THE PHARMACEUTICAL INDUSTRY IN TURKEY

by
Bilge Özbay

THESIS

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I. INTRODUCTION

Medicine has reserved its position as a current topic for many years. It has always been subject to discussion in the public opinion, on the press, within government layers and among its manufacturers concerning its quality and price. The misinterpretation of the Law of Patent Rights, dated March 10,1879 until 1961 has given foreign firms which owned patents the opportunity to import raw materials and ready made drugs at extremely high prices and thus make super foreign market profits. These firms had introduced products that were made by raw materials imported from the main firms into the market at very high prices.(1)

In other words, as it is explained in detail in the Turkish Pharmaceutical Industry section of this study, the native firms which struggled to survive under the prohibition to utilize patented raw materials could not develop because they were not allowed to produce medicine with recently formulated molecules. Their sizes stayed small while foreign firms expanded as much as they could.

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(1) The price list of several raw materials as approved by Fiyat Tescil Dairesi. *Türkiyenin İlaç Problemi, Milli İlaç Sanayii ve Yabancı Sermaye,* Türk Eczacılar Birliği Neşriyatı No. 1,1967

But the third article of the Law of Patent Rights has been reinterpreted by a decree of Constitutive Assembly, dated May 8, 1961, numbered 51 which has abolished patent and protection rights for pharmaceutical raw materials.

In this way, the sale of an invention under protection rights at a price 100 times higher than its actual value has been prohibited. The decree of the Assembly has opened the path for native industry to its present state of development by giving the pharmaceutical manufacturers the right to obtain the cheapest and good quality raw materials from the world market.

In the period between 1961 and 1975 firms like İltaş, Fako, Deva, İlsan, Mustafa Nevzat, Doğu and Bilim had approximately 50 percent growth rates while the industry's average growth rate was 15 percent.(2)

Actually, Turkey has, at the moment, a fully developed ready made drugs industry which has reached to such a level that it can install plants in underdeveloped

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(2) Yearly reports of the firms listed above published between 1966 - 1975.

countries. As a matter of fact, it has been informed that Eczacıbaşı İlaç Fabrikası has made an agreement with Nigeria to build a plant which will be capable of producing ready made drugs in all pharmaceutical forms.

Unfortunately, one cannot speak of similar developments in the pharmaceutical raw materials industry. In other words, the ready made drugs industry is excessively dependent on foreign market which is confirmed by the fact that foreign inputs of pharmaceutical industry, for the present, amount to 100 million dolars.

As previously mentioned, our society, government administrators and press have been extremely sensitive on the subject. The pressures brought by recent, rapidly growing inflations and subsequent devaluations on the solutions of health problems of public in large who have not yet acquire social security means are widely known.

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II. PHARMACEUTICAL INDUSTRY IN GENERAL

THE DEFINITION OF MEDICINE

All chemical compounds or materials with the properties to protect and to cure against all human and animal diseases, and all medical substances given to them with the purpose of diagnosis or of supporting, changing or correction the organic activities are called medicine.

The hygienic products whose formulae include poisonous materials and the diet products composed of certain chemical and biological materials are especially medicine.

THE DEFINITION OF READY MADE DRUG

The mass production of chemical, biological and vegetal materials, which have protective, nutritive and remedial properties, under a special name and package obeying certain standarts in simple or complex pharmaceutical forms at specific doses is the ready made drug production.

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THE DEFINITION OF PHARMACEUTICAL INDUSTRY

It is the branch of industry which deals with formulations of pharmaceutical raw materials, ready made drugs, agricultural and vetritian pharmaceuticals and with the production of raw materials utilized in all these areas.

HISTORY

The world population has now reached to billion when it was only 900 million in 1800. This rise in population played the main role in changing the production technique of drugs from manual methods to factory type of production.

The developments that took place in pharmaceutical industry between 1870-1970 were as follows:(3)

- 1870-1980 Pastor vaccines,
- 1890-1900 X-ray and radium,
- 1910-1920 the discoveries of cancer virus, vitamines, insulin and serum for diphtheria,
- 1930-1940 the discovery of sulfa drugs,

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(3) D.P.T., *Tıbbi İlaç Sanayii Özel İhtisas Alt Komisyonu Raporu.* (Ankara, D.P.T. Yayınları, 1976), p.4

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- 1940-1950 the incorporation of penicillin, streptomycin and anti-histaminics into medical treatment,
- 1950-1960 the discovery of cortison and polyvaccines
- 1960-1970 the discovery of vaccination for measles and the beginning of medical treatment for Parkinson.

In the same 100-years-period, human death rate has declined considerably and the average life span has increased to 75 years in 1970 while it was 40 years in 1870 by developments and inventions in medicine and also in therapy methods.(4)

Among the Western countries Germany is the first to sell to neighboring countries ready made drugs made by raw materials that she had developed.

In fact, the first pharmaceutical raw material production was realized by a German pharmacist, C.W.Finkentscher, in 1788, to whom Bayer, Merck, Schering, all well known today as pharmaceutical manufactures, had joined.

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(4) ibid., p.4

Until the First World War, Germany, who was able to preserve her domination over the field, had sold ready made drugs and pharmaceutical raw materials to the United States of America and to European countries.

The First World War forced many countries to establish their own pharmaceutical industries.(5)

For example, Italy, instead of importing ready made drugs started to manufacture them in the period 1914-1918. Also, Glaxo, one of the largest pharmaceutical firms of Europe and Great Britain, started to operate in 1924.

Until 1914 the United States of America, who has a leading pharmaceutical industry today, was producing medicine with raw materials imported from Germany.

After she has joined and won the war, the United States of America has seized 4500 German licenses as war indemnity according to "alien property custodian" rights. Later in 1919, she sold the licenses to the firms interested in the area.

In the Second World War, while European countries

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(5) T.B.M.M., *İlaç Araştırma Komisyonu Raporu*, (Ankara, T.B.M.M. Yayını, 1967), p.13

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among which Germany was the first on the list - were loosing the power they had for research and development activities, United States has seized the leadership in this field and became the world's chief country in pharmaceutical industry.

Even the fact that developed Western countries have overcame the problems created by the Second World War couldn't shed question on her domination in the field. On the other hand, in developing countries when pharmaceutical industry is concerned, one can only speak of achievements in ready made drug production.

This short history shows that progress in pharmaceutical industry in the whole world does not have a long past. Evidently, the progress, excluding Germany and including U.S.A. has initiated between 1914-1918.

THE PHYSICAL RELATIONS OF PHARMACEUTICAL INDUSTRY WITH OTHER INDUSTRIES

Although pharmaceutical industry has frequently been associated with ready made drugs shaped into several pharmaceutical forms, it would be incorrect to discriminate ready made drugs from the industry which

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produces their raw materials. For this reason, the pharmaceutical industry in Turkey will be investigated under the title of drugs and their raw materials.

Pharmaceutical industry is technologically very much dependent on chemical industry.

As a matter of fact, most of the raw materials known as fine chemicals in the chemical industry are, at the same time, used in areas like:

- Food Stuffs
- Cosmetics
- Dye Stuffs
- and Photographic Supplies

Therefore, there exists an intensive "input-output" relation between "fine chemicals" industry and the production areas listed above.

The term "fine chemical" signifies the precious materials which are sold in small quantities and which are utilized in special ways.

The chemical materials whose prices exceed one sterling per kilo are generally included in this category. The production of such materials does not necessarily require

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large amounts of investments. But regardless of investment volume the proper technical knowledge is a requisite to realize the production. This branch of industry is, to a large extent, export-oriented.

OTHER PROPERTIES OF PHARMACEUTICAL INDUSTRY

The term pharmaceutical industry implies the production of drugs, whose active materials are vegetal, organic or synthetic compounds, on industry scale. The medicine written on a doctor's prescription is a special consumption item since the choice is not made directly by patient who is the actual consumer but made by his doctor.

Governments apply strict quality controls ever the reliability of ready made drugs. Commercial names and pricing policy are the prevailing issues of government - industry relations.

The rapid increase in the number of synthetic chemical substances used in medicine and the fast expansion of world population have changed significantly the structures in which pharmaceuticals have been manufactured and distributed. Originally natural pharmaceuticals

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have been replaced by medical-chemical ones; also, mass production methods have been developed for those pharmaceuticals. This, in turn, has led to centralization of pharmaceutical production in factories, and it had almost swept away the manual production carried out in pharmacies.

In fact, sales promotion activities carried by manufacturers have shifted the retail purchases of drugs that can be sold without a doctor's prescription from pharmacies to "drugstores". Thus, traditional pharmacies operated by expert pharmacists whose work was based on professional formation and who had technical and commercial skills are replaced by drug-stores operated with commercial motives only. Pharma-ceutical producers, on the other hand, have responded in two ways; first, they expanded their production activities to cosmetics, nonpharmaceutical chemical products and other medical preparations which are sold in drugstores or even in supermarkets; second, they strengthened their product lines by developing new pharmaceuticals.

It is evident that pharmaceutical industry can preserve its existing profit margin by:

1. discovering new drugs or developing the present products,

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2. extending their sales through increasing marketing and advertisement expenditures,
3. realizing horizontal and vertical diversification.

Studies made on the subject have shown that the purchases of ready made drug factories by raw materials producing companies are more frequent ventures than the purchases of raw material factories by ready made drugs producing companies. In other words, vertical integration is observed to be forward and not backward.(6)

Drug consumption in developed and developing countries has reached to immense quantities. This is mainly because general income level has increased; people are more sensitive for their health; and nationalized social securities and health insurances have provided opportunities to refer to doctors even in minute health problems.

Practices related to health insurances are various in Western countries.(7)

In some of them, all treatment expenditures (doctor,

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(6) Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayiinde Teknoloji Transferi,* (Paris,T.İ.E.İ.S. yayını, 1975), p.12

(7) Türkiye İlaç Endüstrisi İşverenler Sendikası, *Sekiz Avrupa Ülkesinin Milli Sağlık Programları Üzerine İnceleme,* (Istanbul,T.İ.E.İ.S. Yayını,1976) The sections on financing health services of each country.
O.N.Torun,K.Ertok, M.Tümer, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme,* (Istanbul 1972),Appendix 13.

medicine and other medical equipments) are met by the institutions.

In some others, a certain percentage of treatment expenditures are paid by the insured person. But he is responsible to pay a certain premium to the institution in return for his health security.

As demand increased, competition among pharmaceutical firms has become more vigorous which led to the aquisition of power by joint-ventures of pharmaceutical firms. While fusions like Ciba-Geigy were common in Europe, American firms have preferred to buy firms in other countries by making use of large funds accumulated in their hands.

Contrary to the centralization through mergers within pharmaceutical industry in the industrialized countries, the number of ready made drug firms have continued to multiply in developing countries. Because the companies there, instead of joining together, functioned in small units, they could not create large funds and could not pursue the establishment of raw material producing firms.

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For this reason ready made drug industries in developing countries became further dependent on foreign sources in order to provide raw materials. The third world countries, on the other hand, have completely been transformed into export markets for developing countries.(8)

Pharmaceutical industry, by the nature of its main activities like formulating, packaging and labelling, is a labor intensive branch of industry.

Because such services do not require high skilled labor, the production of ready made drugs seems very appropriate for the developing countries. Some of the developing countries (like Spain, Portugal, Yugoslavia) have already started considering their opportunities related with the production of certain basic materials. These opportunities can be listed as:

- vegetable endowments
- animal possessions
- and recently developing chemical industry.

The schools that provide high level of technical education can also be added to these.

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(8) Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayiilerinde Teknoloji Transferi*, (Paris, T.İ.E.İ.S. Publication, 1975), p.16

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The opportunities, all together, make up the firm ground for the vertical integration of a country's pharmaceutical industry. Natural substances (vegetal and anımal extracts) occupy an important place in pharmaceutical industry. In some cases, manufacturers import several tons of plants from Asia or Africa to produce one kilogram of raw material or ready made drug, vegetal in origin. A good example of such plants is Digitalislanata from which Digitalin alkaloid used for heart diseases is derived. However, one cannot say that our country, rich in plants with medical properties, uses effectively such opportunities.

For example, the production of certain alkaloids will be extremely profitable for Turkey. Our country was the basic source of best quality opium for centuries. This precious material was exported as raw but its processed products like codein, dionin were imported at prices several times more of export's.

The production of originally natural raw materials on industrial scale have started with the establishment of a state factory in the province where opium is raised traditionally. In this way it will be possible to export

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opium alkaloids (codein, dionin, etc.) to several countries and to provide a substantial amount of foreign exchange every year.

Another important issue in pharmaceutical industry is the work done on research and development (R-D). Such works are usually undertaken by multinational companies of developed countries. Most of the time competition is not via prices but by inventions. So, production costs constitute a small portion of actual prices in the market. Such as:(9)

Production Cost	%
(Expenses made for Raw material - Packing material - labor - management)	40.5
Marketing and Sales Expenditures	17.0
License and Royalty Payments	2.2
Expenses of General Administration	9.9
Research - Development Expenditures	9.7
Profits before taxes	20.7

(9) Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayilerinde Teknoloji Transferi,* (Paris,T.İ.E.İ.S. Publication, 1975), p.13

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In the developed countries besides the large scale raw material manufacturers the number of small firms which cannot conduct research for inventions is quite large. These small firms usually produce drugs made with known ingredients which are no more subject to licenses. And they compete by marketing their products at lower prices. Multinational corporations which, besides ready made drugs, produce and sell pharmaceutical raw materials or raw materials for cosmetics or other chemical raw materials have annual sales that amount to billions of dollars. (10)

For 1975:

Revenue of Hoechst in West Germany : 8.5 billion dollars
Revenue of Bayer in West Germany : 7.2 billion dollars
Revenue of ICI in Great Britain : 6.9 billion dollars.

According to patent agreements among big firms which are able to devote 10 percent of their revenue for research and development, the firms are not allowed to produce or use in the production of a drug the raw material that is developed by one of them without

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(10) Erol Manisalı, *Türkiye İlaç Sanayiinin AET Karşısındaki Durumunun İncelenmesi,* (Istanbul, İ.E.İ.S. Publication, 1976),p.22

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the firm's permission, for a certain period, for example, 15 years. Yet, the countries excluded in the patent agreements can produce the same raw material by the same production technique and can sell it to countries that are also excluded in the patent rights regulations. Italy is the most distinguished example of this case. Turkey imports a great amount of raw materials necessary for pharmaceutical production from Italy.

Therefore, this means that countries are divided into two groups; those that are under patent rights and those that are not.

Industrialized countries and multinational corporations have accepted patent agreements. Those big corporations devote 10 percent of their revenues for (R-D) expenditures. (R-D) expenses in pharmaceutical industry are large not because research tools and equipments are expensive but because (R-D) requires several studies made by different people at different intervals of time. The creative researcher has to have a special formation.

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But the subsequent observations and experiments at lower levels of research can possibly be carried out by workers and technicians. This shows that, although experiments in (R-D) studies require lots of manual work, the workers do not have to be highly qualified. In short, (R-D) studies in pharmacology are labor-intensive activities. Incorporation of new molecules into medical treatment requires the cooperation of several experts at once or at successive stages. These experts are: chemists, toxicologists, pharmacologists and doctors. A certain medicine has to be tested on many people at changing conditions in order to confirm that it is not harmful, that it does not create complications; this test is also necessary to find out the adequate dose before its industrial production starts.

After the experiments are completed, the new substance is accepted as a medicine by the World Health Organization and it is presented into the field of medical treatment under a commercial name. (R-D) studies may result in the discovery of a paramount substance as well as in the production of a substance

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which is only slighthy different from another substance whose patent rights have been terminated (For example, by the replacement of the clor atom with the florine in a molecule). This new molecule, which has no medical superiority to the old one, is also patented and introduced into the market under a new commercial name. The price determined for patented pharmaceutical raw materials and their revenues create the necessary financial source for R-D studies. Yet, the high prices determined under patent rights and expensive ready made drugs marketed under certain commercial names cause social unease even in the countries which have signed patent agreements.

For example; several years ago in Great Britain the factory A, branch of a company in Switzerland was found out to produce a medicine X with a substance called Diazepem, an invention of the company, and to sell it at very high prices. The issue had been subject to discussion in the parliament; the price was lowered while the company was forced to pay indemnity over its former sales. This factory A wanted to

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produce the same medicine X in Turkey with its raw material valued 35.000.-Turkish Liras per kilogram. But when two other companies in Turkey, Mulda and Deva, imported the same raw material at 3.300.-Turkish Liras per kilogram from Italy and produced valubrin and Diazem, the factory A had to lower its price according to the decree of the Constitutive Assembly May 8, 1961, numbered 51. The factory refused to lower the price and abandoned the project.

Another issue related to developing countries is the high number of ready made drug factories established by multinational corporations as a result of protective and foreign capital encouraging government policies.

Those companies benefit in a privileged fashion from "state funds" provided by the state of their main firms to the developing country. While the main company tries to influence the government to finance its raw material by lending funds, the branch, on the other and, tries to place its raw material on the liberated imports list of the country in which it operates. In times of foreign exchange bottlenecks native firms have

difficulties to obtain allowances to import raw materials but foreign firms can import them from their main firms even at high prices, thus forming a superiority over native firms.

PHARMACEUTICAL INDUSTRY IN OECD COUNTRIES

In order to develop a better understanding of pharmaceutical industry in general, a survey of the developments in pharmaceutical industries of Spain, Portugal, Turkey, Yugoslavia and Greece, all members of OECD, would be helpful.

In all those countries, the pharmaceutical industries provided significant employment opportunities as growing sectors. In Spain and Yugoslavia the importance of the sector surpassed the national boundaries. The sound developments in pharmaceutical industries of member countries could take place only during and after the Second World War. The war had set out the necessity to protect national production, since medicine was an urgent item that had to be provided no matter what its price was, governments have supported all attempts directed to raising the production.

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Quite a number of multinational corporations have established production laboratories in Turkey, Greece, Portugal and Spain to enjoy the advantages provided by protective and foreign capital encouraging government policies for pharmaceutical industries.

The developments in Yugoslavia right after the war was in a different way. State owned laboratories improved their production in terms of variety and quality of drugs especially by employing qualified native people.

In 1960's national industries of member countries were able to meet only half of the actual demand in pharmaceuticals.

In the above mentioned countries, pharmaceutical industries had performed greater growth rates than their chemical and manufacturing industries. The table at below with production, consumption and import figures provides a guide for evaluating the developments in ready made drug industries of those countries.

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THE PRODUCTION, CONSUMPTION AND IMPORTS OF READY MADE DRUGS

(million $)

	Production		Imports*		Consumption	
	1971	1972	1971	1972	1971	1972
Spain	987.0	1085.0	5.0	2.0	981.0	1080.0
Greece	68.2	96.0	52.4	49.5	118.8	142.5
Portugal	82.0	95.0	61.2	68.2	143.3	163.4
Turkey	104.3	114.3	0.92	1.07	109.2	126.1
Yugoslavia	141.0	187.0	17.8	25.1	138.0	179.0

Source: Ayhan Çilingiroğlu, *İlaç ve İlaç Hammadeleri Sanayilerinde Teknoloji Transferi*, (Paris, T.İ.E.İ.S. Publication, 1975), p.25.

* Includes only the imports of finished products, raw materials are excluded.

If ready made drug production in Spain is examined, it is observed that, in 1972, the value of production exceeds 1 billion dollars and the imports are as little as 2 million dollars. Besides, it is noted that her drug exports to 125 countries including West Germany, Switzerland and U.S.A. are registering increases every year. ./..

In Greece, part of consumption which was equal to 96.0 million dollars was met by domestic production and the rest 49.5 million dollars by imports altogether amounting to 142.4 million dollars, in 1972. The capital invested in pharmaceutical industry has shown an annual average increase of 19 percent; while the return on capital was 11.7 percent for the whole industry in Greece, in 1971, it was 16.1 percent in pharmaceutical industry. In Portugal 68.2 million dollars of consumption whose total value amounted to 163.4 million dollars was met by imports; between 1960-1970 consumption increased by 13.5 percent annually. Production, however, had an annual increase of 11 percent for the same period. The share of the sector within chemical industry is 15.2 percent with respect to value created and 17 percent with respect to employment. Yugoslavia's production has increased to 187 million dollars in 1972 from 141 million dollars in 1971, a few years later it has reached to 300 million dollars; 16-17 percent of this production has been exported to Middle and East Europe, countries in Africa and Asia.

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Ready made drug production in Turkey could meet a significant portion of Turkey's consumption in 1972. 1 million dollars worth of production whose total value was 114.3 million dollars has been exported to countries in Asia and Africa.

The majority of the firms operating in pharmaceutical industries of those countries, except the ones in Yugoslavia, are small scale firms in terms of sales and number of employees. Although there are numerous manufacturers only a small number of them (10-20 percent) hold 60-80 percent of the market.

The distribution with respect to size of ready made drug manufacturers in 1972 by each firm is as follows:

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Number of Personnel	Spain	Greece	Portugal	Turkey	Yugoslavia***
More than 500	5	1	1	2	6
500 - 250	24	6	4	8	1
250 - 100	55	11	16	11	1
100 - 50	51	21	17	3	3
Less than 50	415	17	19	106	2
T o t a l	550	56*	57**	130	13

Source: Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayiinde Teknoloji Transferi*, (Paris, T.İ.E.İ.S. 1975), p.35

* 12 firms which use other firms' lobarotories are not included in the figure

** The figure belongs to 1970

*** The data is of 1973

The same distribution according to production values is as follows:

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The value of Production (million $)	Spain	Greece	Portugal	Turkey	Yugoslavia
More than 3.0	84	5	1	5	8
3.0 - 2.0	-	7	9	7	1
2.0 - 1.0	51	9	6	9	1
1.0 - 0.5	47	8	15	7	1
Less than 0.5	368	27	33	102	2
Total number of Firms	550	56	64	130	13

Source: Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayiinde Teknoloji Transferi*, (Paris, T.İ.E.İ.S. publication, 1975), p.31

Tha values of production of 135 laboratories in Spain out of 550 are above 1.0 million dollars. The top 100 laboratories control 80 percent of the market and the five largests firms' share in total sales is 10 percent.

In Greece, 8 of 56 laboratories provide 44.5 percent of production. In Portugal, 7 outstanding firms realize

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46 percent of total production. In Turkey 30 out of 130 producers undertake 80 percent of production.

The structure of ownership in pharmaceutical laboratories in member countries is as follows:

	Native Firms		Foreign Firms	
	Number	Sales (% of tot.)	Number	Sales (% of tot.)
Spain	406	70.0	70.	30.0
Greece	54	66.2	14	34.0
Portugal	49	65.2	15	43.8
Turkey	106	60.0	10	40.0
Yugoslavia	13	100.0	-	-

Source: Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayiinde Teknoloji Transferi*, (Paris, T.İ.E.İ.S. Publication, 1975), p.32.

Yugoslavia's pharmaceutical industry is different from the other four member countries not only in the number and the sizes of her firms but also in the structure of ownership. All laboratories belong to workers and managed by the workers. In the other countries factories either belong to native or foreign firms and rarely to the state.

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III. PHARMACEUTICAL INDUSTRY IN TURKEY

THE HISTORICAL DEVELOPMENT OF TURKISH PHARMACEUTICAL INDUSTRY

The historical development of Turkish pharmaceutical industry can be analyzed in three distinct periods:

a) The period until the constitution of Republic

b) The period between the constitution of Republic and the Second World War

c) The period after the Second World War.

a) The period until the constitution of Republic

The consumption, in this period, was met completely by imported ready made drugs which were not subjected to any price or quality controls. Unfortunately, data on the imports of the period does not exist. The production of ready made drugs in Turkey begun in pharmacies with very primitive technology of manual machines used for making tablets and ointments. Laboratories were established with the gradual increase in demand.

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The first drug manufacturers who established laboratories are Süreyya Bey and Ethem Pertev Bey.(11) Also, in the same period, İbrahim Ethem Bey had succeeded in producing opium and ipecac extracts, Dower powder and glyceraphosphates.(12)

b) The period between the constitution of Republic and the end of the Second World War.(13)

By releasing capitulations under the Lozan Pact signed after the war of Independence, Turkey has taken first steps to manufacture ready made drugs and state control was enforced on imports and sales of ready made drugs. On April 4,1924 the Ministry of Health and Social Support announced the compulsion to get license from the ministry; and in 1928 the Law of Pharmaceuticals and Medical Preparations provided, though partially, the opportunity for Native Pharmaceutical Industry to compete with imported products on equal terms. Ready made drugs

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(11) T.B.M.M. *İlaç Araştırma Komisyonu Raporu,* (Ankara, T.B.M.M. Publication, 1967) p.13

(12) Deva, *20. Yıla Girerken,* p.28

(13) T.B.M.M. *İlaç Araştırma Komisyonu Raporu,* (Ankara, T.B.M.M. Publication, 1967) pp.13-14

industry could not perform significant development until the Second World War for economic and administrative reasons. In this period almost all of ready made drugs (also an important part of total purchases) were imported from Germany. Great difficulties were faced in purchasing from Germany the materials needed for drugs and in providing packing materials also insufficiencies in the general economic atmosphere of Turkey resulted in limited development of drug production during the period. However, just before the Second World War, Turkey had a better production capacity compared to less developed neighboring countries; native industry had served effectively during the war.

The substances whose patent terms were expired and which were brought from Great Britain or U.S.A. between 1939-1945 had, to a certain extent, helped the domestic pharmaceutical production to develop. Although in 1945's the domestic pharmaceutical industry had reached to a certain capacity level, the production was quite stagnant due to its dependency on imported ampoules, containers and other packing materials.

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c) The period after the Second World War

The feeble interest of Western Countries, which had just stopped a big war, in foreign trade; the decline in drug imports; population growth; increasing drug consumption in large cities; and led to the expansion in the activities of pharmaceutical laboratories.

Liberations of 1950's facilitated ready made drug imports and imports of raw materials and machinery to meet the requirements of native firms. The establishment of Industrial Development Bank as a fundamental source of money, the supply of long term credits with low interest rates to native firms which had then financial problems have paved the way for today's modern pharmaceutical factories (like Eczacıbaşı, İbrahim Ethem, Santa Farma).(14)

Restrictions on imports had been observed in 1953's due to shortages of foreign exchange. Pharmaceutical industry, in this period, could provide 50 percent

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(14) ibid., p.14

of domestic consumption by its own finance opportunities.[15] Also in the same period, auxiliary industries, especially packing industry, has performed significant developments.

In spite of promising developments in ready made drug industry the great difficulties in foreign exchange payments have motivated the promulgation of the Law for the Encourangement of Foreign Capital, numbered 6224 in 1954.

Seeking the establishmet of foreign firms whose activities would be expected to substitute for foreign exchange requirements. The 10th article of the Law for the Encouragement of Foreign Capital has extended to foreign firms the same rights with the native firms. The 10th article of the law states exactly:[16]

> "All rights, exemptions and privileges granted to national capital and business shall be available under the same conditions to foreign capital and business working in the same fields."

There are not any traces of obligation demanded by government authorities, stated on the decrees issued

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(15) ibid., p.15

(16) Istanbul Ticaret Odası, *Yabancı Sermayeyi Teşvik Kanunu*, (Istanbul, 1961), p.6

for 13 foreign firms established until 1963. They were not required neither to produce raw materials nor to export their products. Therefore, the subsidiaries of foreign pharmaceutical companies which are given the right to operate in such a free atmosphere had a special interest in ready made drug industry. Although the share of pharmaceutical industry within total manufacturing industry was 1.5 percent(17), 22 percent of foreign capital invested in Turkey went to pharmaceutical industry.(18)

Until 1961, because the Law of Patent Rights had been misinterpreted, the headquarters of foreign firms registered extreme profits. This happened in the following way:

According to the practice until 1961, in the issues related to pharmaceutical raw materials Turkey was considered as one of the countries which signed patent agreements.(19) In all of the contracts the purchases of raw materials had to be made from the foreign companies that were giving the licenses or from the

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(17) İlaç Endüstrisi İşverenler Sendikası, *İlaç*, (Istanbul,İ.E.İ.S. Publication,1973), p.36

(18) Güngör Uras, *Yabancı Sermaye*,(Istanbul, 1979), p. 247

(19) From the studies of The Union of Turkish pharmacists.

source dictated by them and at the price determined by the same company; thus prices much higher than general world level were paid for raw materials which in turn, increased costs and prices within the country while creating a burden for consumers and a significant loss of foreign exchange.

The decree No.51 of Constitutive Assembly dated May 8,1961 has elucidated the 3rd article of the Law of Patent Rights, and has outlawed all protection and patents rights on pharmaceutical raw materials.(20) Later, government's approval of price before raw material is purchased and the proof that the material is brought from the cheapest source (both for native and foreign firms) are accepted as basic principles. After the practice has set off,foreign firms applied to the Constitutional Court claiming that elucidation of Constutive Assembly violated the Constitution. Yet, all members of the Constitutional Court agreed upon the decree's elucidation that pharmeceutical materials could not be patented.(21)

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(20) ibid.

(21) The decision No. 49 of Constitutional Court, dated 28.12.1967, was published in the Official Gazette No. 13144 on January 30,1969.

While this decision of the Constitutive Assembly was openning new horizons of development for native firms it reduced down the attractiveness of Turkish pharmaceutical market for foreign firms.

As a matter of fact, 5 out of 13 foreign firms has sold their shares to Turkish firms and left the market.(22)

When prices of raw materials imported before and after the elucidation of the Law of Patent Rights are compared a significant difference between the two can readly be observed.

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(22) From the registers of the members of İlaç Endüstrisi İşverenler Sendikası

Unit price: kg CIF

Name of Substance	England	Switzerland	Italy	U.S.A.	Hungary	Expensivenes Ratio	Percer
Chlorbenzodiazepin	-	738.37	57.-	-	-	12	1200
Chlorthiazide	24.62		6.-	23.-		4	400
Hydrochlorthiazide	284.85	572.-	8.-	250.-		70	7000
1-4 Dihydrazinopthalazine		415.50	45.-			9	900
Bellodonne Total Alcoloid		457.50			1.80	254	25400

Source : T.C.Türk Eczacılar Birliği Merkez Heyeti, *Türkiye'nin İlaç Problemi*,p.15.(Prapered by Fiyat Tescil Dairesi from the data of actual imports)

The table is important in the sense that it explains super profits earned by foreign firms before the elucidation of the Law and the opportunities provided to native firms with the elucidation which would otherwise carry out production with materials whose patent had expired. For example, in the new situation a factory A was producing medicine X with Chlorbenzo-diazepin imported at 738.37 dollars per kilo from the

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main firm in Switzerland another firm B started producing medicine Y by importing Chlorbenzodiazepin from Italy at 57 dollars per kilo and introduced the medicine Y into the market at a very low price. Later, the Union of Turkish Pharmacists has warned the ministry of Health and Social Welfare which in turn lowered the price of X to the level of Y.(23)

In another case, while the products of a foreign firm manufactured with imported antibiotics were sold at 40-50 Turkish Liras, native firms making use of the elucidation imported the same antibiotic material cheaply and sold the similar drugs at 10 Turkish Liras(24).

The examples can be multiplied. What is important about the examples is that they explicitly show extreme profits acquired by foreign firms due to ministerpretation of the Law of Patent Rights. These firms, on the one side, increased profitability of their main firms by importing raw materials from them at high prices; on the other side, they achieved large amounts of sales by intensive activities of marketing and advertisement.

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(23) From the studies of the Union of Turkish Pharmacists

(24) ibid.

As sales increased the amounts of imported raw materials increase which in turn means further profits for the main firm.

Foreign companies which invest in pharmaceutical industry in Turkey are subject to the Law for the Encouragement of Foreign Capital, No. 6224. Unfortunately, it cannot be claimed that this Law has created the benefits for pharmaceutical industry, in contrast to the state's expectations. In explicit terms:

The 1st article of the Law states that foreign investor company should contribute to the economic development of the country.(25) But because the requirement was not specified,foreign firms tended to invest in ready made drug industry only and as seen in the table below most of world famous pharmaceutical firms started to operate in Turkey.

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(25) İstanbul Ticaret Odası, *Yabancı Sermayeyi Teşvik Kanunu,* (Istanbul,1969), p.3.

Foreign capital investments in Turkey realized under the Law for the Encouragement of Foreign Capital, No.6224: (As of 31/12/1977)

(Thousand TL.)

FIRMS	The Amount of Foreign Capital	The ratio of Foreign Capital to Total Capital	Total Capital
American Firms			
[1]Abbott	-	-	-
[2]Pfizer İlaçları A.Ş.	2520	60	4200
	1675 (Under the Decree 17)		
[3]E.R. Squibb and Sons İlaçları A.Ş.	5967	92.17	6477
Wyeth Laboratuvarları A.Ş.	14000	100	14000
Swiss Firms			
Ciba-Geigy İlaç San. A.Ş.	3000	75	4000
[4]Sandoz İlaç San. A.Ş.	8000	80	10000
Roche Müstahzarları San.Ltd.Şti	39300	100	39300
German Firms			
Birleşik Alman İlaç Fab.Ltd. Şti. (Schering, Bayer, Merck, Knoll)	20522	77.5	26480
Türk Hoechst San. ve Ticaret A.Ş.	14264	79.24	18000
	2605 (Under the Decree No.17)		
[5]Italian Firms			
Carlo Erba İlaç Fab.Ltd.Şti	12931	100	12931
Farmitalia	-	-	-

Source : Güngör Uras, *Türkiye'de Yabancı Sermaye Yatırımları*, (Istanbul, Iktisadi Yayınlar Ltd. Şti.,1979) p.148

1 *Abbott has been purchased by Turgut Holding A.Ş.*
2 *By eliminating its Turkish shareholders in 1962, Pfizer has acpuired all the shares.*
3 *In 1977 all of the shares of Squibb Factory has been bought by Turgut Holding A.Ş. to which Fako İlaçları A.Ş. is joined.*
4 *Turkish shareholders of Sandoz had been liquidated*
5 *Farmitalia and Carlo Erba have been taken over by Deva Holding A.Ş. in 1975 and in 1978 respectively.*

The entrance and the evolution of one of those companies in Turkey has taken in the following fashion:

E.R.Squibb-Sons İlaç Fabrikası, established in 1951 with 79 percent of its shares belonging to foreign investors, had 1.4 million Turkish liras as its initial capıtal. The company's profits are recorded as: 2 million 731 thousand Turkish liras in 1955; 6 million 272 thousand Turkish liras in 1956; 3 million 756 thousand in 1957 and 7 million 79 thousand in 1959.(26) By the end of 1962 its capital has been increased to 2.8 million Turkish liras and its total profits reached to TL.25,634,000.- (27) Even if 1.4 million Turkish liras of profits are considered to be used for capital increase, a significant amount of profits, i.e. TL.24,234,000.- is left as transferrable profits. In other words, within eleven years, the company was able to increase its initial capital by 100 percent and had the rights to transfer an amount 18 times larger than its initial capital in accordance with the permission stated in the 4th article(28) of the Law for the Encouragement of Foreign Capital.

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(26) Doğan Avcıoğlu, *Türkiye'nin Düzeni II.* (Istanbul, Cem Yayınevi , 1973), p.845

(27) ibid. p.846

(28) İ.T.O. *Yabancı Sermayeyi Teşvik Kanunu,*(Istanbul,1969) p.4.

Evidently, between 1954-1961, national companies could survive only by producing cheap drugs made from raw materials whose patent terms have expired. In the same period foreign firms had large amounts of sales due to high advertisement expenditures and to production of expensive drugs which had expensive imported raw materials in them, a consequence of misinterpretation of the Law of Patent Rights. In 1960's they managed to control a substantial portion, 55 percent of the market.(29)

Favorable credit conditions was another advantage foreign capital had in contrast to native capital. For example, while three foreign firms could benefitted from a fund (Cooley Fund) supplied by American Surplus Export Central Bank(30) in the following fashion:

Abbott : TL. 4,616,000.-

Wyeth : TL.10,600,000.-

Pfizer : TL. 7,000,000.-

the native firms did not have the same opportunity.

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(29) From the studies made by the members of Türk Eczacılar Birligi (1961)

(30) Türk Eczacılar Birliği, 4. Bölge Adana Aczacı Odası Başkanlığı, *Türk Hekim ve Eczacısına Yerli İlaç Konusunda Sesleniş*, (Adana,1966), p.19

Another example is the credits provided by Ordu Yardımlaşma Kurumu, although they were not foreign in origin they were given to foreign firms instead of native firms[31] such as:

Squibb : TL. 5,300,000.-

Wander-Ciba: TL. 1,000,000.-

Under such unfavorable conditions native firms had problems of adjustment, in fact, some of them had to leave the industry.

The native firms which stopped operating after the establishment of foreign companies are 26 in number:[32]

Aktaş	Filiz	Oftalmo	Polen
Alev	Han	Oko	Sevan
Artan	Hüsnü Arsan	Ömer Kenan	Şifa
Binzet	İdeal	Paster Kimya	Tan
Bozok	Kromekto	Paro	Ülkü
Cankorur	Labsen	polifarma	Uni-Şima
Derman	Medil		

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(31) ibid.,p.19

(32) From the register of Türkiye Tıbbi Müstahzar Sanayii ve Laboratuvarlar Cemiyeti

The native firms, on the other hand, had two alternatives in order to resist against the priviledges enjoyed by foreign pharmaceutical firms before 1961. Some of them had signed license agreements with foreign firms. Some of them:(33)

İbrahim Ethem İlaç Fabrikası:

Merck (USA),
Lepetit (Italy)

Eczacıbaşı İlaç Fabrikası:

UpJohn (USA),
Bristol (USA),
Astra International (Sweden),
Breiersderf (Germany),
Biochemie (Avusturya),
Chemiche Werke Albert (Germany),
Cellet (Norway),
Chevron Chemical Company (USA),
Don Baxter (USA),
Eaton Laboratories (USA),
Endo Drug Corporation (USA),
Parke-Davis (USA),
Pharmacia International (Sweden),
Philips Duphar (Netherlands),
Richardson-Merrel Inc. (USA),
Schering Corporation (USA),
SPECIA (France),
J.R.Geigy (Switzerland),
Chemico (Switzerland),
J.G.Mausson (Germany),
Promonta (Italy),
Hans Scwarzkopf (USA)

(33) The Union of Turkish Pharmacists, *50.Yıl Özel*, (Istanbul,T.E.B. 1973), p.41.

Uni-Şimi Laboratuvarı: Nativelle (France)

Santafarma Laboratuvarı: Organon (Netherland)

Bilim Laboratuvarı: Vifor (Switzerland),
Gewo (Switzerland).

Some others preferred to acquire capital through selling bonds to the public and thus to expand investment activities. Such companies have generally appeared as cooperations among doctors and pharmacists.

Eczacıbaşı İlaç Fabrikası and Deva Holding A.Ş. which own 25 percent of the present ready made drug market constitute good examples of the course of resistance and progress in pharmaceutical industry. Together with them, it is necessary to examine the evolution of a prominent raw material producer in Turkey, Ansa the first pharmaceutical raw material exporter.

THE HISTORY OF ECZACIBAŞI İLAÇ SANAYİİ[34]

The name Eczacıbaşı is given to Süleyman Ferit Bey, one of the first Turkish pharmacists of İzmir, in 1909 by İl Genel Meclisi.

The family accepted it as their surname in 1934.

Today's Eczacıbaşı İlaç Fabrikası has its roots in the first attempts of Süleyman Bey in his small laboratory where he produced toothpaste, dental rinse, tonics and eau de Cologne. Later the attemps have been improved by Nejat Eczacıbaşı, chemical engineer and the eldest son of Süleyman Bey, with the production of vitamines in a four-room-flat in Laleli.This small firm has continued to operate in Mumhane Caddesi, Galatasaray with four products and 15 workers in 1944 while it expanded towards 1950s.

As a matter of fact, in 1952 Eczacıbaşı İlaç Fabrikası was established on an area of 7.000 m^2, benefitting a credit opportunity provided by the Bank of Industrial Development (Sınai Kalkınma Bankası) through Marshall aid.

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(34) Eczacıbaşı Holding,Brochure.

The company's growth policy was based on license agreements. This enabled the company to transfer from the developed countries.

- research findings
- knowledge of production process
- control methods for pharmaceuticals.

In fact, the company, within a short period, produced the products of several foreign companies it had license agreements, the list of which is given previously, as well as its own products. The new factory managed to be ranked number one in the pharmaceutical industry, as its position is today, in the first year of its operations.

New divisions producing antibiotics, adhesive tapes, parenteral solutions, veterinary drugs and fodder materials and a laboratory conducting research-development projects were added to the initial plant.

Eczacıbaşı İlaç Sanayi ve Ticaret A.Ş., one of the companies of Eczacıbaşı Holding A.Ş., today meets fifteen percent of domestic demand by marketing 300 kinds of products prepared in its foundations which occupy 27 thousand square meters of area.

THE HISTORY OF DEVA İLAÇ FABRİKASI[35]

Deva was founded in September 22,1958 with the purpose of contributing to Turkey's industrialization by realizing large capital investments based on small savings. The venture was guided by a group of five enterpreneurs with Dr. Vasıf Topçu as their leader to whom twenty-two professors of medicine including Ord.Prof.Dr. Ekrem Şerif Egeli have participated, and it had an initial capital of 500,000.- TL.

In 1959, while the work to develop product line was undertaken, the capital has been increased to 10 million Turkish Liras; by then the number of holders was 1500, most of whom were doctors or pharmacists.

Deva started producing in a plant installed in a rented building in Bomonti and managed to rank with the foremost firms in the pharmaceutical industry by the products it introduced into market within short intervals of time.

In 1967, by increasing its capital to 75 million Turkish Liras, Deva sold 65,000 shares of the increased

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(35) Deva, *20. Yıla Girerken*, Brochure

capital and the number of the shareholders reached to 3.855. At the shareholders meeting in March 14, 1970 the company's name had became Deva Holding A.Ş. During the subsequent years, pursuing to take part in the following investments, Deva has increased its capital to 200 million Turkish Liras in 1975. Thus the number of shareholders exceeded 6000.

Deva has undertaken new investments in other areas while it had continued to expand in pharmaceutical industry.

Deva has acquired,

in 1969, 63 percent of Devsan Sanayii A.Ş. shares

in 1970, 99.96 percent of Evma Ev İhtiyaç Maddeleri Üretim A.Ş. shares

in 1970, 34.40 percent of ANSA A.Ş., Turkey's first pharmaceutical raw materials producer, shares

in 1971, 50 percent the shares of İbrahim Ethem Kimya Evi, one of the largest pharmaceutical firms in Turkey.

in 1975, 99.96 percent of the shares of Dilpa İlaç Sanayii ve Pazarlama A.Ş. which was, before the purchase, a foreign firm named Farmitalia.

in 1976, 89.6 percent of Detaş İnşaat ve Ticaret A.Ş. shares

in 1976, 76 percent of Vetaş Veteriner ve Tarım İlaçları A.Ş. shares

in 1977, 100 percent of the shares of Deva Sentez Fabrikası aiming at producing Ampicilline and Amoxycilline

in 1977, 98.8 percent of Depa Dış Ticaret A.Ş. shares

in 1978, 90 percent of Carlo-Erba İlaç Fabrikası Ltd. Şti. shares

in 1978, a total of 75 percent shares in ANSA by purchasing M.Nevzat İlaç Sanayii A.Ş. shares in ANSA

and in November 18.1980 Deva sold its shares of İbrahim Ethem Kimya Evi which were 50 percent back to their former holders.

Deva products are manufactured since 1975 in the installations of Farmitalia in Levent to where the machines from Bomonti had been moved.

Today, together with the production of Carlo-Erba İlaç Fabrikası Deva Holding A.Ş. produces 60 million box of medicine, which amounts to nine percent of Turkey's consumption.

THE HISTORY OF ANSA, ANTİBİOTİK ve İLAÇ HAMMADELERİ SANAYİİ A.Ş.[36]

In 1967, nine native pharmaceutical companies had joined together to establish ANSA with the objective of producing antibiotics such as Tetracycline and Oxytetraciycine by fermentation. With the participation of three more firms, the shareholders of ANSA consists of Deva, Eczacıbaşı, Mustafa Nevzat, Abdi İbrahim Ethem, İlsan and İLtaş.

Achieving to obtain its first industrial product by the end of 1970, Ansa started production in 1971. Besides supplying for the whole domestic consumption, it started exporting in 1972. Ansa provides the whole Tetracycline demand of Pakistan. West Germany and Switzerland are also among the countries to which Ansa exports.

Ansa, whose net foreign exchange saving in 1979 is calculated to be three million dollars, has completed the investment for a new antibiotic, Gentamicin Sulphate. The new factory, ensuring an annual saving of four million dollars in foreign exchange, will operate by the end of January 1981.

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(36) Ansa, *Türk İlaç Endüstrisinde Aktif Madde Dönemi 1970-1980*, Brochure.

IMPORT SUBSTITUTION POLICY AND THE PHARMACEUTICAL INDUSTRY

Import Substituting Industrialization Policy, which aims at domestic production of imported industrial goods, primarily, pursues production for domestic market. The policy, at the same time, attempts to protect the industries established in the country through import barriers. In this aspect it influences the foreign trade policy, too.

The reasons to adapt import substitution policy as a policy of industrialization depend on the circumstances a country is in. These reasons can be listed as:(37)

1. Wars
2. Pressure on Balance of Payments
3. The growth of domestic market (as a result of growth in exports)
4. Official policy for development.

In Turkey, import substitution policy was accepted and readily practiced as a result of long lasted Balance of Payments deficits. Although the Pharmaceutical Industry has a low share in Manufacturing Industry (one and a

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(37) A. Hirschman, *The Political Economy of Import-Substituting Industrialization in Latin America* Quarterly Journal of Economics, 82 (Feb 1968),p.5.

half percent)[38], it explicitly reflects the present situation reached through import substitution policy.

The Distribution of Turkish Pharmaceutical Industry among Sectors and the Structural Features of Pharmaceutical Market:

Nearly all of Turkish Pharmaceutical Industry belongs to private sector. The public sector has only two foundations. One of them is Refik Saydam Hıfzıssıhha Enstitüsü of the ministry of Health which produces vaccine and serum, the other one is the factory operated by the ministry of National Defence in order to meet a small portion of army's demand.[39] Recently, S.S.K. (Social Insurance Institution) is given the right to install drug factories with the changes made on the Law numbered 506. And two years ago, SSK has bought a ready made drug factory, by resorting to this right.[40]

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(38) İ.E.İ.S., *İlaç,* (Istanbul: T.İ.E.İ.S.Yayınları, 1973), p.36.

(39) D.P.T.IV.B.Y.K.P. *Tıbbi İlaç Sanayii Özel İhtisas Alt Komisyonu Raporu,* (Ankara: D.P.T. Yayını, 1976), p.7.

(40) ibid., p.7.

Market characteristics of Turkish Pharmaceutical Industry is similar to market characteristics of pharmaceutical industries in Western Europe and U.S.A. In those countries a large share of pharmaceutical market is controled by a few firms while numerous small firms operate in the rest of the market. For example 10 of 700 pharmaceutical firms in U.S.A. hold 51 percent of total sales, also in France out of 505 firms 27 firms hold 43.5 percent of total sales.(41) The position in Turkey, however, is as follows:

THE DISTRIBUTION OF THE COMPANIES ACCORDING TO THEIR SALES AND SHARES IN THE MARKET
(As of 1971)

The Magnitude of Sales	Market Shares
More than TL.100 million	
Eczacıbaşı	
Birleşik Alman İlaç Fabrikası	29%
Deva Holding A.Ş.	
60-100 million TL.	
Roche	
Sandoz	15%
Pfizer	

(41) Osman Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme*, (Istanbul: 1972), p.3.

Source: İ.E.İ.S., *İlaç* (Istanbul: T.İ.E.İ.S. Yayınları 1973), P.46. The names of the firms are obtained from individuals

30-60 million TL.	Market Shares
13 firms	41 %
Less than 30 million TL.	
61 firms	15 %

Source: İ.E.İ.S., *İlaç*, (Istanbul:T.İ.E.İ.S.Yayınları,1973), p.46. The names of the firms are obtained from individuals.

1977 SALES AND MARKET SHARES OF THE PHARMACEUTICAL COMPANIES:

	sales (TL.million)	Market Shares		
1. Eczacıbaşı İlaç Fabrikası	797	15		
2. Deva Holding A.Ş.	569	11	35	
3. Birleşik Alman İlaç Şti.	494	9		
4. Turgut Holding	486	9	57	
5. Roche.....	475	8		70
6. Sandoz.....	280	5		
7. Türk Hoechst.....	265	4		
8. Pfizer	232	4		
9. Doğu	171	3		
10. Bilim	158	2		
The rest 64 firms	-	30		

Source: I.S.O. Dergisi, *300 Büyük Firma*, (Istanbul:1978 Special Issue), p.12 and information collected from individuals.

As it is explicitly observed, concentration is developing in the big firms. From 1971 to 1977 the first three firms have increased their shares in the market from 29 percent to 35 per cent and the first six firms, too, have increased their shares from 44 per cent to 57 percent. The pharmaceutical market in Turkey resembles an oligopolistic structure with few large firms and several small firms operating together. All of the pharmaceutical firms which function with foreign capital are among the first ten firms and their share in total sales reaches to 38 percent.

Competition in the pharmaceutical industry takes place in the following fashion:

1. Drug prices, in Turkey, are under strict state control and competition is product competition. On other words, firms try to expand their sales and increase their profits through advertisement campaigns, product development and by manufacturing the products that have potential markets.

2. Product competition in medicine appears as a special characteristic of the market. In other words, some of the products are produced by one firm which acts

as a monopoly until another firm produces a similar product. Therefore, competition on price basis is not possible. Some products which have very similar compositions are introduced into the market by several firms under different names. Yet, even for these close substitute goods there are factors which prevent price competition. Thes are:

a) A certain group of medicine is not chosen by the consumer but is prescribed by a doctor who is, most of the time, not interested in price.

b) Also, a certain group of medicine is sold on the basis of advices from pharmacists who are very much influenced by their profit ratios.

c) The name of the firm and of the product is important when direct consumer is buying it.

In the pharmaceutical market there are a few big firms all of which are intensively carrying out advertisement and presentation programs in order to increase their shares in the market. For example; if there are three firms (A,B and C) producing similar medicines they will try,at their best, to increase their market shares

through advertisement. If we assume that firm A is succesful its sales will, obviously, increase. If the market is able to expand then the share of firm A will increase, if the market can not expand then again the share of firm A will increase but this time firms B and C will be forced to reduce their production. Evidently, the important factors in increasing sales of pharmaceuticals are advertisement and marketing activities.

Import substitution policy has a significant role in the oligopolistic structure of pharmaceutical market. Industrialization policy based on import substitution creates an oligopolistic internal market and protective foreign trade policy. The developments that has taken place in pharmaceutical market, within an environment secured from foreign competition by protective foreign trade policy were in the following way.

In the first stage, foreign pharmaceutical firms which lost their oppurtunities to export ready made drugs under import prohibitions has founded branches in Turkey and established an oligopolistic market by acquiring more than 50 percent(42) of the market.

(42) From the works of members of Türk Eczacılar Birliği Merkez Yönetim Kurulu

This falls in the period when the Law of Patent Rights was misinterpreted and the domestic firms could not expand. In the second stage, the domestic companies had the oppurtunities to develop all kinds of drugs and medicine. Some of them had acquired large funds by issuing shares to the public (Deva). So, an intensive competition has started between foreign and native firms in the market which swept away many small and medium size firms from the market. A significant (70 percent) portion of market has been controlled by a few big firms (10 out of 74 firms).

P R O D U C T I O N

Ready Made Drug Production

The pharmaceutical production has started with ready made drugs, the first stage of Import substituting Industrialization. At this stage, defined as the "easy phase"(43) of import substitution, manfacturing depends totally on imports and domestically produced ready made drugs were protected against foreign competition by import barriers. The protection still continues.

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(43) A.Hirschman, "*The Political Economy of Import-Substution Industrialization in Latin America*", Quarterly Journal of Economics, 82 (Feb.,1968,p.11

In order to implement extensive industrialization policy, deficient capital accumulation was compensated with the establishment of branches of foreign companies in Turkey, which had already lost the opportunity to export their commodities to Turkey. Foreign companies were helpful in providing knowledge about management and organization and foreign technical personnel had assisted in technical education.

Investments in different sectors which initiated as a consequence of import substituting industrialization increased significantly the incomes, especially of the wage earners who have a high propensity to consume, on the one hand. And on the other hand, they have accelerated the demand by introducing new commodities frequently into the market. The same development was realized in pharmaceutical industry by creating higher incomes for the workers in the production, for pharmacists and intermediaries in the distribution while public and doctors were made familiar with drugs and medicine through extensive marketing and advertisement activities.

At this stage of import substitution where investments in different sectors show sudden increases, parallel shifts in income and demand can be observed as a boom.(44) It has been pointed out that production curve of this period is kinked-shaped due to excess capacity in the industry created by failures in demand estimations.(45) Furthermore, developments in the Turkish Pharmaceutical Industry were in the following fashion:

Pharmaceutical production, in tons, has a yearly average increase of 141 percent between 1963 and 1970. Annual increase from 1970 to 1976 is, however, 16.4 percent.

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(44) ibid., p.12

(45) David Felix, *Monetarists, Structuralists and Import-Substituting Industrialization: A Critical Appraisal"*, in Inflation and Growth in Latin America, ed. Werner Bear and Isaac Kerstenetzky; (Illinois: Richard Irwin , 1964), p.382

Years	Production (tons)	Index
1963*	2770	100
1964	3274	119
1965	4265	154
1970**	30154	1088
1971**	29577	1068
1972	30841	1113
1973	32128	1160
1974	33449	1208
1975	35192	1270

Sources: (*) 1963-1965: D.P.T. II.B.Y.K.P. *İlaç Sanayii Özel İhtisas Komisyonu Raporu,* (Union of Turkish Pharmacists, 1966), p.30

(**) 1970: T.İ.E.İ.S. *İlaç*, (Istanbul: T.İ.E.İ.S. Yayını, 1973), p.42

(**) 1971-1975: D.P.T. IV.B.Y.K.P. *Tıbbi İlaç Sanayii Özel İhtisas Komisyonu Raporu,* (Ankara: D.P.T. Yayını, 1976), p.21

Basic reason of the difference in growth rates can be given as the overestimates of demand which were made

during the boom of import substitution and the resultant excess capacity which has increased fixed costs. Because medicine has a vital role in society the official procedures like foreign exchange transfers of imports related to pharmaceutical production are always carried under priority principles. Therefore it is not possible to show foreign exchange bottle-necks as the reasons of stagnation and slowing pace of ready made drug production.

Excess capacity in pharmaceutical production is as follows:

Capacity in Ready Made Drug Industry in 1975
(according to pharmaceutical forms)

Basic Product	Unit of Capacity	Installed Capacity	Utilized Capacity	Excess Capacity(%)
Powder preparation	tons	3.800	3.000	21.0
Granule	"	3.600	2.950	19.5
Tablet	"	6.500	5.400	17.0
Coated tablet	"	3.800	2.800	26.0
Hard gelatin capsule	"	3.000	2.500	17.0
Ampoule	thousand	300.000	240.000	20.0
Syrup	tons	15.000	14.000	6.6
Oinment	"	4.000	1.000	75.0
Suppositoires-Ovul	"	490	425	13.0

Source : D.P.T. IV.B.Y.K.P. *Tıbbi İlaç Sanayii Özel İhtisas Komisyonu Raporu,* (Ankara: D.P.T. Yayını, 1976), p.11

The report prepared for the Fourth Development Plan indicates that excess capacity in pharmeceutical industry is a consequence of wrong demand estimates and gives the following explanation: (46)

In the early years of establishment and development of pharmaceutical industry demand for products like enjectable ampoules was expected to be very large and also demand for narrow spectrum antibiotics which were, then, popular was expected to grow rapidly. Therefore capital invested on machines and equipment required for the production proceses of such goods was enormous. But, as the demand for them and for other pharmaceutical forms did not increase at the expected rate, excess capacity has emerged. The excess capacity, on the other hand, has influenced costs negatively by increasing fixed costs.

As the commission whose members are in close contacts with the pharmaceutical industry points out, it can be concluded that demand overestimated at the boom period has created excess capacity and consequently increased costs.

In the same period the average inputs of production have changed in the following fashion:

(46) D.P.T.IV.B.Y.K.P. *Tıbbi İlaç Sanayii Özel İhtisas Komisyonu Raporu,* (Ankara: D.P.T.Yayını, 1976),p.12

Production Inputs	The Shares of Inputs (%)	
	1966*	1975 **
Raw Materials	42	60
Auxiliary Materials	6	8
Labour	17	17
Energy	1	4
Packing Materials	34	11
	100	100

Source: (*) T.B.M.M. *İlaç Araştırma Komisyonu Raporu,* (Ankara: T.B.M.M. Yayını, 1967), p.27

(**) D.P.T. IV.B.Y.K.P., *Tıbbi İlaç Sanayii Özel İhtisas Alt Komisyonu Raporu,* (Ankara, D.P.T. Yayını, 1976),p.15

In both columns the largest share in inputs belongs to raw materials. And the increase in the share of raw materials within the finished products has been 42 percent from 1966 to 1975. If the fact that 90 percent of raw materials are imported is considered the above increase in raw materials' share also means an equal increase in foreign exchange expenditures.

With production oriented to domestic market, failures in the passage to raw material production, tendencies to increase value added and profits by utilizing expensive raw materials in the production foreign exchange requirements of the industry have multiplied exerting a negative pressure on balance of payments.

The share of packing materials among inputs have declined by 32 percent from 1966 to 1975 but the share is expected to gain its position as the second most utilized element in 1980.(47) Evidently, packing material is an important constitutent in pharmaceutical costs.

Some Economic Indicators Related to Pharmaceutical Production

The share of pharmaceutical production in Gross National Product: The ratios of the value of Turkish Pharmaceutical Industry to Gross National Product for the last nine years are as follows:

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(47) ibid, p.67

Years	Pharmaceutical Production/GNP
1968	0.73 %
1969	0.73 %
1970	0.70 %
1971	0.80 %
1972	0.73 %
1973	0.70 %
1974	0.59 %
1975	0.66 %
1976	0.68 %

The share of ready made drug production, in production prices, within GNP has fixed itself around 0.7 percent. In terms of retail prices this ratio increases a little to 0.9 percent.

The share of pharmaceutical production in the manufacturing industry is 1.5 percent.

For the years 1967-1971, the productions of manufacturing and pharmaceutical industries and their ratio to one another are as follows:

(million TL., in current prices)

Years	Manufacturing Industry	Pharmaceutical Industry	Pharm.Ind/Man. Ind.
1967	52.895,1	752	1.4 %
1968	59.381,4	825	1.3 %
1969	69.364,2	928	1.3 %
1970	79.256,7	1035	1.3 %
1971	98.772,4	1565	1.5 %

Source : T.İ.E.İ.S., *İlaç*, (Istanbul: T.İ.E.İ.S. yayını,1972), p.36

Raw Material Production

85-88 percent of raw materials utilized in Turkish Pharmaceutical Industry is being imported while the rest 10-12 percent is supplied by domestic production. If the imported inputs used in domestically produced raw materials are taken into account, domestic production's share lessens.

In spite of the fact that more than 99 percent of ready made drugs in Turkey are domestically produced, attempts to start raw material production, in the absence of state support, have been weak. Vertical

integration was not achieved in pharmaceutical industry. What is observed is that ready made drug producing, companies expand their investments into different fields instead of investing in raw material production. The reasons may be given as the large amounts of capital demanded for raw materials production and the required complex technology.

The firms which started raw materials production in Turkish Pharmaceutical Industry are the following firms:(48)

The Name of the Firm	Produced Raw Material
Ansa	Tetracyclin, oqytetracyclin and its derivatives.
Atabay	Phenacetin and Paracetamol
Fürsan	Acid Citric
Fako	Ampicillin, Amoxycilline and Hormones
İlsan	Iron Dextrane and Aluminium Glycinate
Mustafa Nevzat	Ampicillin, Amoxycilline,
Roche	Some Synthese Products
Wyeth	Phenacetin and Oxythezaine

Among the firms listed above, Ansa's production of tetracyclin and oxytetracyclin starts from initial phase and is totally based on agricultural products. Ansa is operating in full capacity with three watches

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(48) Ansa, *Türk İlaç Endüstrisinde Aktif Madde Dönemi, 1970-1980,* Brochure.

a day since five years. Ansa exports half of its production which amounts to 80 tons annually and the other half is consumed domestically.(49)

Ansa's net foreign exchange gains are given below:

Years	Alternative Foreign Exchange as Import Substitution	Exports		Imports	Net Foreign Exchange Gains
	($)	(kg.)	($)	($)	($)
1971	378.881,-	-	-	89.500,-	289.381,-
1972	938.774,-	1791	48.000,-	109.250,-	877.524,-
1973	1.139.996,-	15562	423.000,-	150.000,-	1.412.996,-
1974	914.708,-	38495	1.275.000,-	370.654,-	1.819.054,-
1975	1.559.668,-	16850	606.000,-	399.000,-	1.766.668,-
1976	1.304.948,-	18875	634.000,-	242.000,-	1.696.948,-
1977	1.304.254,-	37700	1.271.275,-	80.130,-	2.495.319,-
1978	1.259.241,-	24725	866.587,-	209.285,-	1.916.543,-
1979	1.424.500,-	44900	1.616.400,-	245.000,-	2.795.900,-
				Totals :	15.070.413,-

Source: Ansa, *Türk İlaç Endüstrisinde Aktif Madde Dönemi 1970-1980*, Brochure.

(49) Ansa, *Türk İlaç Endüstrisinde Aktif Madde Dönemi, 1970-1980*, Brochure.

It has been noted that Ansa is going to produce and sell both in domestic and foreign markets a new, valuable ingredient, Gentamycin, which is used in antibiotics.

If raw material production starts sooner under state's vanguard and if some raw materials are produced by fermentation from agricultural products at optimum technical scales, then the pharmaceutical industry can support the self-finance of its foreign exchange necessities. Yet, the private sector lacking the sufficient finance opportunities does not seem to be eligible for this. Therefore, a good solution might be the joint ventures of private sector with state or with an official institution, like SSK (Social Insurance Institute), which is able to control large funds where use of private sector's experiences and knowledge would be made.

F O R E I G N T R A D E

a) Imports:

The effects of import-substitution policy on imports of pharmaceutical industry can be observed in the following table.

	PRODUCTION			IMPORTS OF READY MADE DRUGS			RAW MATERIAL IMPORTS			FOREIGN IMPUTS/ PRODUCTION		TOTAL FOREIGN PAYMENTS		FOREIGN EXCHANGE RATE**
	Million			C I F (million)										
	TL.	$	Index	TL.	$	Index	TL.	$	Index		Index	$	Index	
1963	360	40.00	100	13.53	1.50	100	80.992.000	8.992.000	100	0.220	100	10.492.000	100	9.00
1964	418	46.40	116	8.12	0.90	60	81.721.556	9.080.000	101	0.195	88.6	9.980.000	95	9.00
1965	505.1	56.12	140	6.31	0.70	47	120.964.387	13.440.000	149	0.239	108.6	14.140.000	134.8	9.00
1966	590	65.55	164	6.31	0.70	47	142.521.888	15.835.000	176	0.240	109	16.535.000	157.6	9.00
1967	752	83.55	209	7.00	0.78	52	185.000.000	20.555.000	229	0.246	111.8	21.335.000	203	9.00
1968	825	91.66	229	8.00	0.89	59	193.500.000	21.500.000	239	0.235	106.8	22.390.000	213	9.00
1969	928	103.11	258	8.00	0.89	59	205.700.000	22.855.000	254	0.220	100	23.755.000	226	9.00
1970	1035	69.69	174	10.00	0.67	45	248.400.000	16.727.000	186	0.240	109	17.397.000	165.8	14.85
1971	1565	110.60	276.5	12.00	0.85	57	368.000.000	26.007.067	289	0.235	106.8	26.857.000	256	14.15
1972	1750	123.67	309	16.00	1.13	75								
1973	2150	151.94	380	22.00	1.55	103	485.956.821	34.275.600	381	0.225	102	35.825.000	341	14.15
1974	2450	175.12	438	24.00	1.71	114	579.576.694	41.427.233	460	0.237	107.7	43.137.000	411	13.99
1975	3500	231.02	577.6	28.00	1.85	123	679.290.388	44.837.623	498	0.194	88	46.687.000	44[illegible]	15.15
1976 *	4036	242.25	605.6	19.99	1.00	80	1.082.900.000	65.000.000	723	0.270	122.7	66.000.000	629	16.66

Source : D.P.T. II and IV.B.Y.K.P. *Özel İhtisas Komisyonu Raporları*

(*) Deva Holding A.Ş. 20.Yıl,Brochure

(**) From the table prepared by Prof.Dr. Demir Demirgil

The data on the table leads to following conclusions:

1) Within the sector, ready made drug industry has reached to a level where it can meet more than 99 percent of domestic demand. In other words, ready made drug imports are less than 1 percent of domestic consumption.

2) Annual average increase in production has been 38.8 percent while the growth rate of raw material imports has been 47.8 percent. The fact that imports are growing faster than production confirms the claim that expensive raw materials are purposefully utilized in order to increase profits. Expensive raw materials increase production in absolute terms. As an example, assume that there are 2 medicines, A and B, in the market.

	A	B
Sales price (TL) :	20	60
Raw-packing materials :	8	30
Value Added (%) :	60	50
Value Added (TL.,absolute):	12	30

Also assumed that one million boxes are produced from each medicine, then, A's value added per year

will be 30 million Turkish Liras. Firm's profits are included in value added, obviously, when value added is increased in absolute terms profits will increase, too. Therefore, utilization of expensive raw materials in the production becomes more attractive.

3) As a result of increasing tendencies to use more of expensive raw materials foreign inputs' ratio to production has risen to 27 percent from 22 percent.

4) The pressure exerted on balance of payments by the sector, whose ready made drug exports equal to its ready made drug imports,(50) has increased to 65 million dollars in 1976 from 9 million dollars in 1963. If profit transfers of foreign firms and royalty payments which increase with production are considered the amount of foreign exchange requirements gets larger.

As it is clearly seen the industry is far from self-sufficiency. Its pressure on balance of payments gets heavier as import requerements increase with increasing

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(50) D.P.T. IV.B.Y.K.P. *Tıbbi İlaç Sanayii Özel İhtisas Komisyonu Raporu,* (Ankara: D.P.T. Yayını, 1976) , p.34

production which is carried out only for domestic market and which has no export motives.(51)

b) Exports:

Those native firms of Turkish Pharmaceutical Industry which produce ready made drugs have oriented their activities to domestic market from the beginning of their establishments and with the lack of state's promotionary measures they do not export.

Firms which are established by foreign capital act according to orders send from main firms that prohibit competition in the world market.(52) These firms do not show any willingness to export in the absence of legal obligations to export.

Export opportunities for Turkish Phormaceutical Industry at present conditions are as follows:

a) Exports of ready made drugs developed by native pharmaceutical firms: Native firms can sell their products to the developing countries of Middle East and North Africa. Exports to U.S.A. and Western

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(51) A.Hirschman, *"The Political Economy of Import Substituting Industrialization in Latin America"*, Quarterly Journal of Economics, 82(Feb.1968),p.13

(52) ibid, p.25

Europe and U.S.S.R. are not possible since those countries buy their needs in the European or U.S.A's markets.

The common practice in all countries is in the form of getting official licenses from the country to which medicine is exported. The medicine subject to license has to be publicized especially among doctors in the country that buys it. In a word, sufficient organization has to be founded to fulfill such undertakings. Multinational corporations in U.S.A. and Europe carry out those activities since many years. Its financial burden, however, for Turkish firms would be heavy. Thus, it is very difficult for Turkish firms to export ready made drugs to countries like Jordan, Lebanon, Yemen, Saudi Arabia, and to those around Persian Gulf, all of which obtain their needs through special importers of pharmaceutical products.

In adjudications of public foundations demand for a certain medicine is stated under the name of its active ingredient and according to medical treatment groups. While no license is required for imports,

the only regulation is that medicine should be marketed in the exporting country, too. Therefore, the most favourable way to export for native companies which produce ready made drugs seems to be through state adjudications.

State should oblige native firms to export a certain portion of their production and should, also,

- abolish customs duties on raw materials
- orient them to exports by providing foreign exchange transfer facilities.

b) Opportunities to export ready made drugs for foreign capital enterprises and for native firms which produce under license agreements: Medicines produced in Turkey under foreign names usually have licenses to be sold in export countries. The licenses are obtained by the main firms. Since they do not have to go through all the procedures of getting license and making the medicine publicized, such firms can easily export. The reason why they do not export is that they are not forced into obligations to do so. State must introduce export requirements.

If the problem is approached from the point of main firms, in many instances, exports from Turkey seem more profitable. As an example Wyeth's exports of small antibiotics whose production costs are lower in Turkey can be given.

c) Pharmaceutical raw material exports: In Turkey, there is only one firm which exports pharmaceutical raw materials, namely A N S A Antibiotik ve İlaç Hammaddeleri Sanayii ve Ticaret A.Ş. produces tetracylin, oxytetracyclin and its derivaties starting from the first stage of production. Ansa was established by 12 native firms in 1969, now it exports half of its production which has reached to 80 tons per year. The firm is operating under the principle of 3 watches a day, utilizing all of its capacity. The trend of Ansa's exports are as follows:(53)

Years	Kg	$
1972	1.791	48.000
1973	15.562	423.000
1974	38.495	1.273.000
1975	16.850	606.000
1976	18.875	634.000
1977	37.700	1.271.275
1978	24.725	866.587
1979	44.900	1.616.400

(53) Ansa, *Türk İlaç Endüstrisinde Aktif Madde Dönemi 1970-1980*, Brochure.

Until present, the company exported to West Germany, Italy, Switzerland and Pakistan. Countries like France, Australia and England are considered to be prepared markets for exports. The state should lead native firms to the production of raw materials that are plants in origin and available in Turkey. Examples of raw materials drawn from plants are(54)

- castor oil from the castor plant
- cafein from tea residue.

Penicillin, streptomycin, phenylglycin can be produced by fermentation and also gelatin capsules can be produced. What has to be done is to manufacture various imported raw materials in large amounts both to meet the domestic demand and to export.

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(54) Information obtained through interviews with the persons involved in pharmaceutical raw material production.

E M P L O Y M E N T

a) The level of employment in 1963:[55]

In 1963, the number of employee in the sector was 6030 half of which were qualified, semi-qualified and ordinary workers. 25 percent of employment was the personnel hired to carry out marketting activities which were, then, intensive and competitive. The rest 25 percent was composed of technical and administrative personnel.

b) Employment in 1970 and distribution of the labour-power among enterprises:

In 1970, the number of employee in the sector was 8813 with no change in the distribution of labour-power among the types of services.[56]

Distribution of enterprises in pharmaceutical industry according to volume of labour employed:

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(55) T.B.M.M. *İlaç Araştırma Komisyonu Raporu,* (Ankara: T.B.M.M. Yayını, 1967), p.29

(56) O.N.Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme,* (Istanbul: 1972), p.23

(total of 8813 persons from 100 enterprises)

	Number of Enterprises	Number of Personnel	%
More than 300 personnels	9	4450	50.5
101 - 300	16	2684	30.5
51 - 100	11	746	8.4
Less than 50 personnels	64	943	10.6
	100	8813	100.0

Source: T.İ.E.İ.S. İlaç, (İstanbul: T.İ.E.İ.S. Yayını 1973), p. 68

More than 50 percent of labour-power is gathered in 10 percent of all the enterprises. The firms which hold a significant share in the market acquire the largest share in employment because they need great numbers of administrative personnel to carry out advertisement and marketing propaganda.

Distribution of labour-power according to its functions:

In a big Turkish pharmaceutical firm labour power is distributed among different functions in the following way:(57)

(57) T.İ.E.İ.S., İlaç, (Istanbul: T.İ.E.İ.S. Yayını, 1973), pp.70-75

Manufacturing	49 %
Sales-Marketing	22 %
R-D, Quality Control	9 %
Administration in General	20 %
T o t a l	100 %

	In the French Companies	In U.S.A.'s Companies
Manufacturing and Quality Control	48 %	37.4 %
Services for Commerce	32 %	28.1 %
Administrative and General Services	11 %	19.7 %
R - D	9 %	14.8 %
T o t a l	100	100

If quality control and manufacturing percentages for Turkey are combined (49 percent+ 5 percent = 54 percent), the new ratio exceeds that of France by 12.5 percent and that of U.S.A., by 44.4 percent. Also, the figure for administrative services of Turkish industry is higher than the other two countries'. On the other

hand, U.S.A. and France are leading in activities like research and development and commerce.

The number of those employed in ready made drug industry is 14572 in 1975 which means a yearly average increase of 12 percent between 1963 and 1975. With the development of ready made drug industry several subcontracting industries (bottles, cordboard boxes, stoppers etc.) have developed. Employment opportunities created indirectly by ready made drug industry have contributed to the solution of unemployment problem in Turkey because most of them involved labour intensive activities. Besides the positive effects of ready made drugs, when raw material production starts the sector will create opportunities for employment both within itself and in subcontracting industry that will then develop.

V A L U E A D D E D

The pharmaceutical industry is one of the sectors which contribute large amounts of value added to the economy. Sectors and values addes by them are given below:

The industries	Value Added (%)
Food	77.6
Pharmaceutical	64.0
Woolen Cloth	61.8
Machine and Equipment	60.6
Cotton Cloth	59.3
Earthenware	58.2
Glass and Glassware	53.1
Electrical and Electronics	50.1
Soap and Cleaning Materials	47.4
Plastics	34.3
Means of Transport	30.8
Paper and Cardboard	37.9
Conserved Food	34.0
Dyes, Wax and Ink	43.7

Source : T.İ.E.İ.S. İlaç, (Istanbul: T.İ.E.İ.S. Yayını 1973), p. 82

As it is seen in the table, pharmaceutical industry has the second place in creating value added. Although average ratio of value added is 64 for the whole pharmaceutical industry, this ratio changes according to different groups of medicine.

Value Added Ratios of Basic Pharmaceutical Groups Produced in the Industry

Products	Value Added Ratios(%)
Analgesia and Anesthesia	59.2
Antibiotics	50.1
Sulpha Drugs	73.7
Disinfectants and Antiseptics	56.9
Drugs for Nerveus System	74.8
Dermatologic Drugs	58.5
Gastro-Intestinalles	71.5
Hormones	40.3
Vitamins	56.8
Vacines and Serums	98.6
Others	64.0

Source: T.İ.E.İ.S. İlaç, (Istanbul: T.İ.E.İ.S. Yayını 1973), p.80.

Vacines and serums rate first with 98.6 percent, drugs for nervous system follow them with 74.8 percent. Overall value added ratio, on the other hand, was 64 percent.

The reason for high ratio of value added in vacine and serum production is that raw materials used in them (water with salt and sugar) are very low in percentage.

Ready made drug industry that evolved as a result of import substituting industrialization has managed to reach the top rows with the value added it created. Yet after this stage avoidance of the necessity to produce raw materials will deprive the country of the value added that would be created by the sector.

T E C H N O L O G Y

Import substituting industrialization policy has resulted in the transfer of technology both through license agreements and through direct foreign capital investments. Today, in ready made drugs industry in which the process of substitution has been completed, the total acquisition of required knowledge and experience is observed.

However, the restrictive items of license agreements which had a substantial role in acquiring technology can be listed as:

- to buy raw materials from the license donor
- exports prohibitions
- the obligation of license receivers to send product samples for quality controls to the license donors.
- high ratios of royalty payments
- the imposibility of producing a product after the termination of license agreement without the written permission of license donor.

a) The requirement of buying the raw material from the license donor:

In Turkey, until 1961 all license agreements included the requirement that raw materials had to be purchased from the foreign firm wich gave the license or from the source shown by the firm and at prices determined by the firm. Thus, until 1961 raw materials were bought at prices set by the foreign firm. After 1961 the practice has changed, the state enforces that the raw materials must be bought from the cheapest source. License-agreements signed afterwards are seeked to fulfill this requirement.

b) Export prohibitions: License agreements of 1960 had the following item:(58)

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(58) Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayilerinde Teknoloji Transferi*, (Paris: T.İ.E.İ.S.Yayını, 1975), p.69.

"License receiving company can manufacture and sell the product only on the lands of Turkish Republic."

In 1965, however, it was stipulated that exports could be carried out with the permission of license donor. In all the agreements conducted after 1967 no restrictive condition on exports was accepted.

c) Quality Control: In 63 percent of license agreements in Turkey (26 out of 38 agreements), the obligation of the firm to send sample products to the license donor firm for quality control is stated. (59) When quality control is carried out by the license donor firm for the whole license term, the license reseiver firm misses the opportunity to acquire and to develop technology for quality control.

d) Royalty Payments: In 1950, license donors were demanding royalty payments that amounted to 10 percent of annual sales. Later, this ratio has been reduced to 3 percent. Further decreases in royalty ratios has been observed when government increased its control over the agreements due to foreign exchange shortages that

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(59) ibid.,p.60

appeared in 1956-1958. The preparation of the First Five Year Development Plan had contributed to the understanding of obligations brought by the license agreements.

Together with reductions in royalty ratios, the basis on which license payments are made has also been changed. In many of the agreements, royalties are paid on the figure reached after subtracting returns and deductions from sales. The most frequently observed royalty agreements, in Turkey, are as follows:(60)

Royalty	Total Number of Agreements %
5.0	74.3
10.0	32.0

74.3 percent of all the companies in Turkey has agreed to pay 5 percent as royalty. In recent years it is observed that royalty ratios do not exceed 4 percent. The number of agreements signed between 1954-1967 and royalty payments were in the following fashion:

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(60) ibid.,p.67

Period	Number of Agreements	License Payments (as % of Sales)
1954-1956	3	10
	1	8
1957-1961	2	10
	2	8
	77	5
	1	4
1962-1967	5	10
	7	5

Source: Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayiilerinde Teknoloji Transferi,* (Paris, T.İ.E.İ.S. Yayını, 1975),p.68

The number of license agreements signed between 1950-1972 in Turkey are as follows:

Years	Number of Agreements	Years	Number of Agreements
1950	-	1962	3
1951	1	1963	4
1952	1	1964	2
1953	-	1965	5
1954	2	1966	2
1955	1	1967	1
1956	2	1968	-
1957	4	1969	1
1958	6	1970	-
1959	6	1971	-
1960	3	1972	1
1961	5		
(1950-1961	31	(1962-1972)	19

Source: Ayhan Çilingiroğlu, *İlaç ve İlaç Hammaddeleri Sanayiilerinde Teknoloji Transferi,* (Paris, T.İ.E.İ.S. Yayını, 1975), p.69.

With certain exceptions, 50 license agreements was signed between 1950-1972.

e) On the prohibition of continuing the production by the Turkish Company after the license agreement terminates, without using the product's foreign name: Among the license agreements conducted until 1970, in Turkey, three of them have given the right to produce by similar processes five years after the termination of agreement, and one has given the permission to produce three years after the termination of agreement. License agreements with such restrictions are no more acceptable.

Recently, license agreements in Turkey are encouraged under such conditions:(61)

- Maximum duration is 5 years.
- License expense ratios cannot exceed 3 percent.
- No payments can be made in advance
- Taxes and duties are paid from license expenses
- No guarantee should be given for a minimum payment
- No guarantee on foreign exchange ratios should be given.
- The permission must be given to the Turkish company to go on production without using the foreign name, after the license agreement terminates.

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(61) ibid., p.68

STATE CONTROL IN PHARMACEUTICALS AND INTERNATIONAL COMPARISON OF PRICES

A) STATE CONTROL IN PHARMACEUTICALS[62]

Medicine and drugs are under state control with regard to their hygienic importance.Control is exercised through

a) the permissions given for production

b) quality control

c) economic aspects (like setting the prices fixed)

a) The permission for production (Receiving the license): A separate permission for each ready made drug has to be taken from the Ministry of Health and Social Welfare. The law numbered as 1262 defines the requirements for permission. The number of permissions given until today is 8000. If those that are no more produced due to reasons that they

- have lost their effects
- have no possibilities to be sold
- or that the firm is no more functioning

are not counted, the number of drugs at present appears to be around 4.500.

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(62) T.B.M.M.*İlaç Araştırma Komisyonu Raporu*, (Ankara,T.B.M.M. Yayını, 1966) pp.55-65.

In the Third Five Year Development Plan an intention to revise the drug permissions in order to check the increasing number of drugs in the market is expressed.(63) The number of such drugs that

- have lost their peculiarity in medical treatment
- have a timeworn chemical composition
- have similar medical effects and the same chemical formulae.

is seeked to be reduced. Besides, the commission in the Ministry of Health, which is responsible to examine the applications for permission has set strict rules.

b) Quality Controlling: The drug producer is responsible to have the quality controlling be made at various stages of production from the intake of raw materials to the final output. The Ministry of Health and Social Welfare controls the quality of samples arbitrarily taken from pharmacies in the market at certain periods. This control is realized through Refik Saydam Merkez Hıfzıssıhha Enstitüsü. Although drug producing factory or laboratory is responsible for the quality of its product, once the product is marketed the responsibility to check the quality is transferred to the state. For

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(63) D.P.T. III B.Y.K.P. (Ankara,D.P.T. Yayını 1972), p.827

this reason Refik Saydam Hıfzıssıhha Enstitüsü of the Ministry of Health and Social Welfare has periodical controls over the samples taken from pharmacies. Yet, the control is insufficient due to lack of technical personnel.

c) The Determination of Prices and Their Comparison on International Level:

Standarts like high quality and safety, and a reasonably low level of costs should definitely be provided for the benefits of society. The protection of this benefit introduces state's supervision over the production and prices of pharmaceuticals as a social responsibility. According to the paragraph f of the 7th changed article of the Law numbered 1261, a product must have "an appropriate price" in order to receive a permission to be manufactured and sold.(64) As a requirement of the conclusion derived from above article, the Ministry of Health and Social Welfare secures the authority to determine the price of medicine and drugs.

Until 1967 several regulations were practiced in price determination. In December 30,1980, the decree numbered

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(64) D.Işık,M.Çubukcu, *Kavram İndeksli Sağlık Kanunları*, (Ankara: Güzel Istanbul Matbaası,1970),p.282.

6/9311 promulgated by the Council of Ministers has implemented, "The Principles in Determining the Prices of Ready Made Drugs Produced in Pharmaceutical Factories and Laboratories". According to the decree prices of Ready Made Drugs are determined by factors stated below:

Raw materials and wastages
Intermediary materials and wastages
Packing materials and wastages — Industrial Cost
Direct labour costs
Other costs of production

To industrial cost calculated in the above fashion indirect expenditures are added in accordance with the principles stated in the decree to obtain commercial costs. Indirect expenditures are:

- Expenditures of general administration
- Sales and finance expenses
- Expenditures on publicity
- Royalties if they are paid

Industrial cost is divided into successive layers. The share of indirect expenditure for each layer is calculated by multiplying it with a certain coefficient.

Industrial cost layers and their coefficients are listed below.(65)

1. An indirect expenditure margin of krş 35 is added to the industrial cost layer which is below 30 kuruş.
2. For the industrial cost layer krş 35-60, 60 %
3. " " " " " krş 61-100,50 %
4. " " " " " krş 101-250,40 %
5. " " " " " krş 251-500,35 %
6. " " " " " krş 501-1000, 30 %
7. " " " " " krş 1001-2500, 25 %
8. " " " " " that exceeds krş 2500,20%

To the commercial costs calculated under such principles 25 percent is added to get the producer's price. A 10 percent addition to this price will give storehouse prices. Finally, 25 percent addition is going to give the consumer price.

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(65) T.B.M.M., *İlaç Araştırma Komisyonu Raporu*, (Ankara, T.B.M.M. Yayını, 1967), p.63.

For an example of the method,

Raw material and wastage	krş	200
Intermadiary material and wastage	krş	30
Packing material and wastage	krş	60
Direct labor costs	krş	40
Other costs of production	krş	100
Industrial cost	krş	430

If the industrial cost of this medicine is krş 430:

For krş 0 - 30		krş 35	
" krş 31 - 60	60%	krş 18	
" krş 61 - 100	50%	krş 20	
" krş101 - 250	40%	krş 60	
" krş251 - 430	35%	krş 63	

Therefore 196 kuruş has to be added to the industrial cost to get commercial cost.

Industrial Cost	krş	430
Commercial Expenses	krş	196
Commercial Cost	krş	626
25 percent producer's profit	krş	156
producer's Price	krş	782
10 percent storehouse's profit	krş	78
Storehouse's price	krş	860
25 percent pharmacist's profit	krş	215
Retail price	krş	1075

From 1967 to 1972 this system in which the Ministry of Health was the competent authority to control and certify the medicine was practiced. But, in March 29, 1972 the methot of Price Determination is revised by a decree numbered 7/4729.

The impact of 1979 devaluation on the prices of raw materials has necessitated a new pricing system. In essence, the two decrees base on the industrial cost. The new one has abolished the coefficients in determining commercial expense. Instead, it has introduced new coefficients for industrial cost layers which now have been aggregated into three categories as:

krş 0 - 250

krş 251 - 1500

and above krş 1500

Multiplying the layers of industrial cost with the coefficients, this time, will directly give producer's price. In this system the ratio of producer's profit has been drawn back 15 percent from 25 percent.

In calculating the industrial cost, raw material and packing material indexes prepared by the pricing committee

are used in both of the systems. The state has the right and the duty to check the world prices of all raw materials. This proves that prices are determined under a certain system and discipline.

B) THE COMPARISON OF DOMESTIC PRICES WITH FOREIGN PRICES

a) Price Comparisons According to Foreign Exchange Ratios

1. Retail Prices: On the average the retail prices of pharmaceuticals in Turkey are cheaper than in other countries. Average comparative prices based on a study of 86 drugs:

	$
Turkey	0.73
France	1.48
Sweeden	1.49
Italy	1.62
Switzerland	1.55
Germany	1.98

Source: Osman Nuri Torun and Others, *Ekonomik Yönden İlaç Sanayii Üzerinde Bir İnceleme*, (Istanbul, 1972), p.27

Also in the same study the comparison of prices according to medical treatment groups shows that in Turkey retail prices in each group are cheaper than other contries

2. Producer Prices: On the average, the producer prices in Turkey are lower than in other countries.

	$
Turkey	0.53
France	0.71
Germany	1.10
Italy	0.98

Source: O.Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme*(Istanbul, 1972), p. 28.

As it is seen below, the producer prices for medicine grouped according to medical treatment characteristics are cheaper in Turkey than in three West European countries.

PRICES OF DRUGS CLASSIFIELD INTO THERAPEUTIC GROUPS

(Retail Prices)

($)

	Antibiotics		Hormones		Vitamins		Antirheumatismal		Cardiology		Nervous System	
	Price	Index	Price	Index	Price	Index	Price	Index	Price	Index	Price	Index
Turkey	1.36	100	0.57	100	0.58	100	0.77	100	0.94	100	0.91	100
Italy	3.22	236	2.02	354	1.03	178	1.09	142	1.30	138	1.42	156
Switzerland	3.47	255	2.66	412	1.50	259	1.20	156	1.34	143	1.39	153
W.Germany	4.65	342	2.35	467	1.25	216	2.03	264	2.38	253	1.84	202
France	2.67	196	2.02	354	1.27	219	1.17	152	1.60	172	1.65	181
Sweden	2.41	177	1.87	128	1.05	181	1.57	204	1.75	186	1.71	187
Shares in Total Sales		20 %		65 %		7.3 %		4 %		7.2 %		3.8 %

Source: O.Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme*, (Istanbul: 1972), Appendix 5.

PRICES OF DRUGS CLASSIFIED INTO THERAPEUTIC GROUPS

(Producers' Prices)

($)

	Antibiotics		Hormones		Vitamins		Antirheumatismal		Cardiology		Nervous System	
	Price	Index	Price	Index	Price	Index	Price	Index	Price	Index	Price	Index
Turkey	0.99	100	0.42	100	0.42	100	0.56	100	0.69	100	0.67	100
Italy	2.00	202	1.30	310	0.66	157	0.70	125	0.84	122	0.92	137
W.Germany	2.58	260	1.48	352	0.83	198	1.13	201	1.32	162	1.02	152
France	1.28	129	0.97	230	0.61	145	0.56	100	0.77	112	0.79	118
Shares in total sales		20 %		65 %		73 %		4 %		7.2 %		3.8 %

Source: O.Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine bir inceleme*, (Istanbul: 1972), Appendix 6.

b) Comparison of Prices According to Average Real Wage Criteria

One of the criteria for international comparison of prices is the examination of the relation between prices and real wages. The comparative price of Tryptizol, 50 tablets and 25 mg is:

	$
Turkey	2.16
France	1.81
W.Germany	2.90
Italy	2.54

Source: O.Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerinde Bir İnceleme*, (Istanbul:1972), p. 29.

In the comparison based on work hour Criteria, 1970 figure of social Insurance Institution (S.S.K.) for avarage wage per day, 35.32 Turkish Liras is used. In Turkey a worker has to work 3.5 hours in order to be able to buy 50 tablets of 25 mg Tryptizol. In France, on the other hand, for the same medicine a worker has to work 1.57 hours and in W.Germany 3.18 hours. In work-hour comparison medicine in Turkey appears to be

much more expensive than in Western countries.

Pharmaceutical Manufacturers' claim that pharmaceutical prices in Turkey are cheaper depends on calculations made by foreign exchange rate criteria. Yet, the reality is that although prices of medicine in Turkey are cheaper than in Western countries, they are above the purchasing power of public in Turkey.

The vital role of medicine in human health is undeniable and therefore medicine is always an up-to-date issue. Studies on how to deliver cheaper medicine to public must,necessarily,be made. If the problem is approched from this point two things become appearent,first, that pharmaceuticals are totally produced by private sector and secondly, they are under state control both in terms of prices and quality. Since funds within industrial sphere tend to go to higher profits, an incremental change in this sector's profit ratio Will shift its funds to alternative investment areas. Under the cicumstances the thing that has to be done is to figure out how to economize on input materials without changing the medical nature of the drug. Two of such input materials are:

1- Packing materials

2- Raw materials

Among production inputs packing materials has the second place(66) and, therefore, is quite a significant element in costs. Today, all the medicine is sold in small boxes at specific amounts. Generally, some of the medicine in the box is used and the rest is either thrown away or is given to someone else to be of a help which, in fact, is very dangerous. If, however, the medicine is sold in economic size packages through all distribution channels and if it is delivered to theconsumer at exactly the required amount both packing material will be economized and consumption wastes will be prevented.

To discourage the usage of expensive raw materials in drug production the present practice should be changed. When a pharmaceutical firm wants permission to produce a certain drug it applies to a medical committee where the drug is controlled in terms of its pharmaceutical essence. Once the drug's chemical formula is approved medically its permission becomes an acquired right. Later, when the firm

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(66) III.B.Y.K.P., *Özel İhtisas Komisyonu Raporu*,p.67.

applies to the Ministry of Health and Social Welfare for a price the Ministry checks whether its raw material is obtained from the cheapest source in the international market. In other words, its last control is not made in terms of its theapeutic quality which is an important topic for the price. As an example, consider that there is a medicine A in the market which is sold at 100. Turkish Liras and has the raw material X in it; a company wants to get a price for its product B if, however, its chemical formula is approved by the committee. And if the raw material Y in B is a valuable substance, the pricing committee will only check whether its price is the cheapest in the international market. In other words, B is not examined to see if it has the similar medical effect as A or not. And demanded price, 200. Turkish Liras, for B is given assuring that its raw material is obtained from the cheapest source. It would be possible to prevent the use of valuable raw materials if the price factor is taken into account in drugs which have equivalent medical effects and if chemical and price controls are made simultaneously.

IV-THE STATE OF TURKISH PHARMACEUTICAL INDUSTRY IN TURKEY'S ENTRY TO THE EEC.

THE RELATIONS OF TURKEY AND THE EEC. IN GENERAL

a) The development of the relations:

Turkey has aquired a common member status by the Ankara Agreement signed in 1963 with EEC, founded as a "Customs Union" among six Western European countries in 1958 and which has acquired economic integration objectives after completing the "customs union" stage in 1968. According to the agreement, after a certain period of preparations, the transition period whose liabilities started to be effective from 1.1.1973 onwards was entered.

The transition period will last 22 years, in the first 12 years tariffs on 55 percent of Turkey's those industrial products that were imported from EEC in 1967 will be reduced to zero. The rest 45 percent of tariffs will be removed within 22 years,also,quotas, import and export restrictions, control measures on foreign exchange, guarantee ratio systems will be abolished due to principles of the agreement. The participation which had an apperance of "customs union"

in the beginning has evolved into an economic integration with *Additional* and *Complementary Protocots* which became effective on 1973 and 1974 respectively. The liabilities according to Additional and Complementary Protocols are as follows:(67)

- Mobilization of capital
- Free maovement of labour force
- In tax covention, accepting the Value Addet Tax (V.A.T.)
- Harmonizing with the structure of the EEC by the social and the legal ajustments concerning the economic life.
- Passing into the common structure of the EEC on monetary policy and other financial issues.

b) <u>The features of new competition that Turkish enterprise is facing</u>:

(Competition in Common Market Conditions): Turkish enterprise after avery short period is going to enter into a new stage of competition, those who cannot follow its rules, who do not have the required economic power will either unite with the foreign firms which have strong administrations or will leave the market. The principles of Rome Treaty that are related

(67) Erol Manisalı, *Türkiye İlaç Sanayiinin AET Karşısındaki Durumunun İncelenmesi* (Istanbul:T.İ.E.İ.S. Yayını, 1975)

to competition form the basis of economic system constructed by Common Market countries. For this reason the EEC countries provide specific items in the agreements they sign with associated countries (or with late-comers) who want to integrate and form a customs' union expressing the willingness of the candiate countries to accept the basic principles of competition put forward by the EEC and to agree upon the details after a certain period. In the Ankara Agreement it is expressed that (item 16), in principle, "the agreeing parts accept that the principles related to competition and stated in part one, section three of the constitutionary agreement of the community have to be put in effect within community relations(68). The EEC Competition Legislation seeks to prevent the measures which limit the free competition opportunities both for member countries and for companies which operate in those countries. It is strongly defended that the abolition of practices like providing advantages will make the free competitive system function most effectively and that more competition will add much to public welfare.

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(68) Ali Sait Yüksel, *Türk İşletmeciliğini Bekleyen Yeni Rekabet Düzeninin Özellikleri* (Istanbul: İ.T.İ.A. Yayını, 1973),p.1.

THE SUPERIORITY OF EEC COUNTRIES IN INTERNATIONAL MARKETS OF READY-MADE DRUGS AND RAW MATERIALS

The EEC has large firms which had already established and developed chemical industry complexes. They produce for foreign markets much as they do for domestic market and thus contrbute to the improvèment of foreign trade balances in their countries. Some of those corporations and their scales are as follows:

		For the year 1975		
Firms	Countries	Sales Total (million $)	Assets (million $)	Number of Employee
Hoechst	W.Germany	8.462	7.757	181.650
Bayer	W.Genmany	7.223	7.444	169.400
I.C.I	England	6.884	7.167	195.000

Source: E.Manisalı, *Türkiye İlaç Sanayiinin AET Karşısındaki Durumunun İncelenmesi,* (Istanbul: İ.E.İ.S.Yayınları, 1976), p.23.

Exports and imports of ready made drugs and pharmaceutical raw materials in the EEC contries:

1972 as Million $

Countries	Exports	Imports
W.Germany	491	175
France	230	144
England	335	81
Italy	154	143
Netherlands	141	111
Denmark	62	45

Source: E.Manisalı, *Türkiye İlaç Sanayiinin AET Karşısındaki Durumunun İncelenmesi*, (Istanbul: İ.E.İ.S.Yayınları,1976), p.22.

The place of pharmaceutical exports in the economies of some of the producing countries in 1971:

At thousand $

Countries	Total Exports	Exports of Pharmaceutics	%
France	20.344.239	186.950	0.92
Italy	15.122.653	65.492	0.43
United Kingdom	22.353.825	302.656	1.35
Switzerland	5.739.879	221.569	3.86
Japon	24.009.574	32.894	0.14
U.S.A.	43.497.239	168.813	0.39

Source: Pierre Melique, *AET'nda İlaç*, (Fransa:İ.E.İ.S. Yayınları,1975), p.80.

As the table shows, the shares of exports of pharmaceuticals in total exports is greater in the EEC countries. Besides, in all the EEC countries exports of pharmaceuticals exceed their imports. In other words, their foreign trade balance in pharmaceuticals is positive. The Western World countries outside the EEC, except Switzerland, have foreign trade deficits

in pharmaceuticals.

(As million $)

Countries	Exports (Pharmaceutics)	Imports (Pharmaceutics)
U.S.A	420	879
Japon	66	216
Spain	12	63
Sweden	35	72
Austria	14	51

Source: E.Manisalı, *Türkiye İlaç Sanayiinin AET Karşısındaki Durumunun İncelenmesi*, (Istanbul: T.İ.E.İ.S.Yayını,1976), p.23.

The superiority of the EEC countries in pharmaceutical is not only challenging our industry but also all Western World countries' industries except Switzerland's. Along with the large chemical industry complexes the EEC countries have numerous small firms which operate in the domain of ready made drugs production. Those firms are technologically and financially dependent on giant firms which held the monopoly over technology and raw materials. They impose the technologies developed trough intensive R-D studies and with excessive expenditures to small firms.

THE LIABILITIES OF TURKISH PHARMACEUTICAL INDUSTRY WITHIN THE TRANSITION PERIOD

a) Tariff Reductions:[69] With the start of the transition period EEC has removed all the restrictions on Turkey's exports (Except the quota on cotton threads and textiles).Yet, the EEC's zero-rate customs-duty practice does not provide much of an advantage for Turkish industial products due to two reasons. First, Turkey exports only cement and cotton textiles to the EEC countries. Secondly, the rate of EEC's import duties for products from Turkey is 6-7 percent the removal of which will bring very little benefit to Turkish industrial product exporters. Turkey's total imports from the EEC, on the other hand, are entirely composed of industrial commodities. Two subjects bear significance in imports for Turkish industrialists.

1. On which list the product is placed
2. On which list the basic inputs, which are used as raw materials,intermediary goods and capital goods, are registered.

Before going on examining the lists with respect to

(69) Erol Manisalı, *Türkiye İlaç Sanayiinin AET Karşısındaki Durumunun İncelenmesi,* (Istanbul: T.İ.E.İ.S. Yayını 1975), pp.17-18.

pharmaceutical industry, the structure of Turkish Pharmaceutical Industry can be described briefly as:

Turkish pharmaceutical industry manufactures a significant part of ready made drugs demanded in the domestic market, and provides, through imports from foreign markets, many of the machines and equipment necessary for manufacturing, and more than 90 percent of raw material requirements. When the lists are examined,it is seen that:

- The greater part of ready made drugs are on the 22-year list,
- 89 percent of raw materials are on the 12-year list,
- A significant fraction of machines and equipment is on the 12-year list.

The fact that 89 percent of raw materials are on the 12-year list is going to create problems for raw material producers. Tariff reduction for these raw materials is 50 percent including 1980. The tariffs will, however, be zero by 1985. Along with the tariff reduction, it is of importance that whether raw materials are included on the "liberation list" or in the "Quotas". Because, despite the reductions,

when domestically produced raw materials are registered in either one of them their imports are not allowed, and hence the domestic raw material producers are protected. Present liberation lists exclude the raw materials produced in Turkey. Yet, the Additional Protocol and the Complementary Protocol signify schedules for the enlargement of either the liberation lists or the quotas for the industrial products that are going to be imported from the EEC. In this way, the raw materials which are not already on the lists would expectedly be included in the future.

b) The adjustment of the convention regulating economic life in Turkey to EEC conditions (Patent Rights):

The convention on patent rights is imperative for the pharmaceutical sector. Turkish Pharmaceutical Industry will face with problems if Turkey is forced to adopt the ongoing convention in the EEC. But she may not accept the patent agreements like Italy who could succeed to stay out of the agreements in spite of being a member country to the EEC. For many years Italy is known to be competent to imitate but as slow in developing new molecules. Today, on the other

hand, she is able to produce new molecules, and she will accept to sign patent agreements to her advantage. In that case,the market Italy had dominated will be released from her control. Today, several companies in Italy are seeking new areas as centers for installation. If Turkey becomes a producer for the countries that are not subject to patent agreements, Turkish pharmaceutical industry can be a self sufficient industry providing foreign exchange necessities through its own activities:

c) Capital mobilization:

Free capital mobilization will be to the favor of foreign firms since domestic firms will not have the financial oppurtunites that foreign firms will have,and this will hinder their growth.

THE STATE OF TURKISH PHARMACEUTICAL INDUSTRY IN FACE OF THE EEC.

1) The state of ready made drugs in face of EEC:

Ready made drugs industry has a different position than other industries against EEC such as; as it is the case

in many countries, drug production in Turkey is under state control. A license for manufacturing is the precondition to produce any drug. Owning an import permission is not sufficient for production. Foreign firms can not produce in Turkey unless they get a license to manufacture from the Ministry of Health. Besides, the release of all restrictions on ready made drug imports should not influence Turkish pharmaceutical Industry which has price advantages. Drug prices in Turkey are lower than the prices in the EEC countries in terms of both market prices and production prices.

The dollar prices of identical drugs in Turkey and in the EEC countries, grouped according to treatment features:

Antibiotics	Turkey	Italy	Germany	France
Erytrocin 100 mg 12 tab.	0.91	2.75	7.35	-
Terramycin syrup 45cc	0.63	2.23	3.32	2.83
Sigmamycin 250 mg 16 cap.	1.89	6.50	-	4.60
Vibramycin 100 mg 8 cap.	3.00	10.00	12.30	5.18
Analgesics				
Aspirin 500 mg 20 tab.	0.12	0.32	0.56	0.23
Dolviran 10 tab.	0.23	0.48	0.50	-
Spasmo-Cibalgine 20 c.tab.	0.66	0.77	1.74	0.73
Baralgine 5 cc 5 amp	1.07	2.40	2.50	-
Saridon 10 tab.	0.24	0.31	0.40	-
Optalidon 25 c.tab	0.31	0.52	1.02	0.50
For Nervous System				
Mogadon 5 mg 10 tab.	0.56	1.42	0.74	1.47
Insidon 50 mg 30 c.tab.	1.68	1.55	3.83	2.64
Librax	0.87	1.20	1.23	1.27
Cardiology				
Brinaldix 20 mg 15 tab.	0.77	1.46	1.92	1.86
Coremine 15 cc	0.33	0.70	1.60	0.38
Antihistaminics				
Periactin 4 mg 20 tab.	0.97	2.06	1.74	2.25
Tyzine 10cc	0.30	0.65	0.74	0.30

Source: Osman Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme*, (Istanbul: 1972), Appendix 5.

Higher prices for drugs in the EEC countries are a consequence of higher profit ratios and pharmacists in those countries than in Turkey.

	Producer's profit ratio (%)	Storehouse owners profits ratio (%)	Pharmacist's profit ratio (%)
Turkey	15	10	25
France	Determined freely	10.7	33.44
W.Germany	Determined freely	20	40
England	Determined freely	17	33

Source: Pierre Melique, *AET'de İlaç*, (Fransa:1975),p.81,28; T.B.M.M. *İlaç Araştırma Komisyonu Raporu*,(Ankara: T.B.M.M. Yayını, 1967), p.62.

The profit ratios in the EEC countries are higher and, obviously, this increases the prices in those countries. If, however, the factors which influence costs of pharmaceuticals are compared the following phenomena is observed:

a) Raw Materials:

The EEC countries have cost advantages over Turkey in raw materials since they do not pay custom dues for raw

materials. But, Turkey will be able to gain an advantageous position since she is going to import non-taxed raw materials after a certain period of time.

b) Wages:

Both workers' wages and directors' salaries are very high in the EEC countries compared to wages paid in Turkey. Moreover, 10 percent of total labour power are employed in research undertakings in the EEC countries which put heavy emphasize on R-D activities and employ highly skilled researchers. Therefore, wages become an effective cause of high costs.

The trends of wages in Turkey and in the EEC observed in pharmaceutical and chemical industries for the years 1960-1966 is as follows:

	Gross Nominal Wages (TL)						
Years / Countries	1960	1961	1962	1963	1964	1965	1966
Turkey	12.81	12.67	13.24	14.01	16.34	17.69	18.49
EEC Average	41.04	44.08	48.32	52.56	58.24	64.21	69.52

Source: İ.K.V. *Türkiye ve AET'de İşçi Ücretleri*, (Istanbul: İ.K.V.Yayınları, 1968), pp.62,63.

The wages in pharmaceutical and chemical industries of Turkey had grown by 5.68 Turkish Liras in 1980.

In the ECC, on the other hand, the average wage had registered an increase of 28.48 Turkish Liras by reaching to 69.52 Turkish Liras in 1966 from 41.04 Turkish Liras in 1960. When the EEC countries are considered separately, for the year 1966 the lowest wage, 51.68 Turkish Liras,is paid in West Germany.(70)

The percentage increase in the nominal wages in Turkey and in the EEC:

1960:100

Years / Countries	1960	1961	1962	1963	1964	1965	1966
Turkey	100	99	103	109	128	138	144
The EEC's Avarage	100	107	118	128	142	157	169

Source: İ.K.V., *Türkiye ve AET'de İşçi Ücretleri*, (Istanbul: İ.K.V.Yayınları,1968), p.62.

The rate of increase in nominal wages between 1960 and 1966 was 44 percent in Turkey and 69 percent in EEC.

(70) İ.K.V., *Türkiye ve AET'de İşçi Ücretleri*,(Istanbul: İ.K.V.Yayınları,1968), p.62.

Real wage increases in Turkey and in the EEC:

Years	1960	1961	1962	1963	1964	1965	1966
Countries							
Turkey	100	93	87	89	105	111	107
The EEC's Avarage	100	106	113	119	129	139	148

Soruce: İ.K.V., *Türkiye ve AET'de İşçi Ücretleri*, (Istanbul: İ.K.V.Yayınları,1968), p.62.

Real wages in Turkey had declined in the, years 1961, 1962,1963 from what they had been in 1960 but, later, they started to increase. In the EEC, on the other hand, the real wages had a steady increase which was 48 percent for the period 1960-1966 whereas in Turkey the increase was only 7 percent. Among the EEC countries the greatest increase in real wages was seen in Luxemburg which registered 69 percent between 1960 and 1966(71) Yet, the smallest increase in real wages for the same period was observed in France with 21 percent. Evidently, wages in the EEC are very high compared to wages in Turkey. This can, very well, be considered as a negative factor among the elements of cost for the firms in the EEC.

(71) İ.K.V., *Türkiye ve AET'de İşçi Ücretleri*, (Istanbul: İ.K.V.Yayınları,1968), p.65.

c) Size of the Firms

The manufacturers of pharmaceutical are examined under five groups in a study undertaken by the National Syndicate of Pharmaceutical Manufactures in France in 1967(72).

Yearly Sales' Volume

Group 1 : less than FF 350.000

Group 2 : between FF 350.000 and FF 10 millions

Group 3 : between FF 10 millions and FF 30 millions

Group 4 : between FF 30 millions and FF 90 millions

Group 5 : more than FF 90 mllions.

The number of firms according to groups of sizes

	England	France	W.Germany	Italy	Turkey
Group 1 :	171	140	322	593	29
Group 2 :	126	272	328	374	65
Group 3 :	18	66	34	47	8
Group 4 :	16	25	17	21	4
Group 5:	4	2	4	2	-
	335	505	705	1037	106

Source: Osman Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme,* (Istanbul: 1972), Appendix 2.

(72) Osman Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme,* (Istanbul:1972), Appendix 2.

Sales ratios of firms according to groups of sizes:

	England	France	W.Germany	Italy	Turkey(1)
Group 1 :	0.6	0.5	1.0	1.6	2.0
Group 2 :	16.4	23.0	28.0	30.0	38.0
Group 3 :	17.0	33.0	21.0	27.0	25.0
Group 4 :	43.0	36.0	32.0	33.0	35.0
Group 5 :	23.0	7.5	18.0	8.4	-
	100.0	100.0	100.0	100.0	100.0

(1) FF 1= TL. 1.80

Source: O.Nuri Torun and others, *Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme,* (Istanbul:1972), Appendix 2.

T.B.M.M., *İlaç Araştırma Komisyonu Raporu,* (Ankara: T.B.M.M.Yayını,1967), p.17.

Evidently, centralization is most intensive in England who is followed by West Germany. Italy and France are the third and the fourth on the rank. Turkey does not have a firm that can be included in the fifth group. The firms that belong to the third and fourth groups are large in numbers and besides the ones in England, they have an effective share in the market.

The Market positions of the Group 2 and Group 3 firms:

	Market Shares (%)	Number of Firms
Turkey	63	73
Italy	57	421
France	56	338
W.Germany	49	362
England	33.4	144

The first group firms producing on a very small scale are in great numbers in all the countries but their shares in the markets are rather depressed.

Depending on tha data hitherto given we can make the judgement that the composition of firm sizes in Turkish Pharmaceutical Industry, measured by the volume of sales, resemble the pattern in the EEC.

The fact that centralization in Turkish Pharmaceutical Industry is gradually intensifying can easily be observed from the industry's state of being in 1971.

	Number of Firms	Market Shares %
Group 1 :	14	0.8
Group 2 :	46	14.2
Group 3 :	15	45
Group 4 :	5	39
Group 5 :	-	-
	80	100

Source: İ.E.İ.S., *İlaç*, (Istanbul: T.İ.E.İ.S. Yayını,1973), p.46 and information gathered on personal basis. FF.1=TL.2.83

From 1967 to 1971 the number and the shares of small firms had declined to a great extend while those of large firms started to increase.

In summary, ready-made drugs industry in Turkey which has scales of production similar to the EEC's and in where wages are lower, profit margins for producers, intermediaries and pharmacists are less than the EEC's is expected to be able to survive against the competition of EEC, if however, raw materials are imported without custom duties.

2) The Status of Pharmaceutical Raw Materials Industry Against EEC.

For the present, the establishments of raw materials industry are small and non-integrated and they can only meet 10 percent of the demand. The chances for a pharmaceutical raw materials industry which can compete with the EEC could be gained if the attempts to establish integrated production plants with large capacities are put forward now. If not, none of the firms which produce pharmaceutical raw materials will be able to challenge the EEC's competition and survive.

V . CONCLUSION

Ready made drug industry in Turkey could not have a sound development until 1961 as a result of misinterpretation of the Law of Patent Rights; although Turkey was not bound with the Law all the procedures carried until then had assumed that she was. In 1961 Turkish Pharmacists' Union applied to the Constitutional Assembly where the subject was examined and clearified with the announcement that pharmaceutical raw materials would no longer be subject to Patent Rights. Thus, domestic industries had the opportunity to import cheap and properly qualified raw materials from foreign markets, at the same time developing the pharmaceutical industry whose present status we have discussed so far.

Today Turkey has a well developed ready made drugs industry which answers 99 percent of the country's demand. At the same time the industry has reached to the level of transferring technology to underdeveloped countries. A good example of this is the drug factory that is being established in Nigeria by Eczacıbaşı İlaç Fabrikası. Ready made drugs industry can be

expected to survive against the EEC since the sizes of Turkish firms resemble those of the EEC's. Turkey's advantages like lower wages, lesser profit ratios which will cause lower prices are going to play a significant role in this challenge. The additional decrease in costs as a result of custom exemptions on raw materials will also be in favor of the Turkish Pharmaceutical Industry and will help it to prosper. The point that must be emphasized about ready made drugs in the fact that they are expensive for Turkish consumers. With the reduction of costs of production inputs by utilizing cheap raw materials among the alternatives that have the same medical effect and by making large clinical type packages instead of small packages cheaper medicine can be provided for the people in Turkey. This problem must be solved specifically because medicine has a vital role in human life.

The biggest problem that faces Turkish Pharmaceutical Industry is its dependency on external markets. The only way to overcome the problem is to produce raw materials. Every year approximately 800 kinds of raw materials are being imported and 100 million dollars

are being paid in exchange. Regardless of the fact how developed the countries are, none of them have complete complexes of chemical industry and produce all of the pharmaceutical raw materials. Developed countries produce the raw materials on large scales and export the portion which exceeds their domestic demand in order to acquire foreign exchange necessary for their imports. Turkey, too, has to, first, determine the possible substances that she can produce and, secondly, produce them on optimum scales.

Authorities, however, remark that the amount of capital needed for investments in raw material production is not large but exceeds the dimensions of an individual firm. One solution may be co-investments in pharmaceutical raw materials realized between private sector and institutions like S.S.K. (the Social Security Agency of State) which have large monetary sources or state.

Pharmaceutical active ingredients industry can be examined under three main branches:

1- Active ingredients obtained from plants
2- Chemically obtained active ingredients
3- Active ingredients obtained through fermentation

Under present circumstances the production of active ingredients obtained through purely chemical processes is quite difficult in our country. Inputs required by such a production are generally the products of chemical industries and their production on economic capacity is possible in the countries which have a well developed chemical industry. But because the amount of imported inputs needed in the production of other active ingredients namely those that are originally plants and fermented substances is much less, attempts should be made in those areas. An example of the materials obtained from plants is opium. It has been stated that the factory recently established to produce opium alkoloids is going to contribute 10 million dollars to Turkish economy every year.

On the other hand, 300 tons of penicilline is being imported and consumed yearly. The establishment of an integrated fermentation complex with a capcity of 600 tons (an establishment which produces raw materials like eritromicine, gentamicine by using the same fermentators) will annually contribute 18 million dollars (covers exports and import substitution) to

to the economy whereas the installations will cost 1,5 billion Turkish Liras. The realization of such a project means supplying almost 20 percent of total foreign exchange requirements which amount to 100 million dollars. In the same way the addition of 5 or 6 more establishments which have export motives to the present ones may adjust the foreign trade balance for pharmaceutical industry. Although the production of purely chemical raw materials is out of considerations for the time being, a sub-sector of chemical industry, fine chemicals industry which has a special place in food industry and which supplies the needs of industries like textile, dying, cosmetics, may provide, although limited, inputs for pharmaceutical industry. Evaluating the subject from this point shows that developments in chemical industry are going to affect the pharmaceutical industry.

Examining the pharmaceutical raw materials production in Turkey within the framework of relations with the EEC, makes it explicit that existing firms do not have the capacity to compete. If, however, new integrated complexes to be established in the future

are protected by the state, that is, if measures to lower the costs are taken during the transition period, the raw materials industry may just be able to stand against the EEC's competition. As it is known, the domestic raw materials are costly and more expensive than those of European countries. In this problem the high prices of industrial inputs coming from agricultural sector and the production scales play negative roles. Because pharmaceutical raw materials industry utilizes inputs from agricultural sector, the steep trend of prices for agricultural products are increasing the costs. Besides, it is evident that large scale investments will reduce unit costs. As it is known, the prices for medicine and for pharmaceutical raw materials are under state control. Tha same type of control if directed to agricultural industry products might lower raw material prices. Disregarding the EEC, the state must anyhow control the production of agricultural industry like starch or oil from sun flowers in order to help the development of pharmaceutical active ingredient industry. In addition to this, promotion policy for pharmaceutical raw materials needs to be rearranged. According to present regulations both pharmaceutical raw materials and ready made drugs are subject to the

same degree of promotion. Also, in the raw material production the processes which carry out all the reactions beginning with the initial one are promoted to the extend with the processes which materialize the final reaction. The promotion has to be directed more to the processes which start from initial stage. Tax reduction ratio for pharmaceutical raw materials should be increased at least to the level of reduction for agricultural industry products like jam or tomato paste. For many years Turkey was leading her industrialization process under import substituting and extensive industrialization policies. Now, the time has come to initiate linkages from consumer goods backwards to the production of intermediary and capital goods in pharmaceutical industry as well as in several other industries.

All the problems of Turkish Pharmaceutical Industry can be solved with the existing ready made drugs industry which is as much developed as Western country industries and with the integrated factories that will be established by state support.

R E F E R E N C E S

1. ANSA Antibiotik ve İlaç Hammaddeleri Sanayii A.Ş. Türk İlaç Endüstrisinde Aktif Madde Dönemi 1970-1980. Brochure.

2. Bilfar Holding A.Ş. Yıllık Rapor 1975.

3. Çilingiroğlu, Ayhan. İlaç ve İlaç Hammaddeleri Sanayiilerinde Teknoloji Transferi. Paris: T.İ.E.İ.S. Yayını, 1975.

4. Deva Holding A.Ş. 1971 Takvim Yılı Faaliyet Raporu.

5. Deva Holding A.Ş. 20.Yıla Girerken. Brochure.

6. Deva Holding A.Ş. Çalışma Raporu, 1978.

7. Deva Holding A.Ş. Çalışma Raporu, 1979.

8. Devlet Planlama Teşkilatı. II. Beş Yıllık Kalkınma Planı. Ankara:D.P.T.Yayını, 1967.

9. Devlet Planlama Teşkilatı. II.B.Y.K.P.İlaç Sanayii Özel İhtisas Komisyonu Raporu. Türk Eczacılar Birliği Yayını, 1966.

10. Devlet Planlama Teşkilatı. III.Beş Yıllık Kalkınma Planı. Ankara: D.P.T.Yayını, 1972.

11. Devlet Planlama Teşkilatı. IV.Beş Yıllık Kalkınma Planı. Ankara: D.P.T.Yayını, 1977.

12. Devlet Planlama Teşkilatı. IV.B.Y.K.P.İlaç ve Hammadeleri Sanayii Sektörü Özel İhtisas Komisyonu Raporu. Ankara: D.P.T.Yayını,1976.

13. Devlet Planlama Teşkilatı. IV.B.Y.K.P.Tıbbi İlaç Sanayii Özel İhtisas Komisyonu Raporu. Ankara:D.P.T.Yayını,1976.

14. Dilpa İlaç Sanayi ve Pazarlama A.Ş. Çalışma Raporu 1978.

15. Eczacıbaşı Holding A.Ş. Brochure.

16. Felix, David. "Monetarists, Structuralists, and Import-Substituting Industrialization: A Critical Appraisal" in W.Bear and I. Kerstenetzky. Inflation and Growth in Latin America. Illinois: Richard D.Irwin, 1964.

17. Hirschman, A. "The Political Economy of Import-Substituting Industrialization in Latin America." Quarterly Journal of Economics. Vol 82, Feb.1968.

18. Işık, D. and Çubukçu, S. Kavram İndeksli Sağlık Kanunları. Ankara: Güzel Istanbul Matbaası,1970.

19. İktisadi Kalkınma Vakfı. Türkiye ve AET'de İşçi Ücretleri. Istanbul:İ.K.V.Yayınları,1968.

20. İlaç İmalatçıları Birliği. Sekiz Avrupa Ülkesinin Milli Sağlık Programları Üzerinde İnceleme. Washington: 1970.

21. İltaş İlaç San.ve Ticaret A.Ş.İltaş 1970. Brochure.

22. İltaş. 1970 Takvim Yılı Faaliyet ve Murakıplar Raporu.

23. İltaş. Yıllık Rapor 1971.

24. Istanbul Ticaret Odası. Yabancı Sermayeyi Teşvik Kanunu. Istanbul:M.Ali Matbaası,1969.

25. Kaymakçalan, Şükrü. İlaç Sorunu ve İlgili Bazı Görüş ve Teklifler. Ankara:T.B.T.A.K.Matbaası, 1969.

26. Manisalı, Erol. Türkiye İlaç Sanayiinin AET Karşısındaki Durumunun İncelenmesi. Istanbul: T.İ.E.İ.S.Yayını, 1976.

27. Melique, Pierre. AET'de İlaç.Fransa: 1975

28. Torun, O.Nuri and others. Ekonomik Yönden İlaç Sanayii Üzerine Bir İnceleme. Istanbul: 1972.

29. Türk Eczacılar Birliği Merkez Heyeti. 50.Yıl Özel Yayını. Istanbul: 1973.

30. Türk Eczacılar Birliği Merkez Heyeti. Türkiye'nin İlaç Problemi. Istanbul: Şevket Ünal Matbaası, 1967.

31. Türk Eczacılar Birliği 4.Bölge Adana Eczacı Odası Başkanlığı. Türk Hekim ve Eczacısına Yerli İlaç Konusunda Sesleniş. Adana: Kemal Matbaası,1966.

32. T.B.M.M.İlaç Araştırma Komisyonu Raporu.Ankara: T.B.M.M. Yayını,1967.

33. Türkiye İlaç Endüstrisi İşverenler Sendikası. İlaç. Istanbul:T.İ.E.İ.S.Yayını,1978.

34. Türkiye İlaç Endüstrisi İşverenler Sendikası. Türkiye ve Dünyada İlaç Endüstrisi, Seminer. Istanbul.

35. Türkiye İlaç Endüstrisi İşverenler Sendikası. Türkiye İlaç Endüstrisinin Genel Sorunları Hakkında Bilgiler. Istanbul: T.İ.E.İ.S.Yayınları,1975.

36. Türkiye Tıbbi Müstahzar Sanayii ve Labaratuvarlar Cemiyeti. Türkiye'de İlaç Sorunu.Istanbul:T.T.M.S.L.C. Neşriyatı,1967.

37. Uçansu, Tuna. Türk İlaç Endüstrisi Hakkında Kısa Bilgiler. Istanbul:T.İ.E.İ.S.Yayını.

38. Uras,Güngör. Türkiye'de Yabancı Sermaye Yatırımları. Istanbul: İktisadi Yayınlar, 1979.

39. Yüksel, Ali Sait. Ortak Pazar Düzeninde Rekabet. Istanbul: İ.T.İ.A.Yayını,1973.