

Koizumi's structural reform and the Japanese economy
--A simulation analysis on the budget cut effects--

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1. Introduction
 2. Recent Economic Situations of Japan
 3. Structural Reform Plan
 - Summary of the plan
 - Budgetary request guidelines
 4. Policy Simulation
 - Assumptions of exogenous variables
 - Bridge from budgetary data to SNA data
 - Results of simulations
 5. Conclusion
- References

1. Introduction

Newly elected Prime Minister Jun-ichiro Koizumi, in his first *début* at G7 meeting in Genoa, Italy, has promised to the world pushing his economic structural reform plan to revitalize the Japanese economy.

His reform plan is comprehensive and consists of structural and regulatory reforms including reduction of corporate debt and the banks' non-performing loans¹, though some commentators criticize his plan for lacking specifics, saying it is mere reform idea. Actually we have to wait for a while to see the concrete action plan of his reform scheme, though his oft-repeated slogans of "there is no reform without pain," or "structural reforms without sacred cows," are affluent in the Japanese mass media.

In this report, however, our main focus is to examine the effect of quantitative changes in the fiscal policy in his reform plan on the Japanese economy by performing policy simulations based on JIDEA 4.3 model². It is not appropriate for the quantitative analysis to tackle whole range of his plan, since our Prime Minister is aiming to achieve thorough changes in rules and systems relating to everything from the bureaucracy to education. Most of them are inevitably of qualitative nature. As of August 27, 2001, the only source for discussion on the quantitative part of his broad reform plan is his budgetary request guidelines for fiscal 2002³, announced on August 10, 2001, though the figures in the guidelines are somewhat tricky. We have to wait

¹ See the Ministry of Foreign Affairs (2001). Also available is in the special issue on the structural reform of the Japanese economy in *ESP*, (in Japanese), No.352, August, 2001.

² This model was first introduced in 1996. See Hasegawa, *et al.* (1996). Some examples of the application of the model are Sasai, *et al.* (1998), and Hasegawa, *et al.* (2001).

³ Fiscal year starts in April in Japan.

until late December when the next year's government budget is finalized in the Diet.

In the next section the salient feature of the Japanese economy will be discussed, and the third section includes summary presentation of the quantitative aspects in Koizumi's reform plan. The fourth section, the main part of this report, explains exogenous assumptions and the results of policy simulations by JIDEA model. The final section summarizes what has been done as well as some unsolved problems remaining in this analysis.

2. Recent Economic situations of Japan

Salient feature of the Japanese economy is well described in the table -1 below, which is available in the recent publication of OECD's *Economic Outlook* No.69⁴. The table includes main economic indicators of Japan as well as those of the USA and the EU for comparison and also figures projected for 2002.

Table - 1 Summary of Economic Performances of the USA, Japan and EU

Real Domestic Demand (growth rate %)				Real GDP (growth rate %)		
	2000	2001	2002	2000	2001	2002
USA	5.7	1.9	3.1	5.0	1.7	3.1
Japan	1.3	1.2	0.7	1.7	1.0	1.1
EU	3.0	2.6	2.7	3.3	2.6	2.7

Inflation (growth rate %)				Unemployment Rate (%)		
	2000	2001	2002	2000	2001	2002
USA	2.0	2.3	1.9	4.0	4.6	4.5
Japan	-1.7	-1.2	-0.4	4.7	4.9	4.8
EU	1.4	2.2	2.1	8.2	7.7	7.3

Current Account to GDP (%)				Short term Interest Rate (%)		
	2000	2001	2002	2000	2001	2002
USA	-4.4	-4.2	-4.0	6.5	4.6	4.4
Japan	2.5	2.2	2.7	0.2	0.3	0.2
EU	-0.3	-0.4	-0.4	4.4	4.4	4.3

Source: Quoted from OECD's *Economic Outlook*, No. 69, p. viii.

As the table shows, every indicator of the Japanese economic performance is the worst except for the ratio of current account to GDP and the unemployment rate in these three big economies of the world, though the Japanese definition of unemployment is somewhat different from that in the USA and the EU countries. Official data of unemployment of Japan is based on the monthly sampling survey. The definition of the unemployed is job seekers who could work only for less than one hour in the last week of each month. The growth rates of real domestic demand and real GDP are and will be the worst. The short-term interest rate is the lowest, the level of which the Japanese have never experienced in their economic history.

As for the economic policies needed, we have lots of discussions in the

⁴ OECD (2001), p. viii.

local newspapers as well as in the reports by the international organizations, however, it is well summarized in the OECD's report following;

“Macro policy in Japan has little scope to offer further economic stimulus. The Japanese economy is faltering and at risk of entering a downward spiral. Last year's weak pick-up in activity has faded, with the achievement of self-sustaining growth forestalled by the inadequate pace of corporate restructuring and the renewed build-up of financial sector problems. Weakening external demand is now exacerbating the situation. At the same time, the scope for traditional macroeconomic policies to provide additional stimulus is now rather limited: the scale of government debt precludes significant further fiscal expansion and policy-determined interest rates were already low even before the recent shift to a policy based on inflation objectives and liquidity targets. A minimum requirement is that monetary policy needs to remain easy until the economy has permanently exited from deflation. The current degree of fiscal stimulus should be maintained this year, but the start of consolidation cannot be delayed much longer. In the OECD's projection, consolidation commences in 2002; ultimately it may amount to 10 per cent of GDP or more by 2010, just to stabilize public debt (at a very high level). The establishment of a coherent medium-term consolidation plan would assist private-sector planning for these inevitable adjustments.

... but the Japanese economy is in urgent need of restructuring. In light of these constraints, policy efforts should concentrate on tackling the underlying structural problems. The authorities need to take urgent action to deal with balance sheet problems in the financial system. This might impose further costs in the near term, although it is possible that improvements in confidence could partly offset these negative effects. Steps toward financial system restructuring might include: a detailed appraisal of the quality of banks' loan portfolios; a realistic assessment of bank capital; debt forgiveness or repossession of collateral; and a willingness to liquidate insolvent banks, replace failed management, and use public funds to cover losses of depositors (but not shareholders). In addition, regulatory reforms are needed, particularly in areas where regulatory change would lead to new business opportunities. Such reforms might facilitate the needed adjustments prompted by the debt cleanup.”⁵

Urgent needs of economic restructuring and related actions suggested in the OECD report are actually what Prime Minister Koizumi has promised and is just trying to do, which will be discussed in the next section.

3. Structural reform plan

Summary of the plan

Structural reform of the Japanese economy: Basic policies for macroeconomic management is the title of Koizumi's reform plan, which was prepared by the Council on Economic and Fiscal Policy (CEFP), Japan's chief policymaking body, and approved by the Cabinet in June 26, 2001. The main purpose of this new policy package is to revitalize the Japanese economy, which is on the brink of stagnation as already explained in section 2. It is designed to achieve

⁵ OECD (2001), pp. x - xi.

the following goals: (1) to resolve the non-performing loans problems, (2) to carry out structural reforms of banking system, (3) to accomplish the fiscal reform and to restore the primary balance of the government budget for the sake of future generations. It also mentions to provide measures lessening unavoidable side effects of reforms, unemployment. Main points of the report, which consists of 6 chapters, are the seven programs of structural reform below. Programs 1 and 2 are targeting revitalization of the society and the economy. Programs 3, 4 and 5 are for supporting to achieve better standard of living and lifestyle. The last two are for the renewal of government functions to achieve a cost effective and small government, and for the reform of policy-making process to assure its transparency and accountability.

1. Privatization / Regulatory reform - Maximizing use of the private sector.
2. The "Support challengers" Program - A social system that encourages individual ability.
3. Strengthening welfare and insurance - Making people feel secure and stable.
4. Doubling our knowledge stock - Human capital development through individual choice.
5. Lifestyle revolution - Creating an infrastructure that allows people to live and work as they like.
6. Local independence and revitalization - Empowering local government to the maximum.
7. Fiscal reform - Creation of a simple, efficient government for the 21st Century.

Final chapter is on the guidelines for the fiscal 2002 budget request as a first step toward fiscal reform, which will be discussed in the sub section below.

Budgetary request guidelines

Earlier in this August, the Council on Economic and Fiscal Policy (CEFP) agreed to an across-the-board package of spending cuts or Koizumi's budgetary request guidelines for fiscal 2002. It was presented to and approved by the cabinet in August 10, 2001.

The spending cuts proposed by the CEFP and approved by the cabinet pave the way for the first year-on-year reduction in a national budget in four years.

Core expenditures in the general government budget are expected to be reduced by about ¥860bn (\$6.9bn), taking total core expenditure to around ¥47,800bn. This would represent around a 10 per cent reduction in current public works expenditure, also a 10 per cent (around ¥0.9bn) reduction of Japan's overseas development assistance (ODA) budget, and reduction of other policy-related expenditures. As part of the budget, the issuance of new government bonds is to be limited to ¥30,000bn. He intends, though the time limit is not known, to achieve primary balance in the national budget so that the total revenue excluding revenue from new bonds issued could be equal to the general expenditure excluding interests and repayments to the bond issued. The broad theme of the proposed budget is to reallocate about ¥2,000bn that would otherwise have been spent on public works projects to seven priority areas, namely, information technology, urban redevelopment, the environment protection, aging population, revitalization of local

communities, science & technology and human resources development.

Table - 2 summarizes what was compiled from the news release, though details are not known. The key figures in Koizumi's budgetary request guidelines for fiscal 2002 are \30tr (30), \5tr (5), and \2tr (2). \30tr, as already mentioned above, means the upper limit of new bonds issuance, \5tr is the total amount to be reduced in the general expenditure (not core expenditure), and \2tr is set aside and allocated to projects in seven priority areas. Thus net reduction amounts to \3tr, though it does not mean that the total of core expenditure is to be reduced by that amount. Koizumi intends to make the total of general expenditure for fiscal 2002 to the level reduced by \3tr from a temporary figure of the total of general expenditure presumed if there were no fiscal reform plan.

Table - 2 Budget cut program for FY 2002 Unit: Nominal \bn

Item	FY2001	FY2002	Difference
Public Works	9435.2	8491.7	10% down
Social Welfare	17555.2	18055.2	700.0 up
Defense	4955.3	n. a.	Down* ¹
ODA	956.2	860.6	10% down
Science & Education	6647.2	n. a.	Up* ¹
Total of Core Expenditure	48660.0	47800.0	860.0 down
National debt repayment	17170.5	n. a.	Down* ¹
Revenue transfers to Local Government	16823.0	n. a.	Down* ¹
Others	9109.8	n. a.	Down* ¹
Total of General Expenditure	82652.4	n. a.	n. a.

Source: Compiled from the news release of August 11, 2001.

*1: Figures are not announced.

What was explained above is only a small part of Koizumi's structural reform plan, though the concrete action plan is not yet available. Instead broad themes in his reform plan presented in sub-section above are well publicized. To pick up some, they include restructuring financial system, regulatory reforms leading to new business opportunities, overhauling revenue transfer system to the local government, and privatization of public corporations such as Japan National Oil Corp., Japan Highway Public Corp. and post-office businesses - mail, savings, and life insurance. In short, his idea is, "What the private sectors can do, let them do it." Budgetary increase in seven strategic areas is meant to stimulate private investments in the sectors related to those priority areas.

4. Policy Simulation

Assumptions of exogenous variables

As already mentioned in the section 1, we will not challenge whole range of the structural reform plan in this simulation analysis. It is very hard, if not impossible, to interpret changes in rules and systems into changes in the quantitative exogenous factors. Here the fiscal 2002 budget cut will be taken

into the analysis.

Policy variables implementing the budget cut are the following;

(1) 3.1% reduction of the total government final consumption (Cog) and the total government capital formation (Ing) from the baseline level in 2002 and until 2010 will be interpreted as the spending cut in public works, ODA and other policy-related expenditures. These are exogenous variables changed in the simulation alt7.

(2) 5% increase in government consumption (Cog_i) and government capital formation (Ing_i) for specific sector (i) corresponding to the sectors in priority areas from the baseline level in 2002 and until 2010 will be interpreted as the budgetary increase in the seven strategic (or priority) areas. The specific sectors in our industrial category corresponding to these strategic areas are; 50. Machinery for office, 52. Electronic computing, and 53. Communication equipment for government capital formation (Ing_i), and 73. Waste treatment, 87. Education, 88. Research institutes, and 89. Medical service, health for government final consumption (Cog_i). These exogenous changes added to the policy changes in alt7 are assumed in the simulation alt8.

(3) 5% increase in private investment (Inv_i) of IT related sectors from the baseline level in 2002 and until 2010 will be interpreted as a response of private sectors to the government stimulus in the simulation alt8. Industrial Nos. for IT related sectors are 43. Machinery for office, 44. Electronic equipment, 45. Communication equipment, 46. Semi-conductor & IC, 79. Communication, 88. Research and information, and 91. Other Business Services. Here after, these sectors mentioned above are called IT industries.⁶ These exogenous changes added to the policy changes in the simulation alt8 are assumed in the simulation alt9.

All other exogenous variables in three alternative cases were fixed as in the case of simulation Nbase4 by the extrapolation of past trend. In the course of this study we had to tackle a big problem to interpret changes in the central government expenditure (budget base) to the changes in the public expenditure (SNA base). Relations between these two expenditures should be clearly defined, which will be explained in the next sub-section.

Bridge from budgetary data to SNA data

If we are interested in the study based on the SNA database and input-output tables only, we are quite free from the problem to coordinate the different types of data mentioned below, though we have to keep in mind the effective system of *accountant*⁷ vital to keep consistency between the aggregated values of I-O estimates and the corresponding SNA estimates.

As is well known, the general (or central) government expenditure (budget base) is part of the public expenditure (SNA base). Local government expenditures and expenses by the central and the local government enterprises also consist of the public expenditure (SNA base). Moreover, to arrive at the public expenditure (SNA base), we have to clear complicated procedures to avoid the double counting between the central and the local government expenditures. That is not the end of the problem. In the national

⁶ Definition of IT industries is from the table 2 - 1 - 1 (1) p.328, in Cabinet Office (2000).

⁷ On the *accountant* of the JIDEA model, see Meade (1998). Also forthcoming in Japanese is Imagawa *et al.* (2001).

$$(7) \text{Log}(\text{CogIng}) = 0.79744 + 0.87109\text{Log}(\text{Cgc})$$

(19.928)

$$R^2 = 0.9384 \quad \text{SE} = 0.04684 \quad \text{DW} = 0.390$$

Note: Figures in parenthesis are t value.

Definition of variables:

From national account statistics; Cog: Government Final Consumption,

Ing: Government fixed capital formation, CogIng: Public Expenditure (Cog + Ing).

From central government finance statistics; G₁: Social welfare, G₂: Science & Education, G₃: Revenue transfers to local governments, G₄:

Defense, G₅: Public works, G₆: Overseas development assistance (ODA),

Cgc: Total of central government budget (including other items).

Although the coefficient of determination adjusted to degree of freedom (R²) in the equation (2) or (5) above looks acceptable, we could not decide suitable items representing the central government expenditure (budget base) as the explanatory variables in the statistical equations.

Final selection of the statistical equation connecting budget data to SNA data is the following equation (7);

$$\text{Log}(\text{CogIng}) = 0.79744 + 0.87109\text{Log}(\text{Cgc})$$

(19.928)

$$R^2 = 0.9384 \quad \text{SE} = 0.04684 \quad \text{DW} = 0.390$$

Elasticity of public expenditure (SNA base) to total central government expenditure (Budget base) is around 0.87.

If we adopt a bold assumption that the total of central government budget (general expenditure) will be reduced by 3.6% from 2001 to 2002, though the specific figure is not shown in Table - 2, it gives us 3.1% reduction of public expenditure (SNA base) by making use of the above elasticity. One caution should be mentioned that the above calculation is based on the nominal rate of reduction in the total of central government budget. So is the estimation of elasticity based on the nominal data. However, in recent years the Japanese economy is almost in the state of stagnation and the price fluctuation is negligible. So, this nominal rate of reduction was adopted in the simulation. Exogenous changes in the simulation alt7 was fixed as -3.1% based on this assumption. Although this seems to be too drastic for Japan's fragile economic situation, and is also against OECD's policy recommendation, the spending cut appears not new for the Japanese. In 1995 the central government budget (general expenditure) was reduced by -3.5% from the level of the previous year, and in 2001 also it was -2.7% lower than the figure in 2000.

The assumption in the case of simulation alt8 is not without reason. A 5% increase from the base line figures was adopted by the assumption that, to express a positive attitude by Koizumi cabinet, the increase in the government expenditure for seven priority areas should be at least over than the reduction in the case of simulation alt7, though the definite size in the increase could

not be specified. This is because each ministry has or is planning projects more or less related to these priority areas, and requesting to get bigger shares out of this special budget of \2tr. Final results of the allocation will be decided through the heated ministerial negotiations by the end of this September.

In the case of simulation alt9, private sectors of IT industries are rather passively responding to the government initiative, assuming to increase their investments by 5% from the baseline level, though there may be some reservation on this assumption. The alternative rate of increase in their investments could be 7%, 10% or more. From 1998 to 1999 the growth rate of IT investment in Japan was around 13%.¹⁰ If this rate of 13% (1.13) is multiplied by 1.05 and by 1.10, it gives us about 19% (= 1.13×1.05) and over 24% respectively. Since recent trends of the output of IT industries in the world are not so remarkable as in the late 90's, here a lower rate of increase in investments was assumed.

One special treatment should be included in the case of simulation alt9. As is well known, we have two types of the sectoral private investment. One is the private investment, a component of final demand vector (I_{pr_i}), the other is the investment planned and achieved by industry (Inv_i), which is used as a dependent variable in the estimation of the private investment function. As a component of final demand we have to have estimates of I_{pr_i} , which are deeply dependent to the sectoral investment behavior of Inv_i . Therefore a bridge matrix or converter matrix of investment plays key roles in connecting these two kinds of private investments. Responding to the government stimulus to IT industries, which belong to one of the seven privileged areas, each private sector (i) assumed as IT industries, is to increase its investment (Inv_i). These effects are transferred through the converter matrix to I_{pr_i} , a component of final demand.

Results of simulations

Summary of the results of simulations are presented in Table - 3 showing performance of main economic indicators such as components in GDP, employment, unemployment rate and price changes in four cases of simulations, and in Table - 4 presenting performances of sectoral output in the simulation alt9.

What will be the effects of Koizumi's structural reform plan on the Japanese economy? At first glance, the result by simulation alt9 is almost same as the picture drawn by baseline Nbase4 shown in Table - 3. It looks like that there may be no use of the structural reform plan. Of course we can notice in the simulation alt9 that in 2010 main economic indicators, except unemployment rate, are all slightly bigger than the corresponding figures in the baseline result.

With our drastic assumptions reducing the public expenditure by 3.1%, results are not impressive, however, as Table - 4 clearly shows, if we compare the sectoral output of the simulation alt9 with that of the baseline, we can count 58 sectors which achieved higher output than the baseline. Out of these 58 sectors, 39 sectors are in the group A. They are expanding faster than the

¹⁰ See General Affairs Office (2000), p.170, Table (4). IT investment was increased by about 13% in real term from \16.2tr in 1998 to \18.3tr in 1999.

total gross output. Performances of 18 sectors in the group B are rather slow. Their relative rates are behind that of total gross output. This result is based on the assumption that the private sectors are responding rather passively to the government initiative to boost IT industry.

The simulation result of alt9 suggests that if we expect (or assume) much more active responses from private sectors, output of IT industries will surely be greater. The reverse side of this discussion is if the private sectors' responses to the government initiative could be as such as in the simulation alt9, Koizumi government should never fail to support domestic activities by such policy measures as regulatory reforms or privatizations of semi-governmental enterprises, which would be what Koizumi was intending to do, though these effects were not analyzed in this study.

Table - 3 Main Economic Indicators in the Results of Simulations

Variables	Case	1996	2000	2002	2005	2010	Unit:
GDPR	NBase4	481.2	497.6	512.8	538.1	586.1	\Tr
	Alt7	481.2	497.6	507.6	532.8	580.6	
	Alt8	481.2	497.6	511.2	536.4	584.3	
	Alt9	481.2	497.6	512.1	537.7	586.2	
Inv	NBase4	96.6	92.6	94.0	96.6	105.1	\Tr
	Alt7	96.6	92.6	94.0	95.1	103.8	
	Alt8	96.6	92.6	94.0	96.1	104.7	
	Alt9	96.6	92.6	94.8	97.6	107.0	
Cons	NBase4	291.7	310.9	302.5	315.2	337.5	\Tr
	Alt7	291.7	310.9	300.0	314.4	336.6	
	Alt8	291.7	310.9	302.0	315.2	337.5	
	Alt9	291.7	310.9	302.3	315.3	337.7	
Exp	NBase4	57.2	68.4	74.6	91.9	118.0	\Tr
	Alt7	57.2	68.4	74.6	91.9	118.0	
	Alt8	57.2	68.4	74.6	91.9	118.0	
	Alt9	57.2	68.4	74.6	91.9	118.0	
Imp	NBase4	53.3	62.9	67.4	84.0	109.2	\Tr
	Alt7	53.3	62.9	66.8	83.3	108.3	
	Alt8	53.3	62.9	67.2	83.7	108.9	
	Alt9	53.3	62.9	67.4	84.1	109.6	
Emp	NBase4	6347	6354	6348	6353	6423	10000 Person s
	Alt7	6347	6354	6283	6292	6364	
	Alt8	6348	6354	6331	6334	6402	
	Alt9	6348	6354	6341	6350	6424	
UnER	NBase4	3.57	4.60	3.88	3.96	2.23	%
	Alt7	3.57	4.60	4.86	4.89	3.14	
	Alt8	3.57	4.60	4.14	4.25	2.55	
	Alt9	3.57	4.59	3.97	4.01	2.21	
Infl	NBase4	0.09	0.20	0.34	0.66	0.35	%
	Alt7	0.09	0.20	0.57	0.59	0.35	
	Alt8	0.09	0.20	0.48	0.63	0.35	
	Alt9	0.09	0.16	0.46	0.66	0.36	
GrGDP	NBase4	3.14	1.95	1.13	1.66	1.45	%
	Alt7	3.14	1.95	0.11	1.70	1.45	
	Alt8	3.14	1.95	0.81	1.68	1.44	
	Alt9	3.14	1.95	0.95	1.69	1.45	
GrGDPN	NBase4	3.24	2.15	1.47	2.32	1.79	%
	Alt7	3.24	2.15	0.67	2.29	1.80	
	Alt8	3.24	2.15	1.29	2.30	1.79	
	Alt9	3.24	2.15	1.40	2.34	1.82	

Note: Definition of variables
GDPR; Real GDP, INV; Private Investment,
Cons; Private Consumption,
Exp; Export, Imp; Import,
Emp; Employment, UnER; Unemployment

Rate,

Infl; Inflation Rate, GrGDP; Growth Rate of Real GDP,
GrGDPN; Growth Rate of Nominal GDP.

Assumption for the simulations:

Nbase4; Extrapolation of past
trend.

Alt7; From 2002 onward, Cog and Ing were reduced by 3.1%.

Alt8; Alt7 + Cog_i & Ing_i in the priority areas were increased by
5%.

Alt9; Alt8 + Inv_i of IT related industries were increased by 5%.

Table - 4 Sectoral Performances in the simulation Alt9

Group A		Group B	
		Total Gross Outputs by Industry	1.0009
87 Education	1.0387	3 Agricultural services	1.0009
73 Waste treatment	1.0241	82 Storage facility services	1.0009
53 Communication equip	1.0226	70 Electric power	1.0008
54 Electric & electronic	1.0128	23 Inorganic basic chemicals	1.0008
89 Medical service, health	1.0102	60 Motor vehicle engine and	1.0007
52 Electronic computing eq	1.0099	85 Broadcasting	1.0006
69 Civil engineering private	1.0080	14 Tobacco	1.0005
88 Research institutes	1.0075	25 Organic chemical products	1.0004
49 Other general machines	1.0074	90 Non-profit organizations	1.0004
28 Drugs and medicines	1.0059	29 Final chemical products	1.0004
56 Heavy electrical equip	1.0058	24 Petrochemical basic produc	1.0004
18 Wooden & metal furni,	1.0057	99 Hotel & restaurant	1.0003
48 Special industry machi	1.0032	97 Business services	1.0003
35 Glass and glass products	1.0030	57 Miscellaneous electrical	1.0003
34 Leather & Fur product	1.0025	78 Railway transport	1.0002
63 Precision instr., medic	1.0023	77 House rent	1.0002
71 Gas and hot water supply	1.0021	26 Synthetic resin	1.0002
11 Food products	1.0018	15 Fabricated textile product	1.0000
13 Feeds and organic fertiliz	1.0017	98 Amusement service, films,	1.0000
74 Trade	1.0017		
5 Fishery	1.0017		
2 Livestock and silkworm	1.0016		
58 Motor vehicle	1.0016		
81 Air transport	1.0016		
19 Pulp and paper	1.0013		
21 Publishing and print	1.0013		
100 Personal services,	1.0013		
20 Cardboard box & paper	1.0012		
55 Semi-conductor devices	1.0012		
41 Steel castings & forging	1.0012		
37 Pottery, tiles & earthen	1.0012		
12 Beverages	1.0012		
101 Office supplies	1.0011		
91 Advertising agencies	1.0011		
43 Non-ferrous metals refin	1.0010		
76 Real estate agencies	1.0010		

47 General industrial machi	1.0010
44 Processed non-ferrous	1.0010

Note: Industrial sectors selected above are the sectors of which output is exceeding the baseline figure in 2010.

Figures are the relative rate of output in sector i in the simulation alt9 to the output in sector i in the baseline.

Group A includes industrial sectors of which relative rate is exceeding 1.0009, the rate of total gross output.

Group B includes industrial sectors of which relative rate is lower than 1.0009, the rate of total gross output.

Our conclusion is that in order to revitalize the Japanese economy, Koizumi's structural reform plan should be achieved by all means. With our quantitative study limited to the analysis on the 2002's budgetary request guidelines and with rather bearish assumptions on the responses by private sectors to the government initiatives, we could obtain positive results compared with the baseline, though the level itself is far from the acceptable one, suggesting it is indispensable to push his reform plan in full scale.

5. Conclusion

In this study our main interests are in the quantitative aspects of Koizumi's structural reform plan, namely, his budgetary request guidelines just announced and those effects on the Japanese economy.

After a brief explanation on the Japanese economic conditions quoting the OECD report, contents of budgetary request guidelines were presented trying to find what will be interpreted as exogenous factors in the policy simulation based on JIDEA model 4.3. A big problem we faced was to define relations between budgetary data and national income statistics data. Eventually we had to give up building a bridge matrix to connect them precisely, however, with a help of statistical equations we could reflect budgetary changes into changes in the public expenditure and could prepare a set of exogenous variables. With our bearish assumptions of private sectors' responses, results of simulation are not as encouraging to the Japanese as Koizumi advocates, though we can find positive effects of Koizumi's finance reform plan on the Japanese economy. The results are suggesting that to boost our economy, Koizumi's structural reform should be pushed in full scale including such policies as financial system restructuring, regulatory reforms or privatizations of semi-governmental enterprises.

In the course of this study we encountered a lot of problems, some of which are still unsolved, and others are untouched yet. Following is the list of the problems:

- Renewal and upgrading of the JIDEA model to version 5.

- Building a sub-model for public finance sector, or

- To complete converter matrix of fiscal data to SNA data.

- Building a sub-model for labour and population sector.

- Full application of PADS to the consumption sector in the JIDEA model.

- To interpret qualitative aspects of policies into quantitative variables.

One of the urgent works to be finished is to prepare input-output tables (1985~1995) at 1995 constant prices based on the 1995 base table published

in May 1999, and link tables for 1985, 1990 and 1995 in July 2000. Then JIDEA 5 model and its applications on the various aspects of the Japanese economy will be presented to the next INFORUM World Conference.

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