Japanese economy: from the Miraculous Growth to the Lost Decades

-- What we can learn from the 70 years --

Well-being of the Japanese Today

How is life in Japan today? It is said that the Japanese economy has been in recession for a very long time. To understand why, let's start with looking at some numbers about the Japanese economy. The Gross Domestic Product (GDP) in Japan was worth 4123.26 billion US dollars in 2015. The GDP value of Japan represents 6.65 percent of the world economy. The economy of Japan is the world third-largest after the United States and China. According to the OECD better life index survey in 2008, the average household earning in Japan was $23,210, while the OECD average was $22,284. The employment rate in Japan was 70%, while the OECD average was 65%. The ratio of people with a high-school diploma in Japan was 87%, while the OECD average was 73%.

However, only 40% of Japanese said that they were satisfied with their life, while on average among the OECD countries, 59% of people said that they were satisfied. *Why?* It is also true that Japan has serious economic problems.

The most striking one is public debt. According to CIA (2011), Japan's public debt as a % of GDP was 225.8% in 2010. We still remember the Greek government-debt crisis. Even for Greece, public debt was 144% in 2010. Then naturally one may ask why Japan does not default like Greece. There are two possible reasons – First, Japan's interest rate is very low. Thus interest payments for debt are not so large. Second, most Japanese government bonds are held by Japanese institutions. According to the data from Bank of Japan, in 2010, approximately 7% is held by foreign institution. If Japan defaults, it would be catastrophic to Japanese institutions themselves, who hold a large portion of the debt. Thus there is no incentive for those Japanese institutions to be aggressive about repayments. So, Japan does not default for a time-being. However, when Japan's government tries to use fiscal stimulus to boost its economy, for example, when the government tries to hire more people, this huge debt could become a big burden or at least, is a source of default risks. Then what can Japan's government do? How could their policy options work? To understand this, we start with Japanese economic history after World War II, because it will give us more clear understanding on how the Japanese economy has come to the current situation.

After World War II and Economic Growth

When the war ended in 1945, the allied powers primarily led by the United States occupied Japan and took strong control over its government. Japan's sovereignty was fully recovered only in 1952. The most amazing aspect of the postwar Japanese economic growth is its rapid rate. Often this economic growth is called the Japanese economic miracle. The following table (Table 1) shows Japan's annual GDP growth from the World Bank, and also includes the same information for Australia, China and USA. Table 1 also compares the growth rates for 1960 to 1970 and the ones for the more recent years.

Table 1: Annual GDP Growth Data across Countries

	'61	'63	'65	'67	'69	'71	…	'05	'07	'09	'11	'13	'15
Japan	12.0	8.5	5.8	11.1	12.5	4.7	…	1.3	2.2	-5.5	-0.5	1.4	0.5
Australia	2.5	6.2	6.0	6.3	7.0	4.0	…	3.2	3.8	1.8	2.4	2.4	2.2
China	-27.3	10.3	17.0	-5.8	16.9	7.1	…	11.4	14.2	9.4	9.5	7.8	6.9
USA	2.3	4.4	6.4	2.5	3.1	3.3	…	3.3	1.8	-2.8	1.6	1.7	2.6

Unit: %
Source: World Bank
Link: http://data.worldbank.org/indicator/
Viewed on 11 January 2017

As we can see from Table 1, very clearly Japan's economic growth before the oil crises (1971) was phenomenal, while the Japanese economy is struggling in more recent years. It sometimes records negative numbers. To understand driving forces behind the economic growth, let's look at Japan's industrial policy and international trade.

During the high growth period of the late 1950's and the early 1970's, Japan's industrial policy is featured by promoting high value-added industries. Ito (1996) explains that during the 1950's and 1960's, specific industries, which were identified to have great growth potentials, were targeted and received favourable deals in foreign exchanges and subsidized loans. Those include the iron or steel industries. The administration led by Prime Minister Hayato Ikeda, who was in the office from 1960 to 1964, presented the plan of doubling national income. This plan aimed to increase productivity in the high-value added industries, shift labour forces to the heavy and chemical industries such as automobile manufacturing and ship-building, and improve export competitiveness in these industries by promoting trade liberalization. Value-added is the difference between the final price of an output and input costs for intermediate goods. Japan's government tried to divert resources toward high value-added industries and encourage exports and investment in targeted industries by using various tax deferrals and exemptions.

In the 1950's, Japanese companies and technicians quickly absorbed technological advances and business models in the western world through imports. Growth led by exports is a strategy aiming at finding a niche in international trade such that a country can attain advantage in competition. Japan's government implemented industrial policies so that Japan could obtain comparative advantage in production of the high-value added industries.

Then what is comparative advantage? To understand it, suppose that there are two products, apples and oranges, and there are two countries, country A and B. Suppose that in country A, 5 minutes of labour are necessary to produce one apple while 6 minutes of labour are necessary to produce one orange. On the other hand, suppose that in country B, 9 minutes of labour are necessary to produce one apple while 8 minutes of labour are necessary to produce one orange. Then by the amount of labour to produce one apple, in country A, 5/6 of an orange can be produced as it requires 6 minutes, and for 5 minutes, we obtain 5/6 of an orange, while in country B, 9/8 of an orange can be produced. In this situation, we say that country A has comparative advantage in producing apples, because when we have to allocate a limited amount of labour between apples and oranges production, in country A, compared to country

B, we have to give up a smaller portion of orange for producing apples. In a sense, in country A, we can produce apples more efficiently than country B.

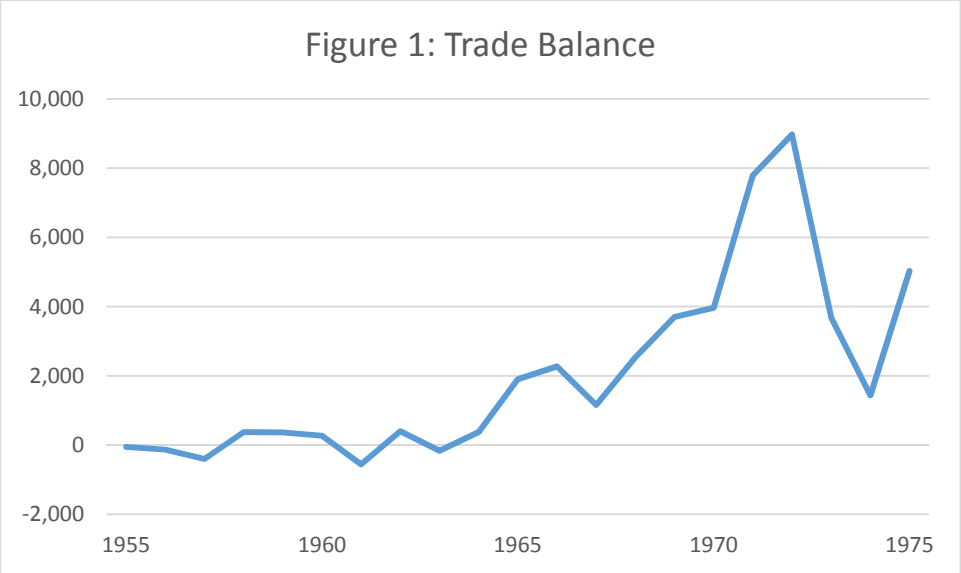
In the theory of international trade, each country exports the good, of which it has comparative advantage in producing. As the Japanese government planned, by restrengthening labour discipline, making production processes more efficient, and promoting investments in targeted industries, Japan's comparative advantage was shifted toward the heavy and chemical industries from textiles or other light industries in the 1960's. Promoting investment in capital and technological advances, which indeed was the key principle in Ikeda's plan of doubling national income, was one of the most important factors in economic growth. Technological advances would decrease production costs. Investment in R&D can make production processes more efficient. To shift capitals from the soft industry to the heavy industry, investment in capital was essential. Japan's saving rates were quite high as shown in Table 2 to make enough investment possible.

Table 2: Gross Domestic Savings

	'61	'65	'71	'75	'81	'85	'91
Japan	*36.3	*32.3	38.2	32.6	31.7	31.5	33.8
Australia	30.5	31.6	31.9	26.4	26.9	26.0	24.1
China	22.7	27.1	34.0	34.8	33.7	36.1	39.7
USA	23.3	24.6	21.9	21.2	23.9	21.5	19.6

Unit: %
Source: World Bank and Statistics Bureau, Japan
Link: http://data.worldbank.org/indicator/ and http://www.stat.go.jp/library/
Note: Gross domestic savings are calculated as GDP less total consumption. The entries marked by * were not available in the World Bank and the author computed based on the data from Statistics Bureau, Japan.
Viewed on 12 January 2017

Since 1960, when trade was liberated, Japan's major exports have been manufactured goods such as automobiles, and electronic goods. Figure 1 shows Japanese trade balance between 1955 and 1975. Until 1964, it had fluctuated between trade deficit and surplus. After 1965, it consistently shows trade surplus. This reflects the increased competitive power of Japanese industries in the international world. By 1968, the Japanese gross national product was ranked number 2 after the US in the western world.



Unit: Millions of US Dollars
Source: Statistics Bureau, Japan
Link: http://www.stat.go.jp/english/data/chouki/18.htm
Viewed on 28 January 2017

The strategy of growth led by exports is also taken by other countries. South Korea, Hong Kong, Singapore and Taiwan went through rapid industrialization and achieved high growth rates, similarly to the case of Japan. These countries' economic successes during the post-war period serve as a model for other developing countries.

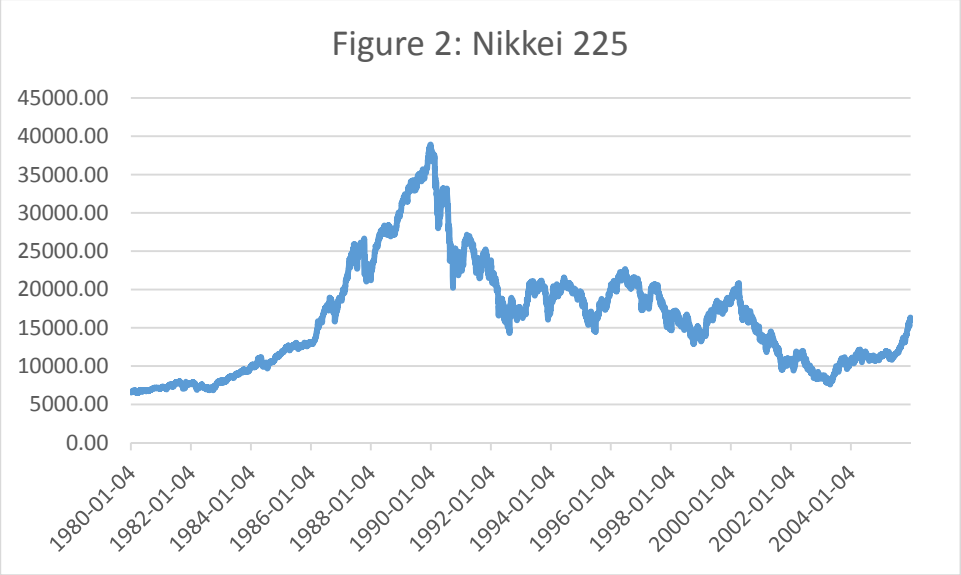
Bubble Economy and the Lost Decades

In the mid 1980's, the Japanese economy reached a different state than before, which is known as the Japanese bubble economy. The economics bubble was characterized by rapid acceleration of asset prices and overheated speculation.

Think about the following situation. Suppose that there was a piece of land in front of your house, which your neighbour bought last month. Now you found that somebody else bought the land from the neighbour at a much higher price than the level that the neighbour bought last month. If there is another piece of land available next to the land, wouldn't you buy this land? In the days of bubble economy, the whole Japan was like this. Almost everything was a target of speculation.

Figure 2 shows the historical data of Nikkei 225 from January 1980 to December 2004. Nikkei 225 measures the stock prices of a section of Tokyo Stock Exchange. Suppose that we have a basket of stocks listed in Tokyo Stock Exchange. Nikkei 225 basically measures the price of this basket.

In this figure, it is very clear that Nikkei 225 increases rapidly from 1980 to 1990. It increased by almost 8 times. However, the bubble economy ended suddenly. As described in Chapter 13 in Flath (2000), trying to deflate speculation and keep inflation under control, the Bank of Japan sharply raised inter-bank lending rates in late 1989. After this sharp policy change, the Japanese stock market crashed and the bubble burst. The decade after 1991 is known as the lost decades in Japan. Japan now faces the very long recession after the gradual effect of the asset bubble collapse.

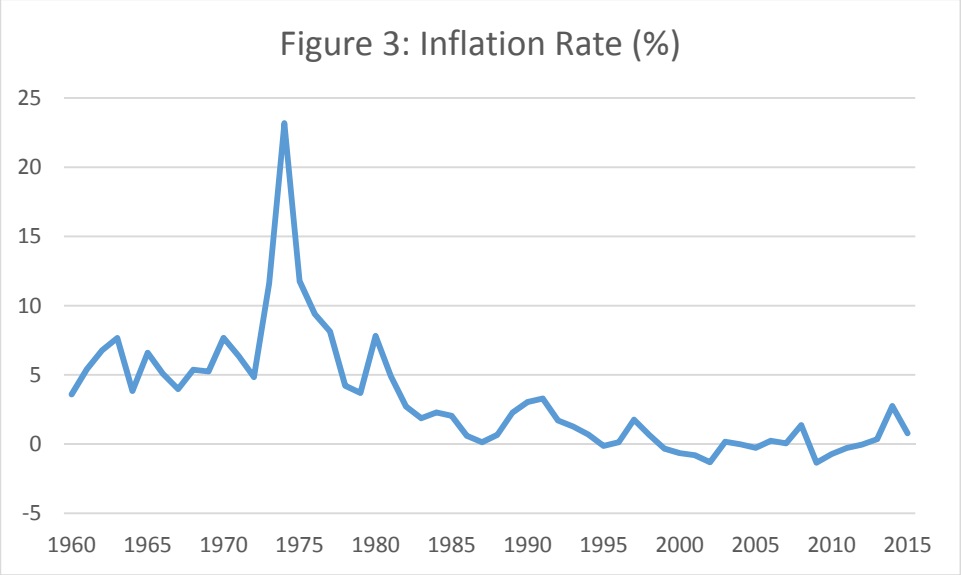


Unit: Index
Source: Federal Reserve Bank of St Louis
Link: https://fred.stlouisfed.org/series/NIKKEI225/downloaddata
Viewed on 11 January 2017

Deflation

In the time of recession, economic activity shrinks. As we saw in Table 1, after 2000, Japanese GDP growth had been sometimes negative. Another negative aspect of Japanese economy in the last decades is deflation. Figure 3 shows how the price level that a typical consumer faces in Japan has changed over time. In some years after 2000, the inflation rates are sometimes negative. This is called deflation.

Consider the following situation. Suppose that you know that tomorrow's price of one apple is $1 cheaper than today's price. Do you still buy the apple today? Or wait till tomorrow? When you expect that the price level gradually goes down, you would keep money and tend not to use it on consumption. When consumption decreases, we would expect that production decreases because producers expect lower sales of their products and in the end, economic growth would be slower or even stop. Another problem that the Japanese economy faces is deflation.



Unit: %
Source: World Bank
Link: http://data.worldbank.org/indicator/
Viewed on 11 January 2017

Macroeconomics Basics and Liquidity Trap

To incorporate the concept of inflation or deflation in our discussion, we have to consider the time frame. Economics distinguishes between the long-term and the short-term. In this article, we only consider the short-term, as we study a direct effect of economic policy to the economy and in economics, basically the long-run is a time frame such that everything takes care of everything else.

In addition to the time frame, two important concepts in economics are demand and supply. When demand equals supply, we call this intersection equilibrium. In equilibrium, we can see how much goods the market demands and what is a market price to clear the demand. This is true in both microeconomics and macroeconomics. In macroeconomics, which is more relevant in our discussion of the Japanese economy, we use the concepts of aggregate demand and aggregate supply (for a detailed discussion, see Bernanke et al (2008)).

In national accounts, the following relationship holds:

$$Output = Consumption + Investment + Government\ Expenditure + Export - Import.$$

Aggregate demand (AD) is the total demand for final goods and services as given in the above equation in an economy at a given time. The AD curve is plotted with real output on the horizontal axis and the price level on the vertical axis. It is downward sloping for several reasons. Perhaps, most intuitively, a higher price level implies lower real wealth and therefore lower consumption spending, which yields a lower quantity of goods demanded in total.

On the other hand, aggregate supply (AS) is the total supply of goods and services that firms in a national economy plan on selling at a given price. The short term AS curve is upward sloping,

because a higher price level implies a lower real wage level and thus an incentive to produce more output. Then the intersection between the AS and AD curves gives us the actual price level and real GDP of the economy. The relationship between aggregate demand and aggregate supply is presented in Figure 4.

-- Insert Figure 4 and Figure 5 (found in the end of this document) --

Then what moves these curves? Generally speaking, aggregate demands depends on the nation's money stock, which is the total amount monetary assets available in the economy at a given price. So governments' policy to expand the monetary stock can move the AD curve. For instance, in Japan, expansionary monetary policy means that the Bank of Japan increases its ongoing purchases of securities from private banks (so that the money supply, which is the total amount of money in circulation in one nation, increases) or increases its lending to commercial banks.

Expansionary policy moves the AD curve to the right (AD1 to AD2 in Figure 4). Talking about the above equation, policy that increases any term can move the AD curve to the right. For example, the central bank lends more money to commercial banks, and then commercial banks in turn can lend more money to investors. This would increase investments. Thus this moves the AD curve to the right.

On the other hand, government's supply side policies target aggregate supply. These policies aim at increasing productive efficiency and hence national output. For example, providing better information about employments or better training and education for unemployed people. This will help reduce unemployment and increase outputs. Thus these policies move the AS curve to the right ((AS1 to AS2 in Figure 4).

Overall, through the mechanism described so far, we expect that expansionary policies improve total outputs. However, is this that simple? Then why has Japanese economy in the recession so long? The current situation in which the Japanese economy is placed can be described in Figure 5. This is the situation called a liquidity trap. More formally, a liquidity trap is a situation in which expansion of the money stock simply enlarges the money holdings of the nation's citizens, and does not therefore stimulate its aggregate demand. In this situation, supply side policies just simply decrease the price level as in Figure 5 and total outputs would not be improved.

What's happening now?

For almost a decade, the Japanese economy has suffered from the deflation while been stuck in a liquidity trap. Japan's current Prime Minister Shinzo Abe, who was elected in December 2012, wants to take radical steps to retrieve the national economy. The Japanese experience such as the long deflation or stagnation after the burst of bubble economy could happen to any other countries. We have seen housing prices surging in many places of the world. Let's talk about a set of policies that Abe proposed in the hope of stimulating macroeconomic growth. They are called "Abenomics."

Abenomics consists of expansionary monetary and fiscal policies, and aims at achieving growth through stimulating private investments. After Abe was elected, the Bank of Japan has taken the bold monetary policy measures. The main policy measure of the Bank of Japan is market operations. Market operations refer to the purchasing and selling of government securities in the market aiming at expanding or contracting the amount of money in the banking system. Through the market operations, the Bank of Japan increased the money supply in combat with deflation.

But how would this work? The quantity theory of money tries to establish this connection with the equation $MV = PY$ where M is the money supply, V specifies how many times money changes owners, P denotes the price level and Y denotes national income. When Y and V do not change, more money in the market increases the price level.

Believing that Japanese economy is gradually recovering, the Bank of Japan has been implementing intensive monetary easing and bought bonds in a large amount. This inject money into Japanese financial sector in the expectation that the injected money would flow into the rest of the economy, which will stimulate production and consumption. The increased consumption and production will start to raise price levels and we can expect that an inflation starts to happen.

Since the beginning of 2016, the Bank of Japan has been charging a fee to the commercial banks on a portion of reserves that they keep with the central bank. In this way, they try to encourage commercial banks to allocate money to other purposes than keeping with them such as investment in business.

Another aim for Abe is depreciation of Japanese yen. When Japanese yen depreciates, foreign people can purchase Japanese products at a lower price. So demand for Japanese products increases, which will shift the AD curve to the right. Remember, we have the Export minus Import term in the total output equation. Anything that improves a term in the equation will bring the AD curve to the right.

Itoh (2000) describes that the industrial structure has changed in Japan. Table 3 shows international comparison of work force distribution across the manufacturing and service sectors. We can see that the service sector is gradually expanding in every country in the table. However, we can see that in Japan, the manufacturing sector is still taking more than 20%. As mentioned earlier, Japan has a chronical trade surplus and Japanese yen soared over time. Japanese labour has become more expensive and many firms moved their factories abroad. Hollowing out of employment opportunities in the manufacturing sector became a very serious issue in Japan. The value of Japanese yen is an important determinant of firms' investment decision.

Table 3: Comparison of Work Force Distribution across Sectors

Manufacturing Sector (%)

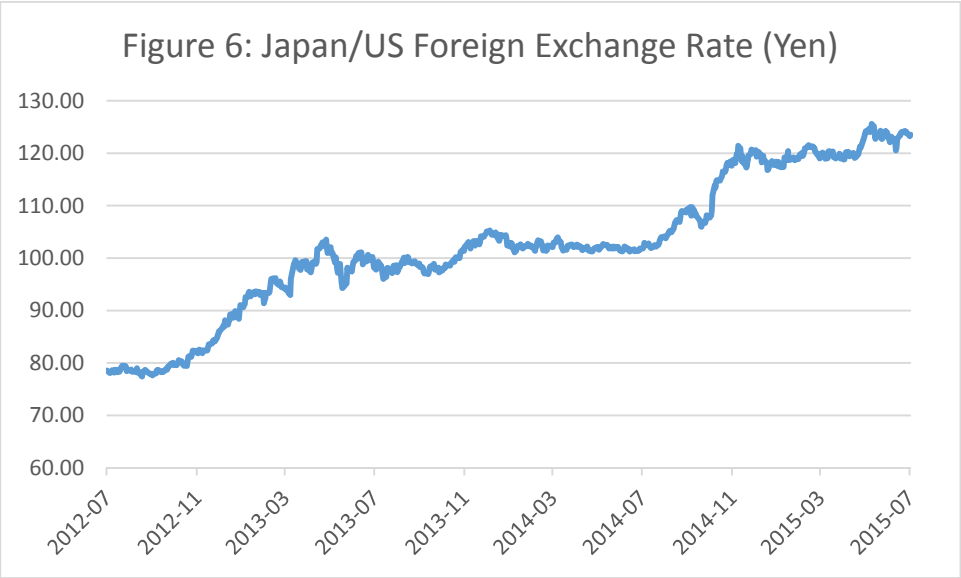
	1970	1975	1980	1985	1990	1995	2000
Australia	24.46	21.62	19.74	16.49	15.07	13.56	12.56
Japan	27.03	25.77	24.69	25.02	24.08	22.55	20.49
USA	26.37	22.67	22.10	19.49	17.97	16.41	14.80

Service Sector (%)

	1970	1975	1980	1985	1990	1995	2000
Australia	55.58	59.66	62.65	66.56	69.38	72.10	73.17
Japan	46.72	51.31	53.99	55.97	58.22	60.35	63.11
USA	61.11	65.29	65.92	68.84	70.94	73.12	74.41

Unit: %
Source: OECD Data
Link: https://stats.ukdataservice.ac.uk/#
Viewed on 29 January 2017

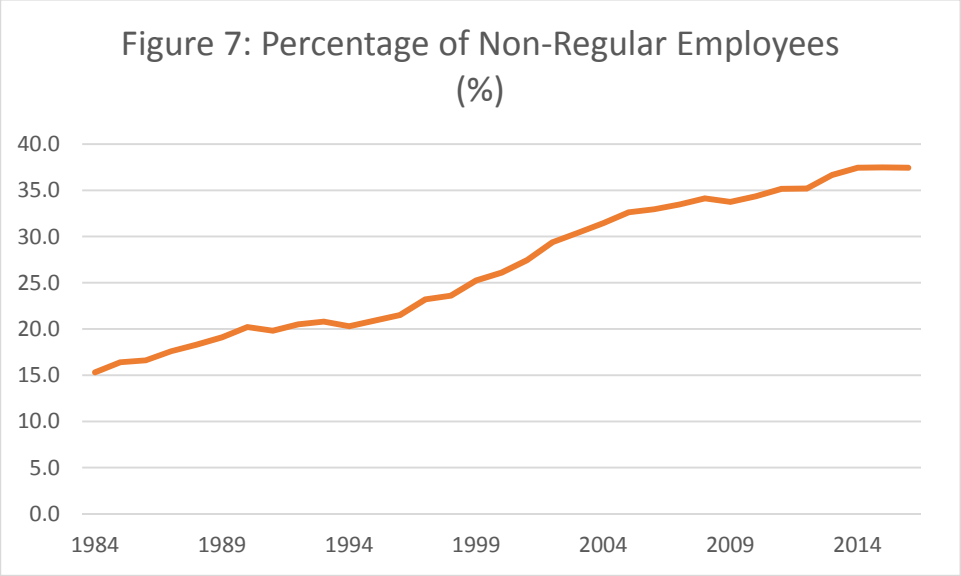
Figure 6 shows the historical data of Japanese yen's exchange rate against US dollars. As we see, right after Mr Abe was elected in December, 2012, Japanese yen depreciated dramatically. Here, the exchange rate specifies how much Japanese yen we need to purchase one US dollar. So, the trend such that the rate is going upward implies that Japanese is depreciating.



Unit: Japanese Yen
Source: Federal Reserve Bank of St Louis
Link: https://fred.stlouisfed.org/series/DEXJPUS
Viewed on 12 January 2017

However, did Abenomics really work or will work? The clues are in Table 1 and Figure 3. We see slightly increased GDP growth in 2013 while it decreased in 2015. Similarly, the inflation rate increased slightly as in Figure 3, but it went back to the previous level. Basically, what the Bank of Japan can do is limited and without boosting other economic activities, we cannot hope for a long-lasting effect in Japanese economy.

To conclude, I present two sets of information about Japan. Figure 7 shows the ratio of non-regular workers in total employments. Non-regular workers include part-time workers as well as temporary workers. Table 4 shows a demographic problem that Japan faces. As we see, in 2015, the percentage of senior citizens who are older than 65 years old is quite high compared to other countries, while the birth rate is quite low in Japan. Given the high life-expectancy, we can see that Japan is a rapidly aging society. Labour is a quite important factor in economic growth. Further, we can easily imagine that when jobs are not secured, the nation's citizens would not spend money. Even if they receive some temporary earnings, they would just hold them preparing for future necessities. In the end, this can be the fundamental problem that the Japanese economy is facing. The important message here is that both fiscal and monetary policies only work in synergy with other policies that promote quality of people's life in Japan.



Unit: %
Source: Statistics Bureau, Japan (Labor Source Survey)
Link: http://www.stat.go.jp/english/index.htm
Viewed on 12 January 2017

Table 4: Birth Rate and Life Expectancy

	2015			2010-15	2015
	0-14 Years	15-64 Years	65- Years	Birth Rate	Life Expectancy (Years)
Japan	12.4%	61.3%	26.3%	1.3	83.7
Australia	17.6%	66%	16.4%	1.9	82
China	19%	71.5%	9.4%	1.8	74
US	19.8%	65.9%	14.3%	2	80
World	26%	65.8%	8.2%	2.5	81

Unit: As specified in the Table
Source: Australian Bureau of Statistics
Link: http://www.abs.gov.au/
Viewed on 11 September 2015

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Figure 4: AS and AD

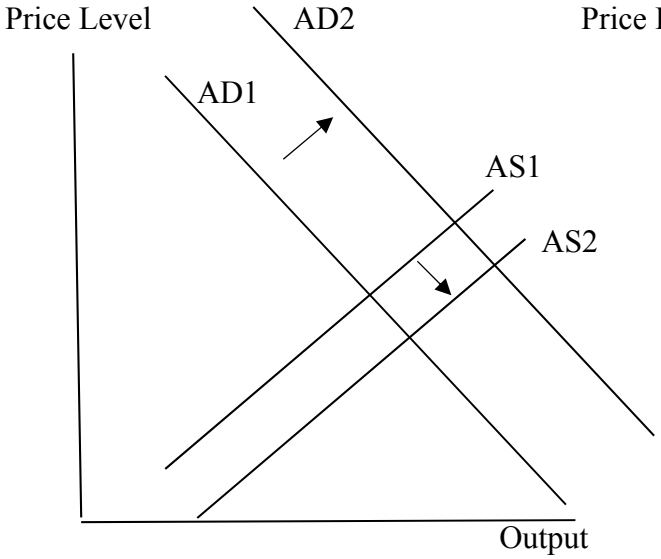

Figure 5: Liquidity Trap