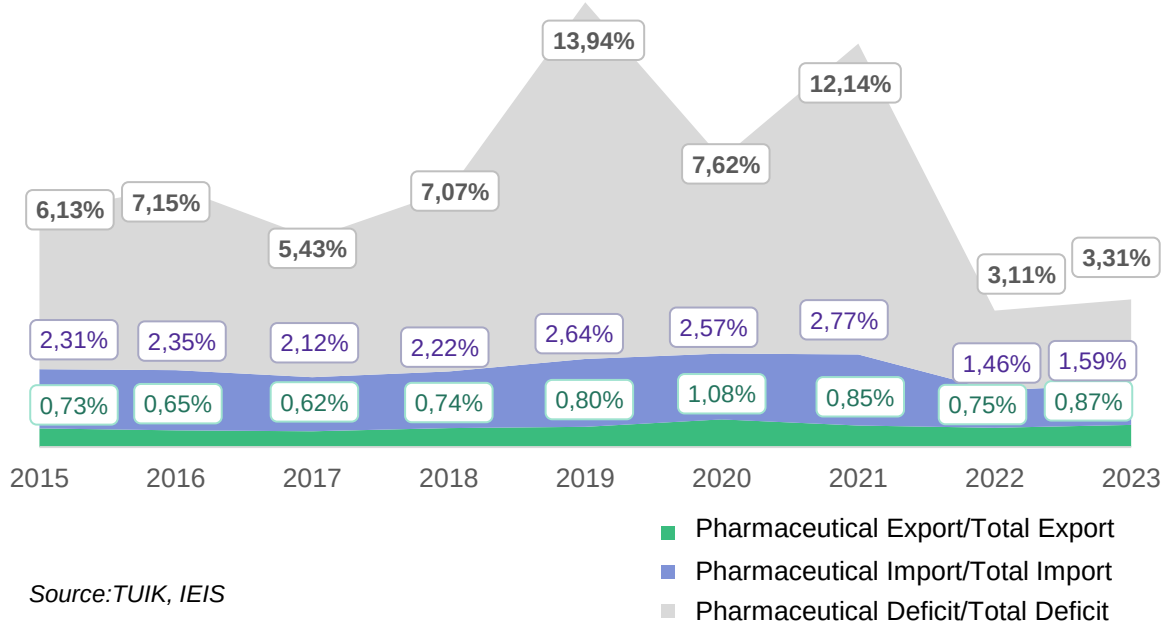


Source:TUIK, IEIS

In 2020, for the first time, the share of pharmaceutical exports in Türkiye's total exports exceeded 1%, reducing the trade deficit attributed to pharmaceuticals. This demonstrates that the high-value pharmaceutical industry is one of the most crucial

sectors in addressing our country's trade deficit. In 2023, pharmaceuticals accounted for 0.87% of exports and 1.59% of imports, resulting in a 3.31% share in the overall trade balance.

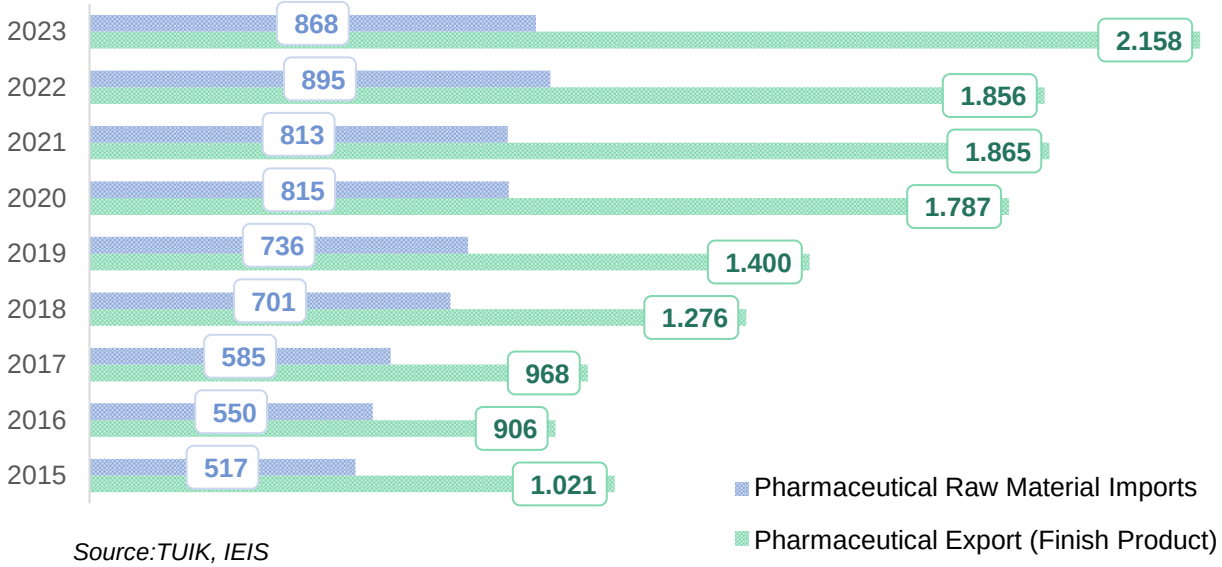
Chart 43- Pharmaceutical Industry in Turkish Foreign Trade



Source:TUIK, IEIS

Examining the import of pharmaceutical raw materials and the export of finished pharmaceutical products clarifies the contribution of the pharmaceutical industry to the national economy. Indeed, in 2023, despite ongoing increases in costs and exchange rates post-pandemic, the industry imported raw materials worth $868 million but exported finished products worth $2.16 billion. Meeting the demand for finished pharmaceutical products through domestic production will both increase exports and contribute to reducing the trade deficit.

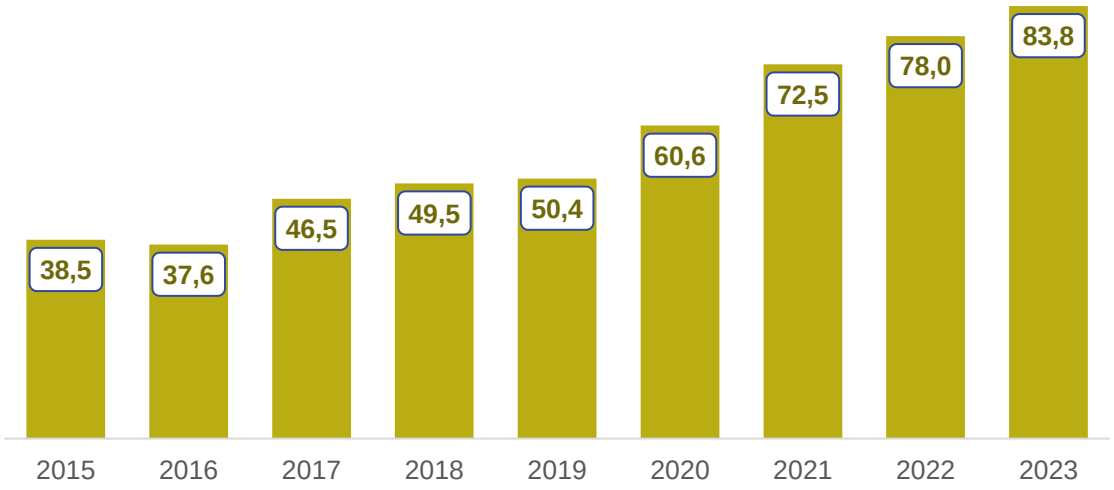
Chart 44- Finished Product vs Raw Material in Pharmaceutical Industry (Million USD)



Source:TUIK, IEIS

Between 2015 and 2023, the volume of pharmaceutical exports increased from 38.5 million kilograms in 2015 to 83.8 million kilograms in 2023, a growth rate of 117.7%.

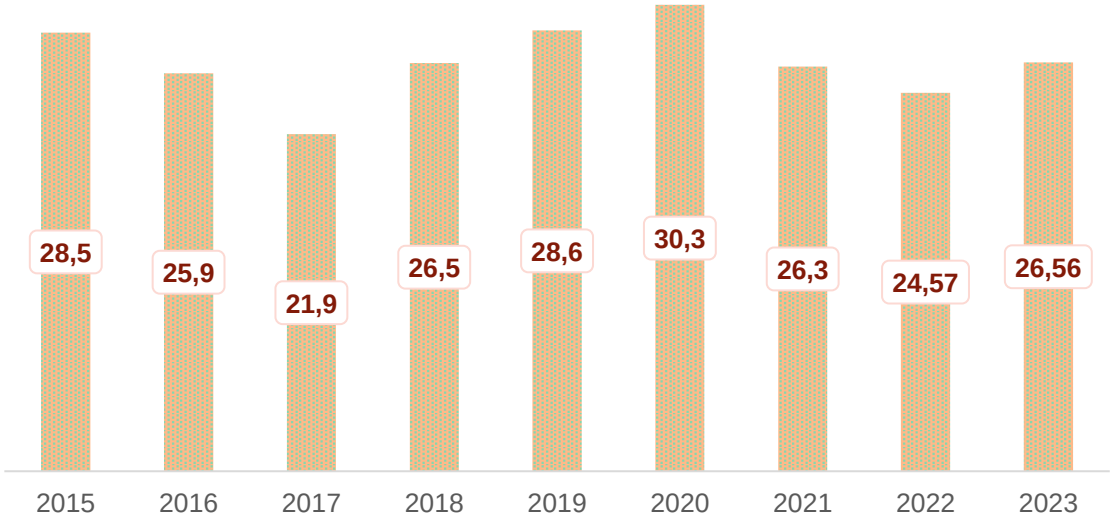
Chart 45- Export Amount in the Pharmaceutical Industry (Million Kg)



Source:TUIK, IEIS

Pharmaceutical exports are increasing in kilograms, but the price per kilogram is not rising proportionately. Over the same period, the price per kilogram of exports has decreased by 6.8% from $28.5 to $26.6. It is clear that the price-focused policies implemented in our country are the main reason why the per kilogram price, and therefore the value of exports, is below what it should be.

Chart 46- Pharmaceutical Export Price Per Kilo (USD)



Source:TUIK, IEIS

Despite our industry's per kilogram export value of $1.57 being above the Turkish average and many other sectors, it is still well below its potential added value.

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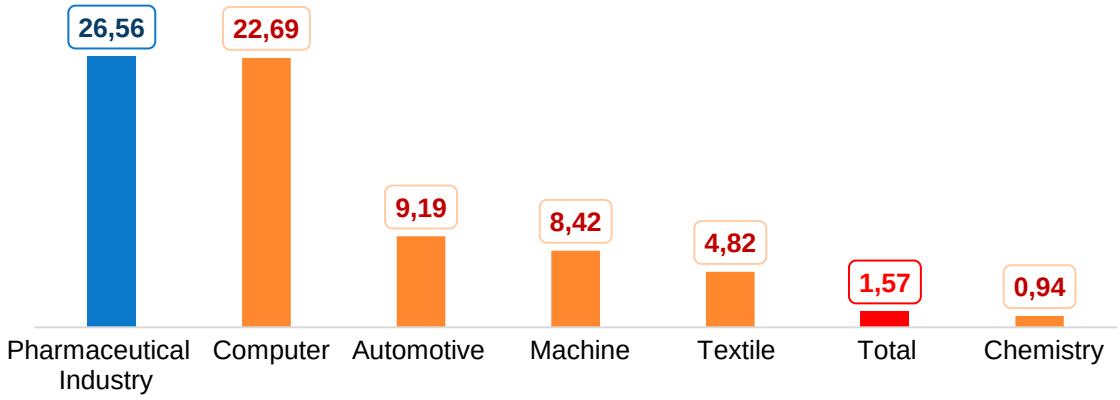
Chart 47- Export Price Per Kilo in Various Sectors (USD)



Source:TUIK, IEIS

The fact that drug prices in our country are used as reference/source prices in the countries we export to causes our companies to enter other country markets at lower than necessary prices. Issues such as licensing and customs in target export countries, exports made without pharmaceutical companies' consent benefiting from the pricing policy created for our public benefit, and supported at great cost by these companies, must be resolved for our industry to become one of the leading drug manufacturers and exporters in the world.

In 2023, exports were made to approximately 185 countries, primarily to the European Union (EU), Commonwealth of Independent States (CIS), North Africa, and Middle Eastern countries. The Asian region forms the most intense market for pharmaceutical exports, accounting for 48%, with Europe in second place at 42.9%. In 2023, the top 20 countries for pharmaceutical exports accounted for 72% of all pharmaceutical exports.

Table 10- First Twenty Countries in Pharmaceutical Export (Million USD)

Countries	2022	2023	Share 2023	Change
South Korea	434	458	21%	6%
Hungary	56	169	8%	202%
Georgia	66	140	6%	113%
Iraq	109	110	5%	1%
Poland	40	101	5%	153%
Iran	86	85	4%	-1%
Azerbaijan	64	59	3%	-6%
Kazakhstan	95	59	3%	-39%
T. R. N. C.	38	58	3%	53%
Uzbekistan	92	50	2%	-46%
Germany	39	41	2%	5%
Russian Fed.	42	37	2%	-13%
Syria	31	36	2%	16%
Bulgaria	30	31	1%	3%
Slovenya	16	30	1%	85%
Switzerland	29	29	1%	-1%

France	21	28	1%	36%
Albania	25	28	1%	14%
Moldova	22	27	1%	21%
Kyrgyzstan	23	26	1%	14%
Total of List	**1.358**	**1.602**	**72%**	**18%**
Total Export	**1.916**	**2.226**	**100%**	**16%**

Source: TUIK, IEIS

In 2023, 61.3% of pharmaceutical imports from 117 countries came from Europe and 22.8% from Asia. In 2023, the top 20 countries in the pharmaceutical import ranking accounted for 96% of all pharmaceutical imports.

Table 11- First Twenty Countries in Pharmaceutical Import (Million USD)

Countries	2022	2023	Share 2023	Change
Germany	988	969	17%	-2%
USA	525	778	14%	48%
China	565	526	9%	-7%
Ireland	320	441	8%	38%
South Korea	481	377	7%	-22%
Italy	340	353	6%	4%
France	261	348	6%	33%
Switzerland	332	327	6%	-2%
India	246	272	5%	10%
Belgium	136	207	4%	53%
Spain	135	160	3%	18%
United Kingdom	124	123	2%	-1%
Austria	71	120	2%	69%
Netherlands	63	112	2%	76%
Denmark	183	95	2%	-48%
Sweden	67	78	1%	17%
Greece	61	75	1%	23%
Japan	42	60	1%	45%
Brazil	73	49	1%	-33%
Egypt	27	31	1%	15%
Total of List	**5.039**	**5.501**	**96%**	**9%**
Total Import	**5.323**	**5.735**	**100%**	**8%**

Source: TUIK, IEIS

Table 12- First Five Products in Pharmaceutical Export (Million USD)

CTSP	Product	2022	2023	Share 2023	Change
3004	*Medications prepared for usage in treatment or prevention (dosed)*	1.226	1.367	61%	12%
3002	*Human blood, animal blood, serum, vaccines, toxins, etc.*	556	707	32%	27%

3006	*Pharmaceutical goods and ready-mades that are not included in any other part of the Tariff*	57	65	3%	12%
3003	*Medications mixed for usage in treatment or prevention (no dosage)*	16	20	1%	20%
2936	*Pro-vitamins and vitamins*	22	17	1%	-21%
Total of List		**1.878**	**2.175**	**98%**	**16%**
Total Export		**1.916**	**2.226**	**100%**	**16%**

Source: TUIK, IEIS

In 2023, when pharmaceutical foreign trade was examined based on Customs Tariff Statistics Positions (CTSP), blood products, serums, vaccines, toxins, and prepared dosed drugs for treatment or prevention constituted 93% of our exports and 80% of our imports.

Table 13- First Five Products in Pharmaceutical Import (Million USD)

CTSP	Product	2022	2023	Share 2023	Change
3002	*Human blood, animal blood, serum, vaccines, toxins, etc.*	2.101	2.380	41%	13%
3004	*Medications prepared for usage in treatment or prevention (dosed)*	2.063	2.215	39%	7%
2941	*Antibiotics*	212	231	4%	9%
3006	*Pharmaceutical goods and ready-mades that are not included in any other part of the Tariff*	124	143	2%	16%
3003	*Medications mixed for usage in treatment or prevention (no dosage)*	140	129	2%	-8%
Total of List		**4.639**	**5.098**	**89%**	**10%**
Total Import		**5.323**	**5.735**	**100%**	**8%**

Source: TUIK, IEIS

8. Pricing and Reimbursement Policies

In 2009, to overcome the pressure of the global crisis on public finances, the global budget system, which included radical reforms, was implemented to control healthcare expenditures primarily through measures targeting pharmaceutical prices. Disproportionate drug budgets were set, and drug prices were continuously reduced on the pretext of exceeding the drug budget, while discounts by the Social Security Institution (SSI) were increased. Additionally, despite meeting the required conditions in the legislation, the Euro value used for converting EU-based drug prices to TL was not updated from April 2009 to May 2015, and was kept fixed at 1.9595 TL to control drug expenditures.

The legal process initiated by the industry to update the pharmaceutical exchange rate concluded in favor of the pharmaceutical sector in April 2015. Subsequently, the practice was changed so that the exchange rate would be set at 70% of the previous year's Euro average. In this context, the exchange rate value was updated to 2.3421

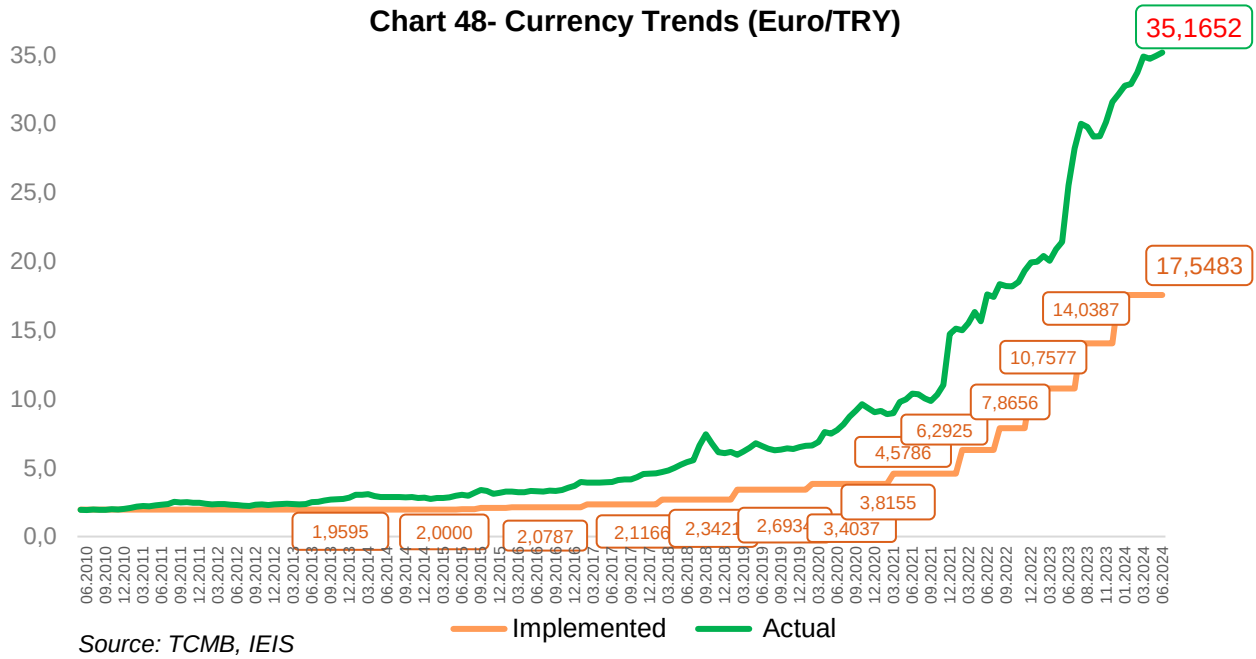
TL for the year 2017. For 2018, while a 23% increase was required, a temporary decision only raised the pharmaceutical exchange rate by 15%, setting it at 2.6934 TL.

In 2019, the pharmaceutical exchange rate used to determine the annual average Euro value was reduced from 70% to 60%, setting the conversion rate at 3.4037 TL. In 2021, while a 26.5% increase was necessary, another temporary decision only raised the pharmaceutical exchange rate by 20%, setting it at 4.5786 TL.

Despite rapid exchange rate increases starting in the last quarter of 2021, the implementation of the 2022 pharmaceutical exchange rate at 6.2925 TL in February under the legislation was insufficient to alleviate the harsh conditions faced by the sector. Faced with a rapidly changing economic environment and the sector being in a difficult situation, the pharmaceutical exchange rate was increased by 25% to 7.8656 TL in July. With continued increases in exchange rates and cost items, the 2023 pharmaceutical exchange rate was set at 10.7577 TL, a 36.8% increase, and implemented in December 2022.

Along with the increase in costs, the earthquake disaster in our country, the EYT law, and difficulties in accessing financial solutions under suitable conditions, the consistent "melting" of the pharmaceutical exchange rate when compared to the current exchange rate has further exacerbated the challenging conditions the sector faces. Despite only corresponding to 48.7% of the current market rate on July 23, 2023, the pharmaceutical exchange rate was set at 14.0387 TL, and on December 16, 2023, the rate set for 2024 at 17.5483 TL only reached 55.4% of the current market rate.
This situation has clearly demonstrated the need for legislation and practices to be made more dynamic to ensure the continuity of the sector, particularly highlighting the importance of updating the pharmaceutical exchange rate at least twice a year.

Chart 48- Currency Trends (Euro/TRY)



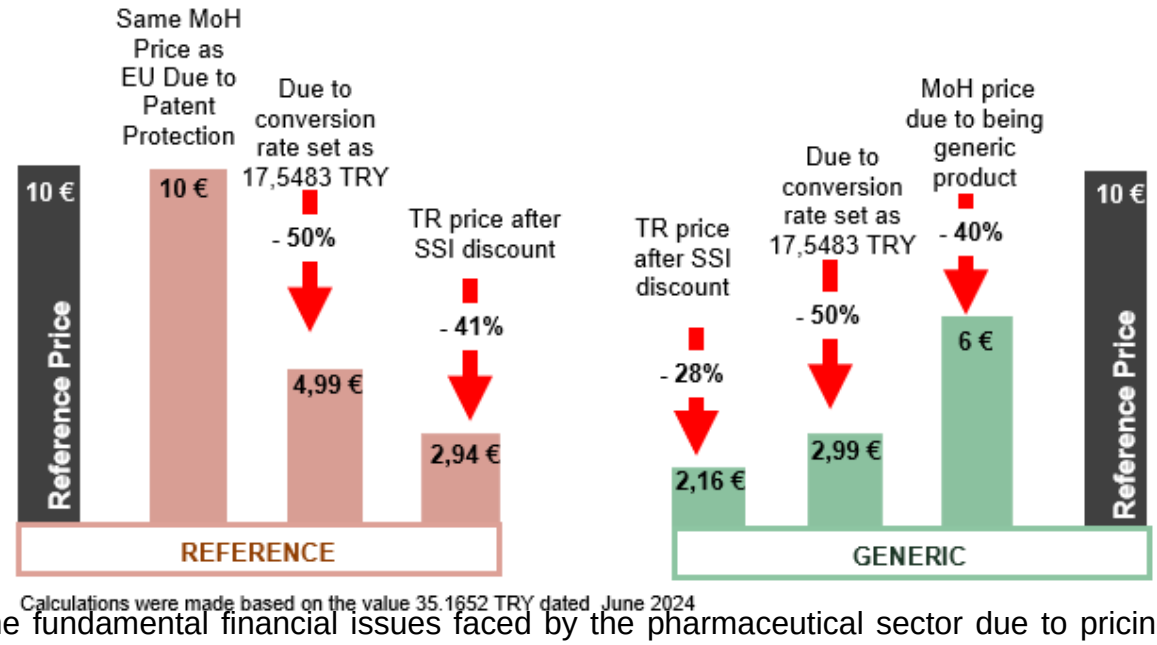
Source: TCMB, IEIS

Additionally, the sector faces intense price pressure with discounts by the Social Security Institution (SSI) reaching up to 41% and even exceeding 50% in some cases. Due to the cost-focused reimbursement system followed by SSI, drug prices in our

country have not only fallen below those of European countries we reference but even below those of India from where we import raw materials.

The following graphic summarizes the pricing in Türkiye of a product with a source price of 10 euros, based on the current exchange rate. The price of the reference product in Türkiye has fallen to 2.94 euros, and the generic product to 2.16 euros.

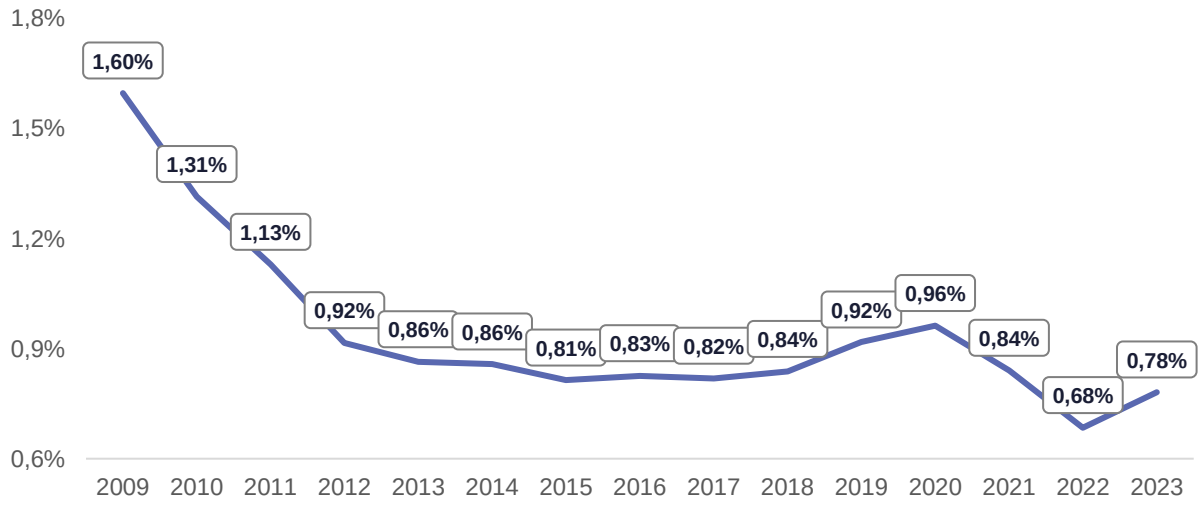
Chart 49- Pharmaceutical Pricing



Calculations were made based on the value 35.1652 TRY dated June 2024

The fundamental financial issues faced by the pharmaceutical sector due to pricing and reimbursement stem from the regular decrease in the portion of the public budget allocated to drugs in our country. Indeed, the share of drug expenditures, which peaked at 1.6% of our country's Gross Domestic Product (GDP) in 2009, has consistently decreased over the years. As a result of this decline, by 2023, this ratio has fallen to 0.78%.

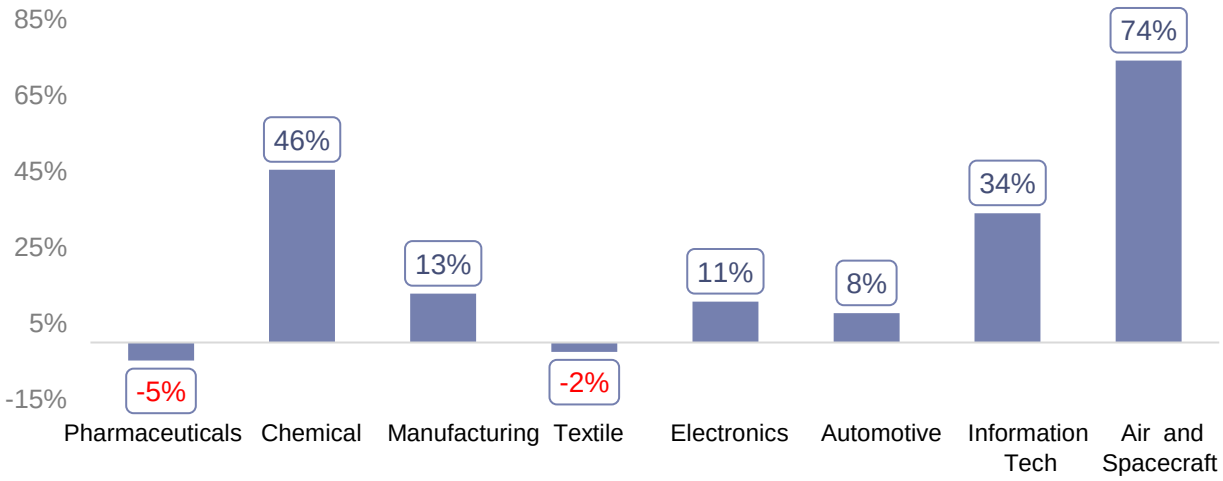
Chart 50- Share of Pharmaceutical Expenditures in GDP



Source: SGK,TUIK, IEIS

While sectors belonging to the high and middle technology class exhibited a positive real change rate in net sales from 2015 to 2022, the strategically important and high-technology pharmaceutical sector has a negative outlook, along with the textile sector.

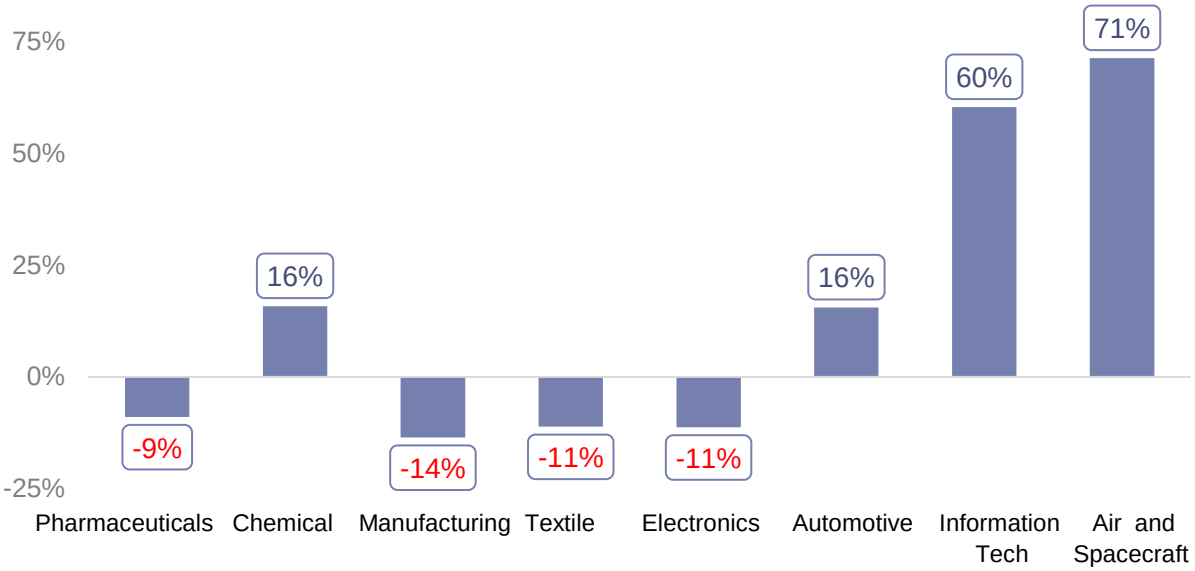
Chart 51- Real Changes in Net Sales (2015-2022)



Source: STB, IEIS

The pharmaceutical sector, with a negative real change in net sales, is also on a negative trajectory in generating equity, which is crucial for strengthening R&D and investment capacity.

Chart 52- Real Change in Equities (2015-2022)

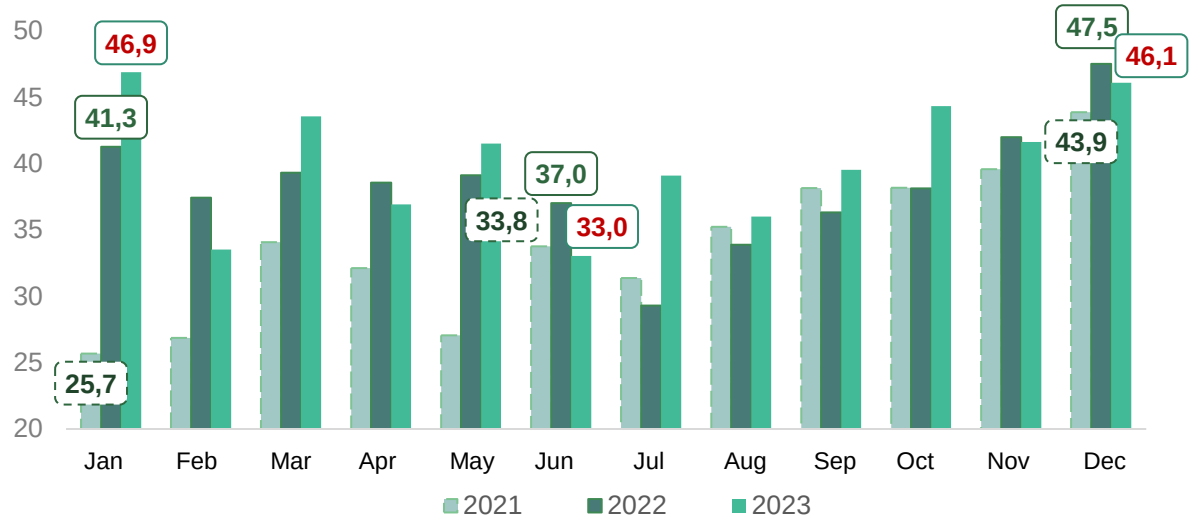


Source: STB, IEIS

Despite the global Covid-19 pandemic, the earthquake disaster in our country, economic difficulties, wars, and escalating crises in our region leading to extraordinary conditions in society and business, raw material supply issues, logistics disruptions, rising costs, fluctuations in drug sales, and many other challenging conditions, the Turkish pharmaceutical industry has continued its production activities uninterrupted. Our pharmaceutical industry has continued to produce at full capacity, managing to

prevent potential issues in drug supply within health services, which reached an average of 40 million prescriptions per month in 2023, an increase of 4.8%.

Chart 53- SSI Monthly Prescription Number (Prescriptions in Million Unit)



Source: SSI Health Statistics, IEIS

9. Conclusion and Evaluation

The pharmaceutical industry, a leading priority and strategic sector in our country, has been working diligently with public institutions and academia for over 100 years to ensure sustainable and effective supply security for pharmaceuticals and vaccines. In recent years, with the challenges brought by the Covid-19 pandemic and the earthquake disasters, the importance of supply security for pharmaceuticals and vaccines has been proven once again, and our industry proudly fulfills its responsibilities to the fullest.

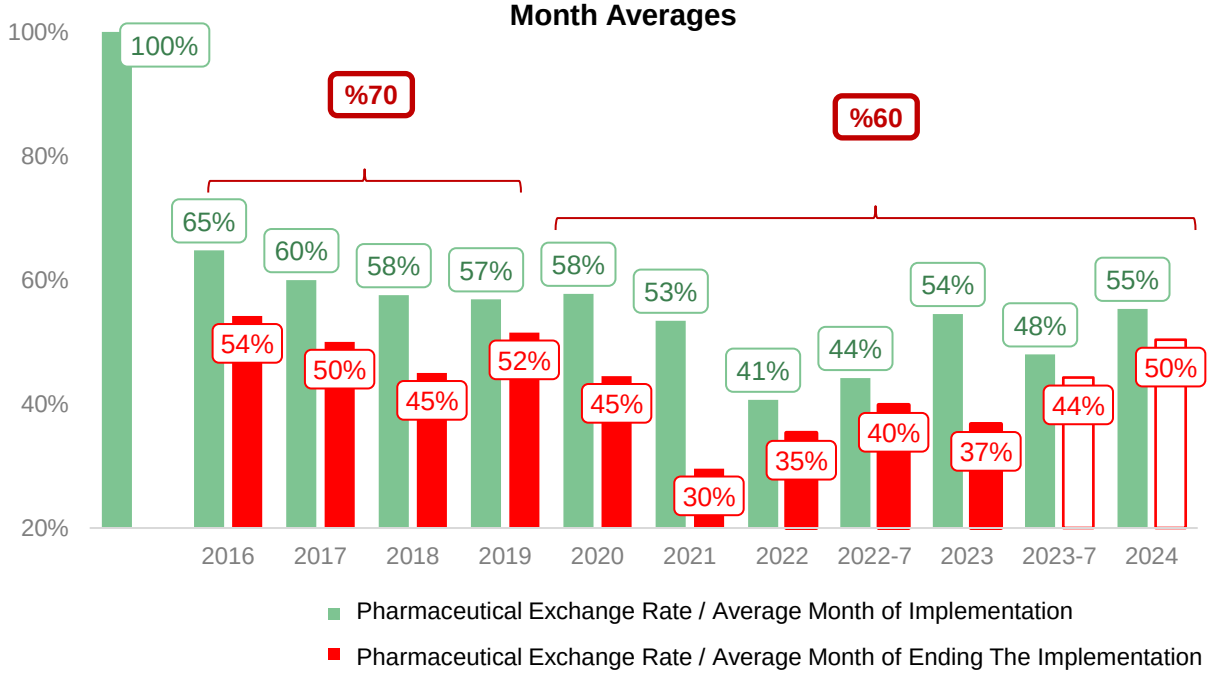
The pharmaceutical exchange rate, which is crucial for the pharmaceutical sector, was set at 70% of the previous year's average Euro rate in 2016, according to the legislation implemented that year, and was reduced to 60% in 2019. On the other hand, the implementation of the pharmaceutical exchange rate in the second half of February and its annual determination leave the sector unprotected against exchange rate movements and other production-related variables, placing an increasing burden on it each year.

Significant exchange rate increases, causing a large gap between the announced pharmaceutical exchange rate and the actual Euro value in the market since the last quarter of 2021, have highlighted the necessity of updating the pharmaceutical exchange rate twice a year and implementing it without waiting for February, as requested by the sector in 2022 and 2023.

Despite these implementations, as seen in the graph showing the ratio of the average rate in the month the pharmaceutical exchange rate was applied to the average rate in the month the implementation ended, the sector has never actually reached these ratios during either the 70% or 60% periods.

The pharmaceutical exchange rate set for 2024 (17.5483 TL) falling to 50% of the average Euro rate by May indicates the significant problems the sector will face throughout the year.

Chart 54- Pharmaceutical Exchange Rate to Application Beginning and Ending Month Averages



Source: TCMB, TITCK, IEIS

The pharmaceutical sector is a dynamic industry that closely follows technology, must rapidly apply new technologies and continually invest, establish new facilities to produce products it cannot currently manufacture, and systematically carry out renewal activities.

As we enter the second century of our Republic, it is clear that the strategically important pharmaceutical sector should focus its potential and energy not on the issues it faces with the pharmaceutical exchange rate, pricing regulations, and reimbursement practices, but on topics such as biotechnological and biosimilar drugs, gene and cell technologies, high-quality R&D activities, development of local molecules, increasing value-added exports, and even data usage and digitalization in the pharmaceutical sector.

In this context, to protect and accelerate the development of our country's pharmaceutical industry, it is necessary to abandon the financially disciplined pricing policy and reform the pricing regulations according to current conditions.

In this context, the new pharmaceutical pricing regulations must retain the reference pricing system, but its deficiencies must be corrected. Additionally, when determining pharmaceutical prices, instead of using the lowest price from the 5 reference countries specified in the regulations, the arithmetic average of the prices from the 5 countries should be used. The pharmaceutical exchange rate, which will be effective from the first working day of the new year, should be updated twice a year based on the increase in the Euro rate over the previous six months.

Additionally, raising the pharmaceutical exchange rate from 60% and ensuring that the rate updates are published and implemented automatically on the first business day following the end of the period, without the need for any Commission's approval, will also help alleviate the sector's issues.

Furthermore, drug reimbursement policies should not be formed solely from a public finance perspective but should also consider patients' access to medications and the future of the Turkish pharmaceutical industry, with these expenditures being viewed as an "investment in human capital."

We believe that a reduction of 18 points in the discount rates applied by SSI and an additional 18-point payment for drugs currently with a zero discount rate is of critical importance.

Similarly, in this context, it is essential for our country, which has one of the world's most comprehensive health systems, to allocate a suitable budget to provide adequate health services for its rapidly aging and growing population.

Therefore, it is considered essential to increase the share of the budget allocated to drugs to at least the average level of 1.1% from 2002 to 2023, as an initial step.

The main goal in the field of pharmaceuticals should be to first make our country a regional and then a global hub for drug production and export. In this context, further developing the domestic and national pharmaceutical industry, whose foundations were laid a century ago, in line with trends in products and technologies that will shape the future of the global pharmaceutical sector, and achieving "localization" in pharmaceuticals should be the focus of our state policies.

Developing sustainable localization policies for our country's pharmaceutical industry, which has over a century of experience, and creating new roadmaps with updated models to encourage domestic production, are considered to create added value for ensuring supply security in drugs and vaccines.

Along with the localization process, which should encompass many elements, making investments to produce drugs that we are dependent on imports for in our country will result in more qualified employment, renewal of production technologies of our companies, and expansion of R&D capacities. While drug imports will decrease, the export of newly produced drugs will bring more foreign currency into our country, thereby reducing the trade deficit.

Additionally, the strengthening of the pharmaceutical industry will support the development of ancillary sectors that provide intermediates, machinery, equipment, and raw materials to this industry. This will enable the production of these products, a significant portion of which are currently imported, within our country, thereby strengthening the "pharmaceutical ecosystem" from a clustering perspective.

The pharmaceutical industry needs effective support from our public authorities. With the physical investment incentives provided so far, our industry has made significant investments and continues to do so.

However, since the public incentive system largely relies on tax reductions and exemptions, it is not sufficient for our industry. Particularly in the field of biosimilar products, which require large-scale and continuous investment, there is a need to increase the number and amount of cash financial supports and introduce additional incentives such as low-interest loan support for investments.

Removing barriers to the rapid and safe introduction of products to the market is of great importance for the sector. We know that with the right policies, there are no obstacles to our industry becoming a global industry that produces and exports more, and we continue to work with all our strength.

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