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Japanese Economy: Two Lost Decades and How Many More?

Since stock price bubbles burst in the early 1990s, successive governments of Japan have been expanding fiscal spending with budget deficits to stimulate the economy. Consequently, public bonds have significantly accumulated. The ratio of public bonds to GDP increased from 42% in 1990 to 191% in 2018.¹ In addition to fiscal spending with budget deficits, the present Japanese government, starting from January 2013, has strongly urged the Bank of Japan (BoJ) to implement massive monetary easing through purchasing government and private securities to stimulate business. Although the BoJ has been expanding money supply since long before 2013, the expansion speed has significantly accelerated since then. Consequently, base money expanded by 4.05 times from 2012 to 2018 compared to only 1.26 times during the previous six years, 2006-2012.²

Discrepancy between flow and stock indicators

The present government has declared that the Japanese economy has already recovered thanks to the monetary easing. However, Japan faces a discrepancy between flow and stock variables. The Nikkei 225 Stock Average indeed increased from 8,500 yen in November 2011 to 24,000 yen in October 2018 and is still above 22,000 yen (as of 17 September 2019). The unemployment rate has declined from 4.0% in 2013 to 2.3% in 2018. However, the consumer price index (CPI), consumption and GDP have barely responded to the BoJ's massive monetary easing (see Figures 1 and 2). This implies that the present policy does not stimulate real economic activity while asset price bubbles emerge.

Moreover, policy interventions may manipulate stock prices upwards. In fact, the Government Pension Investment Fund and the BoJ have purchased a significant amount of exchange-traded funds, which would support stock prices.

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1 Japanese Ministry of Internal Affairs and Communications: Statistic Bureau, available at www.stat.go.jp.

2 Bank of Japan, statistics available at www.boj.or.jp.

es. They are currently the largest owners of a quarter of all companies listed in the first section of the Tokyo Stock Exchange with more than seven percent of the securities in this category.³

The government lists those good and bad economic indicators in parallel and declares that the policy has achieved success to some extent. However, it may be meaningless to count and simply compare the numbers of good and bad aspects. These facts imply that massive monetary easing with public bond issuance does not affect the real side of the economy. It merely creates stock price bubbles and expands household financial asset holdings without stimulating consumption.

In standard macroeconomic models, greater wealth holdings of households would lead to higher household consumption. In reality, however, consumption has not increased with expansions of household wealth holdings, as is clear from Figure 2. This is because most of the models do not treat aggregate demand deficiency, which plagues the Japanese economy. They attribute economic stagnation to either supply-side turndown or such market distortions as sluggish wage and price adjustments, credit constraints, monopolistic behaviour of workers and firms, and so on.

By introducing wealth preference to a dynamic macroeconomic model, instead of those market distortions, we can deal with the secular deficiency of aggregate demand and a discrepancy between flow and stock variables. By applying this idea to the Japanese economy, this article explains the discrepancy between consumption and financial asset holdings and analyses effects of various policies adopted in Japan.

Wealth preference and aggregate demand deficiency

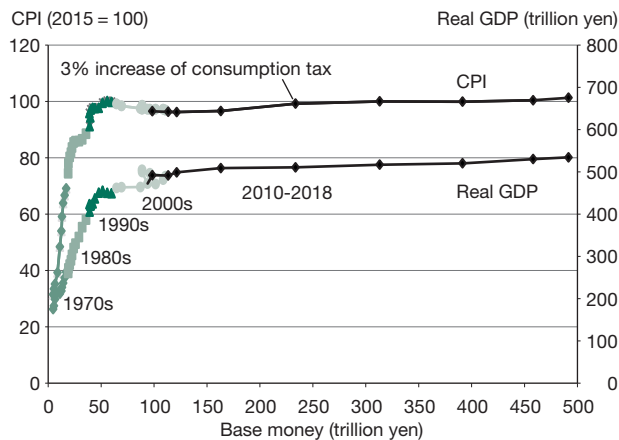
Before starting the analysis, let us briefly review a dynamic macroeconomic model with liquidity and wealth preferences.⁴ Suppose that households have utility of

3 As reported by Nikkei Asian Review: Japan's public sector is top shareholder in a quarter of Tokyo stocks, 29 August 2016, available at <https://asia.nikkei.com/Business/Markets/Stocks/Japan-s-public-sector-is-top-shareholder-in-a-quarter-of-Tokyo-stocks>.

4 This is an extension of Y. Ono: Money, Interest, and Stagnation, Oxford 1994, Clarendon Press; and Y. Ono: A reinterpretation of chapter 17 of Keynes's General Theory: Effective Demand Shortage under Dynamic Optimization, in: International Economic Review, Vol. 42, No. 1, 2001, pp. 207-236.

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Figure 1
Consumer price index (CPI), GDP and base money



Sources: Consumer Price Index taken from Statistics Bureau, Ministry of Internal Affairs and Communications, Japan, <https://www.stat.go.jp/>; Base Money Year Average taken from Bank of Japan Statistics, <https://www.boj.or.jp/en/index.htm/>; Real GDP taken from Cabinet Office, Government of Japan, Economic and Social Research Institute, www.esri.jp.

consumption $u(c)$, where c is consumption; $v(m)$ denotes liquidity preference for the transaction motive, where m is real balances; and $\omega(a)$ stands for wealth preference, where a is their financial asset holdings. Financial assets a consist of real money balances m and interest-bearing assets b (namely bonds and equities), and thus $a = m + b$. Their dynamic optimisation behaviour yields the following Ramsey equation and money demand function. In steady state, they are⁵

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

$$\text{Money demand: } R = \frac{v'(m)}{u'(c)},$$

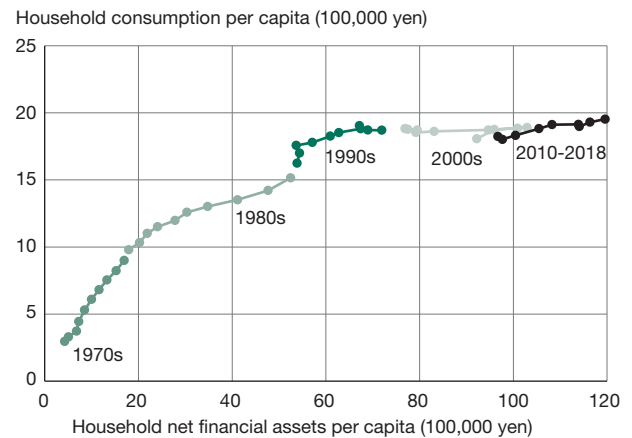
where R is the nominal interest rate, π is the inflation (or deflation if negative) rate, and ρ is the subjective discount rate. The inflation rate π is assumed to increase with the ratio of aggregate demand to full-employment output. In the presence of aggregate demand deficiency, π is negative, implying that deflation occurs.

The left-hand side of the Ramsey equation represents the intertemporal marginal rate of substitution in consumption, or the desire to consume now instead of later. If this

⁵ The Ramsey equation is

$\rho + \eta \frac{dc/dt}{c} + \pi = R + \frac{\omega'(a)}{u'(c)}$, where $\eta = -\frac{u''(c)c}{u'(c)}$. In steady state $\frac{dc}{dt} = 0$.

Figure 2
Household consumption and net financial assets per capita



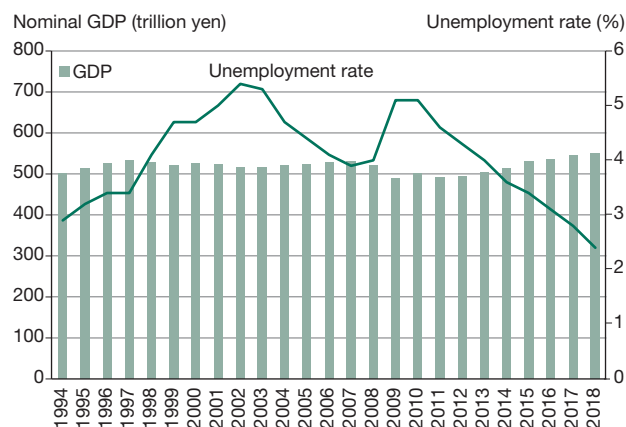
Sources: Bank of Japan: Time-Series Data Search, http://www.stat-search.boj.or.jp/index_en.html; Cabinet Office, Government of Japan, Economic and Social Research Institute, www.esri.jp.

desire is less (more) than the benefit of holding financial assets represented by the right-hand side, the household would decrease (increase) consumption. Thus, the household determines consumption such that the two values are equalised. The benefit of holding financial assets is the sum of the wealth-holding premium $\omega'(a)/u'(c)$ and interest rate R in case of interest-bearing asset b , and the sum of the wealth-holding premium $\omega'(a)/u'(c)$ and the liquidity premium $v'(m)/u'(c)$ in case of money m . The money demand function is obtained from the portfolio choice between money and interest-bearing assets, implying that the nominal interest rate R equals the liquidity premium $v'(m)/u'(c)$.

In this setting, business recovery is described as follows: if consumption is too small to achieve full employment, deflation emerges and real money balances (and hence household total financial assets) increase, which lowers both the marginal utility of money holdings for the transaction motive and the marginal utility of financial asset holdings due to wealth preference, and stimulates consumption. Eventually, consumption expands and full employment recovers. Instead of lower prices, an increase in the nominal money stock can also expand real money balances directly and hence yields the same effect on consumption. Thus, monetary easing should have a positive effect on consumption.

Now suppose that people maintain wealth preference even if they are richer, so that the marginal utility of financial asset holdings $\omega'(a)$ do not sufficiently decline as their fi-

Figure 3
GDP and unemployment rate



Sources: Bank of Japan: Time-Series Data Search, http://www.stat-search.boj.or.jp/index_en.html; Cabinet Office, Government of Japan, Economic and Social Research Institute, www.esri.jp.

financial asset holdings a increase. Even in this case, consumption can reach the full-employment level as long as the production capacity is small. However, as the productivity improves and enlarges the full-employment output, increases in real money balances due to deflation or the central bank's monetary easing cannot sufficiently stimulate consumption to achieve full employment, resulting in a steady state with aggregate demand deficiency and persistent deflation.

The Japanese case

This result is consistent with the Japanese case. Consumption increased as financial asset holdings accumulated until the end of the 1980s but stopped increasing in the 1990s. Since then, the Japanese economy has been suffering from long-run stagnation with aggregate demand shortages, as seen in Figures 1 and 2.

As deflation continues, real balances expand and the marginal utility of money for the transaction motive $v'(m)$ approaches zero, leading to zero interest rates: $R = v'(m)/u'(c) = 0$. Nevertheless, households hold interest-bearing assets because money and interest-bearing assets are then indifferent. Note that in this state, neither m nor b affects the Ramsey equation or the money demand equation because the marginal utility of real balances for the transaction motive $v'(m)/u'(c)$ reaches zero and the marginal utility of total financial assets $\omega'(a)$ does not decline. Thus, consumption is independent of money and bond issuances.

Those properties imply zero interest rates will hold and clarify why neither massive monetary expansion nor government spending with budget deficits stimulates consumption.

Miserable business recovery: More employment but less aggregate demand

While consumption and GDP stagnate, employment has improved since 2010, as shown in Figure 3. The present government particularly emphasises the recovery of employment as evidence of the success of its policy.⁶ However, there are two ways in which employment increases:

- If consumption increases, and as a result, employment expands, it is indeed economic recovery. In this case, GDP increases and wages also rise.
- However, even if neither consumption nor aggregate demand increases, employment can increase. It occurs through work sharing and/or a deterioration of labour productivity. In this case, prices and wages stagnate and neither GDP nor consumption increases.

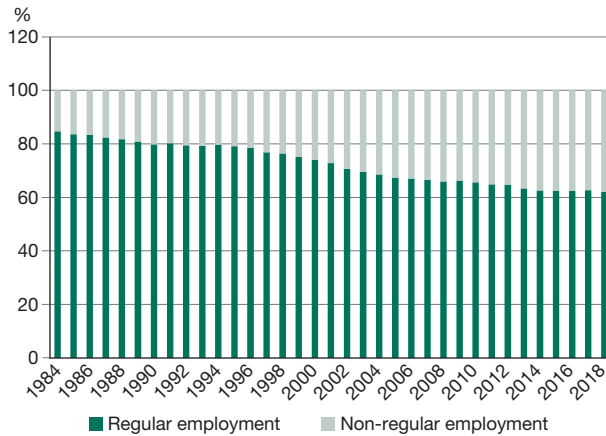
Obviously, Japan's employment recovery is the latter. GDP, consumption and CPI do not increase although the BoJ has massively expanded base money from 121 trillion yen in 2012 to 491 trillion yen in 2018 while keeping interest rates at zero. Investment is also an important component of aggregate demand. However, when consumption stagnates, firms find no benefit in investing in production facilities even under zero interest rates. As long as investment remains low and real capital does not increase, the marginal productivity of labour is unchanged and thus wages will not rise.

As shown in Figure 4, the employment composition is changing: regular employment is decreasing and non-regular employment is increasing. Because non-regular workers have shorter working hours on average than regular ones, this is considered typical work sharing.⁷ Moreover, because firms tend to give less training to non-regular workers than to regular ones, the average labour productivity will naturally decline and more labour will be required to produce the same amount of work as the ratio of non-regular workers increases.

6 The unemployment rate rose considerably after the international financial crisis of 2008 and gradually declined from 2010 until now. The declining does not appear to have accelerated since 2013 (see Figure 3) and hence we may not be able to state that the employment recovery is due to massive monetary easing.

7 The daily average working time of regular workers was 8.9 hours and that of non-regular workers was 6.4 hours from 31 October to 5 November 2014, as reported by the Japanese Trade Union Confederation on 16 January 2015.

Figure 4
Ratios of regular and non-regular employment



Source: Statistic Bureau of Japan Labour Force Survey, <http://www.stat.go.jp/english/data/roudou/>.

Japan and France compared

To illustrate this point, it may be interesting to compare French and Japanese data, summarised in Table 1. Household consumption per capita and GDP per capita are almost the same in both countries. The labour productivity is much higher in France than in Japan, whereas the unemployment rate is much lower in Japan than in France. These facts simply imply that in Japan more workers are employed and share a fixed amount of work constrained by a similar size of aggregate demand. If Japan's labour productivity improved to reach the level in France, the unemployment rate would increase to that of France.

Furthermore, it is often insisted that the private sector is more efficient than the public sector. Thus, if a country has a larger public sector, its labour productivity should be lower. However, this is not the reason for Japan's inferior labour productivity. Japan has a smaller public sector than France, as shown in Table 1.

Thus, Japan's business recovery – symbolised by a lower unemployment rate – is a miserable one. It is not the case that aggregate demand increases but that productivity adjusts to stagnant aggregate demand.

Unsuccessful policies of successive governments

In the macroeconomic literature, it has broadly been insisted that stagnation is caused by low commodity production due to either inefficiency (real business cycle

Table 1
Comparison of economic data between France and Japan, 2017

	Japan	France
Private consumption per capita (\$1000) ¹	21,211	21,536
GDP per capita (\$)¹	38,220	38,415
Labour productivity (=real GDP (\$)/employed) ²	76,017	94,773
Unemployment rate (%) ²	2.8	9.4
Government expenditure/GDP (%) ³	37.42	56.47
Government revenue/GDP (%) ³	34.25	53.79

Note: ¹ United Nations: UNData, www.data.un.org/; ² International Labour Organization, ILOstat, <https://ilostat.ilo.org/>; ³ International Monetary Fund, International Data Mapper, <https://www.imf.org/external/datamapper/>.

Source: Global Note: International and Country Statistics, www.globalnote.jp.

models) or various market distortions, including sluggish adjustments of the labour and commodity markets, monopolistic behaviour of firms and labour unions (new Keynesian models), and credit and borrowing constraints with imperfect information on borrowers. Sufficient demand never fails to emerge once commodities are produced. Thus, the policy target is to increase total output by improving efficiency and removing the various distortions mentioned.

During the last two decades, successive Japanese administrations have adopted various policy options that those macroeconomic theories propose. E.g. improvement in labour productivity by subsidising labour-saving investment, promotion of labour and commodity market flexibilities, reduction in the number of government employees because they are supposedly less efficient than private sector employees, and bad loan disposals because they urge financial institutions to reallocate capital to efficient firms.

If these were the reasons for the Japanese stagnation since the early 1990s, we should accept the following views: the quality and capability of Japanese workers are worse now than pre-1990, and various market distortions have significantly increased since the 1990s. However, these views seem to be quite implausible.

Moreover, most of the new Keynesian models consider stagnation to be temporary. Krugman insists that future monetary easing stimulates present consumption as it raises future prices and thereby makes people expect

that inflation will occur.⁸ The BoJ's consecutive monetary easing follows this policy proposal. However, in order that people believe that inflation will occur, aggregate demand deficiency must disappear when the money supply expands. However, Japanese stagnation is not temporary but secular. It has lasted more than two decades and therefore it is still very difficult for people to expect business recovery in the near future.

If the Japanese stagnation is due to secular aggregate demand deficiency created by people's wealth preferences, these policies will not work. Moreover, they may worsen stagnation. In fact, the Japanese economy still stagnates in spite of all these policy efforts.

For example, flexible adjustments of wages and prices exacerbate deflation in the presence of aggregate demand shortages. Deflation makes it more advantageous for households to accumulate financial assets than to increase consumption, urging them to consume less.

Relaxing credit constraints and smoothing lending and borrowing of investment funds will promote capital reallocation to more efficient firms and increase full-employment output. If aggregate demand is lower than full-employment output, however, it will widen the deflationary gap, reduce consumption and worsen business activity.

Smoothing lending and borrowing by relaxing borrowing constraints will increase aggregate demand and stimulate business in the short run. However, in the long run, borrowers accumulate debt and decrease consumption while lenders become richer but do not increase consumption because of their wealth preference, and stagnation will, in turn, become more serious.⁹

Productivity improvements and workforce adjustments widen the deflationary gap and worsen deflation, which makes it more advantageous for households to accumulate financial assets than to increase consumption. This was in fact the case in the early 2000s when Prime Minister Junichiro Koizumi (2001-2006) promoted the so-called structural reform and urged firms to reduce the workforce and increase the number of temporary workers (see Figure 4). Moreover, he cut down on public works thereby decreasing the number of employees in the construction industry significantly. Consequently, the unemployment

rate increased sharply and stagnation became more pronounced.

Transfers or tax cuts with budget deficits and monetary easing will have no effect on consumption if people do not weaken wealth preference. The marginal utility of financial asset holdings does not decline as financial asset holdings increase, however the marginal utility of consumption does decline as people increase consumption. Thus, people prefer to allocate increases in disposable income through transfers and tax cuts to saving without increasing consumption. In fact, while financial asset holdings significantly increase, household consumption does not, as shown in Figure 2.

Policy recommendations and possible objections

Because neither fiscal expansions with budget deficits nor monetary expansions stimulate consumption, the government should directly create new employment through public employment or government purchases in order to increase aggregate demand. Moreover, public services and commodities must be non-substitutes for private ones so that they should not crowd out private consumption. Medical services, child care, nursing of the aged and public works may be good candidates.

There may be two concerns about such a proposal. One is financial collapse of the state and the other is the crowding-out effect of public purchases and employment.

Regarding the potential financial collapse, Japan has ample room for tax increases. The consumption tax (Japanese VAT) is only eight percent (which will be raised to ten percent in October 2019 after being postponed twice) and the ratio of tax and social security payments to GDP is one of the lowest among OECD countries.¹⁰ Moreover, increases in the consumption tax will not reduce consumption while advance demand and recoil reduction due to an intertemporal substitution may occur in the short run. In fact, household financial asset holdings per capita have increased by 1.8 times from 1992 to 2018 but nevertheless consumption per capita has not significantly increased, as we have already seen in Figure 2. Thus, a decrease in the real value of financial assets due to an increase in the consumption tax will not affect consumption.

However, it seems that the majority of Japanese still believe that raising taxes will lower consumption. In fact, many governments that took up the issue of tax increases

8 P. Krugman: Thinking About the Liquidity Trap, in: Journal of the Japanese and International Economies, Vol. 14, No. 4, 2000, pp. 221-237.

9 For a formal analysis on this mechanism, see G. Illing, Y. Ono, M. Schlegl: Credit Booms, Debt Overhang and Secular Stagnation, in: European Economic Review, Vol. 108, 2018, pp. 78-104.

10 Japan is the 30th among OECD countries except Lithuania in 2018 according to the IMF World Economic Outlook, available at https://www.globalnote.jp/p-data-g/?dno=8180&post_no=12142.

lost power. Thus, this becomes a political rather than economic issue.

The crowding-out effect emerges only under full employment because there is no room to expand production. In the presence of excess production capacity under stagnation, however, an increase in government purchases and employment will not crowd out private demand. Moreover, it creates new employment, reduces the deflationary gap and stimulates consumption.

Note that it is not an increase in disposable income due to government purchases and employment, but rather a mitigation of deflation due to employment creation that expands consumption. Thus, the amount of new employment created by government purchases and public works is important, whereas the amount of expenditure is irrelevant. Neither a tax cut nor transfer stimulates consumption. On the opposite side of the same coin, neither a tax increase nor a decrease of transfer will affect consumption.

Besides the above-mentioned stimulus to consumption due to government purchases and employment, the public services and facilities they produce yield direct benefits. Obviously, the benefits depend on the quality of the services and thus the government should choose useful activities. But even without direct benefit, the government should encourage them because they create new employment, increase consumption and stimulate business.¹¹

However, trapped by the supply-side view, people tend to oppose an expansion of government activities for fear of their inefficiency and the crowding-out effect. Therefore, it is very difficult for the government to promote this policy.

Previous and present policies have failed to overcome stagnation

Since long-run stagnation started in Japan in the early 1990s, successive Japanese governments have adopted supply-side improvements and fiscal expansions to recover business. Additionally, the present government has strongly promoted massive monetary easing. Consequently, stock prices have increased, making people richer, and the unemployment rate has declined. However, the economy is actually still stagnant. There is little increase in consumption, GDP or commodity prices.

¹¹ In the conventional Keynesian-cross analysis, fiscal expansions with a balanced budget do not increase consumption, whether they directly create new employment or not. In the present model, whether under a balanced or a deficit budget, fiscal spending that directly creates new employment stimulates consumption, but fiscal spending without new employment does not.

Thus, increases in household wealth do not lead to higher consumption.

Such a discrepancy between stock and flow variables naturally arises if households have wealth preference and the marginal utility of financial asset holdings does not sufficiently decline as households accumulate financial assets. Because the marginal utility of consumption decreases as consumption increases while that of financial asset holdings does not, increases in financial assets do not stimulate consumption.

In the presence of aggregate demand shortages, commodity prices decline and expand real money balances, which should stimulate consumption. However, if the wealth preference does not decrease, consumption is not stimulated. Moreover, deflation due to aggregate demand shortages raises the real rate of return of financial assets, which further decreases consumption. As a result, the economy reaches a steady state with deflation and aggregate demand shortages.

In this state, financial and monetary policies adopted by successive governments of Japan do not have positive effects on the economy. Improving supply-side efficiency reduces labour demand, widens the deflationary gap and worsens stagnation. Increases in household financial assets due to monetary easing and bond issuance have no effect on aggregate demand. The government should directly create aggregate demand by expanding public purchases and employment, mitigate deflation and stimulate consumption.

Government should create aggregate demand

Given the significant public debt of Japan, it seems difficult for the government to expand public purchases and employment. However, there is substantial room for tax increases in Japan. Moreover, because of wealth preference, changes in real asset holdings will not affect consumption, i.e., tax increases will not reduce consumption.

However, wealth preference also drives people to vehemently oppose tax increases. Therefore, most politicians have been very hesitant to insist on that policy. In fact, the present government postponed the scheduled increase from eight to ten percent of the consumption tax twice before eventually adopting it. Moreover, almost all opposition parties were against a rise in the consumption tax in the last upper house election in July 2019.

Unless such political circumstances change, aggregate demand stagnation and accumulation of government debts will continue in Japan.