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THE GREAT INFLATION IN JAPAN: HOW ECONOMIC THOUGHT INTERACTED WITH ECONOMIC POLICY

Masazumi Wakatabe
Goushi Kataoka

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TOKYO CENTER FOR ECONOMIC RESEARCH
1-7-10-703 Iidabashi, Chiyoda-ku, Tokyo 102-0072, Japan

Abstract

Recently the Great Inflation of the 1970s has become one of the most discussed topics of macroeconomic policy and thought studies. Although Japan recorded the highest inflation rate in 1974, 23% increase in CPI over the same month of the preceding year, in the literature, the story of the Japanese side has not been fully examined, especially from the view point of economic thought. The paper is an attempt to fill the void. Three hypotheses have been proposed to explain the Great Inflation in the United States: political, output gap mismeasurement, and monetary policy neglect hypothesis. The paper would argue that, although political process was influential, monetary economic thought during the period played an important role in the policy discussion. In this connection, the paper would also assess the relative importance of Keynesian and other economic thought in Japan, and the impact of Milton Friedman and monetarism on policy discussions. The paper would show that the interaction between the political process and the economic thought is indeed intricate and subtle.

Masazumi Wakatabe
TCER
and
Waseda University
Faculty of Political Science and Economics
1-6-1 Nishi-Waseda, Shinjuku-ku, Tokyo
wakatabe@waseda.jp

Goushi Kataoka
Mitsubishi UFJ Research & Consulting
Department of Economic and Social Policy
Shinagawa Grand Central Tower, 2-16-4
Konan, MinatoTower, 2-16-4 Konan, Minato-ku, Tokyo
goushik@murc.jp

The Great Inflation in Japan: How Economic Thought interacted with Economic Policy*

Goushi Kataoka
Senior Economist
Mitsubishi UFJ Research & Consulting

Masazumi Wakatabe
Faculty of Political Science and Economics
Waseda University
1-6-1 Nishi-Waseda, Shinjuku-ku, Tokyo 169-8050, Japan
E-mail: wakatabe@waseda.jp

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I. Introduction

Japan experienced one of the highest inflation rates during the 1970s, but subdued it quickly in the latter part of the 70s. What happened during this period has been fairly established, and the remaining problem is what caused it. Recently the Great Inflation of the 1970s has become one of the most discussed topics of macroeconomic policy and macroeconomic thought studies.[1] Although the voluminous amount of the literature has been published and the nature of the worldwide inflation, the Japanese side of the story has not yet been fully explored. The topic of the paper is precisely on it.

In the literature, three hypotheses have been advanced with a special emphasis on the United States: political, output gap mismeasurement, and monetary policy neglect hypothesis. The political hypothesis states that the Great Inflation was caused by political factors, especially politicians' willingness to sacrifice price stability in favor of full employment (Meltzer 2005, 2010). Secondly, the output gap mismeasurement hypothesis emphasizes that policymakers at that time were mistaken in their estimation of the output gap which they used to guide their policies (Orphanides 2003). The American policymakers aimed at around 4 % full employment rate, so they conducted an overly excessive macroeconomic policy. However, this hypothesis has been criticized since the output gap did not explain the Great Inflation in the U.K. (Nelson 2005a) Also the output gap hypothesis was based on the premise that the policymakers at that time used the Phillips curve-type analysis, but the adherence to the specific economic theory cannot be detected clearly in the discussions of policymakers. The monetary policy neglect hypothesis is gaining popularity (Mayer 1999; Sargent 1999; Romer and Romer 2002; Nelson 2005a, 2005b, 2006; 2007). It pays special attention to the role of economic ideas in policymaking. Policymakers and economists did not take monetary policy seriously as the cause of inflation, and the Great Inflation was caused by this neglect of the importance of money in explaining the movement of prices over the long-run: namely they did not subscribe to Milton Friedman's famous dictum that "inflation is always and everywhere the monetary phenomenon". Needless to say, one does not have to choose only one of three: all three could be interacted with each other. Yet the monetary policy neglect perspective offers us a good starting point to pursue the relationship between economic ideas and policy.

This paper explores the interaction between economic thought and policy during

[1] There were already two major conferences on the topic to date, one organized by Federal Reserve Bank of St. Louis, and the other by NBER. See the following URL: http://research.stlouisfed.org/publications/review/05/03/part2/MarchApril2005Part2.pdf and http://www.nber.org/books/bord08-1/. Also there is a book-length account for the general public (Samuelson 2008).

Great Inflation in the 1970s Japan. Although the literature on the Great Inflation of the 70s is voluminous, there are a few studies on the Great Inflation in Japan. Cargill, Hutchison, and Takatoshi Ito (1997) examines question as to whether the Bank of Japan adopted monetary targeting after the first Oil Shock of 1974 along monetarist reasoning, concluding that the Bank of Japan did not adhere to the strict monetary targeting since they allowed flexible revision of the target rate, although they used monetarist rhetoric. Ito's more recent paper focuses mainly on the Bank of Japan's gaining of the *de facto* independence from the government, arguing that the Bank of Japan had already achieved the de facto independent status after the first Oil Shock (Ito 2010). Ueda (1993) emphasized the role of misperception among the managers of corporations. Using data from the BOJ's *Short-term Economic Survey of Enterprises*, he concluded that "To the extent the survey was a major consideration in setting monetary policy during the period, we may conclude that the misjudgment the state of the economy was a possible cause of the mistake in monetary policy" (Ueda 1993, 193). This is perhaps the only paper which is similar to the output misemeasurement hypothesis, yet one has to note that the policy discussion during in Japan was not framed in terms of the Phillips curve analysis. Okazaki (1999) is a good account by economic historian with some discussion of policymakers' views, yet it did not deal with the discussion of academic economists. Takemori (2006) is a readable account of the period, stressing the importance of political leadership, the change of the Minister of Finance from Kiichi Aichi to Takeo Fukuda in particular. However, as we shall argue in the paper, the fiscal policy stance had already changed by the time when Fukuda took over the ministership of Finance. Edward Nelson (2007) is by far the best account, but has some limitations. First, Nelson relied on the materials available only in English, mostly newspaper news and editorials. Second, he did not take the contemporary policy discussions by Japanese economists into account, with a few exceptions in the case of incomes policy. Thirdly, he emphasized the shift of policy discussions from cost-push to monetary explanation, yet as we shall argue, what happened to the policy discussion was not so straightforward but more subtle.

In this paper, we take the economic ideas and thought during the period seriously. As is emphasized by Laidler (2003), one needs a model to understand how the economy works, and that model is not necessarily models that economists share. In economic policymaking, this diversity of "models" becomes most acute, making a room for historian of economic thought to contribute to understand economic policymaking.[2] We shall argue that

[2] See Wood (2009) for quite the opposite perspective: based on his analysis of the history of macroeconomic policy in the United States, he concluded that "it's all interests after all" which determines policy.

politics and ideas did matter in engendering the Great Inflation in Japan, but what makes the Great Inflation interesting is not politics or ideas alone, but the interaction between political and ideas.

The paper is organized as follows. The next section analyzes the Japanese economy during the 1970s econometrically. We shall argue that the Great Inflation should be attributed to the failure of monetary policy along with the failure of exchange rate policy, by quantitatively evaluating economic policies then. In particular, first we estimate the St. Louis Model, the staple econometric model used in the 1970s; second we evaluate monetary policy in light of policy rules such as the Taylor rule, the nominal growth rate rule, and the McCallum rule. Section III turns to the economic policy and thought during the period. We shall discuss the economic thought of politicians, the Bank of Japan and economists, arguing that there was in fact a shift in their understanding of inflation from cost-push to demand-pull approach with a strong emphasis on money, but the shift was smoothed out to make a new consensus. Section IV concludes the paper.

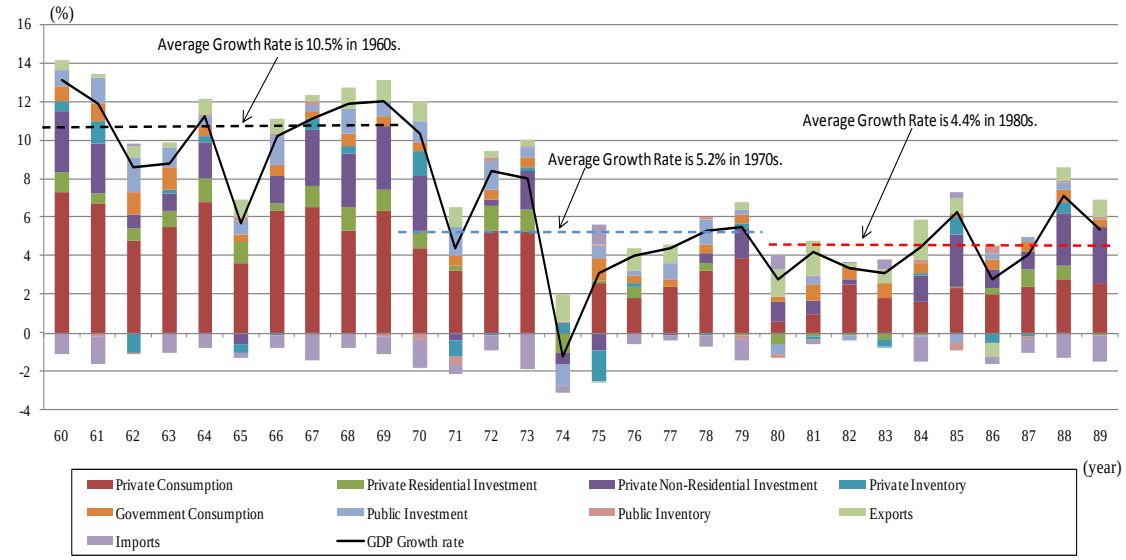
II. The Japanese Economy during the 70s

This section starts with the overview of the economy, then turning to the evaluation of relative contributions of fiscal and monetary policies.

II.1. The Overview

With two Oil Shocks and a negative growth rate, the 1970s for the Japanese economy was a turbulent and volatile period between the High Rapid Growth Era (*Kodo Seicho*) of the 1960s and the Stable Growth Era of 1980s (**Figure 1**). The decade is divided into roughly five sub-periods. There was a recession after the long boom from 1970 to 1971. Second, it recovered quickly in 1972-1973, but in 1974, it was followed by a negative growth caused by the First Oil Shock and recorded a negative growth rate: it was the first time in post-WWII. Recovery from stagnation occurred from 1975 to 1978, but at the end of the decade came the Second Oil Shock. In terms of relative contributions to the growth rate, after 1974 those of private consumption and investment declined, while the contribution of export increased.

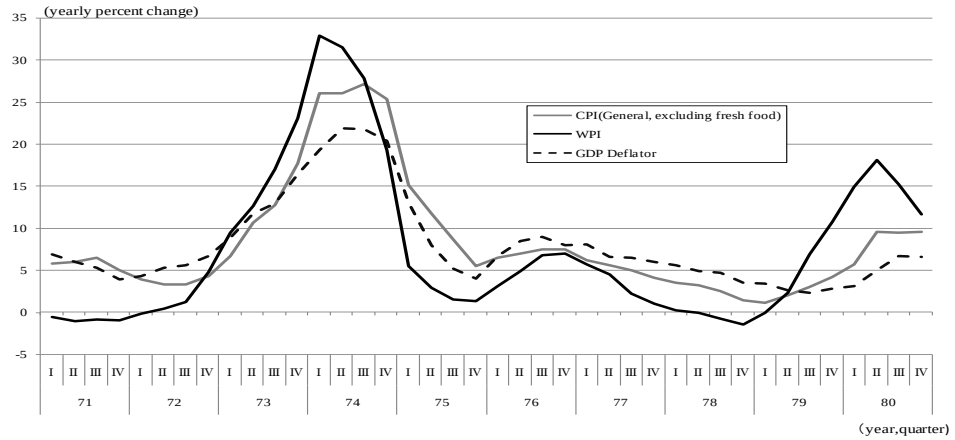
Figure 1: GDP Growth Rate and Contributions



Source:Cabinet Office, *National Accounts*

Turning to the inflation, the 1970s was divided into four sub-periods (**Figure 2**). First, inflation started around the fourth quarter of 1972 during the boom. Second, there was a sharp inflation in 1974, when the reaching at 32.9 % (CPI excluding fresh foods), 27.2 % (WPI), and 21.9 % (GDP deflator): this was the highest among the advanced economies, and no doubt it was partly due to the First Oil Shock triggered by the Yom Kippur War. However, it was subdued in 1975, and although there was another rise in 1979, due to the Second Oil Shock, it was contained quickly: the Great Inflation in Japan ended before U.S., and U.K.

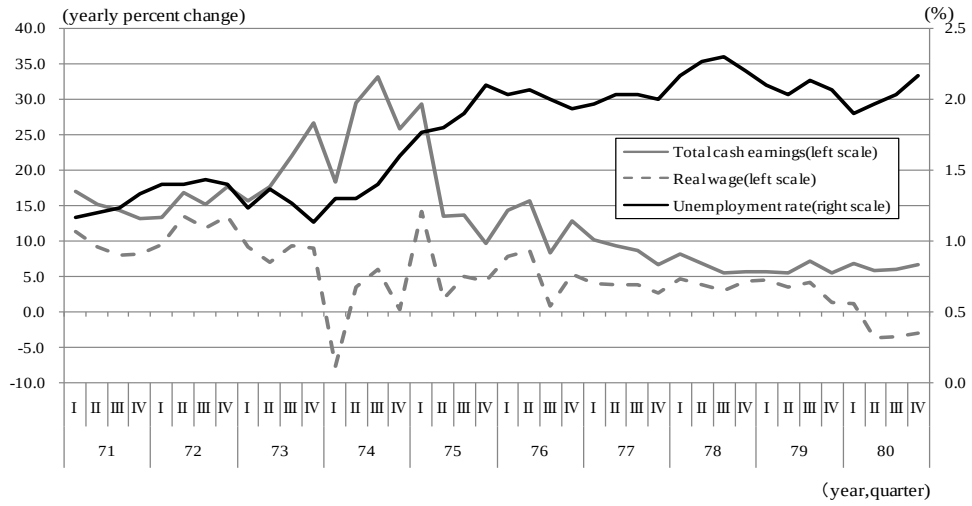
Figure 2: Changes in Prices



Source:Ministry of Internal Affairs and Communications, *Consumer Price Index*, Bank of Japan, *Corporate Goods Price Index*, Cabinet Office, *National Accounts*

Employment trends followed inflationary experience closely (**Figure 3**). In the inflationary period of 1972 to 1974, nominal earnings--total cash earnings--growth accelerated as inflation accelerated, and declined as inflation was subdued. Total cash earnings grew steadily until the first quarter of 1973 around 15%, but shot up afterwards. However, real wages growth declined around 1973 from 10% to the range of 5 to 7% with a short period of decrease, as the unemployment rate increased.

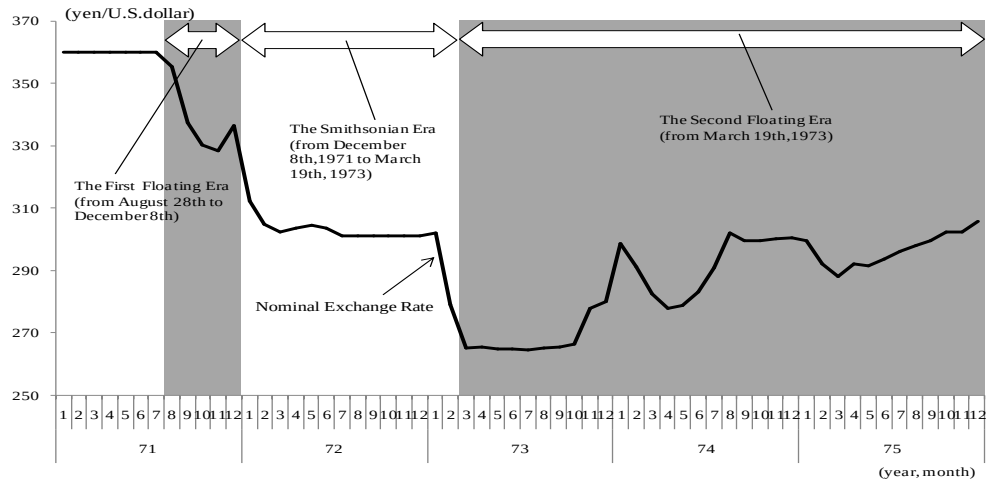
Figure 3: Employment Trends



Source:Ministry of Internal Affairs and Communications,*Labor Force Survey*, Ministry of Health, Labour and Welfare, *Labour Surveys*
Note:Real wage =Total Cash Earnings - CPI(General, excluding fresh food)

The exchange rate was a major concern throughout the 1970s, undergoing a drastic change from the fixed exchange system to the floating system with an interim period (**Figure 4**). Under the Bretton Woods system the exchange rate was fixed at 1$=¥360, yet after the speech made by U.S. President Richard Nixon regarding the suspension of the system on August 15, 1971, there was a brief floating period from August 28 to December 18 in 1971 (the First Floating Period). The Smithsonian Agreement fixed the exchange rate at 1$=¥308 with allowance of 25% change from the target: the degree of appreciation against the U.S. dollar—16.88%—was the biggest among other advanced economies. But this system also collapsed with the Dollar's revaluation on February 12, 1973 (the Second Floating Period). The rate reached around 1$=¥260, and depreciated toward the end of 1975, while it appreciated steadily afterward.

Figure 4: Changes in Nominal Exchange Rate



Source: IMF, *International Financial Statistics*

Why was there an appreciation of the Japanese Yen during the period? One obvious cause was the Japan's current account and trade balance surpluses: Japan became a stable current account surplus country since 1968. There were two reasons: an increase in export due to trade liberalization and reduction of tariff during the 1960s, and a non-proportionate increase in import. On the one hand, Japanese industries succeeded in increasing their productivities in industries whose goods were demanded worldwide, as is shown in **Figure 5**. On the other hand, Japanese industries, with a few exceptions, did not need additional increase in import. As other advanced economies such as the U.S., West Germany, U.K. and France increased their dependence on import with the increase in per capital income, the Japanese industries did not depend on import, reflecting their structure in which Japan import manufactured goods to export manufactured goods with further value added (**Figure 6**).

Figure 5: Export Growth of Major Countries

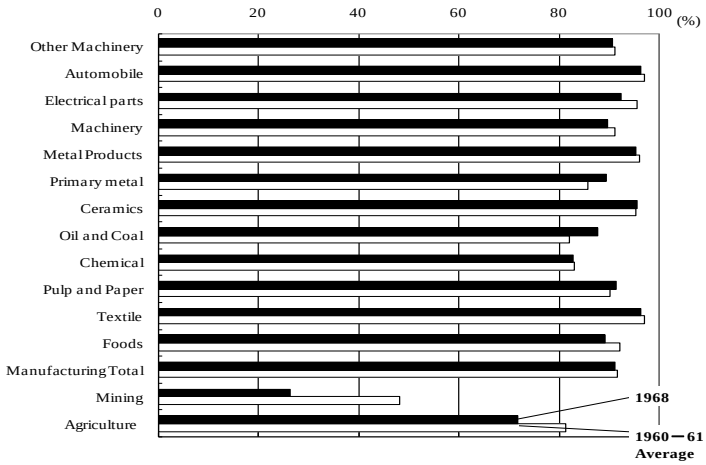
(%)

	World Total	Japan	United States	West Germany	France	United Kingdom
Total	9.6	16.9	7.6	10.2	8.7	5.4
Foods	5.8	5.1	5.3	16.8	6.8	4.8
Textile	3.2	5.5	—	13.4	2.9	—
Clothes	15.5	9.3	6.0	14.9	9.0	8.8
Lumber	8.0	6.4	16.0	18.6	—	4.1
Pulp and Paper	7.1	9.2	9.3	12.7	10.7	4.4
Publication	13.2	17.0	10.6	14.0	9.5	7.9
Leather	5.2	34.8	5.7	8.7	6.8	6.0
Rubber	1.2	17.2	2.8	10.4	11.6	1.7
Chemical	10.9	20.5	6.9	10.9	10.6	5.8
Ceramic Industry	15.7	9.8	10.1	8.7	9.0	28.2
Primary metal	11.0	22.3	4.7	7.8	4.8	4.9
Metal Products	10.8	17.4	8.0	8.2	6.7	2.5
General Machinery	12.1	21.6	8.8	10.0	13.4	4.9
Electrical Machinery	14.3	26.3	9.4	9.9	11.3	3.6
Automobles	15.0	22.4	11.8	10.4	8.6	4.5
Precision Machinery	14.8	22.2	14.8	10.0	13.6	13.9

Source: Economic Planning Agency, *White Report of Economic Issues 1970(Syowa 45 nen Keizai Hakusyo)*

Note: The number is Export Growth rate calculated by using 1961, 1962-67 and 1968 yearly data.

Figure 6: Industry Self-sufficiency



Source: Economic Planning Agency, *White Paper of Economic Issues 1970(Syowa 45 nen Keizai Hakusyo)*

II.2. Policy Responses

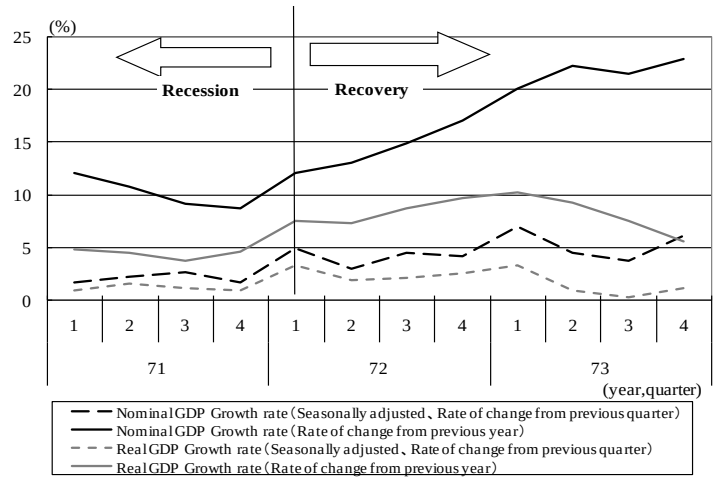
First and foremost, the exchange rate policy mattered. There was a constant pressure for the Yen to appreciate since late 1960s. Japan refused to revalue its currency, which was considered to be a reason why Richard Nixon declared unilateral suspension of the system. After the so-called Nixon Shock, the BOJ purchased a considerable amount of U.S. dollars to intervene the market.[3] The exchange rate was stable from March 1973 to

[3] According to Komiya (1976), the purchase was 6.8 billion dollars among the entire increase

October 1973, but this was also the result of the BOJ intervention to stabilize the rate at 1$=¥265: even after the breakdown of the Smithsonian Agreement, the Japanese policymakers were stuck with the fixed exchange rate regime. This adherence contributed to the imported inflation from abroad. Ryutaro Komiya's classic 1976 paper attributed one cause for inflation to the exchange rate policy, so in part to the responsibility of the Ministry of Finance.

Fiscal policy was expansionary too from late 1970 to 1972: this was in part a response to a recession in 1970 to 1971, also in part a policy initiative by Prime Minister Tanaka's ambitious plan in 1972. However, it became contractionary from April 1973, so that it was already contractionary when the Great Inflation accelerated in late 1973. It was quite likely that an expansionary fiscal policy accelerated the growth of nominal GDP. However, with respect to a cause for the Great Inflation, fiscal policy did not play a major role since contractionary fiscal policy did not contribute much to the decrease in the growth of nominal GDP: although the real GDP growth slowed down, but the nominal GDP growth accelerated (**Figure 7**). Therefore, we conclude that fiscal policy was not a major cause for the Great Inflation.

Figure 7: Comparison of Boom and Recession



Source:Cabinet Office, *National Accounts*
Note:The data is 68SNA(the year of 1990 basis)

That leaves out monetary policy. It went through several stages, an expansion from Oct. 1970 to March 1973, a contraction from March 1973 to March 1975, an expansion from March 1975 to April 1978, and a contraction from March 1979. There was a stark difference

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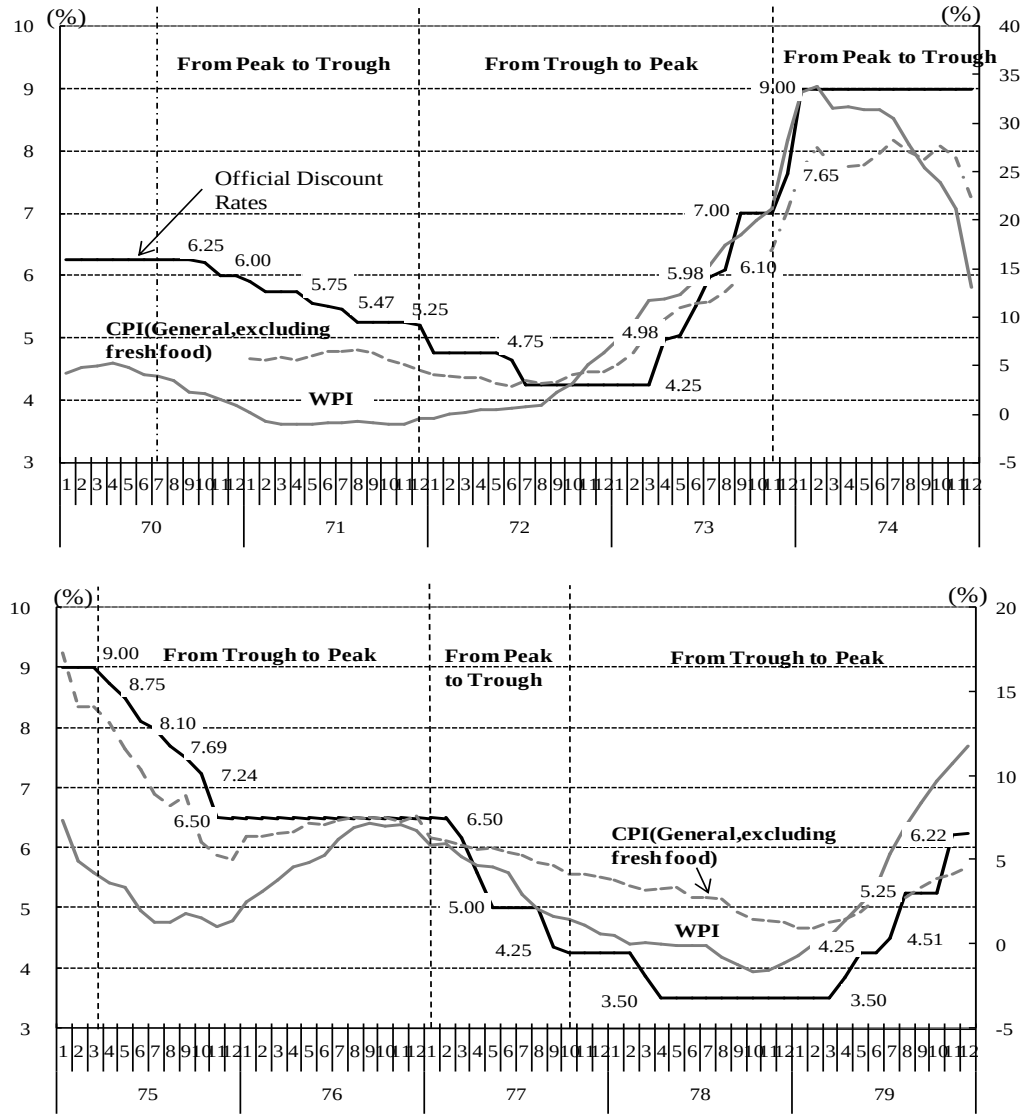
of foreign reserve of 9.5 billion dollars.

between the prolonged expansion in the early 1970s and the prompt contraction in the later 1970s. During the earlier period, the official discount rate was continuously cut from October 1970 to March 1973, and the money supply (M2+CD) was increased from June 1971 to October 1973 at more than 20 % growth rate (**Figure 8**). In the literature there was a consensus that this was the major cause of the Great Inflation (Komiya 1976; Okazaki 1999). On the other hand, a prompt tightening of monetary policy in the later 1970s prevented another Great Inflation from coming.

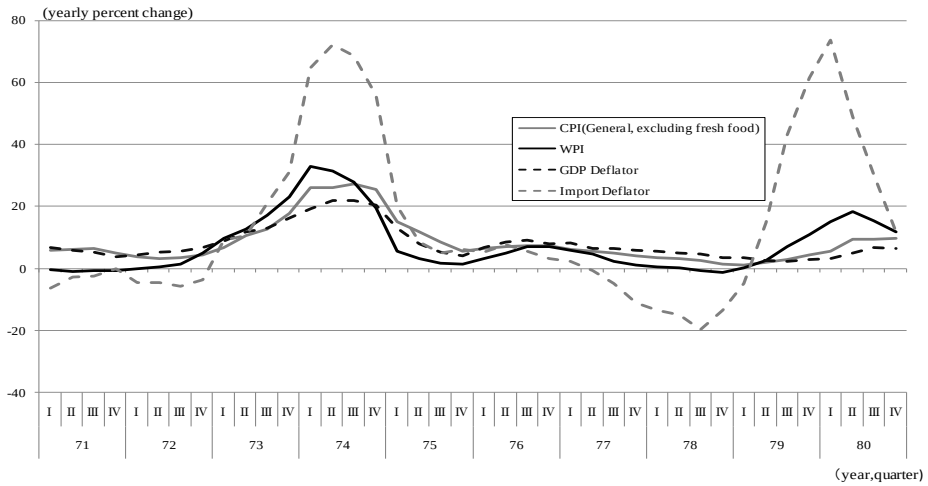
The difference in monetary policy responses is further illustrated by comparing contributions to the GDP deflator for two periods: in both periods, the degrees of the increase in the Imported Deflator were almost of the same amount, while there were significant difference in the increases in WPI, CPI, and the GDP deflator (**Figure 9, 10**). This suggests that imported inflation turned into a home-made inflation in 1973-1974 with a rise in wages, but it did not in 1979-1980. A comparison of the movements of monetary base, money supply (M1, M1+CD), wages (total cash earnings), and firm's sale and profits further reveal that an expansionary monetary policy led to the increase in nominal wages and GDP deflator with a certain lag. The increase in nominal wages reduced firm's profits, along with the stagnant sale contributing to the negative growth rate in 1974. On the other hand, there was no rapid increase in monetary base and money supply in 1979-1980, growing at a stable rate. The GDP deflator and nominal wages grew steadily as well, and profits did not decrease much, avoiding a sharp recession (**Figure 11**).

Figure 8: Trends of Discount Rate, WPI and CPI



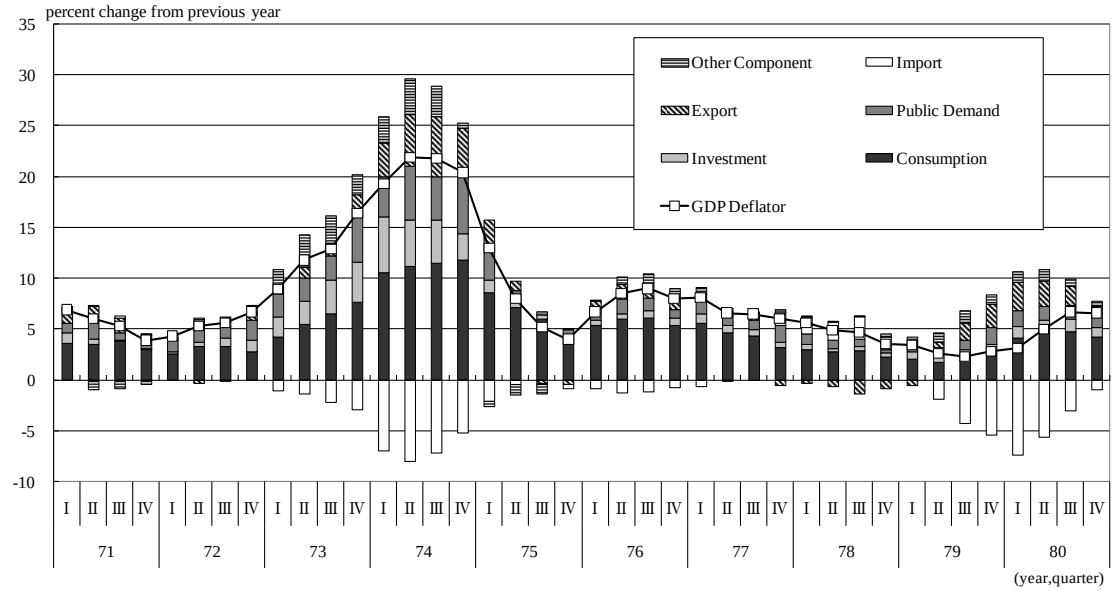
Source: BOJ Data, Ministry of Internal Affairs and Communications, *Consumer Price Index*, Bank of Japan, *Corporate Goods Price Index*.

Figure 9: Changes in Prices of the 1970s



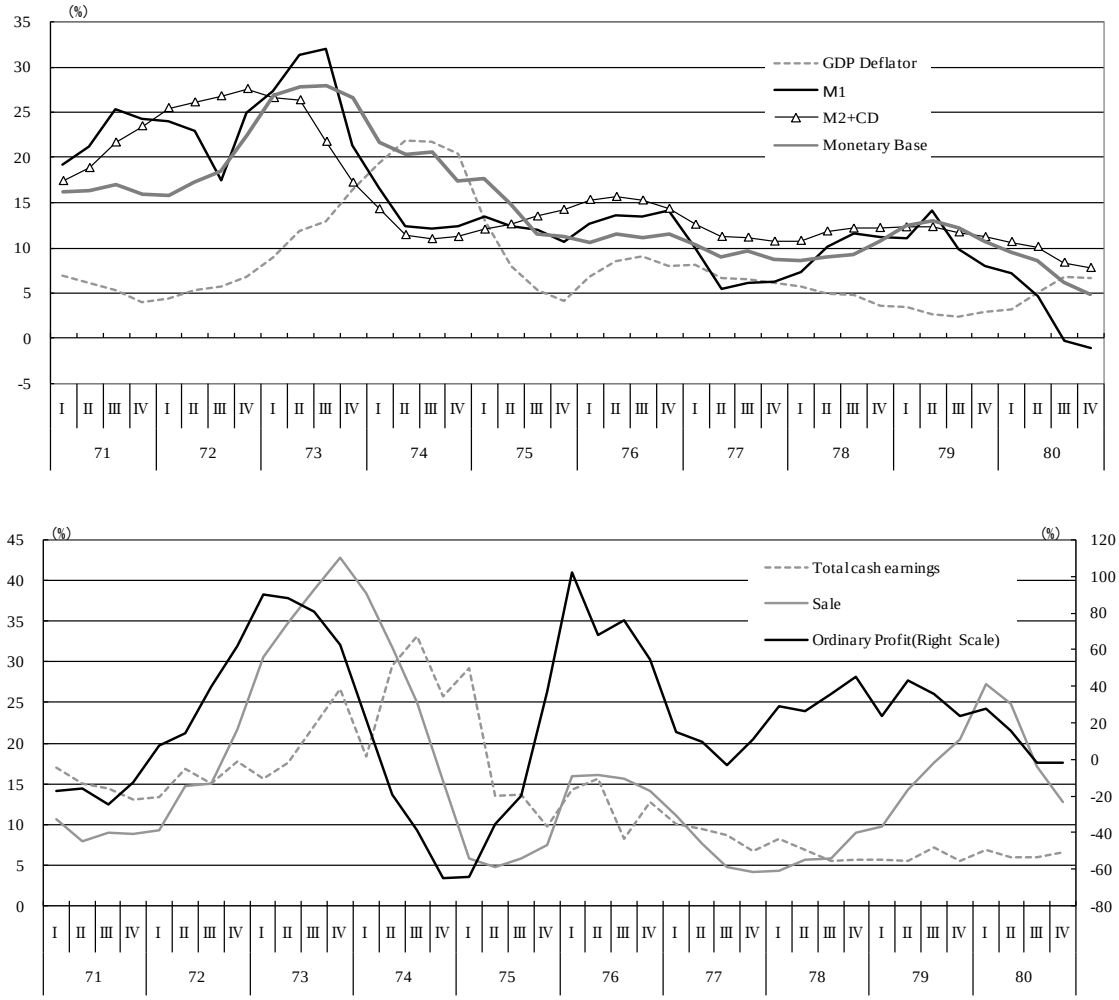
Source: Ministry of Internal Affairs and Communications, *Consumer Price Index,* Bank of Japan, *Corporate Goods Price Index,* Cabinet Office, *National Accounts*

Figure 10: Trends of GDP Deflator and Contributions



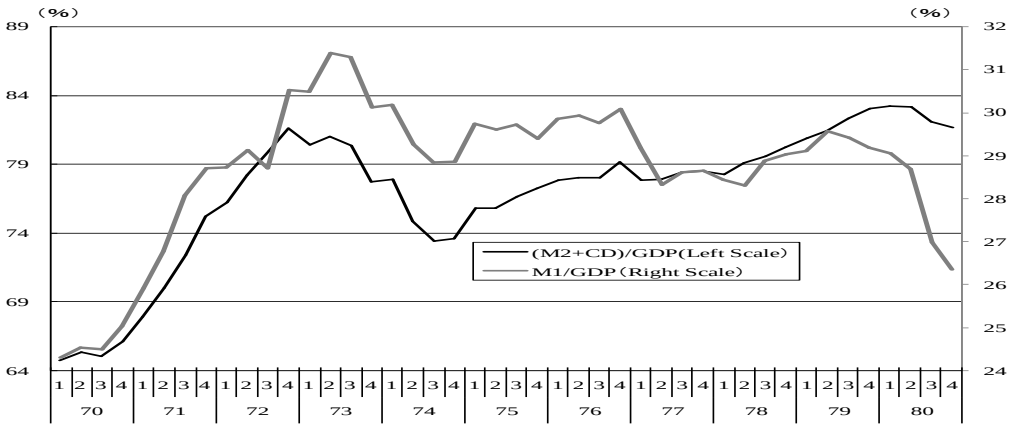
Source: *Cabinet Office, National Accounts*

Figure 11: Trends of Money, Wage and Corporate Activity



Source:BOJ Data, Ministry of Health, Labour and Welfare, *Labour Surveys,Ministry of Finance,Financial Statements Statistics of Corporations by Industry*

Figure 12: Excess Liquidity Trends



Source:BOJ Data, Cabinet Office, *National Accounts*

II.3. Econometric Evaluation of Fiscal and Monetary Policies

We conducted econometric analysis in dealing with the following three issues. First, to what extent were fiscal and monetary policies important in affecting the Japanese economy? Second, using several policy rules, how could we evaluate monetary policy during the 1970s? Third, how did the policy rate react to the deviation of inflation rate, GDP gap, and exchange rate from the desirable rates, respectively? Is there any difference with the 80s?

A. The St. Louis Model

To answer the first question, we estimated the St. Louis Model for the 1970s. It was the time-series model developed by the Federal Reserve Bank of St. Louis in late 1960s (Andersen and Jordan 1968), and have been used frequently during the 1970s and 1980s in order to evaluate the relative contributions of monetary and fiscal policies on nominal income in a simple way. There have been many studies on the Japanese economy by Japanese economists (Bank of Japan 1975; Ito and Hiroe 1976; Shinpo 1979; Oritani 1979; Nakamura 1982; Sashida 1983; Hori and Ito 2002; Hiroe 2006), so that we can confirm our result against the existing ones.

The model has been criticized for several problems such as misspecification, simultaneous equation bias, choice of appropriate policy index, estimation with lags, and heteroscedasticity (Hiroe 2006). In order to avoid these problems, taking into account the stationarity of data and the stability of the results, we choose variables with I(1), lags based on the AIC criteria, and corrected for heteroscedasticity. We choose government expenditure (the sum of government consumption and public fixed capital formation) as a variable for fiscal policy, and the combination of BOJ loans and official discount rate, and M1 as variables for monetary policy. In estimation, following Hori and Ito, we take the natural log of nominal GDP as the dependent variable, and the natural log of government expenditure, BOJ loans, the official discount rate and M1 as explanatory variables. We further take the first difference of each variable, except for the official discount rate.

We estimated the following equation.

$$\Delta \ln Y_t = \text{const} + \sum_{i=0}^{n} \beta_t \Delta \ln G_{t-i} + \sum_{i=0}^{n} \delta_t \Delta \ln M_{t-i} + \varepsilon_t$$

Y: nominal gross domestic product, const= constant term, G: nominal government expenditure, M: variable for monetary policy (M1 or BOJ loans and the official discount rate), ε: error term

First we choose five variables which satisfies I (1) by using the ADF test (**Figure 13**),

and choose the degree of lags by estimating from the first lag to the fourth lag and selecting the the result with the minimum AIC value. The estimation period is from the first quarter of 1967 to the fourth quarter of 1989. We estimate for four cases: government expenditure as fiscal policy variable and M1 as monetary policy variable (Case 1), BOJ loans and official discount rate as monetary policy variable (Case 2), and the official discount rate alone as monetary policy variable (Case 3).

Our findings are summarized as follows[4]:

(1) When selecting M1 as the monetary policy variable (case 1), the effects of monetary policy on nominal GDP would become larger.

(2) Considering the fact that M1 is a stock, while nominal GDP is flow, we calculate the β-coefficient, examining the relative magnitude of both fiscal and monetary policies for each lags. We find out that fiscal policy has the largest impact and the impact would decrease with lags, while monetary policy has the small impact when it is initiated but has the largest effect with the fourth lag.

(3) When selecting BOJ loans and the official discount rate as monetary policy variable (Case 2), fiscal policy has overwhelmingly large effects on nominal GDP.

(4) As far as the results are concerned, Case 1 is better than other cases in terms of R-square, D.W.-ratio, and AIC

(5) The above suggests that policy based on the BOJ loans and the official discount rate would be mistaken in their effects on the economy, and the policy based on the monetary stock is important.

(6)Our findings are consistent with the existing literature.

Figure 13: ADF test

[4] We test the stability of the results by examining the existence of structural change using CUSUM test, CUSUMSQ test, Chow test. We found out that the St. Louis Model with M1 as a monetary policy variable became unstable in the early 1970s, but stable throughout the entire period. We also that the model with BOJ loans and the official discount rate as a policy variable became unstable from the 1970s to the early 80s, and unstable throughout the entire period. See the appendix for the details on the stability of the results.

Augmented Dickey and Fuller Test

Variable	ADF	lag	t-adf	Significance	Formulation
Nominal GDP	level	2	-1.41		Const,Trend
	level	2	2.36		Const
	first difference	1	-4.07	***	Const,Trend
	first difference	1	-3.18	**	Const
	second difference	11	-3.76	**	Const、Trend
	second difference	11	-3.81	***	Const
Nominal Public Investment	level	0	-1.02		Const,Trend
	level	0	-1.17		Const
	first difference	0	-9.50	***	Const,Trend
	first difference	0	-9.47	***	Const
	second difference	5	-7.73	***	Const、Trend
	second difference	5	-7.78	***	Const
M2+CD	level	1	2.70		Const,Trend
	level	1	3.47		Const
	first difference	0	-2.48		Const,Trend
	first difference	2	0.24		Const
	second difference	1	-7.91	***	Const、Trend
	second difference	1	-7.87	***	Const
M1	level	6	-3.14		Const,Trend
	level	1	0.06		Const
	first difference	0	-5.87	***	Const,Trend
	first difference	0	-5.92	***	Const
	second difference	4	-6.04	***	Const、Trend
	second difference	4	-5.99	***	Const
Nominal Government Expenditure	level	1	-0.92		Const,Trend
	level	1	-0.53		Const
	first difference	0	-11.26	***	Const,Trend
	first difference	0	-11.31	***	Const
	second difference	5	-7.45	***	Const、Trend
	second difference	5	-7.50	***	Const
Bank of Japan Loans	level	9	0.35		Const,Trend
	level	9	1.25		Const
	first difference	8	-4.15	***	Const,Trend
	first difference	7	-3.35	**	Const
	second difference	10	-5.70	***	Const、Trend
	second difference	10	-5.73	***	Const

Note:***corresponds to 1% significance, ** corresponds to 5% significance, and * corresponds to 10% significance.

Figure 14: The Estimation Results

Estimated Results
Period: From the first quarter, 1967 to the forth quarter, 1989
(CASE1) Dependant variable: Nominal GDP (log、first differencial)
Method: OLS

Explanatory variables	parameter		Standard Error
Const.		0.0083	0.0021
Nominal Government Expenditure(log, first differencial)	0.2288	0.1983	0.0300
same (first lag)		0.0224	0.0305
same (second lag)		-0.0419	0.0381
same (third lag)		0.0237	0.0427
same (forth lag)		0.0263	0.0281
M1 (log, first differencial)	0.3979	0.0278	0.0579
same (first lag)		0.0801	0.0758
same (second lag)		0.0330	0.0424
same (third lag)		0.0699	0.0548
same (forth lag)		0.1871	0.0657

Adjusted R-squared	0.49
S.E. of regression	0.02
Durbin-Watson stat	1.97
AIC	-6.05

(CASE2) Dependant variable: Nominal GDP (log、first differencial)
Method: OLS

Explanatory variables	parameter		Standard Error
Const.		0.0149	0.0019
Nominal Government Expenditure(log, first differencial)	0.4080	0.2872	0.0388
same (first lag)		0.1208	0.0386
Bank of Japan Loans (log, first differencial)	0.0028	0.0015	0.0035
same (first lag)		0.0013	0.0035

Adjusted R-squared	0.39
S.E. of regression	0.01
Durbin-Watson stat	1.61
AIC	-5.92

(CASE3) Dependant variable: Nominal GDP (log、first differencial)
Method: OLS

Explanatory variables	parameter		Standard Error
Const.		0.0101	0.0042
Nominal Government Expenditure(log, first differencial)	0.3966	0.2886	0.0386
same (first lag)		0.1080	0.0380
Bank of Japan Loans(log, first differencial)	0.0053	0.0020	0.0034
same (first lag)		0.0024	0.0034
Official Discount Rate(Original、first differencial)		0.0072	0.0025
same (first lag)		-0.0063	0.0025

Adjusted R-squared	0.43
S.E. of regression	0.01
Durbin-Watson stat	1.80
AIC	-5.98

(CASE4) Dependant variable: Nominal GDP (log、first differencial)
Method: OLS

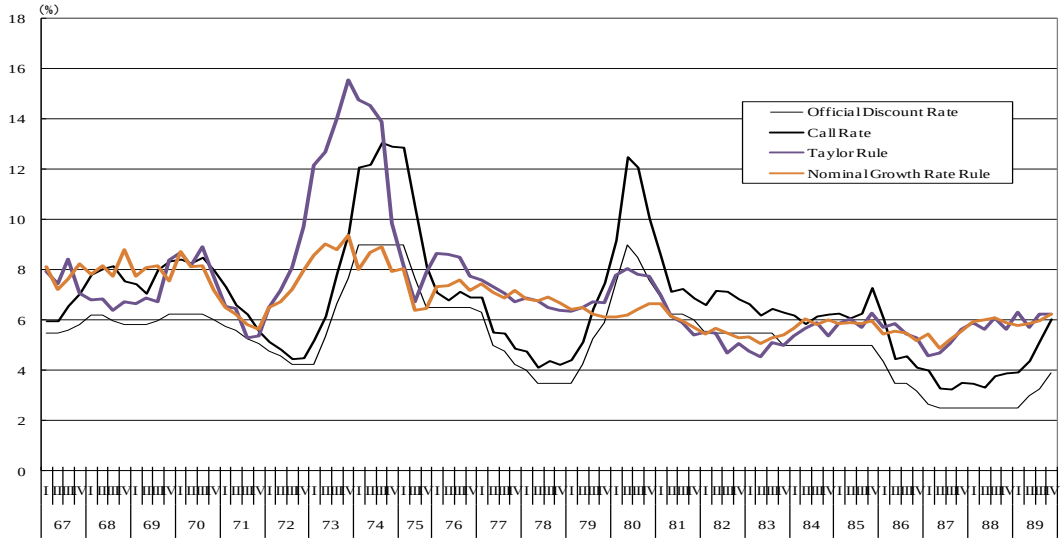
Explanatory variables	parameter		Standard Error
Const.		0.0106	0.0041
Nominal Government Expenditure(log, first differencial)	0.3928	0.2862	0.0382
same (first lag)		0.1066	0.0377
Official Discount Rate(Original、first differencial)	0.0009	0.0070	0.0025
same (first lag)		-0.0061	0.0025

Adjusted R-squared	0.44
S.E. of regression	0.01
Durbin-Watson stat	1.78
AIC	-5.98

B. Evaluation of Monetary Policy by Policy Rules

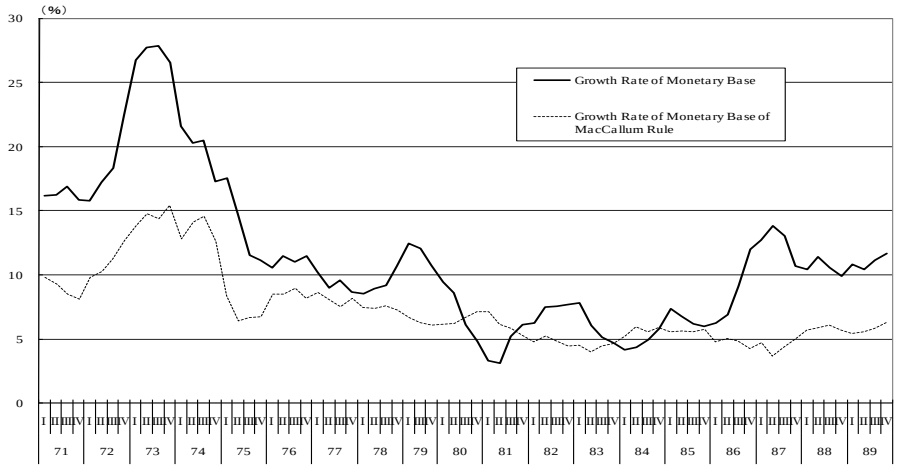
Next, we turn to the second question as to the evaluation of monetary policy based on policy rules. We use the Taylor, nominal growth, and McCallum rule. The Taylor rule, the nominal growth rate rule as well, suggests that an early tightening around the fourth quarterly of 1971 would have been desirable (**Figure 15**). The McCallum rule suggests also that the monetary base growth during the early 70s was excessive (**Figure 16**).

Figure 15: Monetary Policy Rule Based Evaluation (1)



Note1:Taylor Rule is caricalated as 3%+3%+0.5×(Inflation Rate —Target Inflation Rate)+0.5×(GDP Gap).
Target Nominal Growth Rate is 10%(from 1st quarter,1967 to 4th quarter,1974), and 7%(from 1975 to 1989).

Figure 16: Monetary Policy Rule Based Evaluation (2)



Note1:Growth Rate of Monetary Base of MacCallum Rule is caricalated by (Target Nominal GDP Growth rate)+(Average Growth rate of Money velocity)+0.5×(Nominal GDP Growth Rate—Target Nominal Growth Rate before the second quarter)
Note2:Average Growth rate of Money velocity is average from the 1st quarter 1971 to the 4th quarter 1989.

C. Evaluation of Monetary Policy by Policy Reaction Function

Lastly, we turn to the third question as to the estimation of the policy reaction function. Following Jinushi, Kuroda and Miyao (2000), and Nakazawa (2002), we estimate the policy reaction coefficients to changes in a) inflation gap, b) GDP gap, and 3) the exchange rate gap. We include nominal call rate and the discount rate as dependent variables, estimating the following equation.

$$rate_t = const' + \alpha' \times (p - p^*)_t + \beta' \times (y - y^*)_t + \gamma' \times (e - e^*)_t + \theta \times rate_{t-1}$$
$$const' = const \times (1 - \theta), \quad \alpha' = \alpha \times (1 - \theta), \beta' = \beta \times (1 - \theta), \gamma' = \gamma \times (1 - \theta)$$

Rate: nominal call rate or discount rate, const: constant term, α: parameter to responses to inflation gap, β: parameter to responses to output gap, γ: parameter to responses to exchange rate gap, θ: parameter to responses to the rate at previous period

We estimate for the following three periods, the Great Inflation period (1967:Q1 to 1974:Q4), stabilization to the Plaza Accord (1975:Q1 to 1985Q3), and from the Plaza Accord to the Bubble economy (1985:Q4 to 1989:Q4). Our estimation results are broadly consistent with the existing literature (**Figure 17, 18**):

(1) During the Great Inflation period, the coefficients on inflation gap and the interest rate smoothing were significant, suggesting that the weight of monetary policy was on the inflation gap.

(2) During the stabilization to the Plaza Accord period, the coefficients on inflation gap, the GDP gap, and the interest rate smoothing were significant, suggesting that the weight was on both inflation gap and the GDP gap.

(3) From the Plaza Accord to the Bubble economy, the coefficients on the exchange rate gap was significant, suggesting that the weight was on the exchange rate.

(4) The interest rate smoothing was significant throughout the entire periods, but the degree of smoothing increased from the Great Inflation period to the stable growth period, and then declined after the Plaza Accord period.

Figure 17: Policy Reaction Coefficients

Dependant variable as call rate

Estimation period	Inflation gap		GDP gap		Exchange rate gap		Interest rate smoothing	
1Q 1967 to 4Q 1974	0.72	***	0.13		0.06	**	0.71	***
1Q 1975 to 3Q 1985	1.10	**	1.97	**	0.00		0.78	***
4Q 1985 to 4Q 1989	0.07		0.31		0.07	***	0.24	*

Dependant variable as official discount rate

Estimation period	Inflation gap		GDP gap		Exchange rate gap		Interest rate smoothing	
1Q 1967 to 4Q 1974	0.40	***	0.07		0.03		0.71	***
1Q 1975 to 3Q 1985	0.88	***	1.92	***	0.01		0.82	***
4Q 1985 to 4Q 1989	0.12		0.10		0.04	**	0.49	***

Note:*** is 1% significant, ** is 5% significant and * is 10% significant.

Figure 18: The Estimation Results

Estimation period: 1Q 1967 to 4Q 1974

(CASE1-1) Dependant variable: call rate
Method:OLS

Explanatory variables	Parameter	Standard Error	
Const.	2.08	0.60	***
Inflation gap	0.21	0.04	***
GDP gap	0.04	0.06	
Exchange rate gap	0.02	0.01	**
Call rate (1st lag)	0.71	0.09	***
Adjusted R-squared	0.96		
S.E. of regression	0.44		

(CASE1-2) Dependant variable: Official discount rate
Method:OLS

Explanatory variables	Parameter	Standard Error	
Const.	1.67	0.68	**
Inflation gap	0.11	0.03	***
GDP gap	0.02	0.04	
Exchange rate gap	0.01	0.01	
Discount rate (1st lag)	0.71	0.12	***
Adjusted R-squared	0.95		
S.E. of regression	0.30		

Estimation period: 1Q 1975 to 3Q 1985

(CASE2-1) Dependant variable: call rate
Method:OLS

Explanatory variables	Parameter	Standard Error	
Const.	1.62	0.48	***
Inflation gap	0.24	0.09	**
GDP gap	0.43	0.18	**
Exchange rate gap	0.00	0.00	
Call rate (1st lag)	0.78	0.06	***
Adjusted R-squared	0.85		
S.E. of regression	0.82		

(CASE2-2) Dependant variable: Official discount rate
Method:OLS

Explanatory variables	Parameter	Standard Error	
Const.	1.06	0.34	***
Inflation gap	0.15	0.05	***
GDP gap	0.34	0.10	***
Exchange rate gap	0.00	0.00	
Discount rate (1st lag)	0.82	0.05	***
Adjusted R-squared	0.89		
S.E. of regression	0.47		

Estimation period: 4Q 1985 to 4Q 1989

(CASE3-1) Dependant variable: call rate
Method:OLS

Explanatory variables	Parameter	Standard Error	
Const.	4.45	0.80	***
Inflation gap	0.05	0.11	
GDP gap	0.24	0.15	
Exchange rate gap	0.06	0.01	***
Call rate (1st lag)	0.24	0.13	*
Adjusted R-squared	0.91		
S.E. of regression	0.35		

(CASE3-2) Dependant variable: Official discount rate
Method:OLS

Explanatory variables	Parameter	Standard Error	
Const.	2.04	0.48	***
Inflation gap	0.06	0.08	
GDP gap	0.05	0.09	
Exchange rate gap	0.02	0.01	**
Discount rate (1st lag)	0.49	0.11	***
Adjusted R-squared	0.92		
S.E. of regression	0.22		

Note:*** is 1% significant, ** is 5% significant and * is 10% significant.

III. The Economic Thought and Policy

This section deals with economic thought and policy mainly in the early 1970s. Policymaking involves a wide variety of players and institutions, so the discussion in this section is necessarily limited to several strands in order to highlight the events leading up to the Great Inflation and ending it.

III.1 The Players

A. Politicians

Kakuei Tanaka was appointed as the Prime Minister of Japan on July 7, 1972. Not only he was a skillful politician, but also he had a greater vision for the economic future of Japan. As articulated by his book published just before his election as the leader of the governing Liberal Democratic Party, he articulated his plan for the post-High Economic Growth era.[5] The book, entitled *Building a New Japan: a Plan for Remodeling the Japanese Archipelago* had offered justifications for his basic polices.[6] First, he approved of a building of welfare state in Japan, considering a sustained growth necessary prerequisite to build a new welfare state. Secondly, however, the new way of growth should be driven by the transfer of locations of production centers from urban areas to rural areas, thereby mitigating the over-crowding in urban areas and de-population of rural areas. Third, the infrastructure of Japan should be completely renovated introducing and expanding rapid bullet train and highway road systems.

Also the breakdown of the Bretton Woods system in August 15, 1971 sent a shockwave throughout the country. When the Smithsonian Agreement was reached, Japan experienced the highest appreciation among the major economies as we have seen, and the pressures on appreciation of Yen was persistent. However, not only industrialists but also the general public were fearful of another round of reevaluation. When Nakasone Yasuhiro, another powerful politician and then Minister of International Trade and Industry in the Tanaka cabinet,[7] openly called for "Tyosei Infure (Adjustment inflation)", instead of reevaluation, to reduce the trade surplus, it was seriously taken and generally approved of.

B. The Ministry of Finance and the Bank of Japan

A brief explanation of the structure of the Japanese bureaucracy is in order. The

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[5] For Tanaka's biography available in English, see Hunziker and Kamimura 1996.
[6] The book was reviewed in prestigious journals such as the *Journal of Economic Literature*, *American Political Science Review*, and *International Affairs*.
[7] He led a small faction within the governing LDP, later becoming a prime minister of Japan in the 1980s.

most powerful bureaucracy in macroeconomic policymaking was, and still is, the Ministry of Finance (*Okura sho*). The Bank of Japan did not have *de jure* independence status since the Bank of Japan Act of 1942, modeled after Nazi Germany's Reichsbank Act of 1940, specifically stated that the purpose of the BOJ was to promote the development of the economy, and it must play the subordinate role of the BOJ within the government, and was effectively under the control of the Minister of Finance.[8] Moreover, the Ministry of Finance has the sole responsibility for the exchange rate policy, intervening to the foreign exchagen market by directing the BOJ.

Stressing the lack of independence is, however, one-sided. The Bank of Japan was quite cooperative up to the 1970s, and the Governor Tadashi Sasaki (from December 1969 to December 1974) [9]who presided over the Great Inflation only symbolized its relationship. True that he was worried about the overheating of the economy since around 1970, yet he was also worried as much about the appreciation of Yen as inflation. Bunji Kure, the Deputy Director of the Research Department from 1966, and Director from 1970 to 1971, suspected that Sasaki did not push for tightening of monetary policy since he supported "adjustment inflation". It should be also noted that the economic thought of the Bank of Japan has changed from time to time. Kure testified that which one of policy objectives to pursue, the price stability, the exchange rate, output stabilization, or economic growth changed, and during the High Growth Era of the 1960s, (Kure 1981, 31).

C. Economists

The Japanese economics academia had several characteristics. First, still Marxian economists or economists who were sympathetic to Marxian economics had been influential, but the non-Marxian economics, the so-called "modern" economics in Japan, had been gaining strength: the first generation of the young modern economists such as Ryutaro Komiya of the University of Tokyo led the charge, openly engaging in policy discussions from the 1960s. Second, outside academia, the government agencies trained their in-house economists themselves in part due to the lack of proper training in academia for practical applications. Third, Japan had a rich tradition of economic journalism, offering a wide variety of publication opportunities for economists to write for the general public.[10]

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[8] Many ex-Vice Ministers of the Ministry of Finance were appointed as a BOJ Governor after they retired from the Ministry of Finance.

[9] Sasaki spent his entire career at the Bank of Japan and dubbed as the "prince" of the BOJ long before he became the Governor. In 1965 when he was a Vice Governor, he worked under Tanaka, then Finance Minister, to rescue the near-bankrupt Yamaichi securities.

[10] There were at least two weekly economic magazines, *Ekonomisuto*, and *Toyo Keizai*, and one daily economic newspaper, *Nihon Keizai Shumbun*, which were eager to carry articles on economic issues by economists.

By the early 1960s, it had become a custom to categorize theories of price level and inflation into cost-push and demand-pull approaches, as was clear from Hiroshi Niida's survey paper (Niida 1963).[11] The cost-push camp included both Marxist-leaning Shigeto Tsuru of Hitotsubashi University, very influential economist at the time, and his students, Mitsuharu Ito of Hosei University, and Yoshihiro Takasuka of Hitotsubashi University. Also this group included young scholars leaning toward American Keynesianism such as Ryuichiro Tachi of the University of Tokyo, Ryutaro Komiya, Hiroshi Niida of Yokohama National University, and Tsunehiko Wanatabe of Osaka University. They believed in downward rigidity and stickiness of prices due to oligopolistic market structure, proposing competition policy as a remedy. On the other hand, there were several people who argued in line of the demand-pull approach, such as Toshihiko Yoshino, and Yoshio Suzuki, dubbed as a "BOJ group" since they worked for the Bank of Japan. They diagnosed excessive demand as the cause of inflation, prescribing the tightening of monetary policy. Although their economics differed since Yoshino believed in rigid classical doctrine while Suzuki learned Keynesian economics as well, they joined together against inflation (Yoshino 1962).

The notion of administered prices was widely invoked to support the cost-push approach. Yoshihiro Takasuka was a Marxian economist,[12] version of the Cost-push inflation, the so-called Differential Productivity Improvement Theory of Inflation (Takasuka 1973) said inflation was caused by structural problem: there were two types of firms in the Japanese economy, one monopolistic large corporations and the other competitive small firms. The corporations, so goes the argument, succeeded in increasing, earning a great deal of profits even though their prices were stable, while profits turned into an upward pressure to the wages which small competitive firms had no choice but to transfer to their prices. His theory was criticized severely by Niida: he questioned Takasuka's refusal to call his theory "cost-push," arguing that differential productivity improvements were norm in history so that one needed more theoretical argument to it. But Takasuka's influence cannot be dismissed easily: the emphasis on differential productivity crept into policy discussions.[13]

Academic discussion notwithstanding, there were shared beliefs with the politicians and the general public. For example, many economists supported the building of the welfare

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[11] His survey was quite similar to more famous Bronfenbrenner and Holtzman's survey (1963).

[12] His Ph.D. thesis adviser Shigeto Tsuru, Harvard Ph.D, and colleague and friend of notable economists from Joseph Schumpeter to John Kenneth Galbraith, Paul Samuelson, and Paul Sweezy, was sympathetic to Marxian economics.

[13] When the Economic Planning Agency issued a document entitled "Views on Consumer Prices Problems" on July 8, 1963, it included as a cause of inflation "differential productivity" (Economic Planning Agency 1972).

state, expansionary fiscal policy, and opposed to the appreciation of Yen. Even a Marxist such as Takasuka called for "Adjustment Inflation" for a different reason: he believed that facilitating cost-push inflation through an increase in wages would be good for working class. Komiya and other modern economists took issue with the adherence to the fixed exchange system and "adjustment inflation": they proposed a gradual revaluation of the Yen on10 July 1971, but they were of minority opinion.

Modern economists in Japan were strongly influenced by Keynesianism, partly because many of them went to study at the East Coast Universities such as Harvard and Yale. In comparison with the U.S. economics academia, the weak presence of monetarists in Japan is striking: there was a few monetarists in Japan such as Chiaki Nishiyama of Rikkyo University, and Hirotaka Kato of Soka University, but it was no comparison with the American situation where monetarists were minority yet vocal: Milton Friedman had already become President of American Economic Association in 1967, and at least the Federal Reserve Bank of St. Louis began advocating monetary policy in monetarist line.

Milton Friedman exerted a great influence on Japanese economists by himself. He visited Japan in 1963. This was his second visit on the invitation from *Nihon Keizai Shimbun*, the Japanese equivalent of the *Wall Street Journal*. During this visit, he gave public lectures on the merits of the free market economy, and introduced his monetarism. Two BOJ economists, Eiichi Eguchi and Suzuki contacted him and started a long learning process (Suzuki 1994, 208). According to Friedman, "I also met economists at the Bank of Japan who were helpful at the time and with whom I maintained contact, explaining some of our subsequent trips to Japan" (Friedman and Friedman 1997, 326). Suzuki testified that he met Friedman at his hotel with an invitation of Eguchi, who had already known Friedman. When Friedman showed two transparent charts depicting the movement of the money supply and that of price level and overlapped them, Suzuki was quite so impressed that he began writing a series of papers on monetarism. The main outlet for the BOJ economists was *Research Monthly* (BOJ).[14] All papers were anonymously published then, but Suzuki identified his papers (Suzuki 1994). With his initiative, several papers related to monetarist ideas were published: "On the Relationship between Money and Prices," (October 1963); "The Modern Quantity Theory of Money: Its Outline and Controversies in the U.S." (June 1970); "On the Increase of the Money Supply," (Feb., 1973); "Trend of Emphasizing the Money Supply in the Major Advanced Countries and Its Background," (March 1975).

III. 2 What Caused and Ended the Great Inflation? Policy and Thought Interacted

[14] It was replaced by *Research Quarterly* in 1994, which was later replaced with a working paper series.

Inflation had already accelerated but many pointed out that a delay in tightening monetary policy in 1972 was critical. What caused this failure? First, there was a political factor, i.e., the timing of the election of expansionist Tanaka. By mid-1972, the Japanese economy had recovered from recession, and his expansionist scheme Second, the fear of Yen appreciation contributed greatly to the acceptance of inflation. Notwithstanding some economists' dissent, the fear was widely shared among many layers of the society. Third, the lack of BOJ independence could be a factor, but we should put the economic thought of the BOJ people in a context. Governor Sasaki shared his concern with the Yen appreciation with government. Moreover, there were several mistakes on the BOJ side. By then the Bank did not monitor the CPI as closely as they did on the WPI (Kure 1981, 188), and the WPI growth rate was close to zero even when in mid-1972 the CPI increase rate had already reached close to 5 % so that they did not feel the need to act on it (Okazaki 1999). Fourth, the cost-push approach to inflation, the support for expansionary fiscal policy to build the welfare state, adjustment inflation.

Then, what ended the Great Inflation? First and foremost, the public perception changed to regard the inflation as the most urgent issue of all. In this light, the role of the Oil Shock which came after the breakout of the Yom Kippur on 6 October, 1973, should be reevaluated. Although it did not cause the Great Inflation, it decidedly changed the public sentiment toward inflation. It was followed by the political change. Takeo Fukuda, the archrival of Tanaka and advocate of stable growth, became Finance Minister on November, 1973: he did not start the change in policy as Takemori (2006) argued since fiscal policy had already been changed on April 1973; neither he did not completely abandoned cost-push explanation as Nelson (2007). But he named the current inflation the "Wild Inflation," on 11 January, 1974, thus directing attention of policymakers and the general public to the Great Inflation, setting a background for accepting contractionary monetary policy. On 9 December, 1974, Prime Minister Tanaka resigned: his resignation was due to the corruption, but his popularity had already plummeted due to his mishandling of "Wild Inflation."

By 1975 it had been clear that the Great Inflation was world-wide phenomena, and central banks began to take money supply quite seriously. Japan was no exception.[15] Also

[15] It should be noted that some economists thought there was no effective solution to the inflation problem available at that time. Yuichi Shionoya of Hitotsubashi University took 'Economic System Approach' (Shionoya 1973, 76). Drawing on Hicks 1955, he summarized the changing world views from the gold standard to the labor standard in post-War period. Although he did not deny the demand-pull approach and the aggregate demand control policy to tackle inflation, he had a deep-seated pessimism toward the solution since he saw the problem of inflation as deeply embedded in economic system we currently lived. Therefore, although he was somehow eclectic toward monetarism, what was known then as the New Quantity Theory, and found some common ground with Friedman on indexation (Giersch et al. 1974), without any prospect for political will to challenge the labor standard,

the change in the government coincided with the change in the Bank of Japan. On 16 December, 1974, the BOJ governor Sasaki completed a five year term of governorship, and new Governor Teiichiro Morinaga was appointed. Morinaga, an ex-Vice Minister of Finance, teamed up with Deputy Governor Haruo Maekawa, a long-serving career BOJ personnel, conducted a study in failure inside BOJ.[16] It was their initiative to adopt a monetarist-like policy such as releasing the "forecasts" for of the money supply growth from 1978.

Meanwhile, Komiya and Suzuki jointly wrote and presented a paper at the symposium organized by the Brookings Institution: they attributed the cause of Great Inflation to the failed monetary policy (Komiya and Suzuki 1977). Based on that paper, Komiya wrote a classical 1976 paper on the "Causes of the Inflation from 1973 to 1974" (Komiya 1976): he argued that the monetary policy was the main culprit of the Great Inflation, although he did blame the Ministry of Finance for the failed exchange rate policy. Komiya did not convince everyone: in fact one notable BOJ economist, Shigeru Toyama, responded vehemently to Komiya (Toyama 1980), but it quickly established the new academic consensus. On the other hand, Suzuki and fellow BOJ economist Akio Kuroda wrote "On the Importance of the Money Supply," in *Research Monthly*, July 1975, after a long controversy within the Bank. The Bank of Japan began issuing money supply "forecasts" from 1978.

III.3 Summary with International Comparison

It is useful to compare the Great Inflation in Japan with other countries. First, the role of two Oil Shocks, 1974 and 1979, has been overemphasized in the Great Inflation, and the Japanese case was no exception. The U.S. and Japan had accelerating inflation before the coming of the first Oil Shock, while the West Germany did not experience the Great Inflation at all, since the German government and the Bundesbank subdued excess demand pressures by tightened monetary policy quickly (Issing 2005, Beyer et al. 2009). Rather the rapid increase in energy prices and decrease in output are now attributed to the conduct of monetary policy (Hamilton 2008).

Secondly, the main cause for the Great Inflation should be attributed to domestic factors, the conduct of macroeconomic policy in particular. The consensus in the literature emphasizes the importance of monetary policy. Fiscal policy, on the other hand, could and did play a role, but that role was limited in generating sustained price increase for a long period in the U.S. and Japan. Therefore fiscal policy is not main culprit. In Japan, inflation

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Shionoya's proposal was not to end inflation, but just to mitigate the sufferings.

[16] According to our interview with Suzuki, it was a series of secretive meeting whose details have not yet been disclosed. Suzuki recalled that he was summoned to give his opinion on the cause of inflation in front of high ranking BOJ executives.

persisted even after fiscal policy was tightened, while high inflation ended when monetary policy was tightened. The contractionary monetary policy was a necessary prerequisite to end the Great Inflation all over the world.

Thirdly, central banks increasingly took interest in the behavior of the money supply when they implemented tightening of monetary policy. FRB released the prospects for money growth rate from 1975. The Bank of Japan released the "forecasts" for the quarterly money supply growth rate since July 1978, followed by a landmark policy paper "On the Importance of the Money Supply in Japan," ([Kuroda Suzuki] 1975). However, neither the FRB nor the BOJ adopted a monetary growth targeting (Cargill et al. 1997). In the United States, none other than Milton Friedman criticized Paul Volcker's FRB severely for not maintaining a stable money growth rate. The same Friedman hailed the Bank of Japan as "the most non-monetarist central bank in institution but most monetarist in policy" (Friedman 1983). Yet, as Cargill et al. (1997) argue, the Bank of Japan did not adopt the monetary targeting in a narrow monetarist sense since they did not use "forecasts" for the money supply growth as a target rate to control the money supply growth. The above-mentioned paper states that "it is not appropriate to set a specific growth rate of M2, and implement it in a mechanistic way in conducting monetary policy ." Also the main policy instrument remained interest rate, the official discount rate, before and after 1975: there was no commitment to a predetermined monetary growth rate, so that the so-called k % rule was never implemented. This is consistent with our econometric finding with respect to the policy reaction function.

What was the historical significance of monetarism in the 1970s? Did monetarism contribute nothing to the discussions during the 1970s Japan? The concluding statement of Cargill et al. (1997) is worth quoting at length.

> "The debate, however, is often confused by ambiguity over the meaning of monetarism. The Bank of Japan's operations are no more monetarist than those of the US Federal Reserve…At the same time, the Bank of Japan is a price-stabilizing central bank with few equals in the past two decades, and *price stability cannot be maintained over long periods of time without attention to the long-run growth of the money supply*. Much of the debate about the monetarist experiment of the Bank of Japan focuses on technical operating issues; however, the ultimate objective of price stability can be achieved through either interest-rate policies or money-focused policies, though technical considerations will favor one approach over the other. In the broader sense, the Bank of Japan has achieved the objective of price stability by non-monetarist means" (Cargill et al. 1997, 56; emphasis added).

The historical significance of monetarism, however, should be more carefully evaluated. First, if monetarism means the k % rule, then neither the FRB, nor the BOJ, nor Bundesbank were monetarist. This is what De Long called the failure of "political monetarism" as distinct from classic, theoretical version of monetarism (De Long 2000). Second, the importance of money was understood in terms of the aggregate demand analysis which made it easier for many Keynesian-leaning economists to accept the role of money. Yet one should not forget that there are some common elements between American Keynesianism and monetarists. Also one might be able to argue that sole weight on any one of policy objectives would be unsatisfactory as the estimation of the policy reaction function of the stable growth period from 1975 to 1985. Third, Komiya concluded in 1976 that "if one keep supplying the money supply at high rate for more than a few years, there is no doubt that it would eventually result in a rapid inflation" (Komiya 1976). It is precisely this perception which gained strength during the Great Inflation: one has to remember that the perception that "price stability cannot be maintained over long periods of time without attention to the long-run growth of the money supply" itself was scarce at that time.

IV. Concluding Remarks

The Great Inflation in Japan was no doubt caused by policy failures and monetary policy failure was especially prominent. In this sense, Japan constitutes a rule, rather than an exception to the worldwide Great Inflation phenomena. However, there are several notable Japanese characteristics which we will discuss in comparison with three hypotheses presented in the beginning of the paper.

First, politics indeed mattered, but in a different context. The Japanese policymakers and economists were unsure of their new position in the world: Japan turned into a current account surplus country, yet most of them did not see it as permanent. Also it experienced recession after the long boom, and the breakdown of the Bretton Woods amplified uncertainty. Also with the election of Tanaka as a prime minister, there emerged a political consensus to expand the economy.

Second, we did not directly estimate the production function to verify the output mismeasurement hypothesis, but the prevalent fear of the appreciation of Yen and that of sudden change from a fixed exchange regime to a floating system suggest that people overestimated the output gap, but the language of policymakers was not that of the price version of the Phillips curve.

Third, ideas indeed mattered. During the Great Inflation, there was a shift in

macroeconomic understanding of inflation from the 1960s consensus with equal or more emphasis on the cost-push approach to the new consensus on a great emphasis on the demand-side and the role of money in it. However, the Japanese story was not a straightforward "progress". It can be told in several ways. One way is to focus on the changing explanations of inflation, and this surely applied to the Japanese story. But another way is to focus on what one might call an "ideas smoothing", accommodation of new ideas into the old set of beliefs. This "ideas smoothing" occurred at several levels. At academia, Komiya played a vital role in it. Although he started as an advocate of the cost-push approach, he changed his emphasis around 1973 without recanting any of his previous theoretical positions. Moreover, his status as a leader of policy-oriented academic modern economist helped pave the way for a new consensus. At the level of practical economists, the BOJ economist Suzuki played an important role. Although he was considered sometimes as the foremost monetarist in Japan, he refused to be labeled by that name: he preferred to call the stance of the BOJ after 1975 as "eclectic gradualism" (Suzuki 1985).[17] The "ideas smoothing" happened within the BOJ itself. The older generation took the change of monetary policy as a return to the old tradition of price stability (Nakagawa 1981). When, the Bank of Japan, with the strong initiative of Maekawa, published the official *Centenary History* (Nihon Ginko Hyakunenshi Hensan Iinkai 1982-86) to mark the centennial ceremony of the establishment of the Bank, the book decidedly emphasized the Bank's continuous struggle against inflation.

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[17] This was confirmed by our interview with him dated May 19, 2009.

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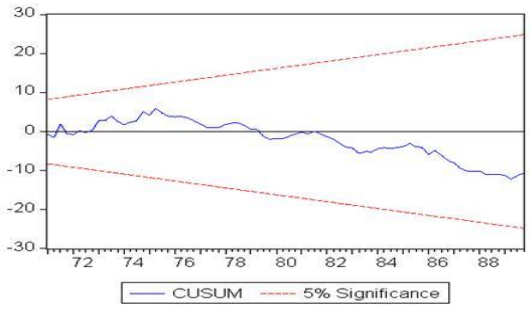
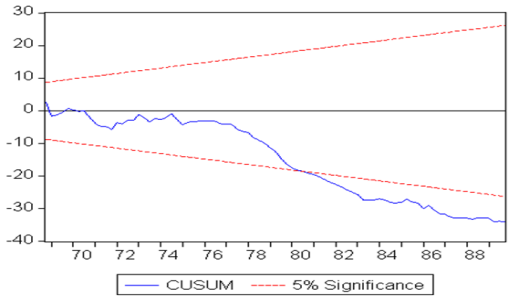
Appendix: The Stability of the St. Louis Model

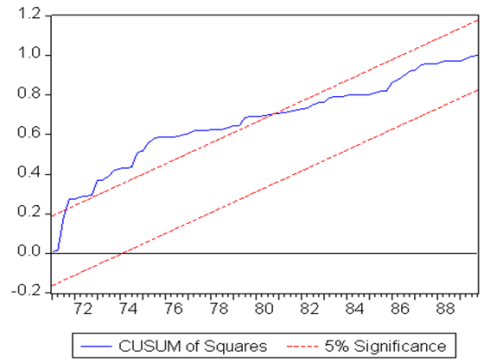
Case1



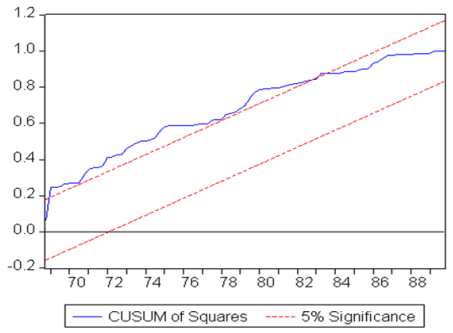
Case 2



Case 3



Case 4



Chow Test

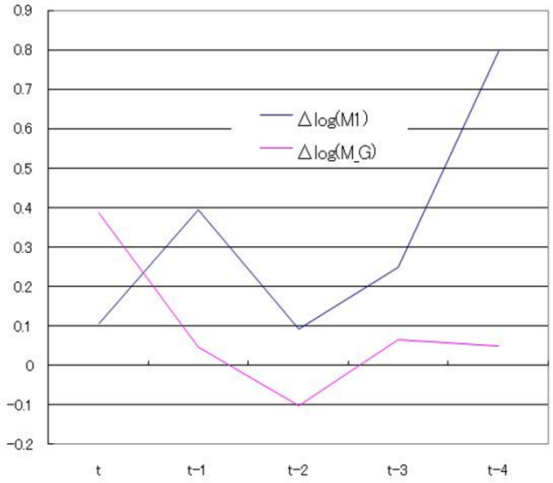
Monetary Policy Variable as M1

Structural Change	F-value	P-value
71 I	6.05	0.00
II	5.97	0.00
III	6.47	0.00
IV	3.83	0.00
72 I	3.27	0.00
II	3.29	0.00
III	3.23	0.00
IV	3.27	0.00
73 I	3.24	0.00
II	2.35	0.02
III	2.63	0.01
IV	2.51	0.01
74 I	2.30	0.02
II	2.33	0.02
III	2.35	0.02
IV	2.35	0.02
75 I	1.82	0.07
II	1.99	0.04
III	1.59	0.12
IV	1.41	0.19
76 I	1.34	0.22
II	1.54	0.14
III	1.68	0.10
IV	1.85	0.06
77 I	1.77	0.08
II	1.85	0.06
III	1.73	0.09
IV	1.73	0.09
78 I	1.74	0.08
II	1.78	0.08
III	1.87	0.06
IV	1.96	0.05
79 I	1.89	0.06
II	1.79	0.07
III	1.82	0.07
IV	1.43	0.18

Monetary Policy Variable as Official Discount Rate

Structural Change	F-value	P-value
71 I	4.06	0.00
II	3.27	0.00
III	3.29	0.00
IV	3.41	0.00
72 I	3.76	0.00
II	2.83	0.02
III	2.84	0.02
IV	3.48	0.01
73 I	3.97	0.00
II	4.06	0.00
III	3.96	0.00
IV	3.78	0.00
74 I	4.26	0.00
II	4.78	0.00
III	4.82	0.00
IV	4.93	0.00
75 I	4.61	0.00
II	4.39	0.00
III	4.35	0.00
IV	4.36	0.00
76 I	4.37	0.00
II	4.50	0.00
III	4.85	0.00
IV	5.20	0.00
77 I	5.14	0.00
II	5.51	0.00
III	5.51	0.00
IV	4.89	0.00
78 I	4.85	0.00
II	5.05	0.00
III	4.39	0.00
IV	4.34	0.00
79 I	4.20	0.00
II	3.73	0.00
III	3.36	0.01
IV	2.48	0.04

Comparison of Beta coefficient



Note: Beta coefficient is Calculated as (Estimated Parameter)×(Standard Error of Estimated Parameter)÷(Standard Error of Dependant Variable)