Abenomics and Macroeconomics

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THE BACKGROUND

The Start

- In December 2012, LDP defeated DPJ in the general election.
- Shintaro Abe, the LDP leader, was appointed as PM by the refreshed Diet.
- The stock market positively reacted to the former DPJ PM Noda's call for the general election in November.
- At the same time, the Yen started to devalue.



The Tokyo Stock Exchange (Nikkei)



http://ecodb.net/stock/nikkei.html#index01



http://ecodb.net/exchange/usd_jpy.html#index01

Deflation walked with Shirakawa (2008 – 2012)

- Shirakawa's BOJ was struck by the Lehman Shock in 2008.
- Since then, Japanese economy has been followed by weak deflation.
- During the Shirakawa's tenure, the interest rate of <u>the 10 year-maturity</u> <u>government bond</u> has been declining.



http://ecodb.net/country/JP/imf_inflation.html

Economic Theory

- Behind the Shirakawa's policy, there is a strong doctrine to propose that a commitment to a very low nominal interest rate will eventually bear inflation expectation.
- In reality, however, that commitment is consistent with a long-run expectation for deflation to prevail.
- The Fisher equation says:
 - Rate of inflation = nominal interest rate natural rate of interest.
 - > Natural rate of interest is the return to invest in productive assets.
- If the natural rate of interest is positive, keeping zero nominal interest rate will result in deflation.

図表2



日本における急速な高齢化の影響



(注) 生産年齢人口は15~64歳の人口。 (資料) World Bank、Haver

Japan's real GDP growth per working-age (20-64) population over-performs USA and Europe! But Japan's real GDP per population is comparable to that of USA and Europe. Japan's real GDP growth is poorer than that of USA and Europe.

MONETARY POLICY

Monetary Policy

- The former BOJ president, Shirakawa, was supposed to complete his tenure in March 2013.
- Abe appointed Haruhiko Kuroda to the new BOJ president.
- He revealed his determination to fight against the deflation in his first interview with media.



The Regime Change

- The new BOJ president Kuroda announced that
 - 1. BOJ would purchase the JGBs, and increase its balance sheet until it reaches 270 trillion yen, twice as large as its current size.
 - BOJ targets to 2% rate of inflation of CPI (consumer price index)
- The policy is interpreted as the commitment to future money supply, proposed by Krugman (1998).

The Kuroda Bazooka

- The Kuroda's announcement on April 4th <u>amazed the</u> <u>western media</u>.
 - To achieve an <u>inflation</u> target of 2 percent within two years, the BOJ is <u>doubling its purchase of Japanese bonds</u> to roughly 7 trillion (about \$79 billion) per month. That is well beyond the roughly 4 trillion to 5 trillion yen many analysts were expecting.
 - Remember, the <u>Federal Reserve</u> is buying \$85 billion a month. But Japan's <u>gross domestic product</u> (GDP) is one-third our size, so this bond-buying program is essentially three times the size of ours. More importantly, this will double Japan's monetary base in two years, to 270 trillion yen. That is about 50 percent of the GDP of the entire country.
 - By contrast, U.S. GDP is about \$15 trillion and its monetary base is \$3 trillion. To go to 50 percent of GDP, the Fed would have to raise the monetary base from \$3 trillion to \$7.5 trillion.

RESULTS

Results

- Japan's real GDP growth per person employed has been accelerated recently.
- Nikkei increased from 9,000 (December 2012) to 20,000 (August, 2015).
- JGB 10 year rate decreased from 0.8% (December 2012) to -0.2% (June 2016).
- Unemployment rate is now the lowest in the last two decades.
- Labor market tightness is now the highest in the last two decades.

Real GDP per person employed 2015 (Labor Productivity)

	1991="100"	1999="100"	2009="100"
Germany	126.7	111.7	107.2
Japan	122.4	117.5	109.5
United States	147.2	125.4	108.1

Source: World Bank

http://data.worldbank.org/indicator/SL.GDP.PCA P.EM.KD/countries/JP-DE-US?display=graph

Japan's labor productivity has been accelerating recently, relative to Germany and the United States

Unemployment and Labor Market Tightness



Employment

- Under Abenomics, the rate of unemployment has been steadily declining to 3.27%, the lowest among the G7 nations.
- The labor market tightness has reached the lowest level in the last 3 decades since the peak of the Bubble (1990).
- A record-high 97.3 percent of university graduates in Japan were employed as of the beginning of the fiscal year 2016 on April 1, reflecting companies' increasing appetite for recruitment.

Nominal Wage

早わかり グラフでみる長期労働統計



Nominal wage has stagnated since 1997 (the financial crisis). Abenomics has not made significant difference.

資料出所 厚生労働省「毎月勤労統計調査」 注 規模30人以上事業所の1969年以前はサービス業を除く調査産業計

労働政策研究・研修機構(JILPT)

https://www.jil.go.jp/kokunai/statistics/timese ries/html/g0401.html

Employment grows in the tertiary industry, while it declines in the secondary industry

早わかり グラフでみる長期労働統計



図 5 - 1 産業別雇用者数の推移(第一次~第三次産業) 1953年~2018年 年平均

https://www.jil.go.jp/kokunai/statistics/timeseries/html/g0205.html

資料出所 総務省「労働力調査」

労働政策研究・研修機構(JILPT)

Japan's real hourly wage has continued to decline



のデータの単純平均値。仏と独の2016年データは第1~第3・四半期の単純平均値。英は製造業のデータのみ。

http://www.zenroren.gr.jp/jp/housei/data/2018/180221_02.pdf

Japan's average real annual salary has been stagnating

資料2



注1:OECD統計より作成。各国国民経済計算における公務・民間全産業の労働者の賃金年収をフルタイム換算労働者数で割り、2015年の消費購買力平価で比較しUS^K』表示した。 注2:賃金年収には一般労働者の賃金・手当・賞与(税・社会保険料本人負担含む)のほか役員報酬等も含まれる。社会保険料の使用者負担分は含まない。

http://www.zenroren.gr.jp/jp/housei/data/2018/180221_02.pdf

Employment shift might cause real wage stagnation

- Under Abenomics, real wages stagnated mainly because the consumption tax hike and the BOJ inflation policy.
- Real wages steadily declined much before Abenomics started. However, real wages *increased* for manufacturing industries.
- The decline in real wages might be caused partly by the employment shift from manufacturing to service.



- Kawaguchi (2016) argues that
 - 1. Labor share of GDP has been stable nearly 2/3 of GDP.
 - 2. Real wages denominated by GDP deflator has been stable, too.
 - 3. However, real wages denominated by CPI is declining.
 - 4. As the terms of trade (ratio of the price of exports to imports) decreases, CPI is rising, which reduces real wages.

DID THE CONSUMPTION TAX HIKE REDUCE CONSUMPTION?

Japan's consumer price level started to rise recently

早わかり グラフでみる長期労働統計



Consumption tax rate was raised

- From 0 to 3% in 1989
- From 3 to 5% in 1997
- From 5 to 8% in 2014

労働政策研究•研修機構 (JILPT)

https://www.jil.go.jp/kokunai/statistics/timeseries/pdf/g0601.pdf

CPI characteristics

- Both of the following are out of control by BOJ.
- Food price depends mainly on weather.
- Energy price depends mainly on the world matters.
- 3% hike of the consumption tax rate raises CPI by 2% because many services (education and rents) are not taxed.

CPI (total)

2008	0.7	1.0	1.2	0.8	1.3	2.0	2.3	2.1	2.1	1.7	1.0	0.4	1.4	1.1
2009	0.0	-0.1	-0.3	-0.1	-1.1	-1.8	-2.2	-2.2	-2.2	-2.5	-1.9	-1.7	-1.4	-1.7
2010	-1.3	-1.1	-1.1	-1.2	-0.9	-0.7	-0.9	-0.9	-0.6	0.2	0.1	0.0	-0.7	-0.4
2011	-0.6	-0.5	-0.5	-0.4	-0.4	-0.4	0.2	0.2	0.0	-0.2	-0.5	-0. 2	-0.3	-0.1
2012	0.1	0.3	0.5	0.4	0.2	-0.2	-0.4	-0.4	-0.3	-0.4	-0. 2	-0.1	0.0	-0.3
2013	-0.3	-0.7	-0.9	-0.7	-0.3	0.2	0.7	0.9	1.1	1.1	1.5	1.6	0.4	0. 9
2014	1.4	1.5	1.6	3.4	3.7	3.6	3.4	3.3	3.2	2.9	2.4	2.4	2.7	2. 9
2015	2.4	2.2	2.3	0.6	0.5	0.4	0.2	0.2	0.0	0.3	0.3	0. 2	0.8	0. 2
2016	-0. 1	0.2	0.0	-0.3	-0.5	-0.4	-0.4	-0.5	-0.5	0.1	0.5	0.3	-0.1	-0.1
2017	0.4	0.3	0.2	0.4	0.4	0.4	0.4	0.7	0.7	0.2	0.6	1.0	0.5	0. 7
2018	1.4	1.5	1.1	0.6	0.7	0.7	0.9	1.3	1.2	1.4	0.8	0.3	1.0	0. 7
2019	0.2	0.2	0.5	0.9										

注) 原数値を掲載。前年同月比,前年比及び前年度比は各基準年の公表値による。

CPI turned to be positive right after Kuroda QQE (April 2013) started.

It jumped higher than 3% in budget year 2014.

The effect of consumption tax rate hike disappeared in April 2015.

Now it remains only slightly higher than zero, but seems to be stabilized significantly positive.

Core CPI (excluding food)

2008	0.8	1.0	1.2	0.9	1.5	1.9	2.4	2.4	2.3	1.9	1.0	0. 2	1.5	1.2
2009	0.0	0.0	-0.1	-0.1	-1.1	-1.7	-2.2	-2.4	-2.3	-2.2	-1.7	-1.3	-1.3	-1.6
2010	-1.3	-1.2	-1.2	-1.5	-1.2	-1.0	-1.1	-1.0	-1.1	-0.6	-0.5	-0.4	-1.0	-0.8
2011	-0.8	-0.8	-0.7	-0.2	-0.1	-0.2	0.1	0.2	0.2	-0.1	-0.2	-0.1	-0.3	0.0
2012	-0.1	0.1	0.2	0.2	-0.1	-0.2	-0.3	-0.3	-0.1	0.0	-0.1	-0. 2	-0. 1	-0. 2
2013	-0.2	-0.3	-0.5	-0.4	0.0	0.4	0.7	0.8	0.7	0.9	1.2	1.3	0.4	0.8
2014	1.3	1.3	1.3	3.2	3.4	3.3	3.3	3.1	3.0	2.9	2.7	2.5	2.6	2.8
2015	2.2	2.0	2.2	0.3	0.1	0.1	0.0	-0.1	-0.1	-0.1	0.1	0.1	0.5	0.0
2016	-0.1	0.0	-0.3	-0.4	-0.4	-0.4	-0.5	-0.5	-0.5	-0.4	-0.4	-0. 2	-0.3	-0. 2
2017	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.7	0.7	0.8	0.9	0.9	0.5	0.7
2018	0.9	1.0	0.9	0.7	0.7	0.8	0.8	0.9	1.0	1.0	0.9	0.7	0. 9	0.8
2019	0.8	0.7	0.8	0.9										
39-1	西教はも根幹、並に同日は、並にはみび並に庇いけなず進にかいまはによる													

注) 原数値を掲載。前年同月比,前年比及び前年度比は各基準年の公表値による。

It seems to be stabilized significantly positive.

Core-core CPI (excluding food and energy)

2008	0.2	0.3	0.4	0.5	0.7	0.9	1.0	1.1	1.2	1.2	1.1	0.9	0.8	0.8
2009	0.7	0.6	0.5	0.2	-0.1	-0.4	-0.6	-0.8	-0.9	-1.1	-1.1	-1.2	-0.4	-0.8
2010	-1.3	-1.2	-1.3	-1.6	-1.7	-1.5	-1.5	-1.5	-1.5	-0.9	-0.9	-0.8	-1.3	-1.1
2011	-1.3	-1.2	-1.3	-0.8	-0.6	-0.7	-0.4	-0.4	-0.4	-0.7	-0.8	-0.7	-0.8	-0.6
2012	-0.6	-0.3	-0.3	-0.3	-0.5	-0.4	-0.4	-0.4	-0.5	-0.5	-0.4	-0.5	-0.4	-0.5
2013	-0.6	-0.8	-0.7	-0.6	-0.3	-0.2	-0.1	0.0	0.0	0.3	0.5	0.7	-0. 2	0. 2
2014	0.7	0.8	0.8	2.7	2.7	2.7	2.8	2.7	2.7	2.7	2.5	2.5	2.2	2.6
2015	2.5	2.5	2.5	0.7	0.7	0.8	0.9	1.0	1.2	1.1	1.3	1.2	1.4	1.0
2016	0.9	1.0	0.9	0.8	0.7	0.7	0.5	0.4	0.2	0.3	0.2	0.1	0.6	0.3
2017	0.2	0.1	-0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.3	0.1	0. 2
2018	0.4	0.5	0.5	0.4	0.3	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.3
2019	0.4	0.4	0.4	0.6										

注) 原数値を掲載。前年同月比,前年比及び前年度比は各基準年の公表値による。

Under the Shirakawa BOI, it stayed negative.

Under the Kuroda BOJ, it became positive.

It has been steadily remaining significantly higher then zero while the effects of the consumption tax rate hike disappeared in April 2015.

However, the core-core CPI is still much below the 2% target.

Inflation

- In Spring 2013, the Kuroda BOJ announced that BOJ would target to 2% rate of inflation
- 3 CPIs
 - CPI(total)
 - Core CPI(excluding food)
 - Core-core CPI(excluding food and energy), which BOJ can affect.
- It is the Core-core CPI that is targeted by BOJ as the goal of its QQE policy.
- The Kuroda QQE has made 2% difference in the corecore CPI from the Shirakawa era, while the 2% goal has not been reached.

Fiscal Balance

- The government originally announced (2012) that it would raise the consumption tax rate
 - from 5% to 8% in April 2014
 - from 8% to 10% in October 2015
- However, Abe rescheduled the second rise to April 2017 in November 2014, and cancelled it in May 2015!
 - Abe worries about the negative effect of the consumption tax hike on consumption.
- The next rise from 8% to 10% is scheduled in October 2019.

Consumption Tax Rise in the Past

- Japan's government raises its consumption tax rate from 5% to 8% in April 2014.
- Japan's consumption tax was introduced in 1989 at tax rate 3%.
- The rate was raised to 5% in April 1997.
- Japanese economy was in a turmoil in 1997 and 1998, due to the Asia currency crisis and the financial system crisis.

What differs from 1997?

- In April 1997, Japan's government reduced both individual and corporate income tax rates in order not to change tax revenue.
- However, the negative impact of the tax increase was amplified by the currency crisis and the financial system instability, which occurred in November 1997.
- In 2014, the tax rate increase is not followed by any other tax cuts, then its overall impact was negative on households' disposable income.

Economic Theory

- (Permanent Income Hypothesis) Consumption does not depend on households' temporary income but on their permanent income.
- Households' permanent income is not affected by the government policy to finance its expenditure.
- Given the government expenditure, raising tax rates or issuing new debts does not affect net wealth available to households.
- Consumption tax matters only with the timing to buy durable goods such as automobiles, large electric appliances, and houses.

Consumption Tax and Business Cycle

- (Ricardian Equivalence) In Economics, consumption is not significantly affected by the way how to finance the government expenditure, if goods and services are perishable.
 - meat and vegetables perish soon even in a refrigerator
- (Rush hour consumption) However, people can save your expenditure by buying more durable goods before a tax hike.

Consumption stagnated since April 2014



- Household real consumption (denominated by CPI) stagnated in 2014, because the demand for durable goods (houses and cars, etc) was weak after the tax hike.
- Real consumption returned to the initial level in April 2015, while it started to decline in summer, reflecting the pessimistic view on the emerging economies.

消費水準指数(世帯人員分布調整済)-二人以上の世帯

Index of Consumption Expenditure Level (adjusted by the distribution of household by number of household members) -Two-or-more-person Households

原指数(年)

0rigina	al Series	(Year)					

年 Year	総 合 General	食料 Food	住 居 Housing	光熱・水道 Fuel, light & water charges	家 具 · 家事用品 Furniture & household utensils	被服及び 履物 Clothing & footwear	保健医療 Medical care	交通・通信 Transpor- tation & communi- cation	教 育 Education	教養娯楽 Culture & recreation	諸雑費 Miscella- neous	総合 (除く 移転支出 [*]) (a)	総合 (除く 住居等 ^{**}) (b)
昭和 56 年 1981 57 1982 58 1983 59 1984 60 1985 61 1986 62 1987 63 1988	92. 8 95. 6 96. 3 96. 9 97. 9 98. 8 100. 7 103. 9	$\begin{array}{c} 115.\ 7\\ 117.\ 6\\ 116.\ 8\\ 115.\ 3\\ 115.\ 3\\ 115.\ 7\\ 115.\ 8\\ 116.\ 6\end{array}$	95. 4 95. 4 97. 5 97. 4 96. 2 96. 7 101. 2 101. 2	$\begin{array}{c} 64.\ 2\\ 64.\ 4\\ 66.\ 7\\ 71.\ 6\\ 73.\ 2\\ 75.\ 8\\ 77.\ 1\\ 78.\ 7\end{array}$	$\begin{array}{c} 66.\ 2\\ 68.\ 0\\ 69.\ 9\\ 71.\ 4\\ 74.\ 6\\ 72.\ 1\\ 76.\ 2\\ 76.\ 6\end{array}$	187. 1 188. 4 184. 1 180. 0 185. 4 182. 4 184. 1 190. 9	$\begin{array}{c} 68. \ 9 \\ 70. \ 5 \\ 72. \ 8 \\ 71. \ 8 \\ 69. \ 3 \\ 68. \ 0 \\ 70. \ 9 \\ 76. \ 2 \end{array}$	$50. 2 \\ 51. 6 \\ 55. 6 \\ 57. 3 \\ 57. 8 \\ 59. 0 \\ 61. 6 \\ 64. 8$	85.7 89.8 86.1 92.3 91.8 93.5 97.1 100.1	$\begin{array}{c} 64.\ 1\\ 67.\ 0\\ 67.\ 3\\ 69.\ 1\\ 70.\ 7\\ 71.\ 9\\ 72.\ 5\\ 77.\ 7\end{array}$	$\begin{array}{c} 73.\ 7\\ 81.\ 2\\ 80.\ 8\\ 78.\ 4\\ 83.\ 2\\ 80.\ 0\\ 84.\ 3\\ 83.\ 6\end{array}$	90. 2 92. 9 93. 6 94. 3 95. 4 96. 0 97. 7 100. 5	$\begin{array}{c} 91.8\\ 94.8\\ 95.0\\ 95.9\\ 97.0\\ 97.4\\ 98.7\\ 101.6\end{array}$
平成 元 年 1989 2 1990 3 1991 4 1992 5 1993 6 1994 7 1995 8 1996 9 1997 10 1998 11 1999 12 2000 13 2001 14 2002 15 2003 16 2004 17 2005 18 2006 19 2007 20 2008 21 2009 22 2010 23 2011 24 2012 25 2013	$\begin{array}{c} 105. \ 0\\ 106. \ 4\\ 108. \ 8\\ 108. \ 8\\ 107. \ 9\\ 107. \ 5\\ 108. \ 0\\ 108. \ 1\\ 105. \ 8\\ 104. \ 7\\ 103. \ 9\\ 102. \ 8\\ 104. \ 7\\ 103. \ 9\\ 102. \ 8\\ 103. \ 0\\ 102. \ 3\\ 102. \ 6\\$	$\begin{array}{c} 117.\ 4\\ 118.\ 5\\ 117.\ 7\\ 117.\ 7\\ 116.\ 2\\ 114.\ 1\\ 112.\ 8\\ 112.\ 6\\ 112.\ 8\\ 111.\ 2\\ 109.\ 7\\ 108.\ 4\\ 106.\ 6\\ 106.\ 9\\ 105.\ 5\\ 104.\ 1\\ 104.\ 2\\ 102.\ 9\\ 103.\ 4\\ 101.\ 4\\ 100.\ 6\\ 100.\ 0\\ 99.\ 8\\ 99.\ 8\\ 102.\ 4\end{array}$	$\begin{array}{c} 100,4\\ 97,4\\ 106,3\\ 111,2\\ 110,5\\ 118,0\\ 119,5\\ 121,7\\ 121,2\\ 113,9\\ 112,0\\ 108,0\\ 109,5\\ 100,0\\ 109,5\\ 100,6\\ 105,9\\ 106,5\\ 100,0\\ 98,9\\ 92,5\\ 93,3\\ 100,0\\ 103,9\\ 100,3\\ 100,9\end{array}$	$\begin{array}{c} 79.\ 3\\ 82.\ 3\\ 84.\ 3\\ 86.\ 7\\ 89.\ 3\\ 92.\ 0\\ 94.\ 4\\ 97.\ 2\\ 96.\ 9\\ 98.\ 3\\ 99.\ 2\\ 100.\ 9\\ 100.\ 5\\ 100.\ 4\\ 100.\ 5\\ 100.\ 4\\ 102.\ 6\\ 102.\ 8\\ 99.\ 8\\ 98.\ 6\\ 97.\ 8\\ 100.\ 0\\ 97.\ 1\\ 96.\ 8\\ 95.\ 0\end{array}$	$\begin{array}{c} 77.\ 7\\ 80.\ 3\\ 86.\ 1\\ 83.\ 3\\ 80.\ 7\\ 84.\ 3\\ 83.\ 8\\ 84.\ 3\\ 83.\ 8\\ 84.\ 3\\ 83.\ 5\\ 83.\ 0\\ 80.\ 9\\ 85.\ 2\\ 83.\ 5\\ 84.\ 3\\ 85.\ 2\\ 83.\ 5\\ 84.\ 3\\ 87.\ 3\\ 86.\ 5\\ 87.\ 7\\ 90.\ 3\\ 92.\ 7\\ 100.\ 0\\ 103.\ 9\\ 9107.\ 2\\ 112.\ 0\end{array}$	$\begin{array}{c} 190.\ 8\\ 192.\ 4\\ 191.\ 3\\ 181.\ 7\\ 175.\ 1\\ 168.\ 4\\ 163.\ 4\\ 156.\ 2\\ 152.\ 9\\ 140.\ 7\\ 137.\ 6\\ 128.\ 4\\ 123.\ 1\\ 121.\ 5\\ 118.\ 9\\ 115.\ 2\\ 114.\ 3\\ 108.\ 8\\ 109.\ 8\\ 109.\ 8\\ 102.\ 6\\ 100.\ 0\\ 99.\ 9\\ 99.\ 9\\ 102.\ 7\end{array}$	$\begin{array}{c} 77.\ 7\\ 84.\ 0\\ 84.\ 9\\ 85.\ 1\\ 89.\ 8\\ 88.\ 0\\ 89.\ 2\\ 92.\ 4\\ 92.\ 8\\ 90.\ 0\\ 92.\ 2\\ 93.\ 8\\ 94.\ 8\\ 98.\ 4\\ 96.\ 5\\ 103.\ 2\\ 102.\ 0\\ 104.\ 1\\ 100.\ 5\\ 103.\ 7\\ 100.\ 0\\ 102.\ 0\\ 103.\ 2\\ 104.\ 0\end{array}$	$\begin{array}{c} 66.\ 6\\ 68.\ 3\\ 70.\ 3\\ 71.\ 3\\ 76.\ 2\\ 75.\ 7\\ 76.\ 9\\ 82.\ 7\\ 82.\ 8\\ 84.\ 6\\ 83.\ 5\\ 88.\ 0\\ 89.\ 7\\ 90.\ 6\\ 93.\ 1\\ 97.\ 1\\ 96.\ 9\\ 94.\ 6\\ 95.\ 3\\ 96.\ 0\\ 98.\ 6\\ 100.\ 0\\ 92.\ 7\\ 101.\ 3\\ 103.\ 9\end{array}$	$\begin{array}{c} 104.\ 1\\ 109.\ 4\\ 102.\ 8\\ 108.\ 2\\ 105.\ 2\\ 105.\ 5\\ 104.\ 1\\ 105.\ 5\\ 104.\ 1\\ 105.\ 5\\ 104.\ 1\\ 93.\ 7\\ 93.\ 2\\ 95.\ 7\\ 97.\ 9\\ 93.\ 0\\ 94.\ 8\\ 95.\ 9\\ 95.\ 9\\ 95.\ 9\\ 95.\ 9\\ 95.\ 9\\ 98.\ 2\\ 100.\ 0\\ 102.\ 3\\ 102.\ 1\\ 102.\ 9\end{array}$	$\begin{array}{c} 78.9\\ 81.6\\ 82.7\\ 83.8\\ 85.0\\ 82.8\\ 80.3\\ 82.4\\ 83.7\\ 82.8\\ 86.0\\ 83.7\\ 84.8\\ 85.5\\ 84.5\\ 84.5\\ 88.3\\ 88.8\\ 88.4\\ 92.3\\ 93.8\\ 96.4\\ 100.0\\ 95.0\\ 94.4\\ 97.3 \end{array}$	$\begin{array}{c} 85.5\\ 86.4\\ 94.6\\ 94.4\\ 96.0\\ 93.5\\ 90.9\\ 92.3\\ 88.7\\ 93.7\\ 92.4\\ 89.5\\ 88.9\\ 95.1\\ 92.2\\ 93.9\\ 99.3\\ 94.4\\ 101.7\\ 99.8\\ 101.1\\ 100.0\\ 95.0\\ 99.5\\ \end{array}$	$\begin{array}{c} 102.\ 2\\ 103.\ 4\\ 105.\ 2\\ 105.\ 5\\ 105.\ 6\\ 104.\ 8\\ 104.\ 0\\ 105.\ 1\\ 105.\ 3\\ 103.\ 1\\ 102.\ 4\\ 101.\ 7\\ 100.\ 7\\ 101.\ 2\\ 100.\ 7\\ 101.\ 5\\ 99.\ 3\\ 100.\ 4\\ 98.\ 9\\ 99.\ 4\\ 100.\ 0\\ 97.\ 8\\ 98.\ 9\\ 100.\ 4\\ \end{array}$	$\begin{array}{c} 103.\ 2\\ 104.\ 9\\ 106.\ 2\\ 106.\ 2\\ 105.\ 8\\ 104.\ 8\\ 103.\ 4\\ 103.\ 7\\ 104.\ 3\\ 102.\ 5\\ 101.\ 9\\ 101.\ 0\\ 100.\ 8\\ 100.\ 2\\ 100.\ 4\\ 101.\ 3\\ 99.\ 7\\ 101.\ 0\\ 99.\ 8\\ 99.\ 9\\ 100.\ 0\\ 97.\ 9\\ 98.\ 6\\ 100.\ 0\end{array}$

- Long-run stagnation: Household real consumption has been declining since 1997, when Japan was shocked by the financial crisis.
- The real consumption decline is in accordance with the real wage decline.

平成22年(2010) = 100

The BOJ consumption index



- The drop in 2011 was caused by the East Japan Great Earthquake.
- The drop in 2014 was caused by the consumption tax rise.
 - Since 2014, there has been a boom in foreign visitors to Japan, which enlarges the gap between the indices with and without tourists' expenditures.

https://www.boj.or.jp/research/research_data/cai/cai.pdf

形態別消費の動き



- BOJ publishes an original consumption index, where they decompose aggregate consumption into consumption of durable goods, non-durable goods, and service.
 - 1. There was a durable goods boom in 2009-2013.
 - 2. Non-durable goods shows a long-run decline trend.
 - 3. Service consumption shows a long-run trend to grow.
 - Consumption of mondurables and service is has not been significantly affected by the consumption tax hike in April 2014.

Durable Goods Boom in 2009-2013



- In 2009, the government introduced a special policy to induce consumers to buy more durable goods.
 - Eco-car tax deduction for energy-saving automobiles
 - Eco-point subsidy for digital TVs, refrigerators, and air-conditioners.
- The boom was extended by the shopping rush in 2013 for consumers to save the consumption tax payments.
- The durable goods boom was an artifact of the government policy to help domestic electronics and automobile industries, which were damaged by the Lehman Shock of 2008.



- (LEFT) The consumption of durable goods continues to grow steadily.
- (RIGHT) The consumption of non-durables declines, while the service consumption steadily grows, and now has share of 51%.

NEGATIVE INTEREST RATE POLICY

Negative Interest Rate Policy (NIRP)

- In February 2016, BOJ suddenly introduced an innovative monetary policy, following the European Central Bank.
- BOJ is buying JGBs from banks and the sales go to the reserve deposits held by banks.

– BOJ has paid 0.1% interest to the reserve deposits

• The new BOJ policy (NIRP) is to reduce the interest rate for the reserve deposits from 0.1% to -0.1% for the newly added deposits.

Where is QQE?

- BOJ does not explain the difference between NIRP and its original QQE (Qualitative and Quantitative Easing) policy.
- In order to continue QQE, BOJ needs to buy JGBs at very high prices (at negative yields).
- Banks were shocked by NIRP and rushed for buying the existing positively yielding JGBs, which even lowered the interest rates.

Pros and Cons of NIRP

- Pros:
 - 1. BOJ can reduce long-term interest rates without further buying JGBs.
 - 2. Government can issue JGBs at even lower (nagative) interest rates, which greatly helps it to finance deficits.
 - 3. Households enjoy even lower mortgage rates.
- Cons:
 - 1. Banks need to find more highly earning investment opportunities, which are riskier.
 - However, BOJ wants to induce banks to develop more profitable investments.
 - 2. Small banks equipped with no high-tech financial skills can no longer survive.

Why NIRP?

- Miles Kimball, the leading advocate for NIRP, argues that:
 - BOJ seems to face difficulty to create inflation expectation.
 - However, the goal is simple to reduce the real interest rate.
 - Real interest rate = nominal interest rate rate of expected inflation.
 - Reducing nominal interest rate is easier than raising inflation expectation.