

Czech University of Life Sciences Prague

Faculty of Economics and Management

Economics and Management



Bachelor Thesis

Economic Development of Japan in the 1945-1980

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

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BACHELOR THESIS ASSIGNMENT

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Thesis title

Economic Development of Japan in the 1945-1980

Objectives of thesis

- To examine the pre-war era of Japan – imperialism.
- To evaluate the amount of damage caused by the Second World War and identify the features of development in 1955-1972, that influenced Japan's rapid economic growth.
- To characterize the features of the economic model in the period from the beginning of the XX century until 1945.
- To consider the third model – "knowledge-based" and describe its characteristics.

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- Basic statistical methods (The study of statistical data of the specified period.)
- Documentary Analysis (Analysis of works on the history of Japan in a given period.)
- Quantitative Research
- Qualitative Research

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Japan, Financial Stabilization, Reform, Economic Miracle, Imperialism

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Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. 978-1139055109

Imperialisms. Historical and Literary Investigations, 1500-1900. Edited by Balachandra Rajan and Elizabeth Sauer. Palgrave Macmillan, 2004. 978-1-4039-8046-5

J. A. Hobson, Imperialism: A Study, 1902, 978-1596052505.

Lebedeva I. P., Timonina I. L. Economics of Japan: training manual, 2008. 978-5-02-036360-1

Totman Conrad D. A History of Japan. Second Edition. Blackwell Publishing, 2005. 978-1405123594

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Declaration

I declare that I have worked on my bachelor thesis titled “Economic development of Japan in the 1945-1980” by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 22.03.2020

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Economic Development of Japan in the 1945-1980

Abstract

The purpose of this work was to characterize the three models of economic development in Japan and to determine the reasons for the rapid growth of the economy in the post-war period.

The theoretical part of the paper describes various models of economic development since the opening of Japan to the world. The article describes the pre-war way of economy and politics of the country-Imperialism. Then the post-war period, named worldwide as an Economic miracle. The last period of knowledge-based development of the country was also considered. In the practical part, the author performed calculations for the correlation between two variables, namely GDP and Exports. All calculations were performed using the SAS program. Elasticity of GDP and Export and the Balance of Trade were also determined.

Keywords: Japan, Financial Stabilization, Reform, Economic Miracle, Imperialism

Hospodářský rozvoj Japonska v letech 1945-1980

Abstrakt

Cílem této práce bylo charakterizovat tři modely ekonomického vývoje v Japonsku a zjistit důvody rychlého růstu ekonomiky v poválečném období.

Teoretická část představuje různé modely ekonomického rozvoje v Japonsku. Bakalařská práce popisuje předválečnou ekonomiku, politiku imperialistické země, poválečné období nazývané celosvětovým ekonomickým zázrakem a taky poslední period rozvoje vědy v Japonsku. V praktické části byli provedené výpočty pro korelaci mezi dvěma proměnnými (HDP a Exportem). Všechny výpočty byly provedeny pomocí programu SAS. V průběhu provedení prací byly stanoveny hodnoty HDP, exportu a obchodní bilance.

Klíčová slova: Japonsko, finanční stabilizace, reforma, hospodářský zázrak, imperialismus

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List of abbreviations

GDP – Gross Domestic Product

MPR - Mongolian People's Republic

GNP - Gross Net Product

UK - United Kingdom

USA – United States of America

IBM - The International Business Machines Corporation

R&D - Research and development

CNC- Computer Numerical Control

1. Introduction

On 9 August 1945, Japan signed an act of unconditional surrender. After the end of hostilities, Japan was occupied by American troops acting on behalf of all allied powers. The country's economy was in a state of complete ruin. Imports of raw materials, fuel and food have almost ceased. Most businesses were closed. Inflation was rampant in the country, and the unemployment rate reached enormous proportions. Despite all the factors that were to destroy the country, Japan found the strength to rise and become one of the most economically powerful powers to date.

That is why the object of this work was three models of economic development. By models the author means the mechanisms of the economy. The subject of the study was the high rate of economic growth or the "Japanese economic miracle".

It is also important that the formation of different models of economic development over the century is a significant factor in the formation of modern economics and politics. To study the nature of Japan's behaviour in the complex, it is necessary to touch upon another period of the Japanese economy during the time of imperialism. After all, breaking history into different periods and studying the economy in each of these periods, you can try to analyze the further line of behavior of the country and predict its aspirations. Thus, the theoretical part of the work can be divided into three periods. The first one is Model of imperialist development of Japan, where the author analyzes the importance of choosing the imperialist path. Imperialism is an important term to study the history of Japan. After some period of time after the "discovery", Japan began to turn into an imperialist power. We cannot ignore the fact that after the fall of this system, the entire economy and politics have moved to a new stage. This stage is Japan's economic recovery period 1945-1955, which describes the General state of the economy after the Second World War. This period is defined as important, as in 10 years the emergence of the second model of economic development began in Japan. And the last and the most important period is Economy of Japan 1955-1980s, which examines the Japanese economic "miracle" as a unique model, which originated in Japan. Also in this part the author gives the characteristic of the structural transformation of the economy and, as a result, the appearance of the third model of development.

2. Objectives and Methodology

2.1 Objectives

Interest in Japan around the world is huge. The impressive achievements of the land of the rising sun, especially in the economy, are well-known and attract close attention, causing mixed feelings: from surprise and admiration to envy and fear. Indeed, how did Japan, which suffered a severe defeat in the war and suffered huge material and moral damage, not only rise from the ruins and devastation but also become a first-class economic power, leading in many areas of industry and trade, science and technology, in the course of almost a generation?

The aim of this Bachelor Thesis is to study the formation of a new model – the model of the Japanese economic miracle and reveal the features of development. This is a phenomenon of incredibly high economic growth rates, which began in the mid-twentieth century and continued steadily until the oil crisis of 1973. At that time, Japan's economy grew by about 10% per year. At that time, this was the highest growth rate among all developed countries. Among the main reasons for the "economic miracle" is a small tax burden, as well as a very intensive development of new technologies.

To achieve these goals in this work the author needed to study the development of Japan in a pre-war period – imperialism; to characterize the features of the economic model in the period from the beginning of the XX century to 1945; to describe the amount of damage caused by the Second World War. Moreover, the author wanted to demonstrate the third model knowledge-base and its characteristics.

2.2 Methodology

To achieve the above objectives the author used documentary analysis to consider the history of Japan in each period. In the process of writing this thesis the works of Japanese historians and economists, who have made a huge contribution to the study of the social system and the development of imperialism and the “Japanese economic Miracle”, were used. The author used literature in English and Russian.

To show the relationship between GDP and Export of goods and services simple linear regression was calculated. The author chooses this tool to demonstrate the relationship between two variables. In this case, it was the analysis of the correlation between GDP and Export. While the analysis 35 observations, data from 1955-1989 was used. The general form of the simple linear regression is

$$Y = a + b * x \quad (1)$$

Where:

Y – dependent variable as GDP

X-independent variable as Export

a – constant

b – parameter of the regression function.

All data for linear regression analysis was taken from Statistics Bureau of Japan

(<http://www.stat.go.jp/english/data/chouki/03.html>)

In the practical part of the Bachelor's Thesis, the elasticity of GDP and Exports was calculated. And, two more linear regressions were made, with the help of which the author could analyze the correlation between:

1) GDP and unemployment

2) Imports and exports.

The paper also reviewed the Balance of Trade of Japan from 1955-1989 and analyzed the results.

3. Literature Review

3.1 The development Model of Japan as an Empire.

1945 in the history of Japan is characterized as a difficult period. For Japan, the Second World War ended in defeat, after which the country suffered greatly not only mentally, but also financially. The old political system proved ineffective and fell. Thus, since 1945, after the surrender, Japan began a period of recovery after the losses that the country suffered after the war. To trace what changes occurred in the economic state of Japan after the Second World War, as well as to determine the amount of loss, you must first determine the nature of the actions of the Japanese before 1945, to describe the policy which it had maintained before the war. In addition, to characterize the model of economic development of Japan, formed in the second half of the XX century, and to determine its uniqueness, it is necessary to pay attention to the pre-war model of the development of Japan-the model of development of the country as an Empire.

3.1.1 The concept of imperialism

Japan until 1945 - a strong imperialist country. Empire – a country formed by the accession of territories, with its legal norms, which because of accession loses their rights partially or completely and becomes a part of another state. The meaning of the words "Empire" and "imperialism" is closely related to the concepts of theology, colonialism, nationalism, Economics, Oriental studies, geopolitics. For example, publishing in 1534 "Act of Supremacy"¹, Henry VIII laid the Foundation of the British state, which gradually began to absorb the Imperial policy – the policy of seizure of territories. The future Empire gained strength thanks to the Protestant Reformation and the chain of events that led to its independence from the Holy Roman Empire. This was decisive in determining the continued existence of England.

Imperialism is formed according to the peculiarities of a country. However, people cannot control the development of imperialism. It is something that develops beyond the will of man.

¹Act by which Parliament recognized King Henry VIII of England as the Supreme head of the Church.

According to the British economist John A. Hobson², imperialism is "a policy determined by the economic interests of the ruling classes and primarily by the interests of capital seeking application."³ Based on the work of Hobson "Imperialism", V. I. Lenin, derived his interpretation of this term: "imperialism – the highest stage of capitalism". He identified five main features of imperialism:

- 1) Monopolies are created due to the high concentration of production and capital. In the economic life of man monopoly plays the main role;
- 2) Financial oligarchy is formed due to the merger of bank capital with industrial;
- 3) The export of capital, rather than the export of goods, is particularly important;
- 4) The world is beginning to share international monopolistic unions of capitalists;
- 5) The major capitalist powers ended the territorial division of the world.⁴

3.1.2 Factors affecting the development of imperialism

In general, if we consider separately the countries that have embarked on the path of imperialism, we can clearly see the obvious similarity (basically, everything developed according to the principles of Lenin) and differences. In assessing not only capitalism but also imperialism, it is important to characterize the factors directly related to the development of a phenomenon in the country. Differences between these phenomena in different countries may be due to the following unavoidable factors:

1. Historical factor.
2. Economic and geographical factor.
3. Socio-political factor.
4. National factor.
5. Foreign policy and economic factor.

Each of the above factors has influenced the development of a country. Some of the factors had a greater impact, some less. It is necessary to dwell on the last one -the foreign policy and economic factor, namely, the imperialist wars.

²British economist. From 1876 to 1880 he studied at Oxford.

³J. A. Hobson, *Imperialism: A Study*, 1902, 978-1596052505. P.5.

⁴V. I. Lenin, complete works: 55 vol. 27. August 1915-June 1916. M.: Publishing house of political literature, 1969. P. 386.

Imperialist wars played a crucial role in the development of imperialism in many countries, as these wars were fought for territorial expansion. With the capture of territories colonization was established. The winning party received new raw materials and thus accelerated the process of its economic development. The most important imperialist wars with the participation of Japan include:

1. "Opening" of Japan (1854). Japan was forcibly opened, which means that it was also imposed familiarity with Western civilization. Countries competed in the Far East for markets and bases. The ports of Japan were convenient for trade with China, they could become the base of the American whaling fleet in the North Pacific Ocean. As a result of the active policy of America in 1858, Japan signed the first trade agreement with Western power. This accelerated the process of destruction of the feudal economy. But it is worth noting that foreign trade was typically colonial in nature. At the same time, Japan signed similar trade agreements with other countries – Holland, Russia, Great Britain, France, Portugal. In other words, the development of the Japanese economy was hampered. But whatever it was, the basis for the development of the first capitalist enterprises in Japan was created.
2. Russian-Japanese war (1904-1905). Undoubtedly, this war enters the list as one of the most important imperialist wars, because the war was fought for control of Manchuria and Korea. Russia wanted to strengthen itself in East Asia. Japan was the main enemy of Russia, which prevented the establishment of power in the Far East. Japan, in turn, was dissatisfied with the fact that Russia in the rental use was transferred to the Liaodong Peninsula. Both countries could not make concessions, because it was about the capture of a huge territory.

3.1.3 Consequences of the imperialist way of development for Japan (beginning of XX century-1945).

Continuing the imperialist path of development, Japan began the invasion of China on July 1, 1937. Most of the country's budget was spent on military needs. As a result, in 1937-1941 the country was in a very difficult economic situation. To the detriment of other industries, Japan invested most of the money in the development of heavy industry, later began to

mobilize the population. There was a "movement to mobilize the national spirits" – in this way the government fought against anti-fascist organizations.

Unfortunately for Japan, in 1939 it was clear that the country overestimated its strength. China could not be captured, but instead, the Japanese government dragged itself and its people into a fierce, protracted war. In addition, crises began inside the country. Despite a series of failures, the country continued to pursue an aggressive policy. May 11, 1939, she attacked the border of the MPR (Mongolian People's Republic) near the river Khalkhin-Gol, but again the Japanese troops were defeated. Plans of Japan about the beginning of the war against the Soviet Union together with Germany were not destined to come true as on August 23, 1939 the USSR and Germany signed a non-aggression Pact.

In 1945 the government recognized that Japan was facing an acute crisis, the country was almost in complete international isolation, it was necessary to enter negotiations to end the war.⁶ August 1945 two atomic bombs were dropped on Hiroshima and Nagasaki. Till now it is unknown how many people actually died. September 2, 1945 ended the Second World War. On the same day, Japan's Surrender Pact was signed.

The government of Japan acknowledged that the previous policy was wrong after a devastating defeat. At a time when the affected power was trying to come to terms with the loss, America was considering a plan that would introduce demographic reforms in Japan, which lost everything it had achieved since 1894-1895 in the war. "Japan has lost all its colonies and spheres of influence in Asia, with all their property (industrial enterprises, mines, land, etc.). During the war, foreign supplies of raw materials and fuel resources to Japan stopped, and most cargo ships were lost. As a result, there was an acute shortage of raw materials, fuel, and food in the country."⁷ There was an acute shortage of food, the country was completely dependent on imported products. The Japanese industry was also damaged. The population had declined sharply and attempts to overcome poverty had been hampered by inflation. Table 1 shows the extent of the devastation caused by the war to national wealth. As a result, the country fell under occupation.

⁵Y. D. Kuznetsov, G. B. Novicka, I. M. Syritsyn, History of Japan: Textbook for higher educational institutions trained on a specialty "History". 1988. P.258.

⁶History of Japan. Vol. II. 1868-1998 / ed. by Zhukov. M.: Institute of Oriental studies, RAS, 1998. P. 459.

⁷History of Japan. Vol. II. 1868-1998 / ed. by Zhukov. M.: Institute of Oriental studies, RAS, 1998. P. 484

Table 1. War damage to national wealth.⁸

	Amount of damage (¥1 million at time of defeat)	National wealth before damage (¥1 million at time of defeat)	Damage rate (%)	National wealth remaining at the end of war (¥1 million at time of defeat)	National wealth in 1935 (¥1 million at time of defeat)	Rate of increase (%)
Buildings	22.220	90.435	24.5	68.215	76.275	Δ10.6
Industrial machinery and equipment	7.994	23.346	34.2	15.352	8.501	80.6
Shipping	7.359	9.125	80.6	1.796	3.111	Δ42.3
Electrical and gas equipment	1.618	14.933	10.8	13.313	8.987	48.1
Railroad and rolling stock	1.523	15.415	9.8	13.892	13.364	4.0
Telegraph, telephone and water supply	659	4.156	15.8	3.497	3.229	8.2
Producer goods	7.864	32.953	23.8	25.089	23.541	6.6
Household property goods	9.558	46.427	20.5	36.869	39.354	Δ6.6
Other	5.483	16.340	33.5	10.857	10.839	4.5
Total	64.278	253.130	25.3	188.852	186.751	1.1

3.2 The period of economic recovery in Japan (1945-1955).

3.2.1 Major reforms.

The period from September 2, 1945 to April 28, 1952 is known as the occupation of Japan by the United States of America. Then the author will consider the following questions: what

⁸ The symbol Δ means recession. Source: Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 506.

was the policy of Douglas MacArthur? And what impact did this policy have on the development of the Constitution plan? What major reforms were carried out during the occupation? Can the occupation be considered a prerequisite for the formation of a new model of economic growth in Japan?

During the conference, which was held in Casablanca in January 1943, American President Franklin Delano Roosevelt and the British Prime Minister Winston Churchill put forward a condition that the end of the war can be considered only when there would be unconditional surrender of the Axis powers. At the end of 1943, at a conference in Cairo, three countries (America, Britain and China), along with Chang Kai-shek – who was the head of the Kuomintang government – considered the military action against Japan, as well as a post-war peace settlement in the Far East. The Declaration stated that they should stop the aggression of Japan, "deprive Japan of all the Islands in the Pacific Ocean that it had seized or occupied since the beginning of the first world war in 1914" and that "all the territories that Japan had seized from the Chinese, such as Manchuria, Formosa and the Pescadores Islands (North-Eastern provinces of China, Taiwan and the Penghule Dao Islands. - Red.) they were returned to the Republic of China."⁹

The occupation administration had the following goals:

- 1) Changing the institutional structure of Japan and the economic system. The occupation administration had to check all external economic relations of the country, to abolish everything related to military production.
- 2) The destruction of the military potential of Japan in 1945, all the factories suspended their activities, which caused an increase in unemployment in the country (12.5 million lost jobs, and therefore a source of income)
- 3) The third important goal that they wanted to achieve was the payment of reparations to countries that suffered damage from Japan during the Second World War.

Fulfilling all the goals meant for Japan only one thing, that it remains among the poor countries, and this it feared and fought against it for half a century.

⁹Diplomatic dictionary: in 3 vol. 2. Ed. by A. A. Gromyko, I. N. Zemskova, V. M. Khvostov. M.: Publishing house of political literature, 1971. P.7.

Since in this paper the author investigates the economic development, an important role should be given to the largest and most significant reforms that had a very large impact on the economy after the war. Among these reforms: agricultural, antitrust¹⁰ and labour.

3.2.2 Agrarian reform (1946-1950).

This reform carried a political and economic burden.

The policy was to change the structure of the Japanese village, where large landowners had power over small tenants. In pre-war Japan, large landowners received about half of the crop of small tenants, who accounted for about a third of all farms. Among the major landowners priests, traders, officials, doctors were included. Almost half of the Land Fund of the country was concentrated in their hands¹¹

The main economic objective of the reform was to increase food productivity in the country. Since this reform took place at a time of high inflation and brought positive changes in both the economic and political state of the country, it can be considered one of the most determined global reforms.

The basis of the previous Imperial system and the support of militarism was the system of land ownership. The occupation authorities, fearing that imperialism would take a different form in Japan, reformed the land system. The newspaper “Manchester Guardian” very clearly expresses the essence of political and economic interests of the reform:

Before Agrarian reform, 45.9 percent of Japan's agricultural land was tenanted. Before the war, tenant rent amounted to 5 percent of the national income, and tenancy disputes reached a peak of six thousand in 1935. It had been the policy of the prewar Ministry of Agriculture and Forestry to promote owner-cultivator ship in order to solve the tenancy problem. In the

¹⁰Zaibatsu. These are monopolistic associations such as concerns. Controlled the main sectors of the economy: banking and industrial associations. In the Edo period formed: Mitsubishi, Mitsui, Sumitomo and Yasuda. Since the Russo-Japanese war began to carry out their activities such as zaibatsu Asano, Okura, Koga, Nakajima and Ayukawa.

¹¹The history of the Pacific war: in 5 t. T. 5, ed. by Usami, Seijiro, agouti Bakura, Toyama Shigeki. M.: Publishing house of foreign literature, 1958. P. 131.

fall of 1945, as an extension of that policy, the Agricultural Land Adjustment Law was revised, limiting landholding to five chobu¹² and requiring that rent be paid in cash.

February 1, 1946, there was a new reform, developed by the Japanese government. Since it was not radical enough, after some time the authorities prepared another program. Because of this, October 21, 1946, was declared the "Law on the special establishment of independent cultivators." According to the law, landowners who were engaged in agriculture were allocated about 3 hectares of land (12 hectares in Hokkaido). Those who were not engaged in agriculture had the right to own 1 hectare of land (4 hectares in Hokkaido). The rest of the landed estates by the government was bought and forcibly redistributed to the local land committees, who in turn sold the land to all who were interested in her treatment. "The land was resold at solid prices for two years, and for one hectare of irrigated land the landowners received 9500 yen, and the peasants paid 7500 yen. Due to inflation, the redemption and sale prices of the participants fell very quickly (7.500 yen in 1949 corresponded to 1/5 of the cost of the crop per hectare)."¹³

Meadows, wastelands, pastures, lands that were not suitable for agriculture, were not subject to redemption¹⁴. Because of inflation, there was a sharp drop in the real price of land, which meant that land reform was tantamount to confiscation.

Table 2 covers 1944, 1946, 1947 and 1950. It shows that by 1950 the number of landowners increased more than twice (from 21.6% to 61.8%) and the number of tenants – more than three times (from 19.6% to 67.1%).

¹²1 chobu \approx 0, 992 hectares. 5 chobu \approx 5 ha. Next, for convenience, will use the unit hectare.

¹³I. p. Lebedeva, I. L. Timonina, Economics of Japan: textbook. M.: Vost. Lit., 2008. P.14.

¹⁴[Aoki Shoten. The device of monopolistic capitalism of the Japanese state.]- Tokyo, 1948. - P. 90.

Table 2. Number of land owners and tenants (in thousand yards)¹⁵

Date	Land owner	Owners renting additional land	Tenants who own small plots of land	Ordinary tenants	Other
1.08.1944	1520/ 27.6%	1114/20.1%	1102/19.6%	1573/28.5%	17/0.3%
26.04.1946	1655/ 29.0 %	1127/19.8%	1061/18.6%	1637/28.7%	3/0.1%
1.08.1947	2153/36.5%	1183/20.0%	996/16.9%	1573/26.6%	1/0.0%
1.02.1950	3821/61.8%	1590/25.8%	410/67.1%	312/5.0%	41/0.7%

Based on the data, we can say that Japan managed to eliminate the food crisis. In 1952, the law on agricultural land was adopted. This law significantly reduced the freedom of transactions that were made around the land property, as now the transactions were carried out only with the permission of local authorities. "As a result, the concentration of land ownership and economies of scale were blocked. The sectoral structure of agriculture in Japan was preserved for many years to come. Nevertheless, this reform is considered one of the most successful agrarian reforms in the world¹⁶."

3.2.3 Anti-Monopoly reform (1946-1950).

Antitrust reform was reduced to the destruction of zaibatsu. The U.S. government was interested in doing so for the same reason it started agrarian reform. It was assumed that zaibatsu were the perpetrators of Japanese militarization and aggression, the instigators of the war in the Pacific. They were suspected of supplying weapons to the Japanese imperialist army. In addition, the concentration of capital was considered an anti-democratic indicator. That was why the main tasks were considered to ensure the protection of market competition, the establishment of the Institute of peasant owners and the Institute of free and responsible entrepreneurs and managers¹⁷.

¹⁵ The history of the Pacific war: in 5 t. T. 5, ed. by Usami, Seijiro, agouti Bakura, Toyama Shigeki. M.: Publishing house of foreign literature, 1958. P. 139.

¹⁶I. P. Lebedeva, I. L. Timonina, Economics of Japan: textbook. M.: Vost. Lit., 2008. P. 15.

¹⁷History of the Second world war: in 12 t. T. 12 / ed., S. A. Tyushkevich, M.: Voenizdat, 1982. P. 218.

In October 1945 the Occupation decided to dissolve the head offices (*honsha*) of the zaibatsu holding companies and in April 1946 established a committee to reorganize the holding companies. By June 1947, eighty-three companies had been designated as holding companies. Of these, twenty-eight were reorganized as family holding companies, and the rest were allowed to continue as production enterprises after their stockholdings had been transferred¹⁸.

In April 1947 the fair-trade Commission in Japan was established by the Antimonopoly Law Ordinance, based on the American antitrust law. The following December, the Japanese Parliament passed a law on the "elimination of excessive economic concentration", which provided for the dissolution of any monopoly company. As a result, 18 large companies were dissolved. Japan Steel Corporation was divided into two companies – Yamata Steel and Fuji Steel; Mitsui Mining - Mitsui Mining and Kamioka Industries; Mitsubishi Industries-Mitsubishi Mining and Taihei Mining; Mitsubishi Heavy Industries - on Eastern Japan Heavy Industries, Central Japan Heavy Industries, and Western Japan Heavy Industries; Tokyo Shibaura Electric itself eliminated 27 of 43 plants; Hitachi Manufacturing itself eliminated 19 of 35 plants. As a result of the above-mentioned and other dissolution of companies, the degree of concentration on iron and steel, shipbuilding, brewing, paper production, and other industries has been reduced.¹⁹

Some large enterprises that had dissolved or divided under the economic deconcentration reemerged after the end of the Occupation. The Mitsubishi Trading Company was revived in 1954, the Mitsui Trading Company in 1959, Mitsubishi Heavy Industries in 1964, and the New Japan Steel Corporation in 1970. The zaibatsu's head offices may have disappeared, but the enterprises were reconcentrated into "enterprise groups" (*keiretsu*), centering on banks, through mutual stockholding and financing. Critics often referred to this as the "revival of the zaibatsu."²⁰

¹⁸Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 497.

¹⁹I. A. Latyshev, the Face of the economic miracle of Japan. M.: Publishing House "Nauka", 1970. P. 23.

²⁰Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 497.

Industrial firms that were not associated with the pre-war zaibatsu, moved into the category of large enterprises, as to enter the market which was now safe. Toyota, Hitachi, and New Japan Steel were in the list of such companies. Competition quickened and Kawasaki Steel and Sumitomo Metals (steel producers), Honda (automobile industry) appeared, Sony and Matsushita strengthened. Given all these changes, it is clear that the Japanese industry was becoming a competitive market model. It is believed that all this was the result of the policy of dissolution of the zaibatsu.

At a time when the fate of the banking sector was being decided, the occupation government suffered enmity between two departments – financial and antitrust. The latter advocated the unbundling of banks and limiting the further establishment of branches. The Finance division was against the proposal. In his view, the big banks were supposed to be the Foundation for financial markets. The victory of the Finance Department saved Japan's economy in the future.

3.2.4 Labor reform.

The basis of this reform was 3 labor laws:

- 1) The " Union labour Act " announced in December 1945, was an adapted version of the American Wagner act. The project exempted trade unions from civil law and gave workers the right to assemble and negotiate.
- 2) " Law on the regulation of labour relations", was adopted in September 1946, thanks to this project, the probability of strikes fell sharply, due to the definition of the procedure for regulating disputes in the workplace.
- 3) "Labour standards Act", April 1947 was the third bill which improved working conditions. According to it, the prohibition of forced labour began, the length of the working day was equal to 8 hours, and if the employee received any industrial injury, he had to pay compensation.

Trade unions developed rapidly in the post-war period, with the support of these three laws. As a result of numerous disputes, trade unions took control of the management, in other words, the workers controlled the quality.

Thanks to the labour reform, population growth began to increase. Table 3 shows the change in population. According to statistics, in 1947 the population was estimated at 78101 people, and in 1950 – 83200. For 3 years, it increased by 5000 people. Table 4 provides data on the labour force.

Table 3. Changes in the labor force²¹.

Years	Number of employees (in thousands)	Percentage of labor force (population)	The percentage of the unemployed
1948	3.484	64.6	0.7
1950	3.616	65.5	1.2
1955	4.194	70.8	1.8
1960	4.511	69.2	1.1
1965	4.787	65.7	0.8
1970	5.153	65.4	1.2
1973	5.326	64.7	1.3

Everything that happened to Japan after the defeat brought many positive moments in the further recovery of the Japanese economy. Japan had no need to spend huge capital and all resources on defence means, as America took it under protection. Also, once under the occupation of America, the country felt the influence of American standards of living and effective management. But most important, what changes took place in the circles of

²¹ Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 503.

governance, and new leaders in all fields devoted their energies to the recovery of the economy.

During the war, the sea routes were blocked by the actions of the allied powers, because of this, it became problematic to import raw materials to Japan. But after the war, the situation did not change, as restrictions were imposed by the American occupation forces on international trade. The aggravation of the situation was also due to economic and political problems in the country. As a result, GNP per capita in 1946, fell to 55 percent compared to the level of 1934-36. It did not recover until 1953. In 1939-1940, Japan's military expenditures amounted to 7.2 billion yen, by 1944-1945 they rose to 73.1 billion yen. Even after the end of the economic recovery, Japan continued to maintain its growth rate for the next fifteen years.

3.2.5 Financial stabilization

According to the plans of the occupation authorities by 1950 it was necessary to stabilize the monetary circulation of Japan, by 1952 – to improve the standard of living and reduce unemployment. To achieve these goals, it was necessary to balance supply and demand. The emphasis was made on the development of heavy industry. The importer was America, as in Japan the shortage of raw materials, and the post-war industry left much to be desired.

The issue of stabilization of demand was taken up by both the Americans and the Japanese. The American plan was different from the Japanese.

In the context of inflation, both the Japanese and the Americans were engaged in the development of reforms that were supposed to stabilize demand. The plan of the latter was more rigid and radical. They proposed to tighten direct control over the economy. Japan was also aimed at the planned economy, restoring the economic condition by increasing the production of goods that were exported. In 1948, the Liberal party led by Yoshida Shigeru (a Pro-American protégé), which was opposed to the planned economy, won the parliamentary elections.

We can say that the revival of the economy began with the "Dodge line". Joseph Dodge the Governor of Detroit Bank, previously exercised control over monetary reforms in occupied

Germany.²² He was sent by us President Truman to Japan to draft a budget reform. His reform plan was approved and adopted by Parliament on April 20, 1949. At a conference on March 7, 1949 Dodge outlined the essence of the reform: "the Government opens the valves of inflation, and the government is obliged to close them," he said. – It is difficult for the government to cut its spending-subsidies, investments and so on. Nevertheless, this must be done without avoiding difficult decisions. Government spending should only be covered by tax levies ... the Government can only force ordinary people to save by their own example. American aid is the money of American taxpayers. They were given to Japan as a temporary replacement and addition to what Japan should produce itself. Your production is already growing and cannot be supported by subsidies. By increasing production, you increase subsidies. Now the Japanese economy is on two stilts: one – American aid, the other-budget subsidies. These stilts are too high, you can fall off them, they need to be shortened.²³"

Thus, the main points of the Dodge line were:

- 1) Balancing the consolidated national budget to reduce inflationary pressure;
- 2) Suspending the activities of the financial Bank for reconstruction;
- 3) Reducing the level of state intervention in the economy (especially subsidies, price control);
- 4) Introducing a single solid exchange rate – 360 yen to 1 dollar;
- 5) Returning to international trade not through government trade agencies, but through private channels.²⁴

Dodge used the principle of item-by-item balancing of income and expenses. It was also decided that a fixed number of employees should work in the departments of the Central Administration.

The exchange rate of 360 yen to 1 dollar was overstated, as Japan had a high level of costs. For this reason, many products were not competitive (except textiles) in the world market. In order to control the foreign economic sector, the occupation government issued the law

²²October and Japan: (Based on the materials of the Symposium). A collection of articles / edited by Latyshev I. A., Popov V. A., Topeka P. P. M.: Nauka, 1968. P. 65

²³Lebedeva I. P., Timonina I. L. Economics of Japan: a textbook. M.: East. Lit., 2008. Pp. 18.

²⁴October and Japan :(based on the Symposium). Collected papers. / Ed. Latysheva I. A., Popova V. A., Topek P. P. M.: Nauka, 1968. Pp. 70.

on control over foreign exchange and foreign trade in 1949. In 1950 - "Law on foreign investments", in 1953 – "Law on cartels". In addition, in 1949 the control apparatus was created, which included the currency control Committee and the Ministry of foreign trade and industry²⁵.

The reform of the Dodge lasted for two and a half years before the war in Korea. As a result of the reform, the principles of a balanced budget were created. With the help of a positive balance, it was possible to repay the public debt. For 15 years (1950-1965) the country maintained a stable budget with a surplus. Thanks to Dodge "shock therapy" excessive solvent demand was destroyed.²⁶

On the other hand, the number of unemployed, bankruptcy, the debt of enterprises had increased. Japan continued to fight inflation²⁷.

The Japanese government responsible for the economic policy after the reform of the Dodge suffered as they had no idea what to do. In 1950 – since the beginning of the Korean war - America began to make orders of military equipment in Japan. Japan resold its equipment and by 1951 the pre-war level of industrial production had been restored²⁸. But with the beginning of the Korean war, a new wave of inflation began, which stopped only in 1954 with the adoption of a tough monetary policy. The exchange rate established in 1949 was relatively high. The international balance of payments was out of balance and the competitiveness of Japanese industry was weakened. To cope with the new problems, the government decided to reduce the cost of the heavy and chemical industry²⁹.

Karl Schoup's tax reform played a significant role in the recovery of the Japanese economy. Some experts believe that the system of Columbia University professors was simple and perfect.

²⁵Kuznetsov Yu. D., Navlitskaya G. B., Syritysyn I. M. History of Japan: a Textbook for University students studying in the specialty "History". M.: No. SHK., 1988. Pp. 325.

²⁶Kuznetsov Yu. D., Navlitskaya G. B., Syritysyn I. M. History of Japan: a Textbook for University students studying in the specialty "History". M.: No. SHK., 1988. Pp. 330.

²⁷Kuznetsov Yu. D., Navlitskaya G. B., Syritysyn I. M. History of Japan: a Textbook for University students studying in the specialty "History". M.: No. SHK., 1988. Pp. 350

²⁸Lebedeva I. P., Timonina I. L. Economics of Japan: a textbook. M.: East. Lit., 2008. P. 21.

²⁹Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 510.

It was based on the principle of direct taxation. Firm tax rates were introduced, a number of excises were introduced. According to the reform, reserve funds were formed to absorb price fluctuations, currency risks etc. The reform characterized the understanding that it was necessary to accumulate the orderly domestic savings.³⁰

Reform conducted after the war contributed to the deliverance of inflation and the accumulation of savings. They gave impetus to the economic miracle that began in the mid-1950s. After the signing of the San Francisco Peace Treaty, the period of occupation ended. Also, the return of Japan's sovereignty was important, despite the fact that there were restrictions on the part of America because of the military agreement.

During the period of economic recovery in Japan (1945-1955), tax revenues were one of the main items of income (in 1953, for example, they reached 90% of the local budget). In addition, the main importance was attached to "special orders" during the Korean War. "Special orders" became the main source of foreign currency inflow to Japan in 1951-1952. It can be concluded that American aid played a huge role during the recovery of the Japanese economy.

3.3 Japan's economy from 1955-1980s.

In 1955, Japan entered a new phase – a period of high growth. Its success was incredible, so we can say that it was a new model of economic development of the country, which is called the Japanese economic "miracle". The growth rate was the highest in comparison with the developed capitalist countries, it was about 11% per year³¹.

During the period of high economic growth, Japan was in the process of technological innovation and was engaged in the economic pursuit of the West. This period can be divided into two stages: the first – from 1955 to 1965, when the economy experienced three booms; the second – from 1966 to 1972 when the economy improved evenly until there was an oil shock and crazy inflation began. Even after the period of high growth ended, the economy

³⁰Lebedeva I. P., Timonina I. L. Economics of Japan: a textbook. M.: East. Lit., 2008. P. 21.

³¹Eidus H. T. History of Japan from ancient times to the present day (short essay). Moscow: Nauka Publishing House. The main editorial office of Oriental literature, 1968. Pp. 188.

was on top. By 1975 GNP per capita was 62% of the US and 65.9% of West Germany, exceeding the level of the UK and Italy. The gap between Japan and the advanced countries was narrowing. Because of the economic policy of these years, Japan could become one of the world's economic superpowers³².

In 1955, after Japan recovered from the Second World War, it was still economically weak. National incomes were low, the international balance of payments was unstable. Japan set a goal to become one of the leading industrial powers. To achieve it, it was necessary to increase the balance of payments, increase the competitiveness of their products³³.

Japan did not want to change the existing exchange rate and did not want to attract foreign capital. Thus, the balance of current operations at fixed prices became an important policy. When the balance of payments deteriorated, fiscal policy tightened (1954, 1957, 1961, 1963). In 1960, the tax Commission concluded that the percentage of tax revenues to national income should not exceed 20%³⁴.

In contrast, since Japan wanted to catch up with developed countries, the economic policy had a second side. In 1952, Japan's foreign exchange reserves amounted to \$ 900 million, increasing to \$ 1.8 billion by 1960, but by 1967 they had barely increased – rising to \$2 billion. Japan's imports increased 3 times, and the money supply – 2.5 times. The government pursued a policy of increasing the money supply and strengthened the economy as much as the balance of payments allowed. The country's foreign exchange reserves were small, so Japan had to maintain a tight monetary policy to manage foreign exchange funds at the time of the transition of the balance of payments deficit³⁵.

In fiscal policy, the national budget was balanced, and every effort was made to maintain "small government" by using part of the natural increase in tax revenues resulting from economic growth to reduce taxes. At the same time, however, special tax measures, direct

³²Eidus H. T. History of Japan from ancient times to the present day (short essay). Moscow: Nauka Publishing House. The main editorial office of Oriental literature, 1968. Pp. 203.

³³Perez Louis G. The History of Japan. Westport, Conn.: Greenwood Press, 1998. P. 130.

³⁴Perez Louis G. The History of Japan. Westport, Conn.: Greenwood Press, 1998. P. 135.

³⁵Perez Louis G. The History of Japan. Westport, Conn.: Greenwood Press, 1998. P. 138.

government financing, and other sorts of government intervention were used as tools of industrial policy to promote Japan's international competitiveness. In its macroeconomic policy, the government followed the principle of balanced budgets, but at the same time in its micro- economic or sectoral policy, it followed government interventionist principles by providing special tax measures for and fiscal investment in particular industries³⁶.

At the beginning of 1955 the first boom began - "boom Jimmu", it lasted for 31 days and ended in 1957. The second in 1958, lasted for 42 months and ended in late 1961. During the first boom, real GDP per capita grew by about 8%, during the second – by more than 10%, the last – the boom of Izanagi, began in late 1965 and lasted for 56 months until the mid-1970s. The growth rate of real GNP per capita was more than 11% per year³⁷.

The sequence of booms accelerated the accumulation of capital, significantly improved the competitiveness of Japanese producers in the international market. By 1960 Japan had become the fifth largest country in terms of GNP, behind America, West Germany, Great Britain, and France. By 1968, Japan managed to surpass all the above countries except the United States. This extraordinary economic growth had far-reaching consequences, affecting not only the international status and image of the country but also the Japanese people and politics³⁸.

The rapid economic growth was an outcome of accelerated industrialization, which in turn was both a cause and an effect of the country's intensive urbanization. In the early 1960s a nationwide exodus of rural residents began. By the middle of the decade, numerous rural villages had been deserted, whereas urban areas, especially those around Tokyo, Osaka, and Nagoya, had begun to show signs of strain arising from overcrowding. By the end of the decade, the flow of migrants to the three largest cities had slowed down somewhat, but the

³⁶Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 535.

³⁷History of Japan. Vol. 1868-1998. / Edited by A. E. Zhukov. Moscow: Institute of Oriental studies RAS, 1998. C. 600.

³⁸History of Japan. Vol. 1868-1998. / Edited by A. E. Zhukov. Moscow: Institute of Oriental studies RAS, 1998. C. 601.

flow to lesser urban centers, such as Sapporo, Sendai, Hiroshima, Fukuoka, and Kita-Kyushu, had accelerated³⁹.

Overcrowding caused an acute scarcity of space and housing in the major urban areas. This situation was exacerbated by the tendency, increasingly evident since the mid-1950s, for traditional extended families to break up into smaller nuclear families. As a result, nearly 45 percent of urban employee households were renters in the first years of the 1970s.⁴⁰ Meanwhile, the price of urban land rose rapidly. In the fifteen years between 1955 and 1970, the price index for urban residential land increased about fifteen times on average, and in the six largest cities it increased more than twenty times." To make the situation worse, the differential between the growth rate of land prices and the prevailing interest rates led the majority of urban landlords to hold on to their property as long as possible, thus adding to the already great pressure on the housing markets and pushing up the land prices still further⁴⁰.

The effects of this rapid industrialization and urbanization affected not only the housing markets in the larger and older cities but also the physical environments of lesser and younger urban centers. During the decade of "income doubling," the nation was gripped by a "regional development" fever as well; municipalities throughout the country competed to lure more and bigger industries with a view to balancing their chronically deficit-ridden budgets by expanding and diversifying the local sources of tax revenue. By the spring of 1969, about 90 percent of the prefectures, 60 percent of the cities, and 35 percent of the towns and villages had issued special ordinances designed to attract industries." The percentage figures were considerably higher for municipalities in the least developed prefectures along the Japan Sea coast⁴¹.

By the middle of the decade, the issue of air, water and soil pollution had become critical. Factories, companies caused harm to the environment very quickly. Victims of pollution, as

³⁹Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 189.

⁴⁰ Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 189.

⁴¹Cambridge Encyclopedia of Japan. Edited by Richard Bowring and Peter Kornicki. Cambridge University Press, 1993. P. 300.

well as those interested in receiving compensation for the damage, raised social movements. They called for the closure of facilities that affected the environment.

Victims of organic mercury poisoning in Minamata City, Kumamoto Prefecture (Minamata disease) and their relatives were the first to organize in 1958 what became known as either a residents' movement (*jutnin undo*) or a citizens' movement (*shimin undo*). By the mid-1960s similar movements were begun by those affected by other major pollution-caused afflictions, notably asthma in Yokkaichi City, Mie Prefecture (Yokkaichi asthma), cadmium poisoning in communities along the Jintsu River in Toyama Prefecture (itai-itai disease), and mercury poisoning along the Agano River in Niigata Prefecture (Niigata Minamata disease)⁴².

The media drew attention to political, economic and social problems after the speeches. The people who had land and leased it received a huge advantage from the reforms in the period from 1950 to 1960. Basically, the life of the people in the city became much better during the economic miracle and the people were more pleased with the changes that took place. Of course, the people had not forgotten about the diseases and about the level which the war had brought, but if you look at the figures for all of Japan, we can safely say that the economy of the country moved to a new level.

In 1962 Nikkeiren called for a shift to a new system of wage determination based on skill and performance. The ideas underlying the new system were imported from the United States and popularized through what was commonly called the quality control (QC) or zero defects (ZD) movement. A common practice associated with the movement was to divide workers into numerous self-regulating work teams, each with a leader appointed from among the workers themselves. The result was the emergence of a new class of workers charged with a variety of quasi-managerial duties, invested with appropriate titles, and rewarded by wage increments for their added service. According to a study made in the late 1960s, one in every five employees of Toyota Motor Company and one in every four of IBM Japan belonged to this emerging class of Japanese-style foremen⁴³.

⁴²Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 190.

⁴³Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 202.

A 1968 *Nihon keizai shinbun* survey of 1,200 male employees between twenty-five and thirty years of age, drawn from a national sample of 150 large firms, found three-quarters of the respondents generally satisfied with the current conditions of their lives. A 1971 Ministry of Labor survey using a random sample of 26,058 workers found majorities in all age groups, except those in the below-twenty group, satisfied with their current jobs⁴⁴.

3.3.1 " Knowledge-base" model of development (mid-1970s-1980s).

During Japan's economic recovery (from the 1950s to 1973), nine national economic plans were developed in Japan. Among them were: "the Medium-term plan of economic development" (1965), "Plan of economic and social development" (1967), "a New comprehensive regional development plan" (1969), "a New comprehensive plan for economic and social development" (1970), "the reconstruction Plan of the Japanese Islands" (1972). In all plans, except the last, the emphasis was on the development of heavy industry. According to the plan "reconstruction of the Japanese Islands," it was necessary to move to the development of industries that were based on the benefits of scientific and technological progress. Such industries do less harm to the environment because they consume less raw materials⁴⁵.

"Intellectualization" of production had to occur because of the development of intellectual industries, which include: knowledge-intensive production, production of fashionable goods, information industry, the industry of complex Assembly. Under knowledge-intensive industries implies the development of computers, integrated circuits, airplanes, robots, etc. to produce fashion goods – the production of household appliances, electronic musical instruments, household appliances, etc. Under the information industry – the audiovisual training, establishment of a system of quick and quality transfer of information. Sub-sectors of complex Assembly-cleaning equipment, automatic warehouses, machines with numerical control (CNC), etc⁴⁶.

It was planned that Japan would gradually move to an " intellectual-intensive" model of development, but in 1973 the world oil crisis began. This led to an increase in the price of

⁴⁴Cambridge History of Japan: in 6 vol. Vol. 6. The Twentieth Century. Edited by Peter Duus. Cambridge University Press, 2008. P. 202.

⁴⁵Lebedeva I. P., Timonina I. L. Economics of Japan: a textbook. M.: East. Lit., 2008. Pp. 39.

⁴⁶ Lebedeva I. P. Industry and entrepreneurship in Japan. M.: East. Lit., 2007. Pp. 171.

oil. The model based on the use of raw materials and fuel to the maximum collapsed, and the growth of industrial production stopped. Because of the crisis, economic growth slowed, and this situation pushed the government to change and restructure the economy. Since the mid-1970s, all efforts have been directed to a new direction in the economy of the "intellectual type".

In accordance with all the above, two main directions of economic development have emerged in Japan. Since the government feared the bankruptcy of most enterprises, the Ministry of foreign trade and industry has committed itself to solve the problems associated with structurally sick industries. The second direction was the accelerated development of industries with a high degree of science intensity.

The instruments by which the government intended to implement industrial policy can be classified as follows.

1. Long-term perspective planning as a tool that helps industries to develop properly;
2. Provision of benefits, grants, loans to enterprises-i.e. financial assistance;
3. Limiting the activities of enterprises. The goal of that enterprise reasonably used the resources but also not harm the environment;
4. Development of knowledge-intensive industries, direct state participation in R&D;
5. An issue of laws necessary to bring the state of the industry in order;
6. Measures relating to foreign trade (e.g. meetings with partner countries);
7. Administrative regulation (price control, investment process monitoring, export, and import regulation).

As mentioned above, the Ministry of foreign trade and industry had undertaken to address the situation of structurally ill industries. In 1978, 1983 and 1987, laws were passed specifying which industries were problematic. The laws provided for special measures to improve their condition.

1978 emergency act for stabilization of structurally diseased branches was passed. "Its main goal was to take depressed industries out of the reach of market forces and help them cope

with their problems by coordinating firms' efforts to reduce production and scrape capacity.⁴⁷
" Over the five years of the law, the Ministry regulated 14 industries.

The process of dismantling the equipment, followed by remelting is very long since at the beginning the volumes of dismantling from each company are determined. A special Association of restructuring, which bought the equipment and gave a guarantee on the provision of a loan company was set up. By the mid-1980s, the capacity of the petrochemical industry was reduced by more than 30%, the aluminum industry by 60%, shipbuilding by 30%, the industry of chemical fertilizers by more than 50%, the production of synthetic fibers by 20%⁴⁸. But in the end, no company managed to solve all the problems. The reason for this was the deterioration of the conditions of reproduction after the second oil shock that occurred in the late 1970s.

By 1986, the gap between supply and demand had narrowed in many industries and products had become more competitive. The structural position of the sick industries had improved and ceased to be called depressing.

At the end of 1985 the yen rose, which had a huge impact on Japanese exports – Japanese goods were uncompetitive. In 1987 a law was passed to facilitate the restructuring of the production structure. It was designed for seven years. The objects of regulation were no longer the industries themselves, but the types of equipment and the production stage. Within the framework of the law, a special Fund for the establishment of the foundations of production was established. The Fund had an agreement with private banks and therefore guaranteed low-interest loans to companies for the development of new production, for the scraping of products⁴⁹.

The government did its best to support the development of the second main policy direction of the 1970s - knowledge-intensive production. R&D expenditures were significantly increased. The Ministry of foreign trade and industry stimulated the joint development of

⁴⁷Lebedeva I. p. Industry and entrepreneurship in Japan. M.: East. Lit., 2007. Pp. 174.

⁴⁸Spanos William V. America's Shadow: An Anatomy of Empire. Minneapolis: University of Minnesota Press, 1999. P. 195.

⁴⁹Spanos William V. America's Shadow: An Anatomy of Empire. Minneapolis: University of Minnesota Press, 1999. P. 229.

technologies not only by representatives of different private companies but also by the state and companies. The strategy of the Ministry turned out to be successful and by the end of the 1980s, science-intensive products were actively produced. "So, for 1975-1990 production of CNC machines increased more than 13 times and by the end of the period, they had accounted for about $\frac{2}{3}$ in the total output and export of Metalworking machines. The production of industrial robots at the same time increased more than 40 times and reached almost 80 thousand units, the production of integrated circuits increased almost 20 times, and the production of pharmaceuticals – almost 10 times.

The emergence of knowledge-intensive industries led to large-scale changes in agriculture. There was a technique with microprocessors. All that people did before, special machines began to do like plowing the land, harvesting. There were computers that were used to determine the optimal temperature in the greenhouse, for soil analysis.

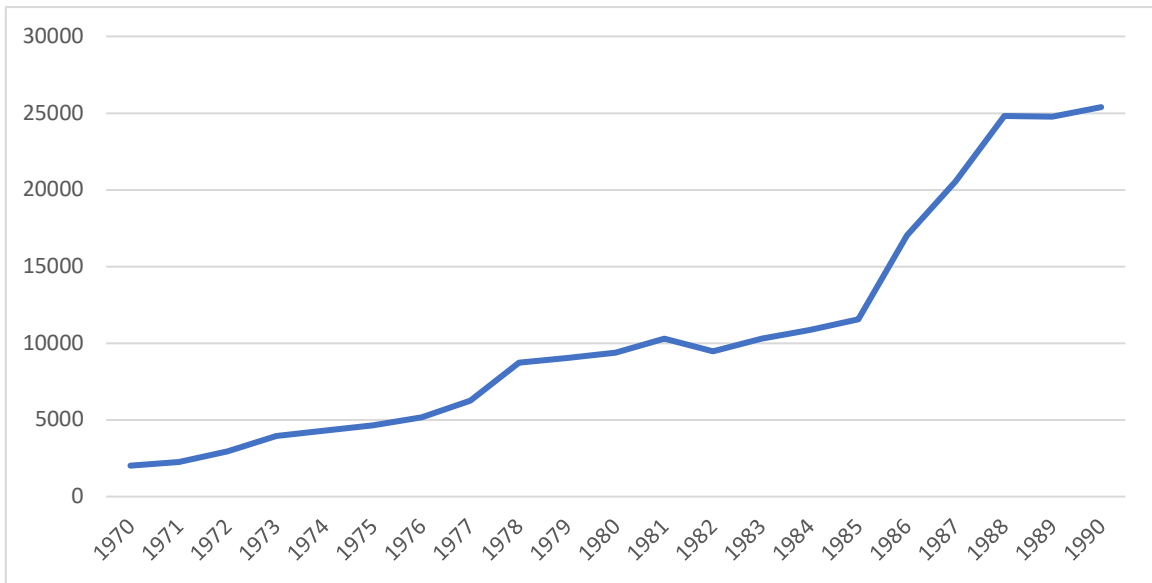
During the period of moderate growth and structural adjustment, Japan again entered a new model of economic development – "intellectualization" of production. It was the third model in a century.

In the period from the mid-1970s to the 1980s, Japan steadily strengthened its position as a scientific and technical power in the world. Due to the increase in the volume of the trade surplus, it began to export capital.

Since the 1980s Japan began to carry out the transfer of its production abroad, creating its enterprises in developed countries and producing complex goods. In Japan itself, computers, video cameras, TVs with higher definition were produced. Already in the late 1980s, the country became the first in terms of GDP per capita (about 25 thousand dollars).

Due to the lack of land for construction, the houses were built close to each other and highways. Enterprises, roads, and railway lines were concentrated around the Pacific industrial belt. The level of household appliances and electronics improved significantly and surpassed the level of developed countries. Quality, reliability, the comfort of electronics increased.

Graph 1. GDP per capita (US \$)



Source: <http://www.stat.go.jp/english/data/chouki/03.html>

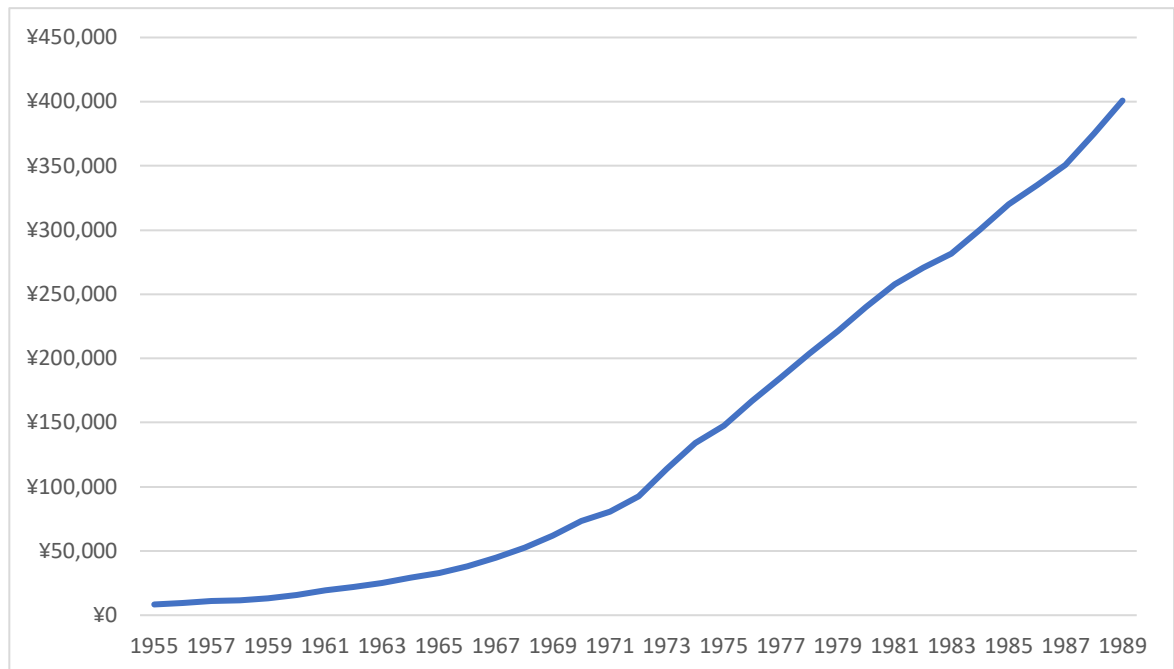
Japan, having experienced for less than 100 years three models of economic development came to the "intellectualization" of production. Raw materials were no longer such an important element. The third model had obvious advantages: the strengths of the country in the development of the economy were involved to overcome the difficulties due to lack of raw materials.

4. Practical Part

4.1 Analysis of the correlation between the gross domestic products and export.

The level of economic development is always analyzed with the help of several indicators, such as GDP, the structure of the economy, capital resource etc. Four components make up GDP, namely personal consumption, business investment, government spending, and export. Thanks to these indicators, it is possible to conclude how good a country is in producing. World War II had the most devastating impact on Japan's economy. After the end of the war in 1945, the country's Purchasing Managers' Indexes was only one-fifth of its pre-war peak, and foreign trade was virtually nonexistent. However, the economy recovered quickly, helped by a significant increase in exports. In 1968, just 20 years after the worst defeat in the war and the fall of the economy, Japan rose to the third place in terms of GDP, behind only the United States and the Soviet Union.

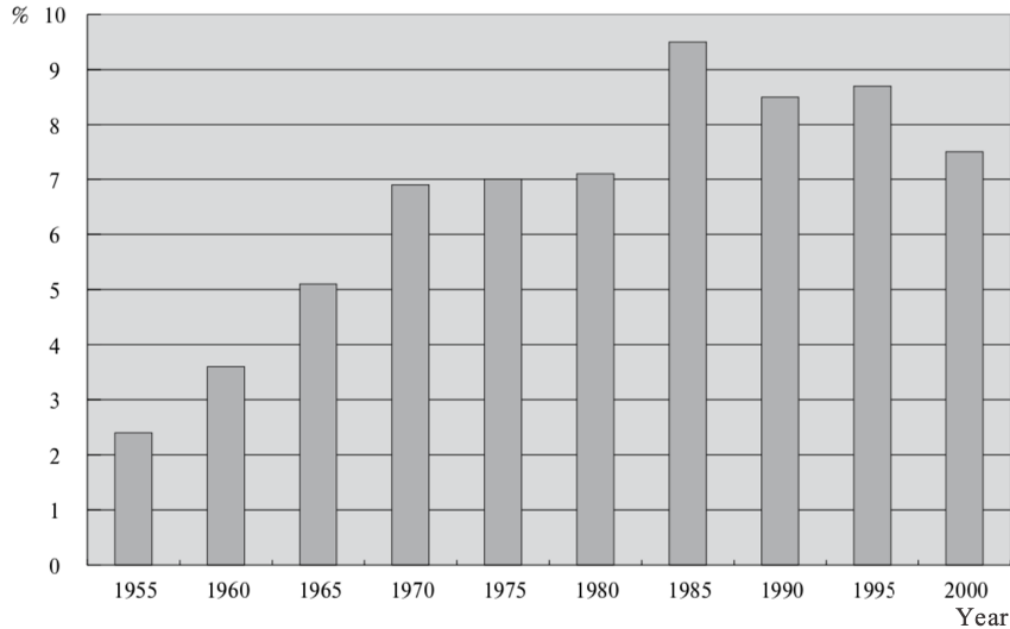
Graph 2. Growth of GDP from 1955-1989 (Value in billions of yen)



Source: <http://www.stat.go.jp/english/data/chouki/03.html>

Below is a graph that shows the development of Japan's exports over almost 50 years (1955-2000). The data is presented as a percentage and shows what is the share of Japanese exports on the world stage.

Graph 3. Japan's share of world exports from 1955-2000, values in %



Source: <http://siteresources.worldbank.org/INTRANETTRADE/Resources/WBI-Training/ch5.pdf>

Regression analysis still is one of the most common quantitative method in economic. Its advantage is directed not just at the examination of changes, but at the detecting of cause and effect. For reliable measurements of the relationship of two variables, in the author's case it is GDP and exports, assuming that it will be a linear function, it is necessary to use a simple linear regression. Author used the following relationship:

$$y = a + b * x \quad (2)$$

Where:

Y – dependent variable GDP

X – independent variable Export

a – constant

b - parameter of the regression function

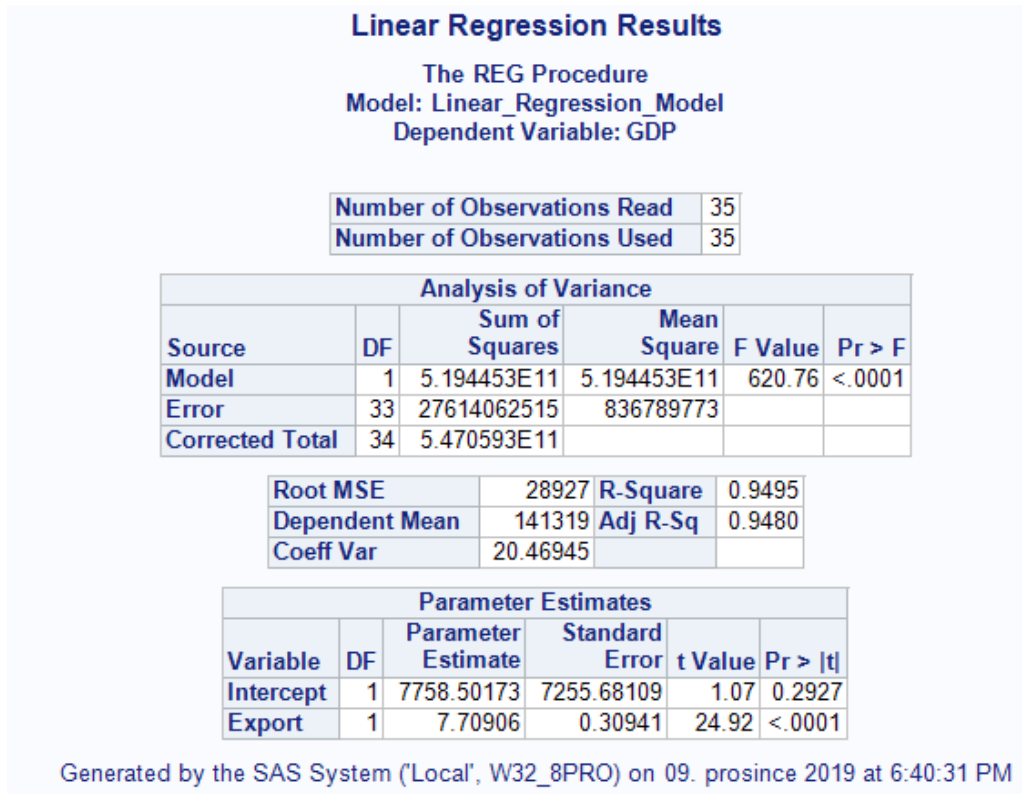
All values presented in the analysis are expressed in billions of dollars.

Data was taken from Statistics Bureau of Japan.

<http://www.stat.go.jp/english/data/chouki/03.html>

In the figure below you can see the regression model and the results

Figure 1. Results of SAS computation (GDP and Export)



The sample size of statistical sample is the number of observations that constitute it. In this case sample size equal 35.

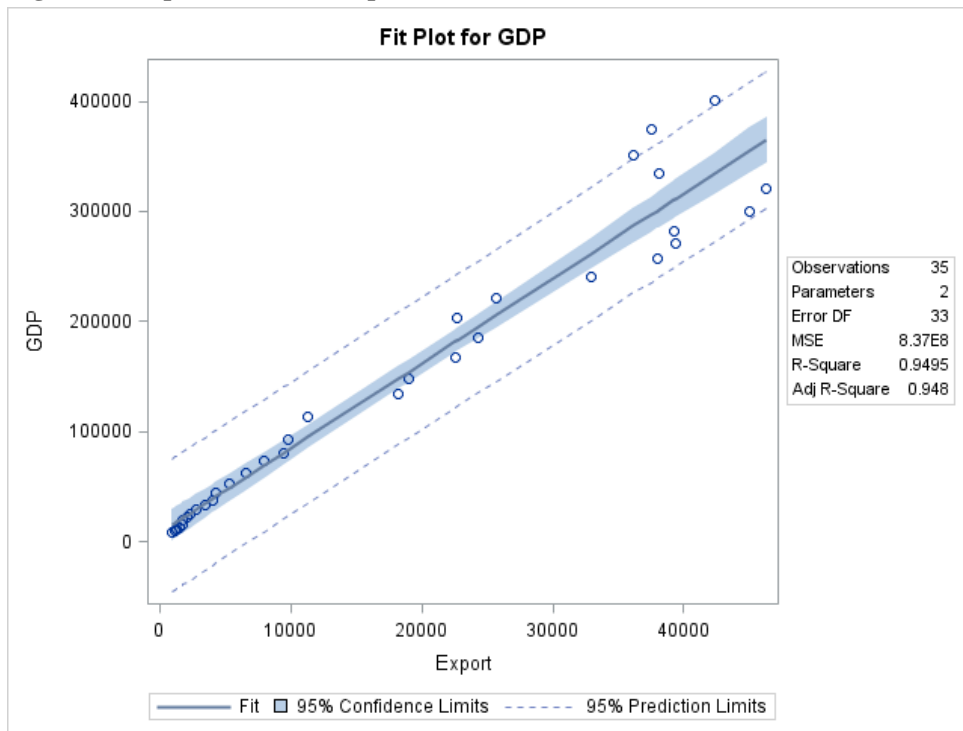
According to the data that we get after using SAS, the regression model can be written as follows:

$GDP = 7758.50173 + 7.70906 * EXPORT \quad (3)$

When constructing a linear regression, the null hypothesis is checked that coefficient of regression β is zero. So, hypothesis in this case will be: $\beta_0=0$ (There is no relationship between two variables (GDP and Export)).

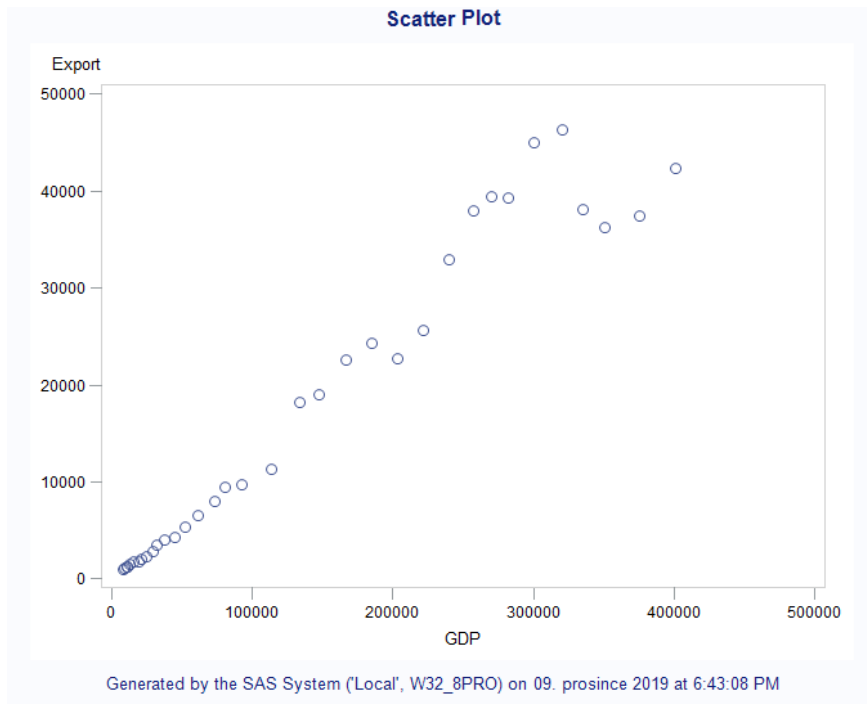
For the export factor, an increase by 1 billion dollars leads to the increase of the GDP by 7.70906 billion dollars. The determination coefficient (R-Square) shows that 94.95%, of the variation of the dependent variable, is explained by the variation of the export during the period 1955-1989, meaning that there is a strong connection between dependent and independent variable. For the statistical verification, we compare the p-value of ANOVA with the significant level of 5% ($\alpha=0.05$). According to author's own computation, test statistics: F-value =620.76; the p-value = 0.0001 is lower than $\alpha=0.05$, and it means the model is statistically significant and the model is appropriate for general estimation. The author rejected the hypothesis. According to the computation above, the GDP growth depends on export.

Figure 2. Fit plot (GDP and Export)



This fit plot represents the initial mix of GDP and Export. Almost every point is within a prediction limit. Adj R-square=0.9480, so it means that practically 95% of information can be explained by this model.

Figure 3 Scatter plot (GDP and Export)



The scatterplot slopes upward as we move from left to right. It means that two variables (Export and GDP) are positively associated. The relationship between these two variables is roughly linear and moderately strong.

4.2 Elasticity of GDP and Export

Elasticity is a measure of the sensitivity of one variable to another. It shows how many percents the first indicator will change when the second one changes by one percent.

$$E = \frac{dGDP}{dEXPORT} * \frac{Average EXPORT}{Average GDP} \tag{4}$$

Author took the period from 1955-1989 and the average export during this period is 17325.1943 billions of yen. Calculated value of GDP is 141319.464 billions of yen.

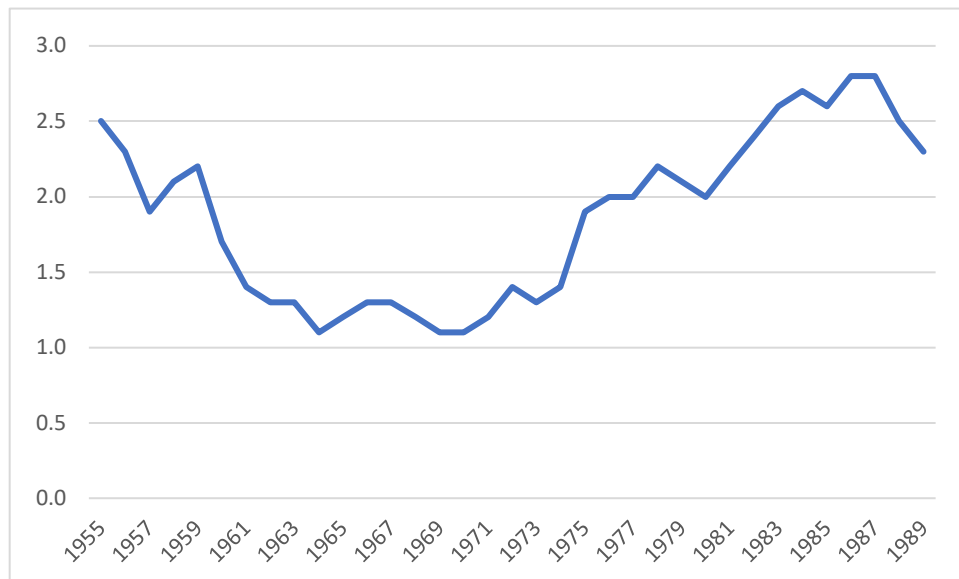
$$E = 0.94509948$$

The resulting value is less than one, so this function is inelastic. So, we can say that when you change the argument by 1%, the function value changes by less than 1%.

4.3 Analysis of the correlation between the GDP and unemployment.

There is a low unemployment rate in Japan. During the 1970s and 1980s, its level fluctuated between 2 and 2.8 %. The Graph 4 represent how unemployment rate is changing from 1955.

Graph 4 Unemployment rate from 1955-1989 (%)



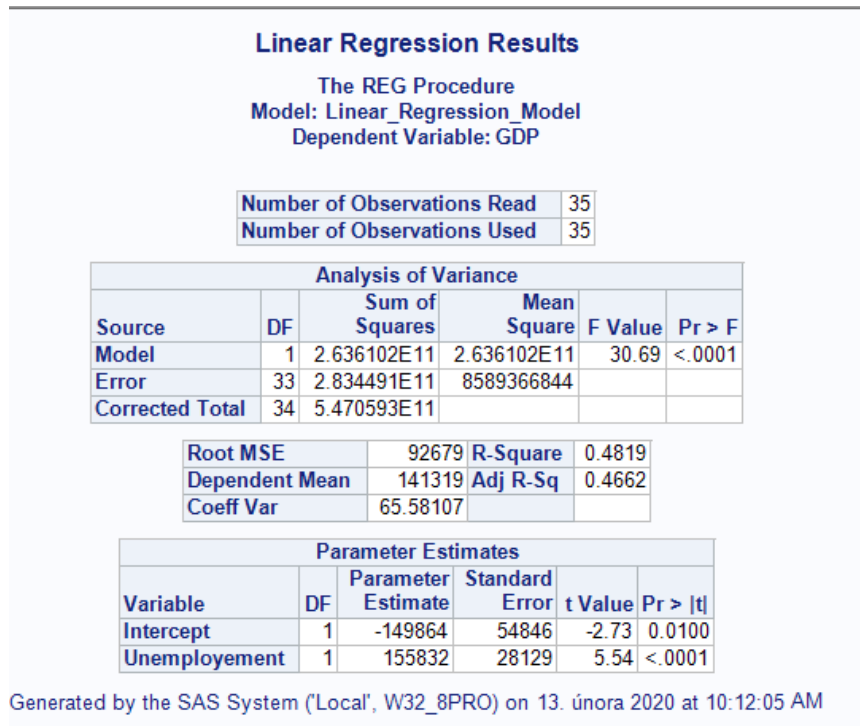
Source:

[https://www.gapminder.org/tools/#\\$state\\$time\\$value=1953;&marker\\$select@\\$country=jpn&trailStartTime=1953;.&axis_y\\$which=aged_15plus_unemployment_rate_percent&domainMin:null&domainMax:null&zoomedMin:null&zoomedMax:null&spaceRef:null;.&locale\\$id=ru-RU;&chart-type=bubbles](https://www.gapminder.org/tools/#$state$time$value=1953;&marker$select@$country=jpn&trailStartTime=1953;.&axis_y$which=aged_15plus_unemployment_rate_percent&domainMin:null&domainMax:null&zoomedMin:null&zoomedMax:null&spaceRef:null;.&locale$id=ru-RU;&chart-type=bubbles)

To observe there is any connection between Unemployment and GDP author need to make a linear regression. The sample size of statistical sample is the number of observations that constitute it. In this case sample size equal 35.

In the figure below you can see the regression model and the results:

Figure 4 Results of SAS computation.(GDP and Unemployment)



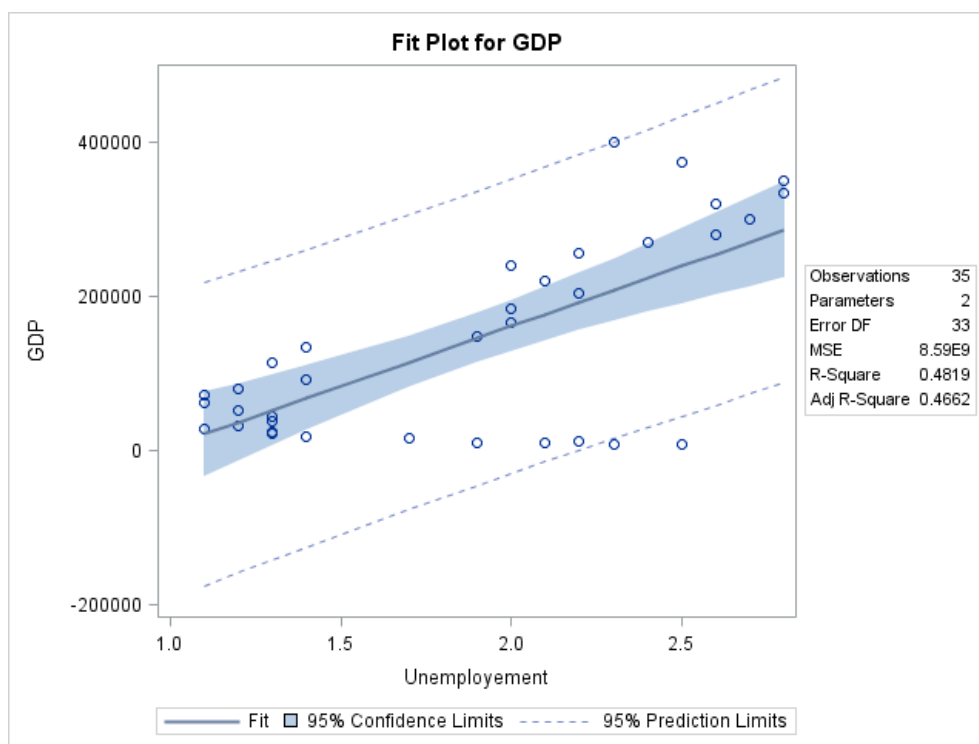
According to the data that we get after using SAS, the regression model can be written as follows:

$$GDP = -149864 + 155832 * UNEMPLOYMENT \quad (5)$$

When constructing a linear regression, the null hypothesis is checked that coefficient of regression β is zero. So, hypothesis in this case will be: $\beta_0=0$ (There is no relationship between two variables (GDP and Unemployment)).

The determination coefficient (R-Square) shows that 48.19%, of the variation of the dependent variable, is explained by the variation of the unemployment during the period 1955-1989, meaning that there is a weak connection between dependent and independent variable. For the statistical verification, we compare the p-value of ANOVA with the significant level of 5% ($\alpha=0.05$). According to author's own computation, test statistics: F-value =30.69; the p-value = 0.01 is lower than $\alpha=0.05$, and it means the model is statistically significant and the model is appropriate for general estimation. The author rejected the hypothesis. According to the computation above, the GDP growth depends on Unemployment.

Figure 5 Fit plot (GDP and Unemployment)



This fit plot represents the initial mix of GDP and Unemployment. Almost every point is within a prediction limit. Adj R-square=0.4819, so it means that practically 48% of information can be explained by this model.

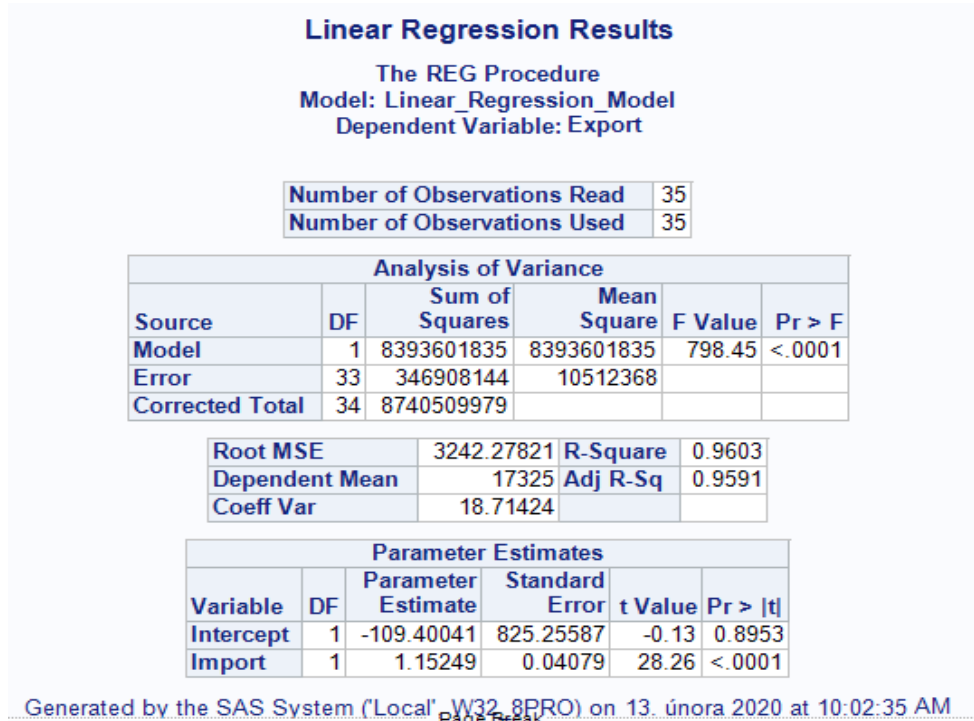
4.4 Analysis of the correlation between Import and Export.

Import and Export are significant parts of economy of every country. They can show how effective this economy works. Author decided to know if there is any relationship between these two variables. Dependent variable is Export and independent is Import.

The sample size of statistical sample is the number of observations that constitute it. In this case sample size equal 35.

In the figure below you can see the regression model and the results:

Figure 6 Results of SAS computation (Import and Export)



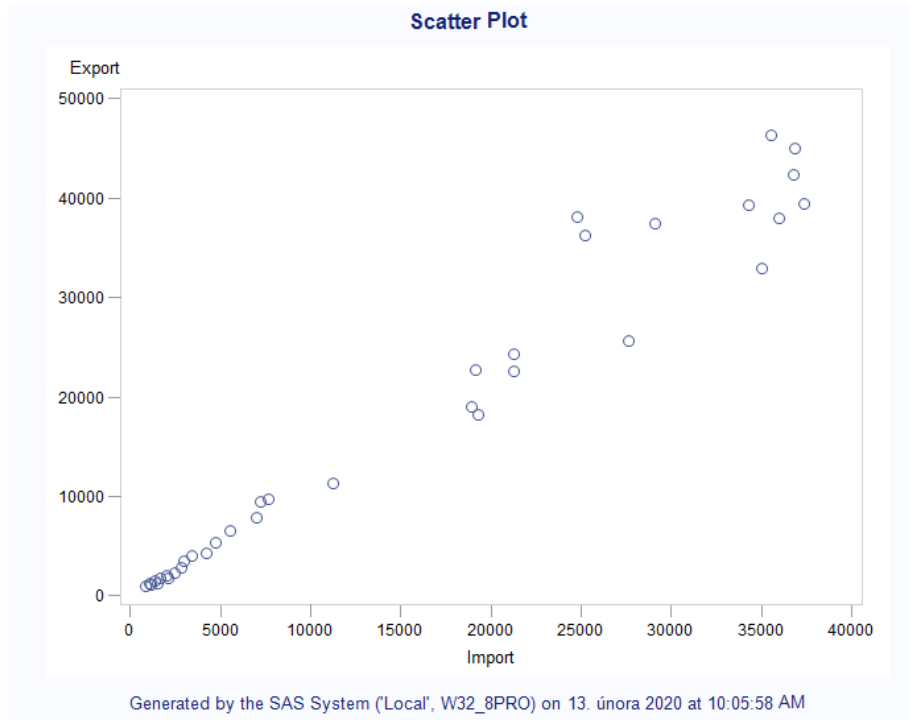
According to the data that we get after using SAS, the regression model can be written as follows:

$$EXPORT = -109.40041 + 1.15249 * IMPORT \quad (6)$$

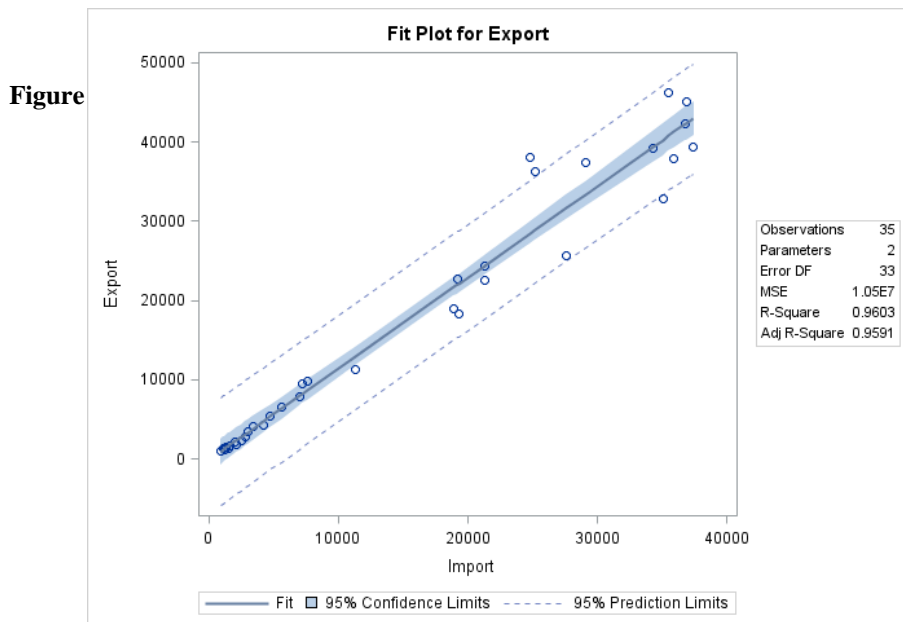
When constructing a linear regression, the null hypothesis is checked that coefficient of regression β is zero. So, hypothesis in this case will be: $\beta_0=0$ (There is no relationship between two variables (Import and Export)).

The determination coefficient (R-Square) shows that 96.03%, of the variation of the dependent variable, is explained by the variation of the Import during the period 1955-1989, meaning that there is a strong connection between dependent and independent variable. For the statistical verification, we compare the p-value of ANOVA with the significant level of 5% ($\alpha=0.05$). According to author's own computation, test statistics: F-value =798.45; the p-value = 0.0001 is lower than $\alpha=0.05$, and it means the model is statistically significant and the model is appropriate for general estimation. The author rejected the hypothesis. According to the computation above, the Export on Import.

Figure 7 Scatter plot (Import and Export)



The scatterplot slopes upward as we move from left to right. It means that two variables (Export and Import) are positively associated. The relationship between these two variables is roughly linear and moderately strong.



This fit plot represents the initial mix of Import and Export. Almost every point is within a prediction limit. Adjusted R-square=0.9591, so it means that practically 95% of information can be explained by this model.

4.5 Japan's Balance of trade in the years 1955-1989

The Balance of trade is the ratio of the cost of goods that have been exported from a country to the cost of goods that a country has purchased over a certain period. The Balance of trade has its own surplus. The trade surplus is an annual indicator of the volume of foreign trade transactions of the country. If the Balance of trade has a positive surplus, it means that in monetary terms, exports prevail over imports. This also works in the opposite direction. A positive trade balance indicates the demand for goods of this country in the international market.

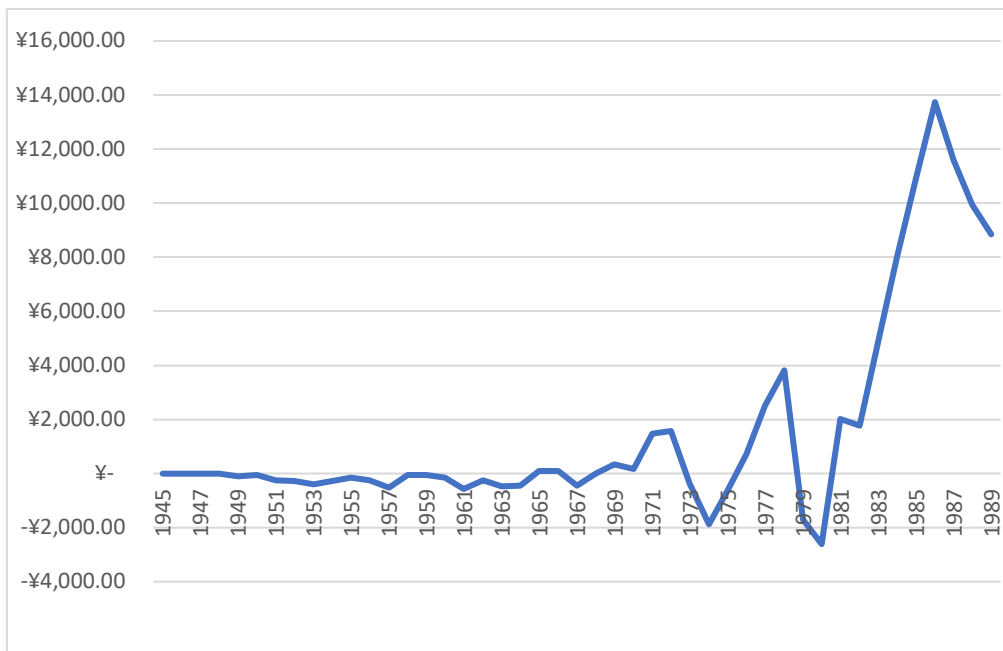
Earlier it was mentioned that in the post-war period, Japan exported almost nothing, but was forced to import huge amounts of energy and food. Japan made bets on increasing exports of industrial products, minimizing foreign aid. Initially, it was an export of fabrics and clothing, but in the following years the country began to produce video recorders and cars.

Today, Japan ranks 2nd in the world in terms of trade surplus, second only to Germany. But it wasn't always like that. After the war and until the end of 1960, there was a deficit in the country's Balance of trade.

Further, the larger the industrial sector became, the greater became the volume of imports of energy and raw materials. Besides, the welfare of Japanese workers grew, and with it began to increase the imports of consumer goods.

The graph below shows that exports of Japanese goods and services had become more prevalent than imports by the 1980s.

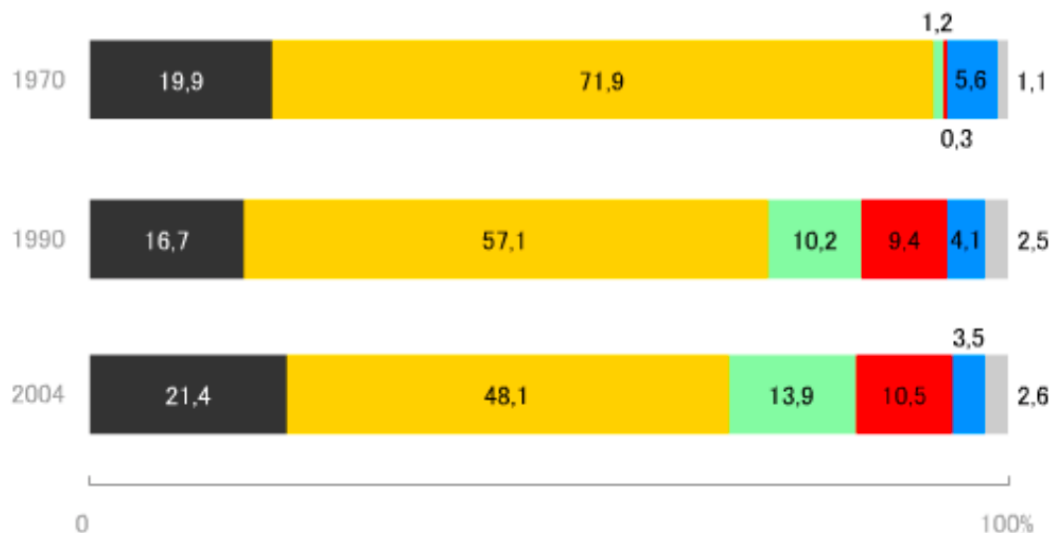
Graph 5 Balance of trade of Japan from 1945-1989



Source: Ministry of finance of Japan <http://www.mof.go.jp>

Two sharp declines were in 1974 and 1979-1980. Both of this decline happened because of Oil Crisis that started in October 1973. 16 October 1973 the price for oil rise on 70% from 3\$ to 5\$. During the next year price for oil become 12\$. 1979-1980 there is the second leap in price for oil. On the graph below present dynamics of energy consumption by types of energy resources from 1970-2004.

Figure 9 Dynamics of energy consumption by types of energy resources from 1970-2004.



(Black is Coal; Yellow is Oil; Green is Natural gas; Red is NPP; Blue is Hydroelectricity; Grey is other)

Source: https://ru.wikipedia.org/wiki/Экономика_Японии

According to the graph above, it is obvious that the main type of energy was oil in the period of crisis. The one of main importer for Japan was Iran (Figure 5). Japan was forced to buy a huge amount of oil and spend a lot of money on it. For this reason, the Graph 4 shows two sharp drops.

Figure 10 Japanese Imports of Iranian oil from 1965 - 2012



Source: <https://iranprimer.usip.org/blog/2014/jan/30/iran-and-asia-2-japan-torn-oil-hungry-anti-nuke>

Japan won even out of the crisis. This period prompted the government to:

1. Transfer of power generation and industrial production from liquid fuels to other carriers.
2. Accelerating the development of nuclear energy. Increased imports of coal and liquefied natural gas.
3. Successful implementation of the energy-saving program in the industry, in particular, to reduce the use of oil.

5. Conclusion

The main goal of this bachelor thesis was to characterize three models of the economic development of Japan. Since imperialism played a significant role in the development of Japan, the author reviewed the historical course of events before the capitulation. Thanks to this, the life of the country at different steps of its evolution was shown. The path of Japan can be called a zigzag, since the country first rose to the top, then a sharp fall and then growth again, but absolutely to another peak.

Initially, in pursuit of world powers, Japan decided to choose an imperialist model. Imperialism is an important step in the history of the evolution of different peoples. The country chose to become a strong power in a short time to fight back a serious rival in the struggle for markets and territories. As a result, imperialism increased Japan's desire to get more and more, and relations with other countries deteriorated.

Violation of treaties, economic crises, economic recovery, and again decline - all this has been experienced by Japan in search of its way of development. Despite having already captured land, Japan entered World War I to get as much land as possible. For the same reason, a war against China was started. For roughly half a century, the country desired to be a big part of this world, putting everything on the military industry. In the end, having outplayed itself, Japan destroyed itself from within.

Capitulation during World War II and American occupation led the country to the second stage, namely the Japanese economic miracle. Under the occupation of the USA, Japan accepted reforms directed at establishing a stable financial system and reducing unemployment. Japan made a huge leap in economic development during this period. Being a medium-developed country with a predominance of light industry and agriculture, it has become one of the leading industrial powers in the world. The share of agriculture in the gross domestic product decreased from 18.7% to 5.9% between 1957 and 1973, while the share of industry increased from 32.3% to 44.7%. With a persistent trade deficit in the past, Japan has become a country with a large surplus, which has allowed it to become one of the major exporters of capital. By 1973

Japan had achieved its goals and entered the ranks of the most developed countries, competing with them.

During the intellectual development, Japan strengthened its position further. The export and quality of electronics increased, and the country came out on top in terms of GDP. The most advanced technologies were actively bought up all over the world, which made it possible to save significantly on investment in R&D. Very often, innovative technologies were introduced much earlier than in the countries where they were developed.

It is also needs to notice the unique national traditions of Japan, which in turn also contributed to the formation of the country. Namely, clan-professional solidarity, which is why most firms chose cooperation instead of competition.

The imperialist model can be called an almost successful attempt at the moral and physical destruction of enemies. The model of the Japanese economic miracle is rapid growth as a result of American reforms. But the intellectual model is the beginning of a new era for Japan. The country has started to use the advantages of scientific and technological progress correctly. Thanks to this push, Japan has paved its way into the future as a powerful competitive partner in the international arena.

Already in 1993, Japan, not being the world's largest exporter, was ahead of everyone in terms of its positive foreign trade balance, which reached \$ 120.2 billion. The same figure for Germany was \$ 23.1 billion, and the US had a negative balance of \$ 115.8 billion.

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