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**THE JAPANESE ECONOMIC MIRACLE
AND THE LOST DECADE**

Main causes and consequences

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1. ABSTRACT

The objective of this article is to study and understand the main factors that contributed to the performance of the economic growth experienced by Japan from 1960 to 1980, referred to as the *Japanese Economic Miracle*, and to analyze the main causes that led the Japanese country to enter in 1990 in a stagnation period, that has continued the years after and persists in their actual economy. This period is known as the *Lost Decade*. In order to do so, a study of the Japanese economic recovery after World War II will be done, continued by a macroeconomic analysis of the variables that played a key role in the period of economic growth and also with regards to the stagnation period of the Lost Decade.

2. INTRODUCTION

During the twentieth century, the Japanese economy had to face the harsh effects of World War II in 1945, which left the Japanese economy under terrible conditions. The defeat in the war meant that the country lost important territories, part of their population, basic raw materials, and productive capacity within most industrial sectors.

To carry out the study, the main factors and events that intervened in the Japanese development towards economic growth since the end of the war will be considered. Once the war ended, Japan started to recover and continued with the industrialization process it had begun years before the start of the war, with an economy that was far behind world's leading economies like the United States. Even though it was by 1952 when Japan started to regain its prewar industrial output, it was from 1960 to 1980 when the economy experienced the most rapid growth, facing in the 70's two Oil Crisis. This period of rapid economic growth, is known as the *Japanese Economic Miracle*.

This paper will also analyze the causes that pushed Japan towards the end of its economic growth. In 1990 Japan entered in a period of economic stagnation that is referred to as the *Lost Decade*. During stagnation, the Japanese economy experienced a prolonged period of little or no growth that has persisted in their economy until today.

An important macroeconomic indicator to be considered when studying the country's economic evolution is the Gross Domestic Product Per Capita which represents a country's standards of living. As we have mentioned before, the Japanese economy started to experience very rapid growth from 1960 onwards, growth that is reflected in the country's GDP Per Capita. In the late 80's, GDP Per Capita exceeded the United States levels for several years, reaching its peak in 1995, year in which GDP Per Capita growth slows down and stagnates. The evolution of GDP Per Capita in Japan and the United States is compared in Figure 1, expressed in current USD.

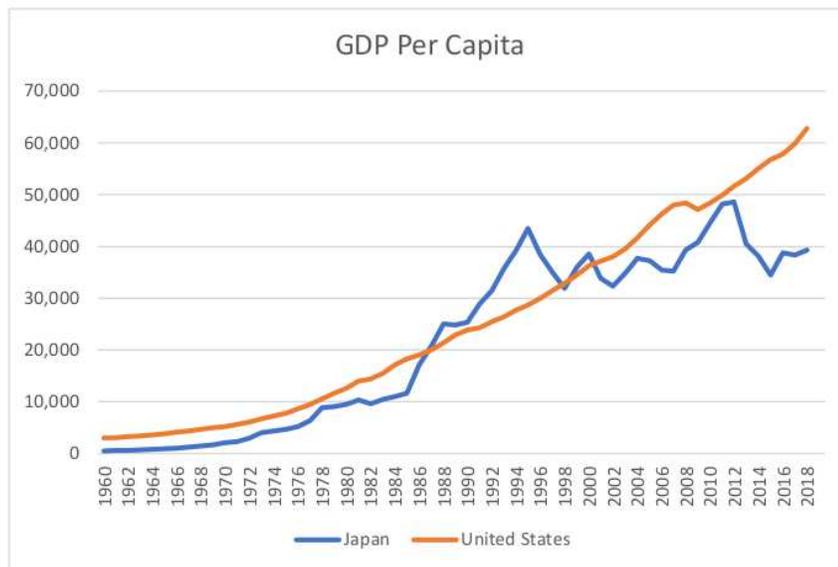


Figure 1. GDP per capita: Japan vs. United States (Current USD)

Source: World Bank

The evolution and behavior of the Japanese country during the twentieth century has, since then, been studied and used as reference for many others. When analyzing these events, the following questions arise:

How did Japan manage, not only to recover from WW II, but to achieve such rapid growth? Was economic growth derived from simple luck or was it the result of good management? Why was Japan the only country to experience such change, coming from a much worse position than other countries? Which were the causes that led Japan to the Lost Decade in 1990? Why is the Lost Decade considered a stagnation period?

The purpose of this article is to find an adequate answer and interpretation to the previous questions. Firstly, Japan's economic development after World War II will be studied, including the main factors that contributed to the development of the Economic Miracle's, such as the Industrialization process and technological improvements, the intervention of the United States, the political strategies adopted, the structural reforms, social changes and finally, the difficulties Japan had to face. Secondly, the main causes that led the Japanese country to the Lost Decade's economic stagnation in 1990 will be analyzed, based on the Japanese equity and real estate bubbles which exploded in 1989, followed by a deflationary spiral that has persisted in the Japanese economy.

This paper concludes that the economic growth after the war was fostered by high technological improvements and the intervention of the United States, that contributed to a rapid industrialization process in Japan, as well as the increase in exports and foreign trade. The implementation of appropriate political strategies as well as the social adaptability to changing environments, facilitated the country's economic growth.

It is also concluded that the decade of the 80's was key for the economic change experienced in Japan the following decades, were certain events such as the appreciation of the Yen or the large money supply, contributed to the creation of the equity and real estate bubbles of 1989. Japan's ability to adapt to rapid changes wasn't as good as in the previous decades, leading the country's economy to a stagnation period which, as of today, persists in their economy.

3. THE JAPANESE ECONOMIC MIRACLE

3.1 Industrialization and Technological Improvements

The technological improvements that the Japanese adopted and developed throughout these years contributed to the rapid economic growth and industrialization process of the country. According to Mowery and Teece (1992) “Japanese firms have progressed during the postwar period from borrowing, modifying, and successfully commercializing foreign technologies to operating at the technological frontier”. Due to the rise of Japan as a technological pioneer, foreign firms have since then tried to access the Japanese technological markets.

During the industrial sector development, the Japanese introduced a low – cost mass production system, becoming more competitive and leading their economy to compete in international markets. The technological improvements in one industry, favored the development of other related industries, particularly in the steel sector, which very much influenced automobile and shipbuilding production. Japanese companies like Toyota Motor, Matsushita Electric, Hitachi, and Nissan Motor were considered four of the largest industrial companies in the world.

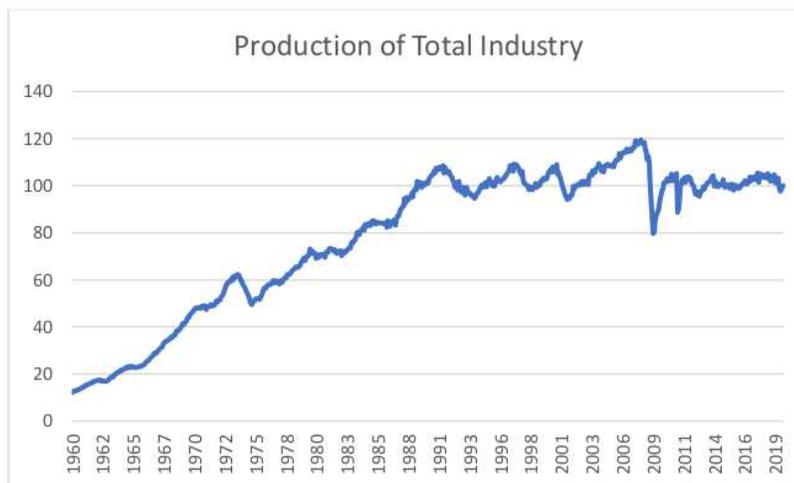


Figure 2. Production of Total Industry (Base year 2015 = 100)

Source: FRED (Federal Reserve of Economic Data)

The country's industrial production represented in Figure 2, measures the volume of production output in sectors such as mining, manufacturing, electricity, gas etc. We can observe the exponential growth the industry experienced throughout the period 1960 - 1990. It is in 1990, when industrial production reaches its peak and enters in a stagnation period.

3.2 Influence of the United States

The intervention of the United States on the Japanese recovery after World War II had great impact on the evolution of the country's economy. By implementing a series of reforms that will be analyzed later, American forces intended to guide Japan towards a more democratic political system and de-centralized economy, which certainly affected the nation's ability to grow.

The arrival of the Korean War in 1950, led the United States and Japan to sign a Security Treaty in 1951, which guaranteed United States forces would remain in Japan assisting the country's self-defense forces, whilst protecting the Japanese government from foreign trade. Also, Japanese products had become more competitive, specially manufactured goods that didn't require high imports to be produced, and the United States used the Japanese industrial exports to strengthen themselves against the Soviet Union, which according to Ellington (2004) "served as a major economic boost to the still-recovering Japanese economy".

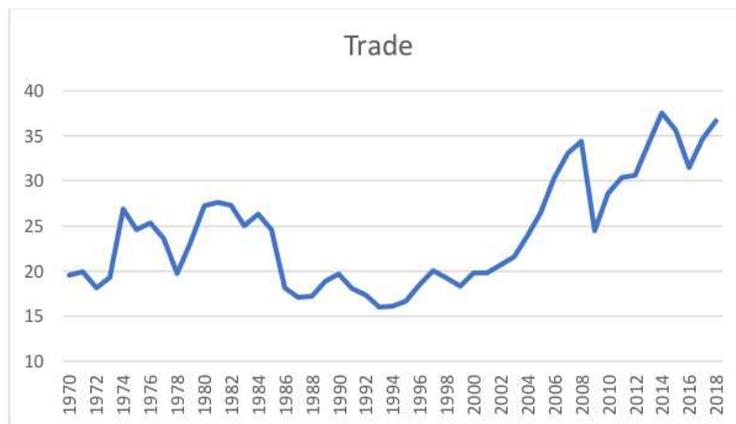


Figure 3. Trade as a percentage of GDP

Source: World Bank

Figure 3, represents Japanese trade, the sum of exports and imports, measured as a share of gross domestic product. The country's trade was affected by two oil crises, first in 1973, and years later in 1978. Even though both led Japan to obtain negative trade balance, we can observe in Figure 3 that the trade's contribution to the economy during those years was very important. It also shows that trade's contribution to GDP experienced a decrease from 1981 to 2003.

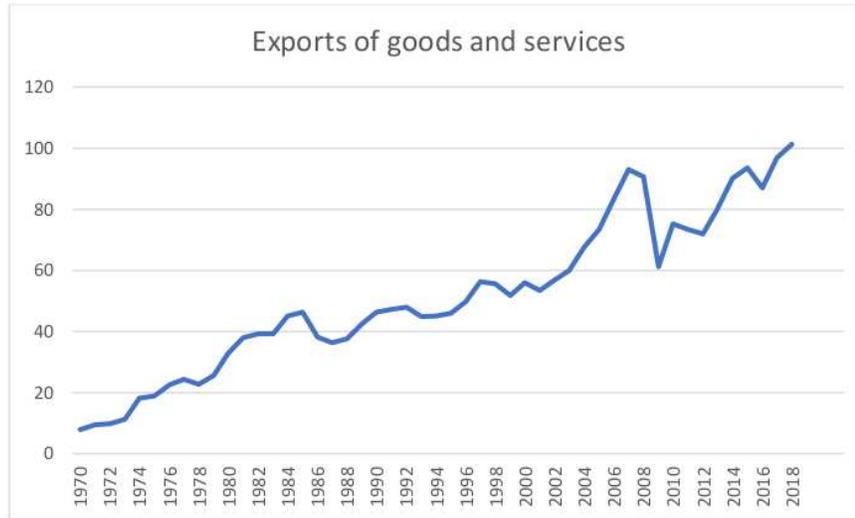


Figure 4. Exports of goods and services (Trillion JPY)

Source: World Bank

In the 1960's Japanese exports experienced a considerable growth, and as we can see in Figure 4, which represents Japanese exports of goods and services in trillion Yen, this growth continued from 1970 onwards. We can also observe how during the period between 1985 and 2001 the level of exports stalled and had a much more stable growth. By this point in time, the country had experienced a very important increase in exports and world trade participation, contributing to economic growth and helping impulse Japan's recovery.

3.3 Political Strategies

In 1948 the *Dodge Plan* was introduced to solve inflation problems and obtain stabilization through stricter governmental control over loans, subsidies and budgets. The plan also established a fixed exchange rate of $1\$ = 360Y$, which as stated by

Patrick, H. (1993) “was an essential ingredient both to achieve macroeconomic stability and to allocate resources more efficiently”. Even though the policies established in the plan certainly caused other problems, they eliminated the financial issues in Japan and set the basis for recovery without American aid (Takada, 1999).

The *Yoshida Doctrine* was adopted by the country’s first post-war prime minister, who’s aim was to concentrate economics on reconstructing domestic economy while the alliance with the United States would guarantee security.

According to Sugita (2016), three main aspects can be highlighted from the doctrine: The alliance of Japan with the United States ensuring their security, Japan’s maintenance of low capacity for self-defence, and the Japanese conservation of resources expenditure to be spent on the development of the country.

The *Income Doubling Plan* was introduced in 1960, with which the government increased its investment in firms, and those firms doubled worker’s salaries. Their objective was to afford higher living standards. As we saw in Figure 1, Japan’s GDP per capita showed first signs of growth since the implementation of the Income Doubling plan in 1960. This plan reaffirmed the government’s responsibility for social welfare, vocational training, and education, while also fostering consumers as well as producers.

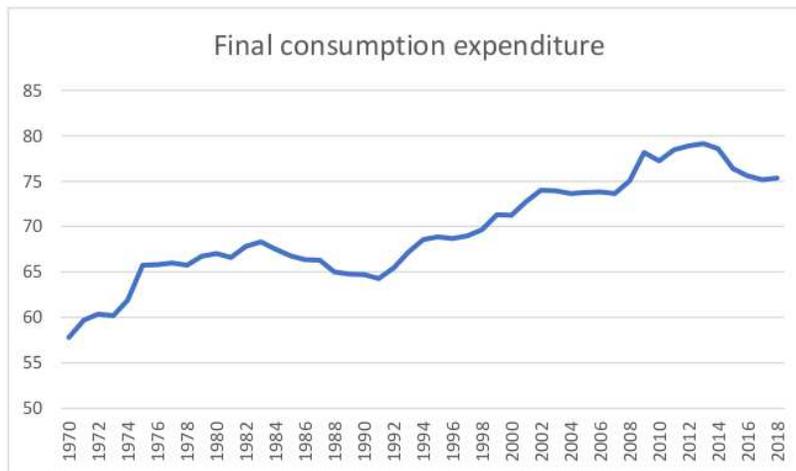


Figure 5. Final consumption expenditure as a percentage of GDP

Source: World Bank

The evolution of final consumption expenditure as a percentage of GDP is represented in Figure 5. The economic growth experienced and the strategies adopted mentioned previously, led consumption to increase until the 90's, but after the first oil crisis in 1975, the contribution of final consumption to the country's GDP stabilized until 1991.

An important government organization that took part in the industrial growth of Japan was the Ministry of International Trade and Industry (MITI), which gave support and financial help to important industries such as steel, chemicals, or machinery, and to specific companies they considered were contributing to economic growth.

3.4 Structural Reforms

An important reform held in Japan was the dissolution of the *Zaibatsu*, through the implementation of the Anti-Monopoly Law and the Decentralization Law. These were large family owned companies forming dominant business conglomerates that had lower taxes and received funds from the government. Professionally well-prepared managers substituted owner-managers, enhancing the creation of more independent companies, and contributing to the increase of competitiveness in both domestic and international markets. With the disappearance of *Zaibatsu*, as stated by Takada (1999) "competition within all industries became fierce and marked the beginning of the rapid postwar economic growth".

Regarding land cultivation, a major problem Japan was facing was the fact that landlords rented their lands to farmers who could cultivate, instead of doing it themselves. A land reform was carried out, and the government expropriated and redistributed land tenancy to farmers who could make use of their own land.

Also, a labor reform was carried out, introducing new working conditions, mainly through the Trade Union Law in 1945. This new law brought better working conditions, the creation of labor unions, and the right to strike which led to the development of stable labor – management relations, loyalty and integrity of workers within the firm, and salaries linked to seniority and characteristics of the job.

3.5 Social Change

During this period of economic growth, the Japanese society was forced to evolve quickly, especially due to the Americanization of their culture and the rapid evolution of industrialization and technology. Both, the mechanization of systems and the land expropriation reform carried out, contributed to the agricultural sector, which had been dominant until now, to disappear. This led to the migration of people to urban centers where industrialization was taking place, leading to a high decrease of population in rural areas.

Regarding demography, there was a decline in birth rate, and an increase in life expectancy, which stabilized the Japanese population that had been, and remained, one of the world's most densely populated countries. In Figure 6 we can identify a decrease in birth rate from 1973 onwards, and a constant increase in life expectancy throughout the whole period.

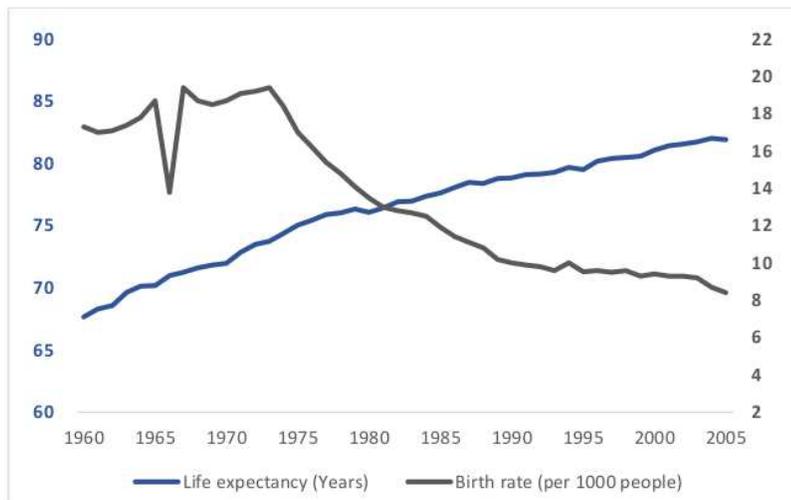


Figure 6. Demographic Data: Life expectancy and Birth Rate.

Source: World Bank

As population growth slowed down and the economy expanded, Japan faced a labor shortage that drew workers from the countryside's agricultural sectors to urban centers. The increase in productivity, capital, employment and living standards, led the country to

give importance to education. As stated by Ellington (2004) “Japan's excellent schools and a high birth rate placed employers from the 1950s until the late 1960s in the enviable situation of having a large supply of young, well-educated, rural high school or junior high school graduates who were no longer needed on farms and who desired industrial employment”. This facilitated the introduction of knowledge and technological advances, which was very important to sustain economic growth.

3.6 Difficulties faced: Oil Crisis

The first Oil Crisis began in October 1973, when the Arab Petroleum Exporting countries proclaimed an oil embargo. Japan had to deal with several economic problems, as by 1970 more than 70% of Japan’s imported oil came from Middle East.

As stated by Takada (1999) “Inflation soared in the economy and unemployment problem arose, causing Japan to go into a recession for a short period of time”. However, the Japanese government managed to keep economy under control and achieved its recovery with tight money policies.

A second oil crisis arrived in 1978, but it had lower impact on Japan’s inflation and unemployment rates compared to the first one.

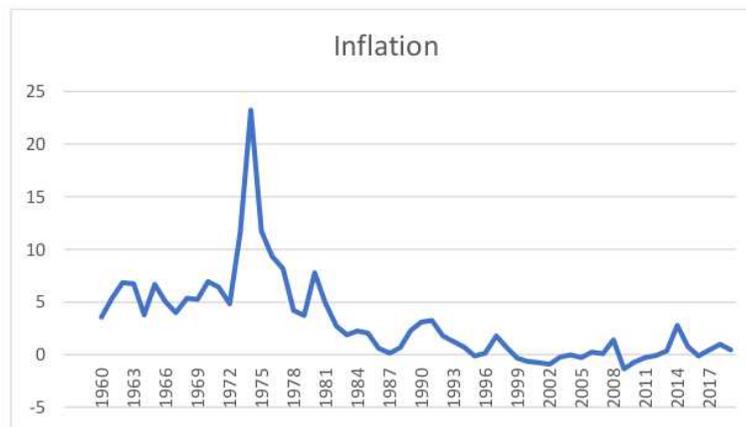


Figure 7. Inflation (annual percentage)

Source: World Bank

In Figure 7 we can observe the evolution of inflation as an annual percentage. We can observe that inflation was stable throughout the 60’s, but it experienced a dramatic increase 1972 to 1974 due to the first oil crisis of 1973. Inflation increased from 4,8% to

23,2 % in only two years, compared to the lower levels of inflation held during the second oil crisis, which only increased up to 7,7% in 1980. Since then, inflation in Japan has maintained a low stable growth up until today.

Some other problems they had to face during the crisis were: Loss of industry competitiveness, Yen appreciation brought by a flexible exchange rate system, high contamination levels due to rapid industrialization, and commercial conflicts with other countries. Japan could rapidly recover after both crisis due to: The *Law of Temporary Measures* introduced in 1978 to stabilize the most affected industries, the government's quick response, the technological development already achieved, and the high level of exports.

4. LOST DECADE

In 1990 the Japanese economy entered in a period of stagnation, period that has been referred to as the Lost Decade. Throughout the previous decades, Japan had reached high economic growth levels, and a series of events that developed in the 80's, mainly as a consequence of the economic miracle, contributed to the creation of the Japanese equity and real estate bubbles which exploded in 1989, leading the economy to a deflationary spiral.

4.1 Main causes of the Equity and Real Estate bubbles

The *Plaza Accord* is a 1985 agreement, signed to manipulate exchange rates by depreciating the USD in relation with the Japanese Yen and the German Deutsche mark. Figure 8 represents the evolution that the exchange rate of U.S Dollar / Japanese Yen experienced. We can observe the appreciation of the yen after the Plaza Accord, which according to Twomey (2019) "The Japanese Yen went from 242 USD/JPY in 1985 to 153 in 1986, a doubling in value for the yen. By 1988, the USD/JPY exchange rate was 120". Also, exchange rate stabilizes in the 90's staying more constant throughout those years.

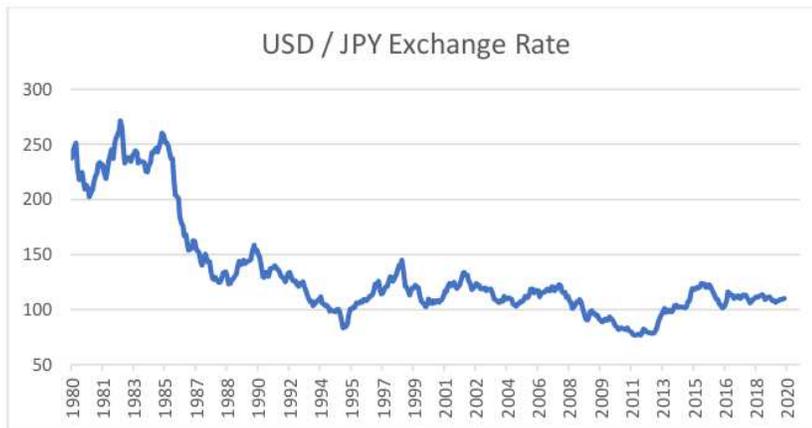


Figure 8. Exchange Rate USD / JPY

Source: Bank of Japan (BoJ)

The Bank of Japan adopted cheap money policies, with credit expansion and decreasing interest rates. Japanese companies suffered from huge losses in exports, as they shifted to manufacturing abroad and therefore affecting employment and profits. As stated by

Hargrave (2019) “The strong Yen led to greater expansionary monetary policy, which contributed to the asset bubble of the late 1980s. As a result, through the 1990s and 2000s, Japan experienced a prolonged period of low growth and deflation”.



Figure 9. Discount Rate
Source: Bank of Japan

Figure 9, shows the evolution of the discount rate in Japan throughout the period. The increasing money supply and availability of cheap loans led to high investment in real estate. Stock rises (Figure 10) and decreasing interest rates, reduced the capital costs and helped financing the capital market. This, added to the distortions brought about by the tax system and the Land Lease Law that boosted the rise in land prices, pushed up the value of assets held by corporations, which effectively increased their sources of funding by increasing the collateral value of the assets.



Figure 10. Stock Market: Nikkei 225
Source: FRED

As it can be seen in Figure 10, the Japanese stock market experienced a dramatic increase throughout the 80's, reaching its peak in 1989 year in which the bubble burst and stocks started to decrease.

Japans Ministry of Finance raised interest rates with the intention of reducing and stabilizing speculation. Unfortunately, the bubble burst and the Japanese stock market crushed. A very important portion of all those easy-money loans turned bad, creating a very important crisis in the banking sector, which needed the support of the Japanese government in order to avoid bankruptcy.

Credit now became scarce as banks balance sheets were in very poor shape, which meant that capital investment in the Japanese manufacturing sector was practically inexistent.

In order to foster the economy, the Ministry of Finance reduced interest rates to zero were they have remained for years. But this measure was not enough, as banks were unwilling to lend and Japan fell in a deflationary cycle.



Figure 11. Residential property price (Base year 2010 = 100)

Source: FRED

Figure 11, represents Residential Property Prices in Japan, including land prices in urban areas, which according to Noguchi (1994) “are significantly higher than in other countries and have continued to rise almost every year during the postwar period. The sharp rise in land prices during the latter half of the 1980s has aggravated the problem”.

Even though from 1991 onwards real estate and land prices started to decrease, the damages caused to the Japanese economy had already gone too far, and by this point in time, the Japanese economy had entered in a Liquidity trap and Credit Crunch.

4.2 Process towards the Deflationary Spiral

Regarding the Japanese economic situation during the Lost Decade, we can observe the impact that the events previously mentioned had in the evolution of four important macroeconomic variables, GDP, Productivity, Unemployment, and Consumption, leading the economy to enter in a deflationary spiral.

Due to The Economic Miracle years, Japan's GDP (Figure 12) in 1995 was incomparable to that in 1950's, but in the early 90's Japan's GDP started to grow at a much lower rate than it had done the previous decades, and it was much lower compared to other countries at that moment. As stated by Seager (2008) "Japan's lost decade pushed the country's wealth down sharply in the world league". The Lost Decade is considered a stagnation period because, even though GDP grew at a much lower pace, it maintained a stable growth and therefore it cannot be considered a period of recession or depression.

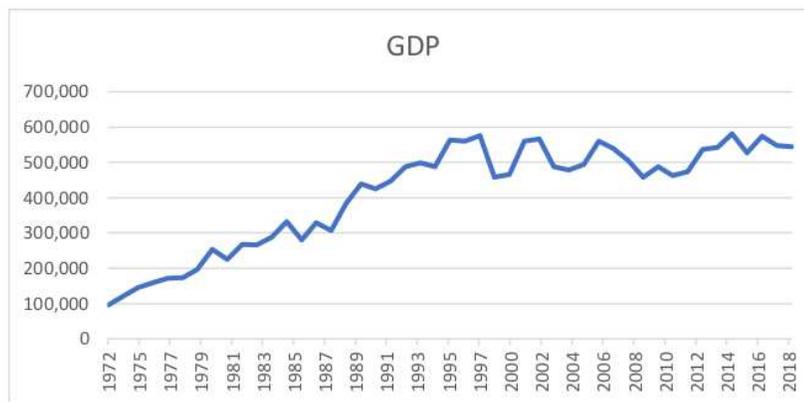


Figure 12. GDP (Billion JPY)

Source: World Bank

The increasing competition with trading partners who had improved their techniques and productivity, and the fact that technologies were shared worldwide over time, resulted in a decrease of the Japanese productivity level. Regarding GDP Per Capita (Figure 1) shows

the decrease in productivity of the Japanese economy, going from exceeding the United States levels, to staying far below due to loss of competitiveness.

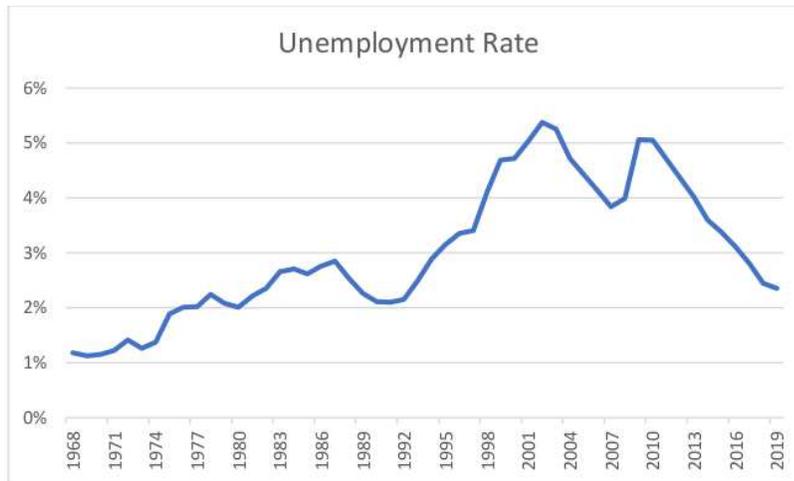


Figure 13. Unemployment Rate

Source: World Bank

Unemployment in Japan increased, especially during the period of 1990 – 2003, and wages experienced very low levels of growth. Even though there had been an increasing employment rate throughout the 80's, from 1990 onwards the unemployment rate started to increase. The evolution of the unemployment rate in Japan is represented in Figure 13. According to Seager (2008) “Unemployment stands at 4%, relatively low by international standards, but high compared with Japan's post-war decades. About a third of all jobs are now temporary or part-time, and the wages are poor”.

The lasting effects of the deflationary spiral are also very related to consumption. Consumption in Japan increased as financial asset holdings accumulated until the end of the 1980s but stopped increasing in the 1990s, due to uncertainty and lack of confidence which led households and investors to retain money, and banks had to hold onto reserves to repair their balance sheets after suffering losses.

According to a macroeconomic model carried out by Yoshiyasu Ono (2019), based on the Ramsey Equation, which holds that the desire to consume now instead of later, must equalize the benefit of holding financial assets, the Japanese economy has been suffering

from aggregate demand shortages. If consumption is not strong enough, firms don't invest, then wages don't rise, and finally, GDP remains stagnated.

Definitely, the monetary and fiscal policies held by the Bank of Japan and Ministry of Finance haven't been enough to contribute to economic recovery from the stagnation period, as Japan has demonstrated to be unable to get their economy out of the deflationary spiral that has followed the Lost Decade.

5. METHODOLOGICAL NOTES

This paper is a macro economic analysis about the Japanese Economic Miracle and it's process towards stagnation. To do so, data has been extracted from the Bank of Japan, the World Bank, the Federal Reserve of Economic Data (FRED), and the International Monetary Fund (IMF), which offer statistical data regarding economic and financial variables.

The study is based in the analysis of the following data: GDP, Industrial Production, Exports and Imports, Consumption Expenditure, Discount Rate, Unemployment, Inflation, Residential property prices, and Exchange Rates.

To analyze the Japanese deflationary spiral, the paper alludes to the Ramsey Equation, which states that in order to obtain an optimal consumption level over time, the marginal rate of substitution in consumption must be equal to the benefit of holding financial assets.

$$\text{Ramsey equation: } \rho + \pi = R + \frac{\omega'(a)}{u'(c)},$$

Where $\rho + \pi$ is the sum of the discount rate and inflation, R is the nominal interest rate, and $\omega'(a) / u'(c)$ the wealth-holding premium.

6. CONCLUSION

After analyzing the Japanese Economic Miracle from the 1960's to the 1980's, and the causes that guided it's economy to the recession period of the Lost Decade in 1990, it is possible to conclude that neither the economic growth, nor the stagnation period, were caused by one unique factor, but were the result of a sum of several ones.

Regarding the Japanese Economic Miracle, our study states that once the war had ended, there were a series of external factors that Japan could take advantage of. On top of that, Japanese people demonstrated to have special ability to manage and adapt to new technologies and changing environments, and take advantage of new opportunities.

The rapid industrialization process of Japan, fostered by their high technological improvements, and the intervention of the United States were a vital contribution to the expansion of Japanese exports and foreign trade, an important factor that led Japan to economic growth. The political strategies established and good social adaptability, led to important improvements for Japanese companies and families, improving their working conditions and living standards. In addition to the external factors mentioned, the 70's brought Japan two Oil Crises from which the country could recover quickly. These factors built a much more developed and stronger nation. East Asia was the only region of the world that experienced continual substantial economic growth and no other East Asian country enjoyed more economic success than Japan.

Regarding the Lost Decade, we can affirm that in the same way that Japan was able to adapt to a changing world, leading them to the performance of high economic growth, it did not have the ability to adjust to geopolitical and economic changes in the mid-late 80's. By this point in time, Japan started to have for the first time very strong economic competitors in Europe and Asia. The Plaza Accord in 1985, meant that the Yen was less competitive affecting Japanese exports. On the other hand, government intervention in lowering interest rates, meant that real estate and land price were rising, which favored the increase in collateralized loans, as well as the constant stock rise through out the period. This events resulted in the creation of the equity and real estate bubbles, which had been growing over this time, and finally burst in 1989, leading to stagnation. This period was referred to as the Lost Decade since GDP maintained a constant growth, but

didn't fall into recession or depression, and was therefore a "lost" period compared to the high growth and performance they had experienced the previous decades.

An important lesson to be learned from our study is that despite the intervention of the American's intentions to guide Japan through a more democratic and de-centralized economy, the Japanese system of state-assisted capitalism was present throughout the economic miracle. But that inflexible state-directed system that worked well to solve a different set of problems does not work to solve the problems they are facing today, were the measures and policies implemented don't seem to boost their economy.

In conclusion, after carrying out a macroeconomic analysis of the Japanese economy we can state that Japanese did demonstrate to have special abilities to achieve economic growth after World War II, like no other country might had been able to do. Unfortunately, this miracle brought some consequences for Japan. Even though data doesn't show stagnation until 1990's, it is considered that the miracle had reached its end years before, were the signals of what the future held for the Japanese economy had already started to appear. Signals to which in this case, the Japanese weren't able to react correctly or in time, as monetary policies held by the Bank of Japan didn't seem to work, leading them to enter in a deflationary spiral that has persisted in their economy until today.

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