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JAPAN

Selected Issues

Prepared by T. Baig, D. Iakova, K. Kang and
T. Komori (all APD),
and S. Kim (RES)

Approved by the Asia and Pacific Department

August 1, 2003

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A. Introduction

1. **Following the bursting of the bubble in the early 1990s, the corporate sector in Japan has entered a period of significant adjustment**. The sector has experienced important changes, including the "Big Bang" financial reforms beginning in 1996, the financial crisis of 1998/99, the decade-long economic slump, and continued deflation. In response to the decline in asset prices and economic slowdown, corporations have been repairing their balance sheets and consolidating their operations in an effort to strengthen their profitability. However, despite some progress, the pace of corporate restructuring has been slow as the sector remains highly leveraged and profitability low while corporate bankruptcies and unemployment rates have reached historic highs. The weak corporate sector has in turn hurt the asset quality and earnings of the financial sector and held back prospects for a sustained recovery.

2. **The purpose of this paper is to analyze the health of the corporate sector, identify areas of vulnerability, and assess the progress made so far in restructuring**. The paper relies both on aggregate survey and firm-level data to examine not only general trends but also differences across sectors and firms. The paper also examines the exposure of the financial sector to weaknesses in the corporate sector and conducts some basic stress tests to assess the potential impact of negative shocks on the sector.

3. **The Japanese corporate sector has made significant progress in deleveraging, but leverage still remains high and core profitability weak**. Survey figures show that although debt-equity ratios continue to fall and liquidity remains strong, leverage is still high relative to other industrial countries and profitability is weak. Using financial statement data for 3,374 nonfinancial listed corporations, we find that weak companies account for a significant portion of the total debt and continue to make losses. In 2002, despite the low interest rates, companies with an interest coverage ratio (ICR) of less than one (here defined as "nonperforming") accounted for 16 percent of total debt while those with negative operating profits accounted for 10 percent of total debt. Moreover, close to 25 percent of these weak companies recorded negative operating profits for 2 years in a row. The persistence of these weak borrowers highlights the need for further restructuring and the exit of nonviable firms and the difficulties in detecting corporate distress in a low nominal interest rate environment. A stress test of the corporate sector shows that many of these weak companies are also vulnerable to an increase in interest rates and/or a sharp slowdown in earnings.

B. Background and Aggregate-level Analysis of the Corporate Sector

4. **Although the Japanese corporate sector has made significant progress in deleveraging, leverage still remains high compared to other major economies**. According to the Ministry of Finance (MoF) corporate survey data, the aggregate debt-equity ratios for

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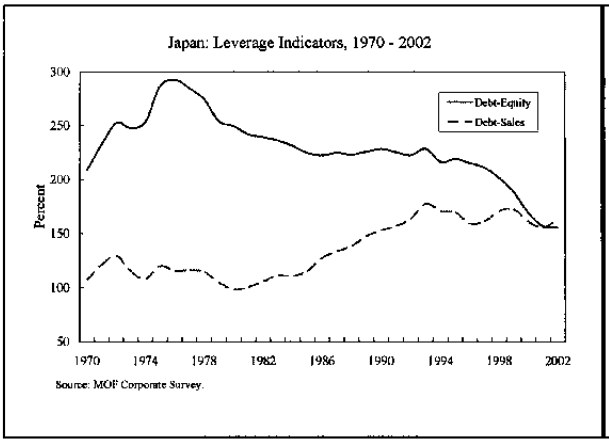
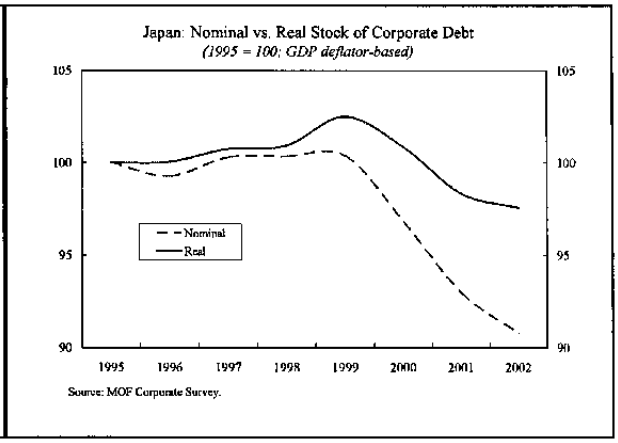
[1] Prepared by Kenneth Kang (ext. 38911).

the nonfinancial corporate sector has been on a trend decline since the late 1970s (Figure).[2] Debt-equity ratios have fallen from a peak of 287 percent in 1975 to 155 percent in 2002 with the pace of deleveraging having accelerated in the late 1990s. However, leverage is still high relative to other industrial countries such as Germany (80 percent), U.K. (45 percent), and the U.S. (70 percent) (Table).[3] The debt-to-sales ratio, another measures of leverage which is less subject to lags in asset valuation, shows that leverage peaked in 1993 and has since come down only slightly. The nominal stock of corporate debt has fallen by about 10 percent from 1995 to 2002; however, after accounting for deflation, the real stock of debt has come down only slightly (Figure). As a share of GDP, corporate debt has fallen from 116 percent in 1995 to 102 percent in 2002—the same level as in 1989 before the bursting of the bubble (Figure).





Financial Indicators for the Corporate Sector, 1990–2002

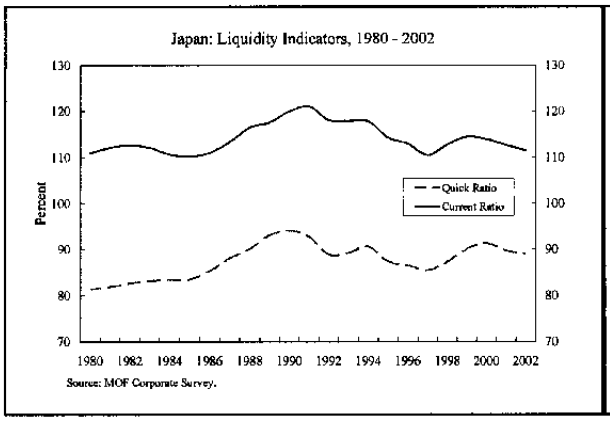
	Japan					US	Canada	Germany	UK
	1990	1995	2000	2001	2002	2002	2002	2001	2002
Debt-equity ratio	228	219	169	157	155	70	45	80	45
Interest coverage ratio[1]	1.6	1.8	3.5	3.1	3.4	2.8	3.9	...	...
Interest expense/debt	6.6	3.6	2.3	2.2	2.0	6.8	7.7	...	...
Return on assets[2]	4.9	3.0	3.4	2.9	2.8	4.8	6.7	...	11.3
Return on equity[3]	18.5	10.6	12.4	10.2	10.2	11.5	10.7	...	...

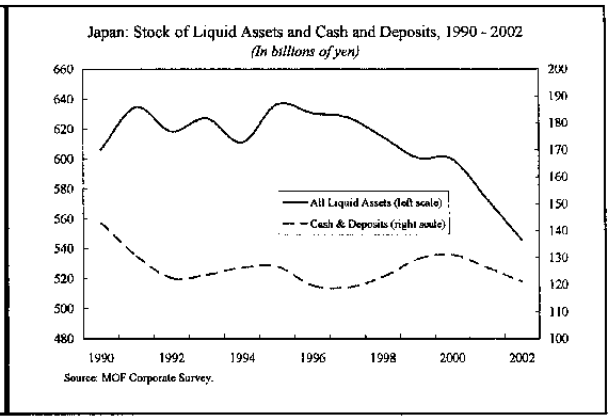
Sources: MoF Corporate Survey; national sources.
[1] Ratio of operating profits to interest expense.
[2] Ratio of operating profits to total assets.
[3] Ratio of current profits to shareholder equity.

[2] In Japan, the comprehensive source of corporate data is the MoF Corporate Survey which covers some 120,000 corporations across a broad range of sectors and firm sizes. It is released every quarter and contains basic financial statement information on corporate balance sheets, income statements, and financial ratios going back as far as 1954.

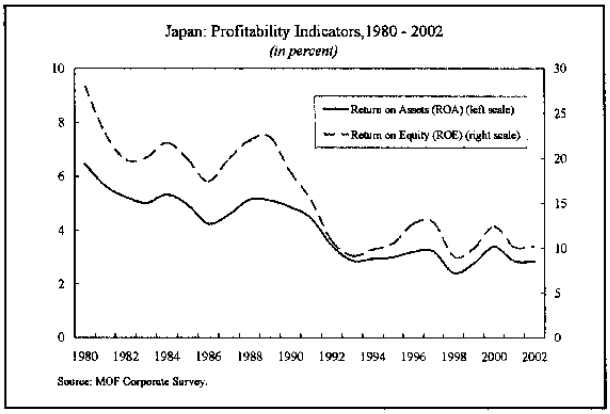
[3] Although countries need not necessarily have the same corporate debt-equity ratios due to differences in financial structure, funding costs, and institutional arrangements, a comparison with other industrial countries nonetheless provides a useful benchmark for assessing corporate leverage in Japan.

5. **Liquidity has declined from its peak in the 1990s but as a whole, remains high.** Basic liquidity indicators, such as the current ratio (current assets divided by current liabilities), show that the corporate sector on an aggregate basis has sufficient liquid assets to meet short-term obligations (Figure). The current ratio fell by 10 percentage points in 2002, but is still above 100 percent. The quick ratio, a stricter measure of liquidity which excludes inventories—the least liquid among current assets—has showed some improvement since 1997. While corporations have held steady their level of cash and deposits, they have been drawing down their holdings of inventory and securities (Figure). The decline in security holdings is partly in response to the unwinding of cross-shareholdings. The maturity structure of corporate debt has also improved as the share of short-term debt in total debt has fallen from 46 percent in 1990 to 38 percent in 2002.[4]



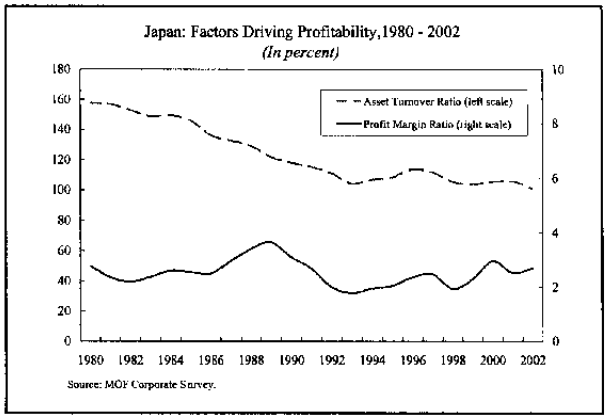


6. **Despite the improvement in their balance sheets, profitability of the sector as a whole remains weak.** Investment returns, measured either with assets or shareholder equity, have declined steadily and remain at historic lows (Figure). On an operating income basis, return on assets (ROAs) in the corporate sector has remained flat since 1993. Compared to other G-7 countries, the ROA in Japan is about one-half to one-quarter that of Canada, the UK, and the US (above Table). After accounting for financial and other non-operating income and expenses, the return on equity (ROE) has also reached historic lows. The declining rates of returns highlight that despite the improvements their balance sheets, corporations in Japan have been unable to generate a recovery in profitability and thus remain a source of weakness for the economy.

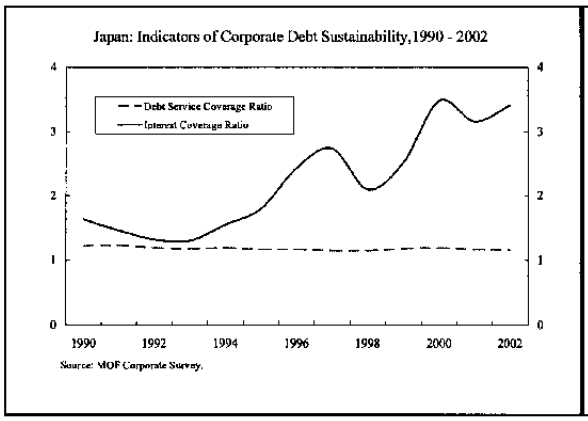


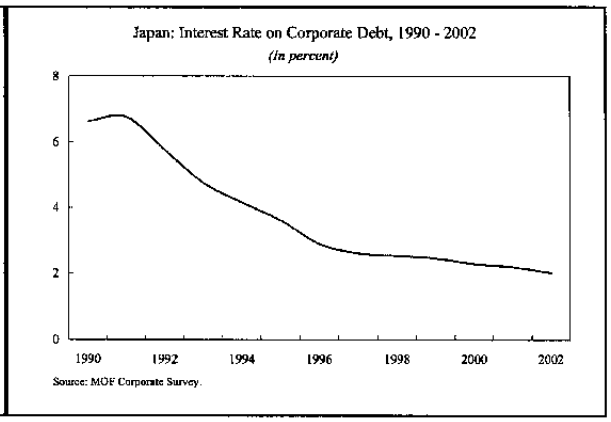
[4] With the flattening of the yield curve, firms have also found it less costly to lengthen the maturity of their debt structure.

7. **The decline in profitability is due in part to the persistent high level of excess capacity**. Despite the progress in deleveraging, the corporate sector continues to suffer from excess capacity. Separating the calculations of "net" ROA into its two components—profit margin (net income/operating revenue) and asset turnover (operating revenue/total assets)—shows that the decline in profitability has been driven largely by a reduction in asset turnover (Figure). While profit margins are roughly at the same level as in the 1980s, asset turnover (i.e., the degree of utilization of assets) continued to fall, suggesting a significant amount of assets remain unused in the production process. Other indicators, such as capacity utilization rates, also point to a high degree of excess capacity in the sector.



8. **Despite the decline in profitability, companies have been able to remain current on their debt obligations, partly due to the decline in interest rates.** Interest coverage ratios (operating profits divided by interest expense) have risen steadily, from 1.6 in 1990 to 3.4 in 2002 (Figure). A broader measure of coverage that includes debt service payments falling due within one year and liquid assets that are available to meet short-term payments shows a slight decline but the ratio still exceeds one, suggesting that the corporate sector as a whole has sufficient resources to remain current on both its interest and principal payments. Along with the sharp decline in long-term government yields, corporate borrowing rates have fallen sharply, from an average of 6.8 percent in 1991 to a record low of 2 percent in 2002 (Figure). Thus despite low profitability, the capacity of the corporate sector to service its interest payments has actually improved on account of the decline in interest rates.





9. **More recently, the corporate survey showed a modest recovery in corporate profits at the end of 2002 followed by a slight decline in Q1 2003.** Operating profits and sales rebounded in the 3rd and 4th quarters of 2002 in line with the modest cyclical recovery. However, the improvement was mixed, as the gap between manufacturing and non-manufacturing firms and between small and large companies widened. Manufacturing operating profits rose for four straight quarters (s.a., q/q) while nonmanufacturing profits fell for three quarters. In addition, larger companies (those with a paid-in capital of ¥1 billion or

more) showed strong growth in operating profits and sales while those for smaller firms (with a paid-in capital of between ¥10 million and ¥100 million) showed sharp declines. In Q1 2003, both operating and recurring profits fell, led by a decline in manufacturing profits (Jerram 2003; Matsuoka 2003).

C. Firm-Level Analysis of the Corporate Sector

10. **While the aggregate figures are useful in showing overall trends, they may mask considerable differences across firms and sectors**. Summary averages of key ratios may actually hide more than they show, particularly if the data are polarized between good and bad companies.[5] Information at the firm-level would help to reveal changes in the distribution across firms and across sectors. In particular, weak companies may be a significant source of vulnerability if they account for a large share of corporate debt.

11. **To analyze the distribution of companies, we use the Worldscope database containing financial statement data for Japanese listed corporations from 1993–2002**. The dataset contains 3,680 nonfinancial corporations of which 3,374 were still active in 2002 (2,247 in 1993)[6] and contains information on corporate balance sheet, income and cashflow statements. The dataset represents around 34 percent of nonfinancial corporate liabilities in Japan (based upon flow of fund statistics) and spans a ten year period during which the corporate sector has undertaken significant changes as a result of the weak economy, continued deflation, and restructuring.

12. **The sample is mainly an industrial dataset**. The dataset is dominated by manufacturing companies which account for the largest share in terms of number of firms (48 percent), debt (38 percent) and employment (64 percent) (Table).[7] Following

Summary of Database for Nonfinancial Corporations, 2002

Sector	Number	Share	Debt		Employees	
			Amount	Share	Number	Share
		(In percent)	(In millions of Yen)	(In percent)		(In percent)
Agriculture, Forestry and Fishing	6	0.2	359,833	0.2	14,097	0.1
Mining	12	0.4	3.200.172	1.4	10.690	0.1
Construction	247	7.3	14.211.142	6.1	454.758	4.7
Manufacturing	1.626	48.2	87.734.407	37.6	6.200.563	63.9
Transportation and Public Utilities	190	5.6	62,842,252	26.9	1,198,125	12.4
Wholesale Trade	391	11.6	23,682,600	10.1	377,054	3.9
Retail Trade	360	10.7	15,670,969	6.7	614,501	6.3
Real Estate	85	2.5	7,006,864	3.0	79,717	0.8
Services	457	13.5	18,743,126	8.0	749,955	7.7
Total:	3,374	100.0	233,451,365	100.0	9,699,460	100.0

Source: Worldscope.

[5] For example, if the data is highly heterogeneous, it may not be appropriate to use Honda's profits to offset Daiei's losses.

[6] Following the "Big Bang" financial reforms in 1996, the number of listed companies in Japan increased sharply.

[7] According to the national income accounts, manufacturing accounts for around 22 percent of industrial GDP, roughly the same as services, the next largest sector in industrial GDP.

manufacturing in terms of debt size are transportation and public utilities and wholesale trade. The dataset also contains a significant number of companies in other sectors, such as construction (247), retail trade (360), and real estate (85).

13. **Using firm-level data creates a bias in the analysis towards large companies.** Since the dataset consists only of listed companies, the analysis will focus mainly on large companies with an average capital of around ¥60 billion. Consequently, small and medium-sized firms (SMEs) whose assets account for around 40 percent of the total for the corporate sector are largely excluded from the analysis.[8]

14. **However, the inherent bias in using listed company data provides a useful upper bound on the progress in corporate restructuring and a lower bound on the degree of vulnerability**. Although SMEs are excluded from the analysis, the MoF Corporate Survey clearly shows that the financial conditions of SMEs are significantly worse than for larger companies. The table shows financial indicators for the corporate by firm size. In terms of leverage (here measured as the ratio of liabilities to equity), small firms with a capital of less than ¥10 million have a significantly higher average leverage ratio than large firms—in 2002 by almost a factor of 5. The table also shows that while large and medium-sized firms have made progress in reducing their debt-equity ratios during 1998–2002, smaller firms have actually increased their leverage so that their average leverage ratio now exceeds 1,000 percent. Also in terms of profitability, smaller firms have significantly lower return on assets (ROA) than large firms. Since smaller firms are in financially worse shape than larger firms and have shown less progress in restructuring, our analysis will serve as an upper bound on the progress in corporate restructuring and a lower bound on the degree of vulnerability for the sector. In other words, we will show a better picture for the corporate sector than reality.

Financial Indicators for the Corporate Sector by Firm Size, 1997–2002

	1998	1999	2000	2001	2002
Liability-equity ratio, total	403	421	348	289	297
Large firms (capital > 1 billion yen)	242	234	217	205	205
Medium firms (1 billion yen > capital > 10 million yen)	633	660	502	384	410
Small firms (capital < 10 million yen)	900	1,024	1,036	931	1,143
Return on asset (pre-tax)	2.1	1.6	2.1	2.8	2.3
Large firms (capital > one billion yen)	2.6	2.2	2.7	3.3	2.6
Medium firms (1 billion yen > capital > 10 million yen)	1.9	1.5	2.1	2.7	2.1
Small firms (capital < 10 million yen)	0.8	-0.2	-0.5	0.7	0.7

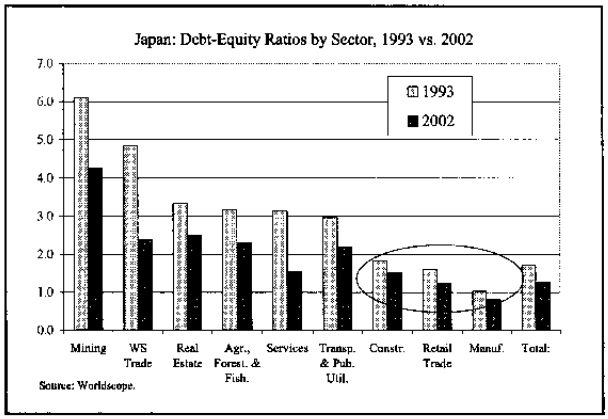
Source: MoF Corporate Survey.

[8] SMEs here are defined as firms with capital size of below ¥10 million. Lending to SMEs account for around 47 percent of total bank loans.

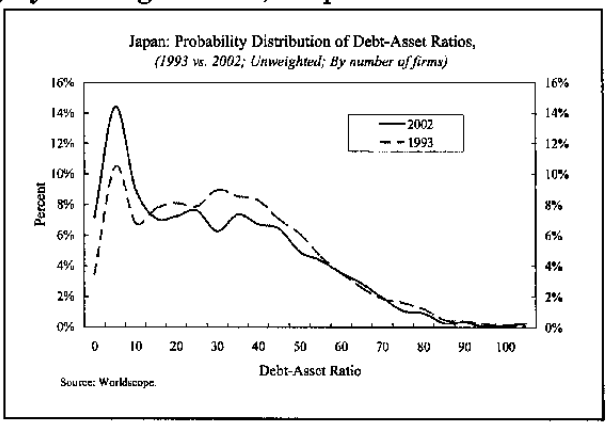
D. Progress in Corporate Restructuring

Leverage

15. **The progress in deleveraging has varied across sectors**. Consistent with the MoF data, the average debt-equity ratio for listed companies has declined steadily since the early 1990s. However, the progress has been uneven across sectors and across firms. The figure shows the debt-equity ratios in 1993 and 2002 by sector ranked according to their initial level of leverage in 1993. While sectors such as mining, wholesale and services recorded significant declines in debt-equity ratios during 1993–2002, other sectors such a construction, retail trade, and manufacturing have changed little, though they started from much lower bases.



16. **Although the average leverage for the overall corporate sector has declined, a significant share of corporations remain highly leveraged**. Here, we plot the number of firms according to leverage and use debt-asset ratios instead of debt-equity ratio to avoid the problem of negative book value equity (Figure). The plots show that in 1993, the distribution in the number of firms was fairly even over the debt-asset range of 5–40 percent but then drops rapidly thereafter. The sample in 2002 shows that the distribution has shifted to the left as many companies have made progress in deleveraging.[9] In particular, the concentration of firms at around 5 percent has increased sharply. However, the plot for 2002 also shows that heavily indebted firms still maintain a large presence at the right end of the distribution. For example, about 27 percent of listed companies in 2002 had a debt-asset ratio that exceeded 40 percent—a figure that has changed little since 1993.

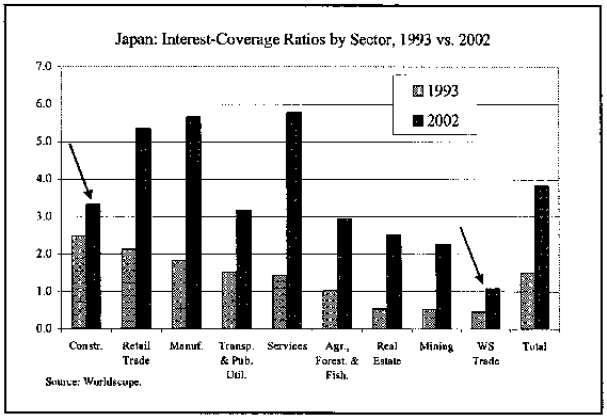


Profitability

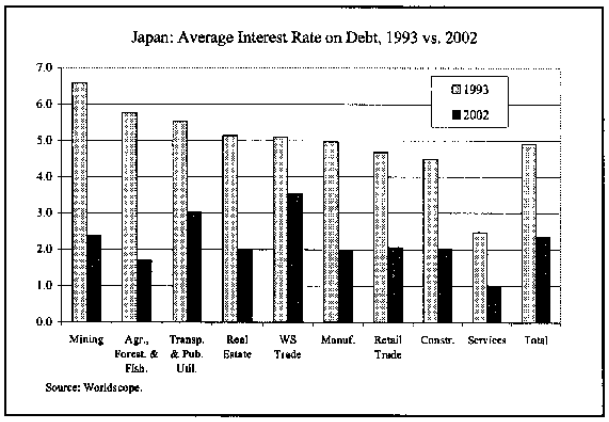
17. **Average profitability for listed companies has improved slightly over the period, though progress varied across sectors**. The 3-year average ROA increased from 3.1 percent in 1995 to 3.9 percent in 2002. This is in contrast to the MoF Corporate Survey results which

[9] 194 companies (8 percent of the total) managed to reduce their debt-equity ratios by more than 100 percentage points between 1993 and 2002.

showed flat profitability over the period. The difference is likely due to the bias in the sample towards larger listed firms which have made relatively more progress than smaller firms in restructuring. Interest coverage ratios (ICR), measured as the ratio of earnings over interest expense, also improved during 1993–2002, but again the progress varied across sectors (Figure). The average ICR increase from 1.5 to 3.8 during the period. Most sectors recorded strong increases in ICR. For example, for manufacturing and services, ICRs increased by almost 3 times. Other sectors, such as construction and wholesale trade, recorded significantly less progress.



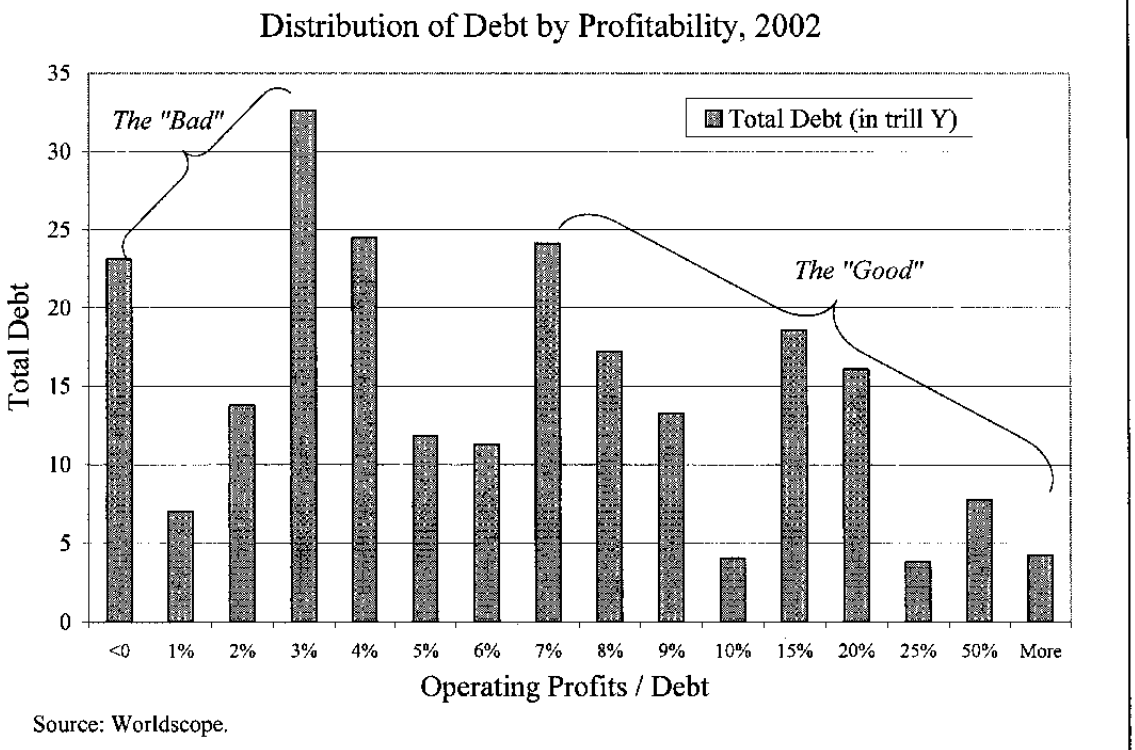
18. **However, a closer examination reveals that the improvement in ICR is driven more by the sharp decline in funding costs than an increase in operating profitability.** Average interest rate on outstanding debt fell from close to 5 percent in 1993 to slightly above 2 percent in 2002 as long-term yields have fallen to historic lows (Figure). All sectors recorded significant declines with mining and agriculture leading the pack. Interestingly, the sectors where NPLs are reported to be the highest—real estate, retail trade, and construction—had interest rates that were below the average, suggesting that credit risk may not have been a significant factor in determining borrowing costs to these sectors.



Financial vulnerability

19. **To gauge the exposure of the financial sector to corporate weaknesses, we examine corporate debt according to degree of profitability.** Profitability here is measured by the ratio of operating profits to total debt, i.e., the rate of return on borrowing. Debt includes both bank loans and bond obligations. The inverse of this ratio is equivalent to the number of years that a firm needs to pay off debt with its operating profits (excluding interest payments). For example, companies with a 1 percent rate of return would need 100 years of operating profits to pay back their principal obligations while companies with an operating profit ratio of 10 percent require only 10 years.[10]

[10] The Industrial Revitalization Corporation of Japan (IRCJ) and the Industrial Revitalization Law (IRL) are reported to be using the ratio of operating profits to total debt as one of their criteria for judging the viability of firms for restructuring.



20. **The data shows a strong polarization between good and bad performers weighted by their debt size.** The figure shows that in 2002 there existed a cluster of good companies with an operating profit ratio equal to or above 7 percent.[11] These "good" companies accounted for ¥109 trillion in debt or 47 percent of the total. However, at the same time, there was a large cluster of very weak companies with an operating profit ratio of below 3 percent (including those with negative profits). These companies accounted for ¥77 trillion or 33 percent of total debt. For these companies, it would take 33 years or more to repay their debt out of their operating profits.

21. **These weak companies account for a significant portion of the total debt and have done so for a number of years.** Using a panel data set allows us to examine not only the number of distressed companies in a given period but also the persistence of these weak firms in the sample. Looking back in time, we find:

[11] Some analysts have used this methodology to estimate the size of non-performing loans held by banks. For example, David Atkinson et. al. of Goldman Sachs use an operating profit ratio of 3.5 percent as the cutoff for measuring the amount of loans classified as "bankruptcy risk." See Atkinson et. al., "Japanese Bank Asset Quality," Goldman Sachs Global Equity Research, October 31, 2001.

- In 2002, despite the low interest rates, companies with an ICR of less than one (here defined as "nonperforming") numbered 760 out of 3,352 companies and accounted for 16 percent of the total debt. Of these, 299 companies recorded ICRs of below one for two consecutive years; 177 companies for three years in a row.

- Companies with *negative* operating profits numbered 291 in 2002 and accounted for 10 percent of total debt; of these, 187 companies recorded negative operating profits for two years in a row. These companies were mainly in manufacturing and wholesale trade.

22. **The persistence of these weak borrowers highlights the need for further restructuring and exit of nonviable firms**. The large number of companies who remain active and listed despite making negative profits for two years in a row and having an ICR of below one suggests that further restructuring and exit is needed. Moreover their continued presence represents a significant source of vulnerability for the corporate sector. More pro-active use of the insolvency system and of the out-of-court workout guidelines would allow creditors and debtors to work out their difficulties before they become intractable and help to limit potential losses. The exit of nonviable firms would also free up resources that could be more productively used elsewhere.[12] In addition, tightening the delisting criteria to place distressed companies on the watch list for removal at an earlier stage would help send a signal to creditors (and to the market) to initiate workout or bankruptcy procedures.[13]

23. **The results also suggest that low nominal interest rates have weakened the usefulness of the term "nonperforming loan" in detecting financial distress by easing the financing constraint on borrowers**. Large companies with an ICR of less than one accounted for 16 percent of total debt in the sample which is significantly higher than the official NPL ratio for all banks of roughly 8 percent in September 2002.[14] In Japan, NPLs are defined as those loans that are in nonaccrual status for 3 months or more and restructured loans for which the terms are modified in favor of the debtor. However, with nominal interest rates at historic lows, many companies are able to remain current on their interest payments despite being close to insolvency. Thus official NPL figures may not cover these so-called

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[12] Please see *Japan 2003 Selected Issues* chapter titled, "Macro-Effects of Corporate Restructuring in Japan" by Se-Jik Kim for a discussion of the estimated long-run benefits from corporate restructuring in Japan.

[13] The Tokyo Stock Exchange (TSE) can delist companies that do not meet minimum requirements in four areas—the number of shares, percentage of shares held by major shareholders, number of shareholders, and turnover. Starting April 1, 2003, the TSE tightened the delisting criteria by calling for companies whose market capitalization was under ¥1 billion for nine straight months or that had a negative net worth for the past two years to be delisted.

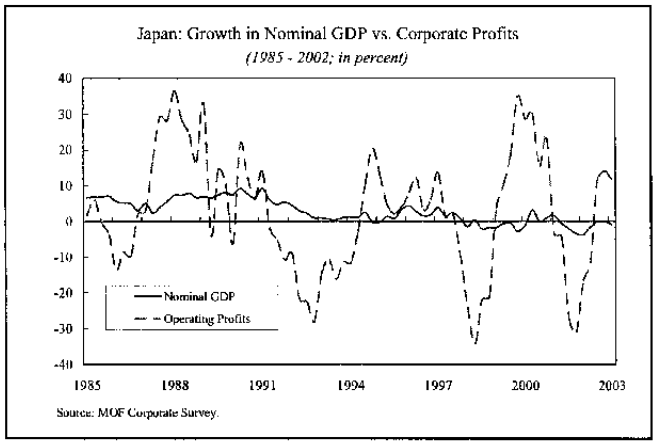
[14] A strict comparison between these two figures is not feasible and should be treated with caution given the difference in classification and the sample of companies.

"impaired" loans which may be performing in the technical sense, but whose repayment capacity are in doubt. Low nominal interest rates have highlighted the need for strong supervisory oversight and regulatory pressure to ensure that creditors identify and take action against their problem borrowers.[15]

E. Stress Tests

24. **One advantage to using firm-level data is that we can conduct basic stress test analysis to assess the vulnerability of the corporate sector to various adverse shocks.** The purpose of the stress test would be to estimate the potential impact of different macroeconomic and financial shocks, such as a rise in nominal interest rates or a slowdown in earnings. The stress tests builds upon the analysis done in the previous sections which identified areas of vulnerability in the corporate sector. With information on the exposure of individual firms, we are able to estimate the sensitivity of the corporate sector to potential adverse shocks and their ability to remain current on their debt obligations. Significant declines in their debt service capacity could lead to an increase in the implied NPL ratio, and in some case result in solvency problems.

25. **Here, the stress test looks at the impact of an interest rate shock and a sharp slowdown in earnings.** Since the early 1990s, corporate funding rates have fallen steadily, providing the corporate sector with a window to restructure their balance sheets at relatively low costs. With the flattening of the yield curve, corporations have been able to refinance and lengthen their debt maturity. However, at the same time, the risks of a potential sharp rise in borrowing rates have increased. A sharp sustained rise in nominal long-term rates could add to funding pressure on corporations, particularly those who have made less progress in deleveraging. Given its close links to the financial sector, corporate distress could quickly spill over, affecting asset quality and confidence in the banks. A significant decline in corporate earnings could also affect corporation's ability to remain current on their debt service payments and to rebuild their capital base. The figure shows that earnings are very volatile and sensitive to the business cycle.



26. **The shocks were calibrated using the historical record of movements in the corporate borrowing rates and earnings.** Summary statistics for 1-year changes in interest charged on borrowing and in operating profits are shown in the table during the period 1980–

[15] The introduction starting in March 2003 of the discount cash flow methodology for provisioning against "need special attention" loans to large borrowers will help shift the attention away from historical payment record to more forward-looking indicators of payment capacity.

2002. A one-standard deviation change in interest rates was 86 basis points; the maximum increase was 321 basis points in 1980. A one-standard deviation in the annual growth of corporate earnings was estimated at 16 percent. For the sake of simplicity, we use as a shock a 100 basis point increase in borrowing rates and a 15 percent decline in corporate earnings—both roughly corresponding to a one-standard deviation shock from the mean.[16]

Calibration of Stress Test Shocks						
	Time Period	Min.	Max.	Std. Dev.	Median	Mean
			(In percent)			
Interest Rates						
Average interest rate on debt (In percent)	1980–2002	1.9 (Dec. 2002)	11.4 (Sept. 1980)	2.7	5.4	5.5
Change in interest rates (bps)	1980–2002 (12-months)	-151 (Sept. 1992)	321 (June 1980)	86	-27	-26
Earnings						
Growth in operating profits (In percent)	1980–2002 (12-months)	-34.2 (June 1998)	36.5 (Mar. 1988)	16.4	3.3	3.5
Source: MoF corporate Survey; Worldscope.						

27. **The stress test results shows that weak corporations are relatively more vulnerable to an increase in interest rates than a slowdown in corporate earnings.** An increase in interest rates by 100 basis points would increase the number of firms with an ICR of below 1 by 21 percent and roughly double the size of implied "NPLs" (Table; from the baseline scenario 0 to scenario 1). The NPL ratio would rise from 16 percent to 32 percent of total debt. Given its large presence in the data, the largest increase would take place in the manufacturing sector whose NPL ratio would rise from 22 percent to 33 percent. Although the average NPL ratio for the entire sample is 32 percent, for some sectors such as agriculture, mining, and wholesale, the implied NPL ratio would exceed 70 percent, though this is partly due to the small sample size for these sectors and the presence of several large firms whose interest coverage ratios are close to the borderline. The least affected would be the transportation and public utilities sectors.

Summary of Stress Test Results, 2002[1]						
	No. of firms with ICR < 1			Amount of debt (In trillions of Yen)		
Scenarios	No.	Percentage of total	Percent change from baseline	Amount	Percentage of total	Percent change from baseline
0. Baseline scenario	760	22.7	--	37.6	16.1	--
1. Increase in interest rates by 100 bps	920	27.4	+21.1	73.4	31.5	+95.2
2. Decline in operating profits by 15 percent	809	24.1	+6.4	46.6	20.0	+23.9
Source: Worldscope. [1] The total number of firms is 3,352; the total amount of debt is ¥233 trillion.						

[16] Assuming a normal distribution, this corresponds to roughly a 30 percent probability of an observation from the mean. However, looking forward, in light of the low level of interest rates, a 100 basis point increase in interest rates is not an unrealistic scenario.

28. **A 15 percent drop in earnings, which is the annual average decline in earnings over the past 2 years, would raise the implied "NPL" ratio to 20 percent.** The number of companies with an ICR of below 1 would increase by only 6 percent, but the size of NPLs would rise by 24 percent (above Table; from the baseline 0 to scenario 2). The NPL ratio would rise from 16 percent to 20 percent of the total. While the impact of a one-standard deviation shock to earnings is less than in the interest rate scenario, the effect varies across sectors. Here, retail and wholesale trade would record the largest increase in their implied NPL ratios, to 21 percent and 51 percent respectively.

F. Conclusion

29. **Although the corporate sector has made significant progress in deleveraging, leverage still remains high and profitability weak.** Aggregate indicators of the corporate sector show that debt-equity ratios for the sector have been on a trend decline since the late 1970s, but still remain high relative to other industrial countries. Despite the improvement in balance sheets, the profitability of the sector remains weak, largely due to the persistent high level of excess capacity. Low nominal interest rates have helped companies to remain current on their debt service obligations despite weak profits, and highlighted the difficulties in detecting corporate distress based solely on indicators of historical payment record. Under these conditions, strong supervisory oversight and regulatory pressure is needed to ensure that creditors identify and take action against their problem borrowers.

30. **Since corporate lending accounts for around ¾ of bank loans, banks are directly exposed to weaknesses in the corporate sector, and without a sustained improvement in corporate profitability, bank asset quality will remain weak.** Despite the improvement in balance sheets and the decline in interest rates, core profitability has remained stagnant. A closer analysis of the distribution of firms shows that weak firms account for a sizable portion of corporate debt and represent a significant source of vulnerability in the sector. Moreover, these weak companies are vulnerable to an increase in interest rates and/or a sharp slowdown in corporate earnings.

31. **The persistence of these weak borrowers highlights the need for further restructuring and the exit of nonviable firms.** Without further restructuring and a sustained recovery in profits, the sector will remain vulnerable to adverse shocks and be a drag on growth. More pro-active use of the insolvency system and of the out-of-court workout guidelines would facilitate restructuring and help limit potential losses. The exit of nonviable firms would also free up resources that could be more productively used elsewhere. A tightening of delisting criteria for troubled companies would also help send an early signal to creditors (and to the market) to initiate workout or bankruptcy procedures.

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II. Macro-Effects of Corporate Restructuring in Japan[1]

A. Introduction

1. **This chapter quantitatively evaluates the effect of corporate restructuring in Japan, particularly whether its long-run benefit can be large enough to outweigh its short-run costs.** Using firm-level financial statement data, it estimates total factor productivity (TFP) of individual Japanese firms. Given the estimated cross-firm distribution of productivity, it simulates the effect of an optimal restructuring—reallocation of resources from less-productive firms to more-productive ones—on the dynamic path of aggregate output. The results, while only illustrative, suggest that the benefit of restructuring could substantially exceed the cost.

2. **Having suffered stagnation for more than a decade since the bursting of an asset bubble**, a broad consensus has emerged in Japan that the economy's malaise at least partly reflects deep-seated structural problems in the corporate and financial sectors (e.g., Peek and Rosengren, 2003; Hamao, Mei, and Xu, 2003; Dell'Ariccia, 2003). In fact, the recognition of serious structural weaknesses prompted the Koizumi cabinet to vow to press strongly ahead with structural reform. However, there is still an ongoing debate on the optimal pace of reform.

3. **Differences of views on the appropriate pace of reform could be attributed at least partly to insufficient information on the consequence of restructuring.** With large uncertainty about the end-result, policymakers can easily become hesitant or reluctant to push hard for reforms and public support for reform can easily wane. This underlines the importance of knowledge on the costs and benefits of corporate restructuring.

4. **There are some studies estimating the effects of restructuring in Japan** (e.g., Atkinson, Ishida, Ishii, and Tanaka, 2001; Young, Fujii, Murashima, and Packer, 2002; Cabinet Office, 2001). Most of these, however, focus on the short-run costs, particularly the adverse short-run effect on employment. For example, Atkinson *et al* (2001) examine the impact on the economy of eliminating potential problem loans (which they estimated at ¥237 trillion as of FY2000). By assuming a 50 percent loss of employment for companies that they consider to be "effectively bankrupt," 20 percent for companies with "bankruptcy risk," and 10 percent for the "watch list," they obtain an estimate of gross number of job losses. Assuming that 43 percent of the job losers get new jobs, the study concludes that restructuring could generate 2 million unemployed, representing a 3.2 percentage point rise in the unemployment rate. Young *et al* (2002) study the disposal of ¥40 trillion of nonperforming loans. Based on the assumptions that the ratio of employment to corporate liabilities is constant and that 60 percent of the firms with bad loans are liquidated, they suggest that restructuring would increase the jobless rate by 2 percentage points.

5. **This chapter conducts a quantitative assessment of both costs and benefits of restructuring in Japan.** A key idea is that corporate restructuring can raise aggregate output

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[1] Prepared by Se-Jik Kim (RES, ext. 39030).

by raising the average productivity of the corporate sector, as a result of the reallocation of resources from *less-productive* firms to *more-productive* firms (see Kim, 2002; Kim and Izvorski, 2002).

6. **Based on this idea, the chapter presents a simple empirical framework to quantitatively evaluate the dynamic output gain from restructuring**. Using Cobb-Douglas production functions, together with firm-level financial statement data, it derives the total factor productivity of individual firms and the distribution of productivity across those firms. The productivities of individual firms are then used to simulate the effect of an optimal restructuring on aggregate output.

7. **The framework also incorporates the cost of restructuring**. Restructuring entails loss of firm- or industry-specific capital and skills when resources are redeployed to other firms. Based on the result of previous studies on this subject, I assume that the value of capital, after restructuring, drops by 72 percent, and that laid-off workers permanently lose their earning abilities by 30 percent (see, e.g., Ramey and Shapiro, 2001). Costs also arise because output is lost during the time it takes to reallocate resources. A year typically passes between the time a firm decides to cease operation and the time it sells its capital and a large portion of laid-off workers remain unemployed for at least a year (OECD, 2002; Ramey and Shapiro, 2001). The framework incorporating both the benefits and the costs of reallocation, together with plausible values for key parameters, allows us to trace the dynamic response of aggregate output to a shock of restructuring.

8. **From the simulation based on financial statement data of 1,555 Japanese firms from *Worldscope* database, the chapter derives the following results**. First, in the very short run restructuring could reduce the country's aggregate output below its initial level. In a benchmark case, the reallocation of resources from the least-productive firms representing bottom 5 percent of total labor reduces aggregate output by 0.8 percent below the initial level in the year of restructuring, largely reflecting the short-run output loss due to the closure of the least-productive firms. Second, in the medium term aggregate output surpasses its initial level in response to restructuring. In the benchmark case, aggregate output exceeds its initial level starting from the third year after restructuring, and converges to a level 1.6 percent above its initial level. Finally, the medium-term output gain from restructuring in Japan could substantially outweigh the short-term output loss, as the larger medium-term gain reflects a large productivity gap between less-productive firms and more-productive firms.

B. Productivity Distribution

Estimation Method and Data

9. **To estimate the distribution of productivity across corporations**, I use standard Cobb-Douglas production functions, which have been widely used in the economic growth literature to measure the rate of technology progress (e.g., Slow, 1957). There is also evidence that Cobb-Douglas production function fits well in Japan (Kamada and Masuda, 2001). Assume that the production technology of each firm is represented by:

$$y_i = A_i \, l_i^{(1-\alpha)} \, k_i^{\alpha} \tag{1}$$

where y_i is output, A_i total factor productivity, l_i labor, k_i capital, α capital income share of the i-th firm, respectively. Then a firm's total factor productivity is:

$$A_i = \frac{y_i}{l_i^{(1-\alpha)} k_i^{\alpha}} \tag{2}$$

10. **To estimate total factor productivity at the firm level**, I use *Worldscope* financial statement data of Japanese firms for the period 2000–2002. *Worldscope* originally provides data for 3,918 Japanese firms, but the number of firms that have the information amounts to 1,555 (representing around 20 percent of total corporate liabilities in the economy).

- *Worldscope* data does not provide information that exactly matches the concept of output. As a proxy for output of individual firms, y_i, I use *gross income*, which is the difference between total sales and the cost of goods sold. Existing studies often use *total sales* as a proxy for output (e.g., Khatri, Leruth, and Piesse, 2002). Nevertheless, gross income approximates "value-added" better than does total sales. Regarding labor input, I use the number *of employees*. Regarding physical capital, I use *fixed assets*. Some existing studies use *total assets* (e.g., Khatri, Leruth, and Piesse, 2002), but fixed assets are conceptually closer to physical capital such as machinery, plant and equipment. *Worldscope* does not provide information on capital and labor income share of individual firms. I use the labor income share of the industry to which a company belongs as a proxy for that of the firm. Based on 2002 data reported by the Department of Statistics of the Ministry of Finance, I assign 0.78 to the parameter of labor income share for manufacturing, 0.77 for retail and wholesale trade, 0.76 for services, 0.85 for construction, 0.53 for mining, 0.39 for real estate, and 0.85 for agriculture.

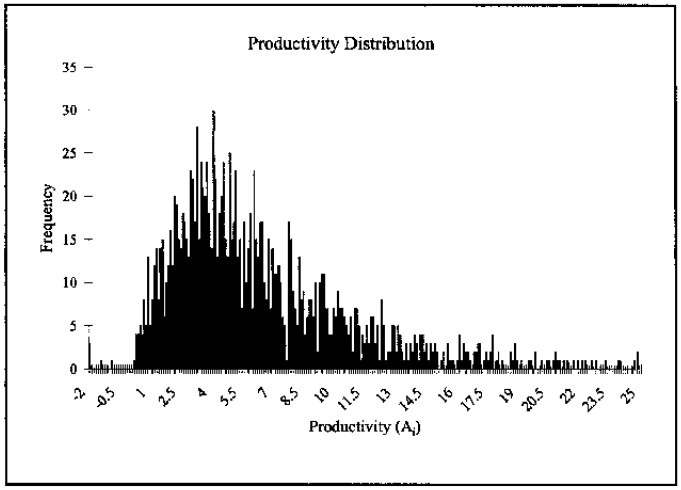
- Using Eq. (2) and the yearly data on y_i, l_i, k_i, and α, I calculate the total factor productivity of each firm for each of the three years, 2000, 2001, and 2002. To reduce potential measurement errors generated by year-specific idiosyncratic shocks, I use a three-year-average productivity of each firm, i.e., $A_i = \frac{\sum_{s=2000}^{2002} A_{i,s}}{3}$, where $A_{i,s}$ represents productivity of the i-th firm.[2]

[2] There is a strong persistence in productivity of each individual Japanese firm over time. According to the data, for example, the three-year-average productivity for 1993–1995 is a good predictor of the three-year-average productivity for 2000–2002.

Productivity Distribution

11. **The figure illustrates the estimated productivity distribution among the 1,555 firms.**[3] It suggests that there is a large dispersion in productivity across the 1,555 firms. While the average productivity $\left(\mu(A_i) = \frac{\sum_{i=1}^{N} A_i}{N} \right)$ is 6.9, the standard deviation is 8.5.

- In the rest of the chapter, we interpret the result in this figure as representing the distribution of productivity for the Japanese corporate sector as a whole. Of course, *Worldscope* covers most large firms but not many small and medium-sized firms, which could generate a bias. Inclusion of data on more SMEs, however, would not make even larger the positive net effect of restructuring given that SMEs in Japan are considered to be less productive than larger firms.



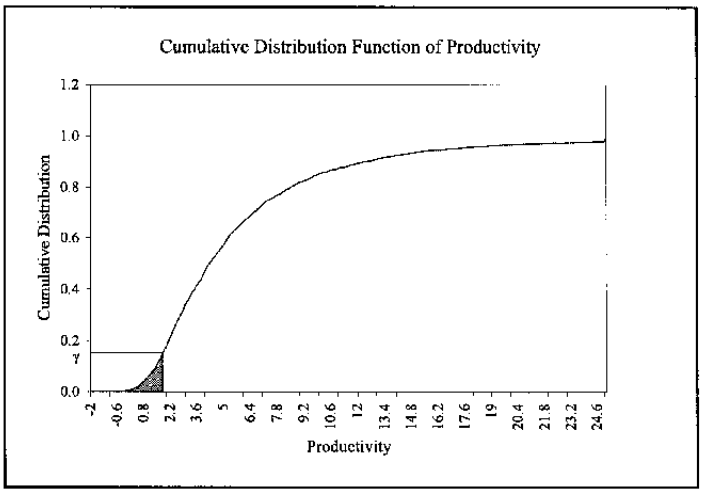
C. Simulation—Benchmark Case

Basic simulation framework

12. **To simulate the effect of restructuring on aggregate output,** I consider the case of restructuring the least-productive firms that represent fraction γ of total number of workers, that is, those with the lowest values of A_i, starting with the least productive and adding firms until those representing γ percent of total workers are cumulated. Based on the calculation of

[3] Given that *Worldscope* provides information on the proxies for output and capital in a monetary unit (more specifically, million yen) and for labor in persons, the unit of $A_{i,s}$ is (million yen / man)$^{(1-\alpha)}$. However, the unit of $A_{i,s}$ could be interpreted also as a pure number if we represent labor in a monetary unit. For example, the unit of productivity reported here can be interpreted as a pure number that would be obtained if we assume that a unit of labor is equivalent to million yen. Of course, there can be other ways to convert the unit of labor into a monetary unit, including the multiplying of labor by per-worker wages. It can be shown, however, that the modification would not substantially alter the effect of restructuring on aggregate output (see Sensitivity to Proxies).

productivity of individual firms, we can identify the least-productive firms representing fraction γ of total number of workers, as illustrated in this figure.



13. **Assume that restructuring occurs in the beginning of the year t =1.** Therefore the least-productive firms cannot produce from the first year of restructuring (t = 1) on. Let i^B and i^G denote the set of the least-productive firms and the rest of the firms (i.e., more-productive firms), respectively.

14. **Restructuring reduces the amount of capital and labor employed by the least-productive firms.** Let K_t^B and L_t^B be the total amount of capital and labor of those firms at t, respectively. Then capital and labor employment by those firms is positive before restructuring (K_0^B, $L_0^B > 0$), but zero after restructuring ($K_t^B = L_t^B = 0$ for $t = 1, 2, \ldots$).

15. **Restructuring raises capital and labor employed by more-productive firms.** After restructuring, the amount of capital used by each more-productive firm ($i \in i^G$) increases as:

$$k_t^i = k_0^i + \delta_t^{k,i} \tag{3}$$

where k_t^i is the amount of capital of a more-productive firm at year t, k_0^i is the amount of capital of the firm before restructuring ($t = 0$), and $\delta_t^{k,i}$ is the amount of capital reallocated from the least-productive firms to the firm through year t.

16. **Similarly, restructuring raises labor employed by more-productive firms by:**

$$l_t^i = l_0^i + \delta_t^{l,i} \tag{4}$$

where l_t^i is the amount of labor of the firm with higher productivity at year t and $\delta_t^{l,i}$ is the amount of labor reallocated from the least-productive firms to the firm through year t.

- Assume that capital and labor of the least-productive firms ($K_0^B$and L_0^B) are reallocated to more-productive firms, whose measure is (1- γ), in proportion to their initial amount of capital and labor. Therefore, $\delta_t^{k,i}$ and $\delta_t^{l,i}$ are proportional to k_0^i / K_0^G and l_0^i / L_0^G, respectively, where K_0^G and L_0^G are total amount of capital and labor employed by more-productive firms in the initial period $t = 0$, respectively.

- The increase in capital and labor of more-productive firms ($\delta_t^{k,i}$ and $\delta_t^{l,i}$) also critically depends on the restructuring cost. As discussed earlier, restructuring entails a permanent reduction in the value of capital and labor, caused by the loss of firm—or

industry-specific capital and skills. Let θ_k and θ_l denote the discount in the value of capital and labor after reallocation as fractions of their original values, respectively. Restructuring may also keep some laid-off workers out of jobs permanently. Let ψ_l be the portion of laid-off workers that become permanently unemployed. In the presence of such costs, restructuring can raise capital and labor employed by more-productive firms by $K_0^B(1-\theta_k)$ and $L_0^B(1-\theta_l)(1-\psi_l)$, respectively.

17. **Restructuring also creates other costs because capital and labor cannot be reallocated to another firm immediately after its closure**, particularly when aggregate demand is weak. Let ω_k and ω_l denote the portion of capital and labor that is reemployed within the first year of restructuring ($t = 1$). I assume that fraction ω_k of capital and fraction ω_l of labor are reemployed evenly from the beginning to the end of the year, so that more-productive firms use fraction $\frac{\omega_k}{2}$ of capital and fraction $\frac{\omega_l}{2}$ of labor on average in the year of the restructuring. From the second year on, the fraction ω_k of capital and the fraction ω_l of labor that were reemployed in the first year will be fully used for production through the whole year.

- Let $\acute{\omega}_k$ and $\acute{\omega}_l$ be the fraction of the remaining capital and labor that is reemployed in each year ($t = 2, 3, \ldots$). Similar to the case of capital and labor reemployed in the first year, I assume that fraction $\frac{\acute{\omega}_k}{2}$ of capital and fraction $\frac{\acute{\omega}_l}{2}$ of labor, on average, are used in the year when they are reemployed, while the fraction $\acute{\omega}_k$ of capital and the fraction $\acute{\omega}_l$ of labor are fully used from the second year of their reemployment.

- Then the amount of capital reallocated from the least-productive firms to a more-productive firm at t is:

$$\delta_t^{k,i} = \begin{cases} \left(\frac{k_0^i}{K_0^G}\right) K_0^B (1-\theta_k)\left(\frac{\omega_k}{2}\right) & \text{for t=1} \\ \left(\frac{k_0^i}{K_0^G}\right) K_0^B (1-\theta_k)\left[\omega_k + (1-\omega_k)\left(\frac{\acute{\omega}_k}{2}\right)\right] & \text{for t=2} \\ \left(\frac{k_0^i}{K_0^G}\right) K_0^B (1-\theta_k)\left[\omega_k + (1-\omega_k)\acute{\omega}_k \sum_{s=0}^{t-3}(1-\acute{\omega}_k)^s + (1-\omega_k)(1-\acute{\omega}_k)^{t-2}\left(\frac{\acute{\omega}_k}{2}\right)\right] & \text{for t=3,4...} \end{cases} \quad (5)$$

and the amount of labor reallocated to a more-productive firm at t is[4]

$$\delta_t^{l,i} = \begin{cases} \left(\frac{l_0^i}{L_0^G}\right) L_0^B (1-\theta_l)(1-\psi_l)\left(\frac{\omega_l}{2}\right) & \text{for t=1} \\ \left(\frac{l_0^i}{L_0^G}\right) L_0^B (1-\theta_l)(1-\psi_l)\left[\omega_l + (1-\omega_l)\left(\frac{\acute{\omega}_l}{2}\right)\right] & \text{for t=2} \\ \left(\frac{l_0^i}{L_0^G}\right) L_0^B (1-\theta_l)(1-\psi_l)\left[\omega_l + (1-\omega_l)\acute{\omega}_l \sum_{s=0}^{t-3}(1-\acute{\omega}_l)^s + (1-\omega_l)(1-\acute{\omega}_l)^{t-2}\left(\frac{\acute{\omega}_l}{2}\right)\right] & \text{for t=3,4...} \end{cases} \quad (6)$$

- Using the dynamic path of capital and labor employed by more-productive firms (Eqs. (3)–(6)), together with their productivity derived earlier, I derive the dynamic path of output for each of those firms from the production function: $y_{i,t} = A_i \; l_{i,t}^{\;1-\alpha} \, k_{i,t}^{\;\alpha}$.

- Given that the least-productive firms produce nothing after restructuring ($Y_t^B = 0$, for $t = 1,2,\ldots$), aggregate output of the economy is given by

$$Y_t = Y_t^G = \sum_{i \in I^G} y_{i,t} \quad (7)$$

Benchmark case

18. **To quantify the effect of restructuring on aggregate output, I assign plausible but rather conservative values to each of the key parameters of the basic framework.** Therefore, for these illustrative calculations, the estimate obtained in this benchmark case can be viewed as a lower bound on the level of aggregate output after restructuring.

- For the discount of capital due to redeployment, I choose $\theta_k = 0.72$, so that capital loses 72 percent of its value after reallocation, following the estimate suggested by Ramey and Shapiro (2001). Ramey and Shapiro obtain this estimate using the equipment-level data from US aerospace plants that closed during the 1990s, and suggest that given the low demand for aerospace equipments, their estimate could be an upper bound on the discount. In light of this, adopting their estimate is a conservative assumption. For the parameter of loss in labor skills of a laid-off worker, I choose $\theta_l = 0.3$, so that displaced workers lose 30 percent of their skills. The chosen value is also conservative; Ruhm (1991) obtains 0.13 for the parameter based on US household panel data for 1962–1982. The longer tenure of average Japanese workers could imply higher firm-specific human capital and therefore larger skill losses in the

[4] Such dynamic adjustment paths of capital and labor can be derived from a convex adjustment cost function. In the case of Japan, Ogawa (2003) derives and estimates a dynamic path of labor based on quadratic adjustment cost of hiring/firing.

event of labor reallocation. I also make another conservative assumption that $\psi_l = .25$, indicating that 25 percent of laid-off workers cannot get a new job again.

- For the rate of the first-year reallocation of capital and labor, I choose $\omega_k = 0$ and $\omega_l = 0$, indicating that factors of production are not redeployed within a year. In addition, the reallocation rates of capital and labor in the second year and consecutive years (t=2, 3, ...) are assumed to be $\acute{\omega}_k = \acute{\omega}_l = \frac{1}{2}$.

- The assumption that no laid-off workers are reemployed and no capital is bought by other firms for a year after restructuring is also conservative. It implies that during the first year of restructuring there would be no demand for workers and capital released from closed firms. One may expect *weak* demand for labor and capital in Japan, which currently suffers from prolonged stagnation, continuing excess capacity and weak aggregate demand. Nevertheless, assuming *no* demand is rather extreme. Indeed, high-productivity firms in Japan actively hire new workers, invest in capital, and therefore absorb a large percentage of laid-off workers and capital, even in a time of very weak aggregate demand.[5] The data on 1,555 firms in our sample shows that the 200 most-productive firms have raised their employment and fixed assets by 35 percent and 16 percent, respectively, during the period 2000–2002. This suggests that reallocation of resources to more-productive firms could proceed faster than assumed here.

- For the size of the restructuring shock in the benchmark case, I choose $\gamma = 0.05$. That is, I consider the case of restructuring the least-productive firms that represent 5 percent of total workers. These firms also represent 5 percent of total debt outstanding and 5.5 percent of total capital.[6] However, these firms produce only 0.8 percent of the aggregate output, reflecting their low productivity.

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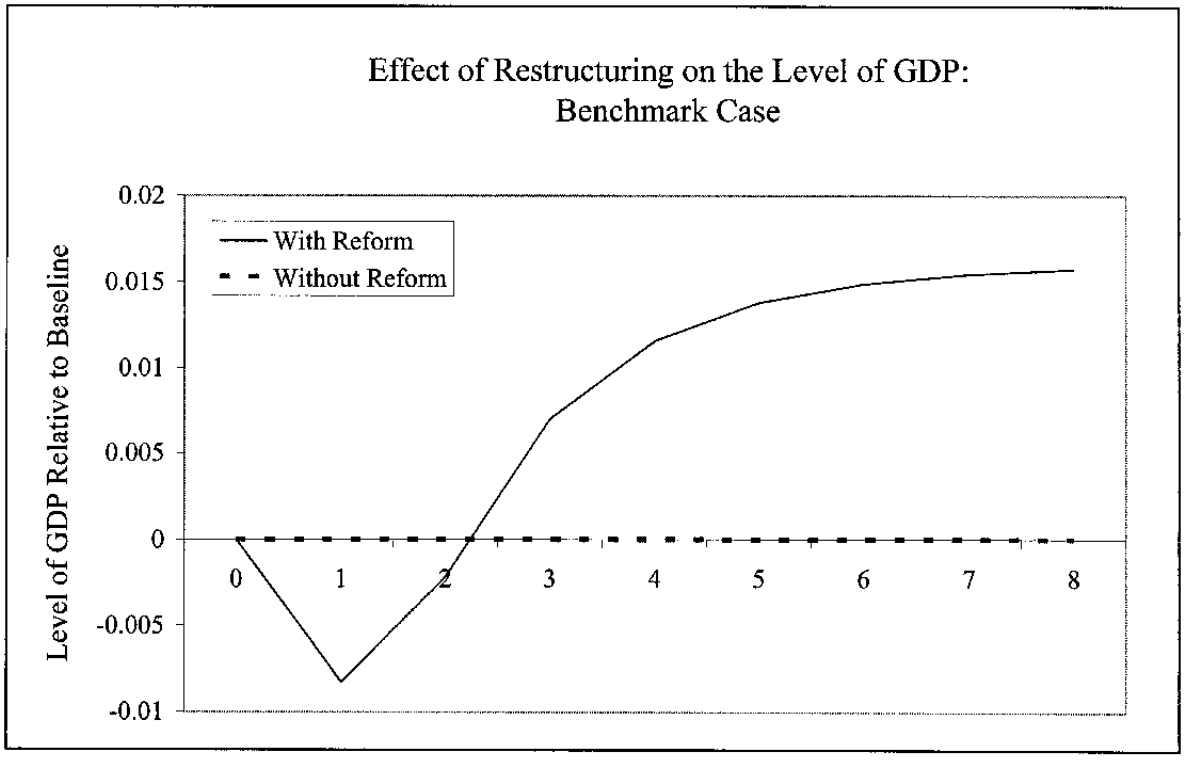
[5] The analysis of this chapter is focused on the supply (production) side, while demand condition is implicitly represented by the assumptions on some parameters. In particular, we can interpret the assumptions on the parameter values for reemployment rates of capital and labor as reflecting aggregate demand conditions. For example, the benchmark assumptions ($\omega_k = 0$ and $\omega_l = 0$) could be interpreted as representing a pessimistic assumption on aggregate demand during one year after restructuring. The analysis of sensitivity against different parameters (Section D) also can be interpreted as showing to what extent the main result is affected by different assumptions on aggregate demand.

[6] In the benchmark case, I choose $\gamma = 0.05$ because restructuring of 5 percent of the corporate sector could generate a substantial output effect while perhaps still within a feasible range.

Results

19. **This figure shows the simulation result in the benchmark case.** To simplify the exposition, I here normalize the initial level of aggregate output at unity ($Y_0 = 1$). In a baseline scenario without restructuring, aggregate output would then remain constant at the initial level $Y_t = 1$ for $t = 1, 2, \ldots$.

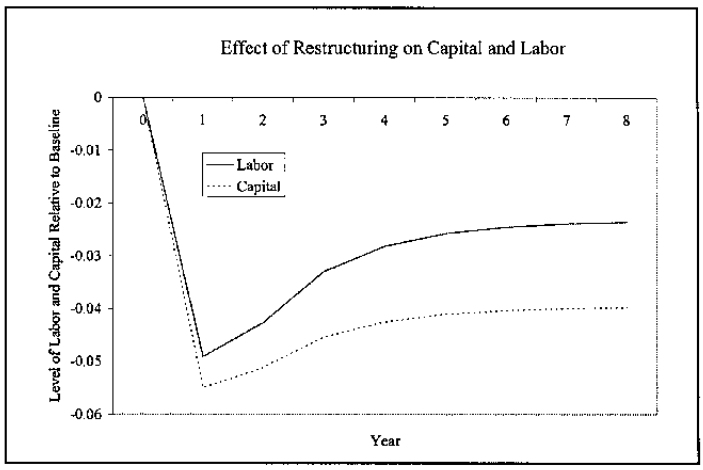


With restructuring, however, output deviates from the baseline, as shown above.

20. **The simulation provides interesting results on both short-term and medium-term effects of restructuring.** In the benchmark case, aggregate output in the first year of restructuring falls to $Y_1 = 0.992$, while in the second year, the level of the aggregate output rises compared to that of the first year, but still is 0.2 percent below the baseline. The negative short-run effect largely reflects the output decline due to the closing of the least-productive firms. From the third year on, however, aggregate output exceeds its baseline level. The positive medium-term effect reflects that the increase in output of more-productive firms outweighs the output loss from the closure of the least-productive firms as the former reemploys labor and capital released from the latter. Finally and most importantly, the medium-term output gain from restructuring exceeds the output loss in the first and second year. Aggregate output converges to a level 1.6 percent above the baseline, double its initial decline. As a result, there is a large net gain evaluated in terms of present discounted value

under any reasonable rate of discount.[7] The larger medium-term gain reflects a large productivity gap between the least-productive firms and more-productive firms.

21. **The short-term output loss is modest despite a substantial drop in capital and labor employed.** Particularly in the first year of restructuring, aggregate use of labor and capital drop by 5 percent and 5.5 percent, respectively. From the second year, more-productive firms employ an increasing amount of resources released from less-productive firms, but new steady state levels of aggregate labor and capital remain below their initial levels, reflecting a substantial loss of firm- or industry-specific capital and skills, together with some permanent unemployment.



D. Sensitivity Analysis

22. **This section tests the sensitivity of the results obtained in the previous section.** It first checks the robustness of the results against different proxy variables for output, capital and labor, and then test the sensitivity to the choice of key parameters of the model.

Sensitivity to Proxies

23. **To check the sensitivity to the choice of proxies for key variables such as output, capital and labor**, I use different proxy variables. First, I use *(gross income)/capital income share* as another proxy for output. This variable could be a better proxy if most of labor costs are included in the cost of goods sold (rather than other operating expenses) in the financial statement data. The rational for using this proxy is that in this case, under the assumption of a Cobb-Douglas production function, we have $y = gross\ income / \alpha$, where y is output or value-added and α is the capital income share.[8]

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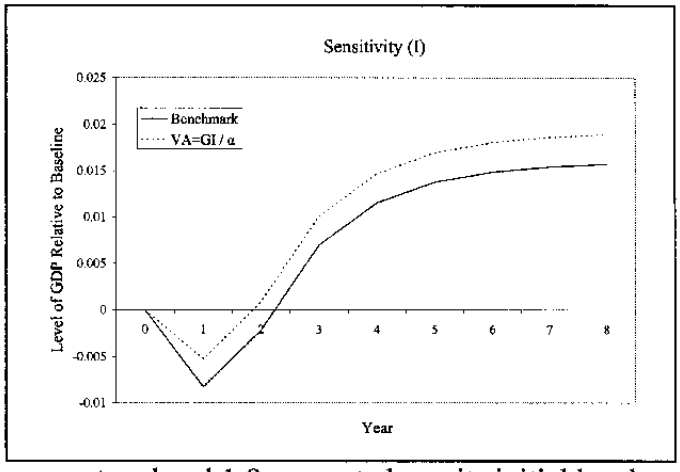
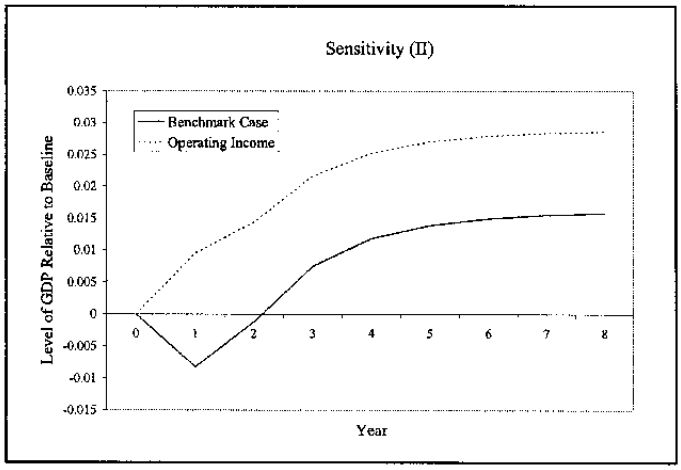
[7] Under 5 percent discount rate, for example, the net present value of output gains for 20 years amounts to 15 percent of the initial output. In addition, as long as the rate of discount is below 65 percent, the net present value of output gain is always positive.

[8] It is derived from $gross\ income = y - w = y - (1-\alpha)\, y = \alpha\, y$, where w is wage cost.

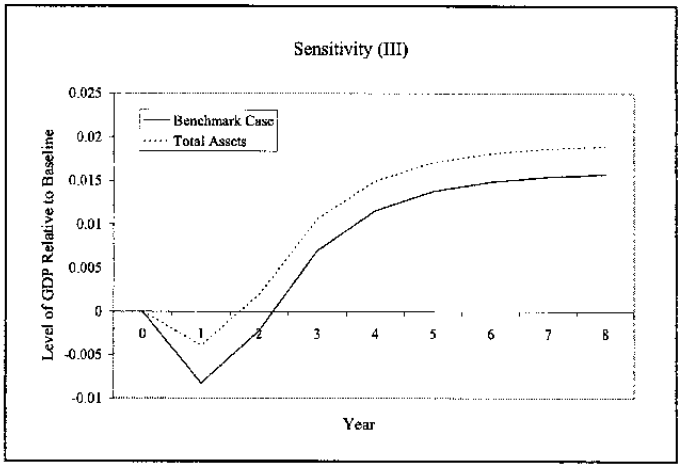
- This figure illustrates the effect of restructuring on aggregate output when *(gross income)/capital income share* is used as a proxy for output. The dynamic path of the aggregate output in this case is similar to that in the benchmark case, with a slight increase in the output gain from restructuring. Aggregate output declines to 0.5 percent below its initial level in the first year, and it converges to a level 1.9 percent above its initial level.



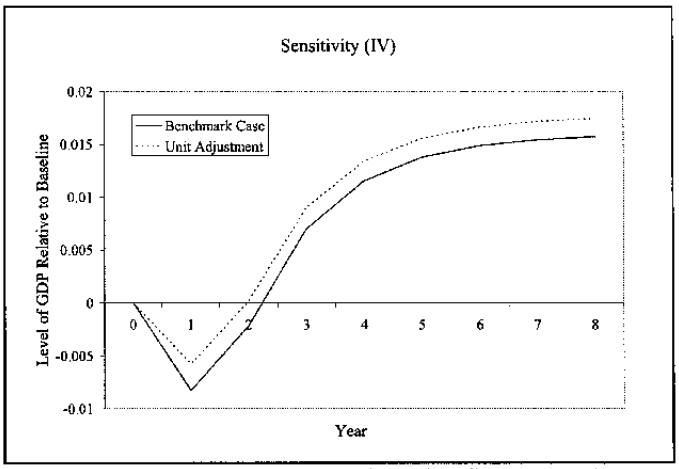
- I also use *operating income* as a third proxy for output. The figure shows that the positive effect of restructuring in this case is substantially larger than the benchmark case. Aggregate output rises to the level 1.0 percent above its initial level even in the first year, and converges to a level 2.9 percent above its initial level. The reason for the large effect is that about 8 percent of the firms in the data had negative operating profits on average for 2000–2002. Therefore, just closing those firms with negative operating income would substantially raise aggregate output, even without reallocating released resources to more-productive firms.



- As another proxy for capital, I use *total assets* instead of fixed assets. As illustrated in the figure, the effect of restructuring on the aggregate output in this case is also similar to that in the benchmark case, with a slightly larger gain.

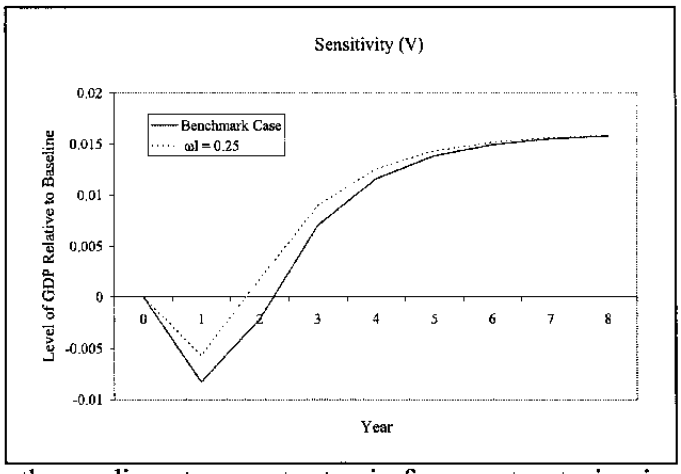


- I also use *the number of employees multiplied by per employee wage* as a proxy variable for labor input. In this case, labor input is measured by a monetary unit, and therefore the unit of TFP becomes a pure number. The figure shows that the dynamic path of aggregate output in this case is also similar to that in the benchmark case. The restructuring reduces aggregate output to the level 0.6 percent below its initial level in the first year, but raises it thereafter to a level 1.8 percent above its initial level.

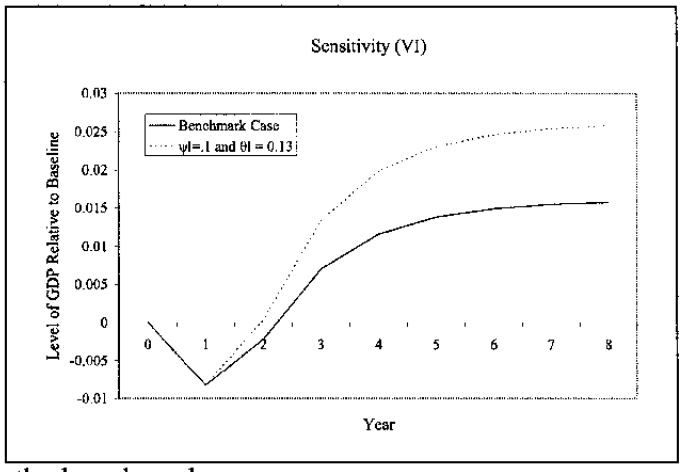


Sensitivity to Parameters

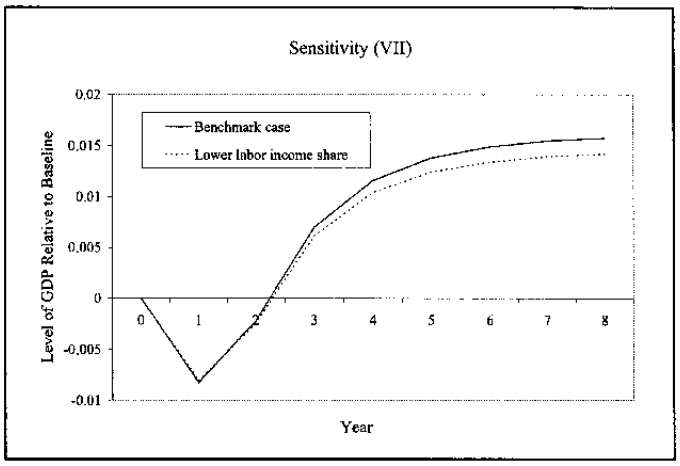
24. **I assess the sensitivity of our results to changes in key parameter values.** First, I use $\omega_l = 0.25$ for the rate of labor reemployment in the first year, instead of $\omega_l = 0$ in the benchmark case. The assumption $\omega_l = 0$ can be considered a conservative assumption. In Korea, for example, 40 percent of newly unemployed workers found new jobs within a year at the peak of the recent financial crisis. The figure shows that under a less conservative assumption ($\omega_l = 0.25$), the medium-term output gain from restructuring is unaltered, while the initial output loss shrinks slightly (from 0.8 percent to 0.6 percent). Therefore, the accumulated net output gain has only a marginal change.



25. **Next, I simulate less conservative assumptions on the loss of labor for the parameter representing loss of laid-off workers' skills,** I use $\theta_l = 0.13$ (instead of $\theta_l = 0.3$ in the benchmark case) based on Ruhm (1991)'s estimate. For the ratio of permanent unemployment among laid-off workers, I use 0.1 instead of the benchmark case' 0.25. The figure shows that when using these two new parameter values, the medium-term output gain is substantially larger than in the benchmark case.



26. **Finally, I check the sensitivity of the results to the choice of labor income share parameters**. The estimates of labor income shares used in the benchmark case are calculated based on data for 2002 when the rate of interest was close to zero, and therefore the estimates may be systematically biased upward. To check the robustness, I assume that labor income shares of all industries are over-estimated by 20 percent. The result shows that the aggregate output path in this case is similar to that in the benchmark case.



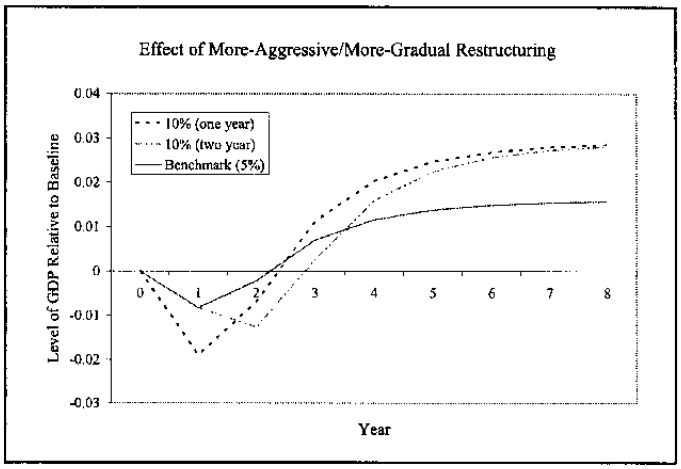
27. **In sum, the above sensitivity analysis suggests that the main result of this chapter**—that the medium-term gain of restructuring exceeds the short-run cost—is robust against various changes in proxies and key parameters. The size of the effect of restructuring is altered only marginally in a vast majority of cases. Furthermore, different choices of parameters and proxies are more likely to raise the net gain from restructuring because the chapter starts with conservative assumptions.

E. Further Discussions

28. **This section explores how the path of output is affected by the pace of restructuring**, and by assuming that restructuring involves resource reallocation only within industries. It also discusses obstacles to efficient restructuring, how macro-effects of restructuring can be affected by inaccurate identification of the least productive firms, and the output effects of bank-led restructuring through NPL disposal.

Scale and Pace of Reform

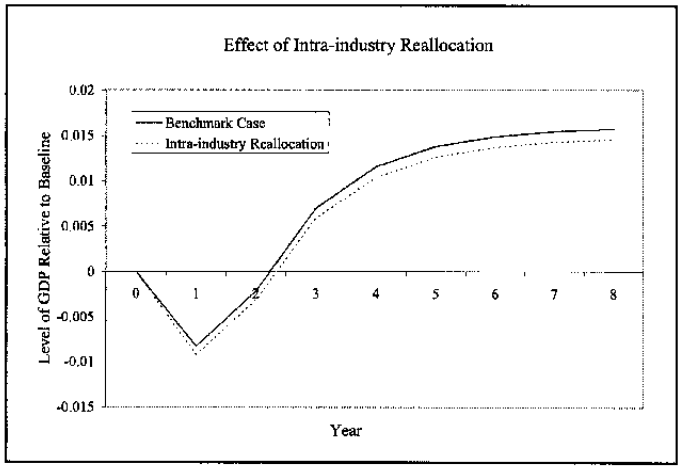
29. **First, consider the effect of more-aggressive restructuring**. The figure shows the effect of restructuring the least-productive firms representing 10 percent of labor ($\gamma = 0.1$) in the beginning of the year t=1 (instead of 5 percent in the benchmark case). In this case, aggregate output falls by 1.9 percent in the first year, but eventually converges to a level 2.9 percent above its initial level. This suggests that more-aggressive restructuring would amplify both short-term output losses and medium-term output gains, resulting larger net gains. The figure also



illustrates the effect of more-gradual restructuring. For this experiment, I assume that restructuring of bottom 10 percent firms is carried out over two years: restructuring of the least productive 5 percent firms in a year and the least productive-5 percent-to10 percent firms in the next year. In this case, aggregate output declines to 0.8 percent below its initial level (the same as in the benchmark case of swiftly restructuring the least productive 5 percent firms), but converges to a level 2.9 percent above its initial level (as in the case of swift restructuring of the least productive10 percent firms). Furthermore, the results show that more gradual restructuring spreads out short-run output losses but also delays the pick up in aggregate output.

Intra-industry Resource Reallocation

30. **It is also useful to examine the effect of restructuring a fraction γ of firms in each industry under the assumption that resources released from those firms are reallocated only to other firms in the same industry**. For this exercise, I assume that for each industry the least-productive firms representing 5 percent of the industry's labor are restructured. Note that if we add up the restructured firms across industries in this case, total restructured firms represent 5 percent of the economy's labor, the same as in the benchmark case ($\gamma = 0.05$). The figure shows that the dynamic path of aggregate output is very similar to that of the benchmark case. In this case, aggregate output drops to a level 0.9 percent below its initial level in the first year, while it converges to a level 1.5 percent above its initial level. Therefore, restructuring in this case generates a short-run output loss and medium-term output gains that are almost the same as in the benchmark case.



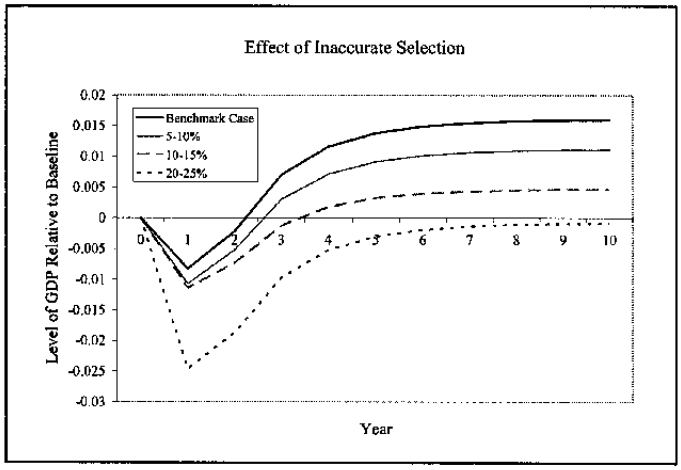
- This indicates that distributions of productivity within industries may be similar to the distribution across industries. Indeed, *Worldscope* data shows a large dispersion in productivity within each of major industries in Japan such as manufacturing, construction, and services as in the economy as a whole.[9]

[9] Note that the loss of firm- or industry-specific capital and skills in the case of intra-industry resource reallocation could be much lower than in the case of inter-industry reallocation. Therefore, if this is taken into account, the net output gain could be even larger. For example, suppose that the rate of reemployment-related skill loss is 20 percent instead of the benchmark case's 30 percent and the rate of redeployment-related capital loss is 60 percent instead of 72 percent. It can be shown that in this case aggregate output would converge to a level 1.9 percent above its initial level, higher than that of the benchmark case.

Obstacles to Restructuring and Accuracy in Identification

31. **The above simulations illustrate how the size of the potential gain from the most advantageous restructuring**, that is, reallocation of resources from the least-productive firms to more-productive firms. In general, the market plays a key role in reallocating resources to more-productive firms, and the firm-level data indeed supports such role of the market in Japan. The 200 most-productive firms in our sample raised their employment and capital much faster than less-productive firms during the period 2000–2002 (as discussed in Benchmark Case). However, such ideal restructuring driven by markets may be impeded or slowed by various obstacles such as weak financial disclosure and corporate transparency, existence of business groups characterized by cross debt payment guarantees or cross shareholdings, coordination failures among creditors on debt restructuring, and perverse incentives of banks to provide credit to weak firms.[10] Particularly under weak financial disclosure and corporate accounting practices, it may be hard even to accurately identify the lowest-productivity firms let alone to smoothly reallocate resources. As a result, restructuring carried out under such a situation would not generate as much gain as does the ideal restructuring based on accurate identification of the weakest firms.

32. **Inaccurate identification of the least productive firms can substantially lower the gains from restructuring.** The figure illustrates the consequence of a restructuring that is carried out based on inaccurate identification of the least-productive firms. First consider the case where firms whose productivities rank between the least productive 5 percent and 10 percent are mistakenly selected for restructuring (instead of bottom-0-to-5 percent firms in the benchmark case). The figure shows that output gains from restructuring are still large enough to outweigh the cost, but the net gain is lower than in the benchmark case. Now consider the case where the least productive-10 percent-to-15 percent firms are restructured. In this case, the net output gain of restructuring becomes marginal. Finally, if the least productive 20–25 percent firms are liquidated with their capital and labor being reallocated to others (including the least productive-0-to-20 percent firms), restructuring generates output losses both in the short term and medium term. These results suggest that strong financial disclosure and corporate transparency is a prerequisite for successful corporate restructuring. Furthermore, corporate restructuring would generate better outcome when carried out by



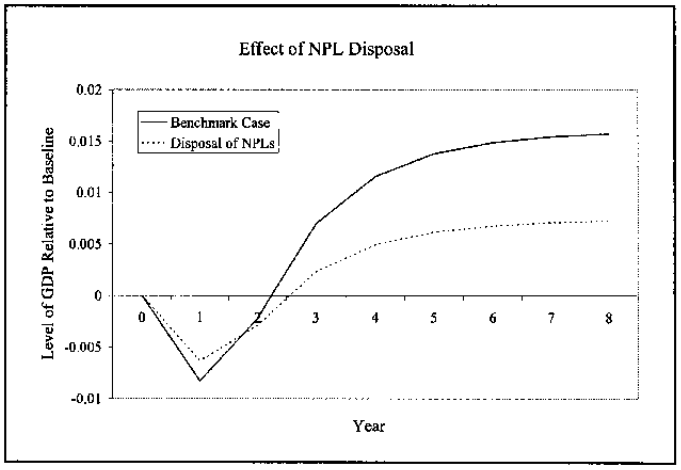
[10] Peek and Rosengren (2003), using Japanese firm-level data for 1993–1999, find that Japanese firms in poor financial conditions are far more likely to receive additional credit from banks, which try to avoid the realization of losses on their own balance sheets.

institutions that have expertise in gathering and processing accurate information on individual firms even under weak financial disclosure by the firms, most probably banks.

Bank-led Restructuring

33. **The impact of corporate restructuring carried out by banks (including through banks' disposal of nonperforming loans) also can be analyzed.** Based on their expertise in distinguishing between the more productive and the less productive among borrower firms, banks may liquidate (or foster the reorganization of) less-productive firms and reduce debt burdens of more-productive firms (for example, through debt-equity swaps). As long as banks perform such a monitoring/allocation function properly, corporate restructuring led by banks can facilitate the reallocation of resources from less-productive firms to more-productive firms and induce a subsequent rise in aggregate output.

34. **The figure illustrates how banks' corporate restructuring through disposal of problems loans can affect the dynamic path of aggregate output.** For this experiment, I assume that bank loans to the firms whose ratio of operating profits to debts are less than 5 percent (on average for 2000–2002) have potential to become bad loans.[11] I also assume that banks have capabilities to accurately measure the productivity of those firms. Further, suppose that among those firms, they liquidate the least productive (representing 5 percent of total corporate liabilities) and reallocate the resources from the closed firms to the other firms.



- In this case, aggregate output declines by 0.6 percent in the first year but converges thereafter to a level 0.7 percent above its initial level. This suggests that corporate restructuring led by banks (including through banks' disposal of NPLs) can generate substantial net output gain. Unsurprisingly, the size of the net gain in this case is lower than the benchmark case where the least-productive among all the firms (including those without bank loans) are restructured.

[11] This assumption is consistent with a study by Atkinson *et al* (2001). They classify potential bad loans into three types depending on the ratio of operating profits to debt: *effectively bankrupt* loans for those with the ratio less than 1 percent, *bankruptcy risk* loans with the ratio more than 1 percent but less than 3.5 percent and *the watch list* loans with more than 3.5 percent but less than 5 percent.

F. Conclusion

35. **This chapter quantitatively assessed both potential benefits and costs of optimal corporate restructuring in Japan over time**. Based on Cobb-Douglas production functions, together with financial statement data of 1,555 Japanese firms and industry-specific labor income share parameters, it calculated total factor productivity of individual firms and derived the distribution of productivity across those firms. Given the productivity distribution and law of motion for the costs of reallocation, the chapter traced the dynamic response of aggregate output to restructuring. While the results in the paper should be viewed only as illustrative, they indicate that well-designed restructuring in Japan could provide a medium-term output gain that substantially outweighs the short-run cost.

36. **The findings of the chapter suggest that corporate restructuring in Japan be pushed forward given that its medium-term output gain substantially outweighs its short-run costs**. Corporate restructuring would be most likely to yield significant gains if accompanied by broader reform measures to achieve the most benefits from restructuring (for example, strengthening of financial disclosure, accounting practices and corporate transparency, and developing of more active M&A markets).

37. **The empirical framework of this chapter suggests some useful avenues for further research on measuring the macro-effect of corporate restructuring in any country including Japan**. While the current framework works nicely to generate plausible estimates of the effect of restructuring in various situations, it might not be the sole empirical approach. Therefore, further studies that adopt different methodology would provide a useful complement to this chapter.

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III. Japan's Experience with Deflation and Associated Costs[1]

A. Introduction

> *"Thus Inflation is unjust and Deflation is inexpedient. Of the two perhaps Deflation is . . . the worse; because it is worse, in an impoverished world, to provoke unemployment than to disappoint the rentier."*
>
> —John Maynard Keynes (1923)

1. **Measured through declines in either the GDP deflator or the consumer price index, deflation has continued unabated in Japan for over half a decade.** Both price measures have been on downward paths in recent years: the GDP deflator has fallen by 9 percent since 1995, while the CPI has fallen by 3 percent since 1998 (Figure 1).

2. **For some time now, deflation and associated economic problems have been an integral part of the policy-related debate in Japan.** The lengthy discussion, however, has not fully resolved some critical questions—have the persistent declines in the price level been very costly for Japan?[2] Or is deflation broadly tolerable? Resolving such questions is critical in framing the policy agenda, which has been unable to solve the economy's deep-seated problems over the course of the past decade.

3. **Some observers have downplayed the impact of the relatively modest decline in the price level vis-à-vis the sharp fall in asset prices through the 1990s.** It has also been suggested that mild deflation is a sign of price stability, and has entailed very little cost as the economy has learned to live with falling prices in recent years. On the policy front, the necessity of a vigorous response to deflation has been questioned in some quarters on the grounds that the potential cost of aggressive policy measures is likely higher than the cost of allowing deflation to work its way through under the existing policy framework. Implicit in this line of reasoning is the notion that deflation in Japan is mild, largely unavoidable, and hardly pernicious.

4. **While the dramatic declines in land and equity prices during the 1990s have unquestionably had far-reaching adverse impacts on the Japanese economy**, the difficulties posed by a sustained decline of the price level have as well had multi-faceted repercussions. Prolonged, unanticipated deflation has impeded monetary policy efficacy, hampered financial market activities, squeezed corporate profitability, and raised the real burden of private and public debt.

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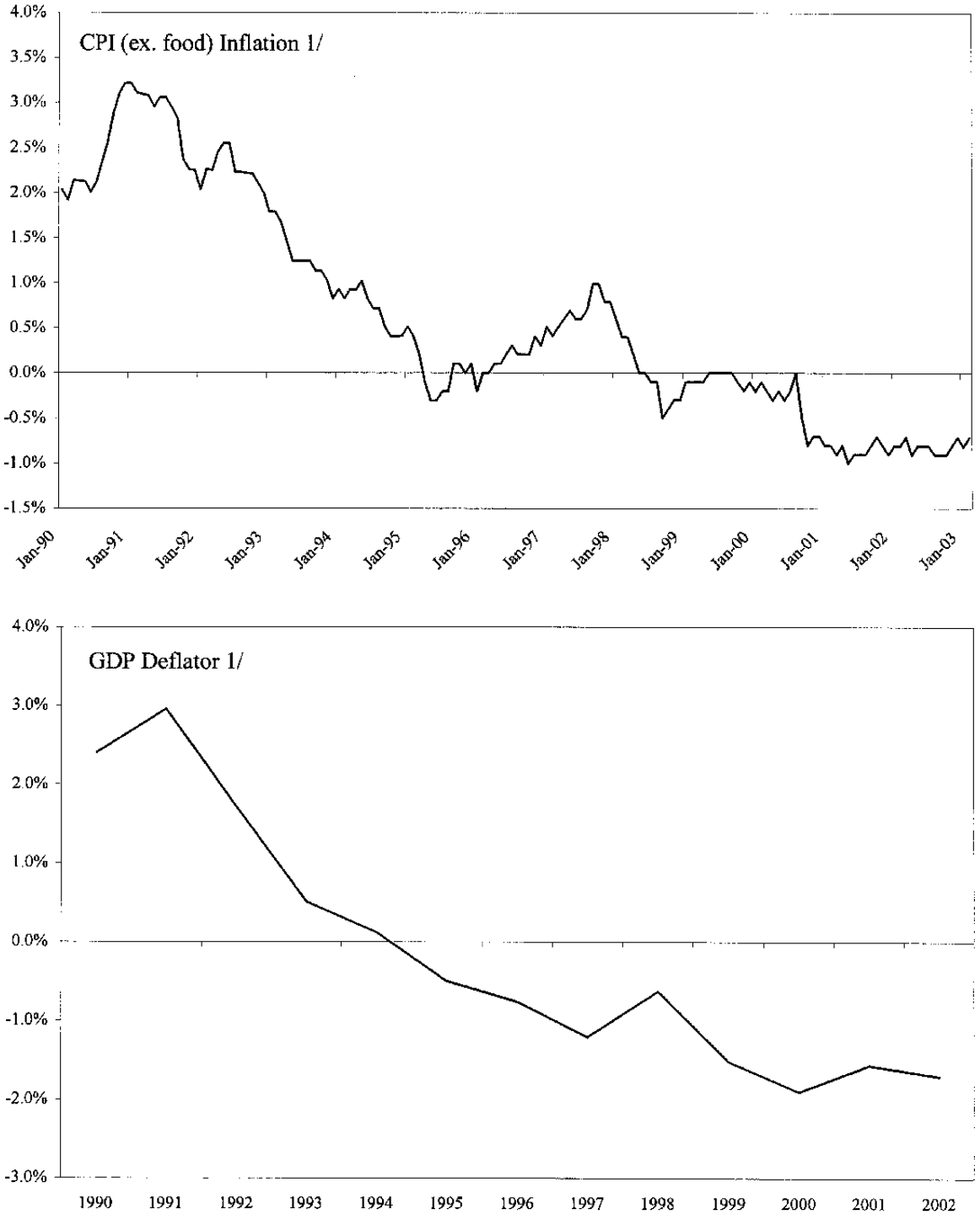
[1] Prepared by Taimur Baig (ext. 38790).

[2] See, for example, Ueda (2003).

Figure 1. Japan: Price Developments, 1990-2003
(Year-on-year percentage change)



Sources: CEIC Database and staff estimates.
1/ Data corrected for the 1997 consumption tax increase.

5. **Deflation in Japan appears to reflect weaknesses in the economy, rather than positive supply shocks.** That is, deflation is taking place not in the midst of a major spurt of productivity growth or a significant and large shift in its terms of trade, but rather in the context of a long-running economic malaise, characterized by slow growth and stagnant demand alternating with recession. The continuing generalized decline in the price level is hardly benign as, at the very least, it is hampering a sustained economic recovery by essentially putting a floor on the real interest rate at a period of widening output gap (Figure 2).

6. **This chapter examines the cost of Japan's ongoing deflationary episode, in particular the impact of unanticipated deflation.** Some salient characteristics of deflation in Japan are first examined in light of historical developments. This is followed by a set of analytical arguments and empirical results that underpin the cost of deflation. The paper is organized as follows. Section B is devoted to historical price-related developments in Japan. Section C examines the theory and evidence on the impact of deflation on monetary policy-making, labor market, financial market, households, and the public sector. Section D contains some concluding comments.

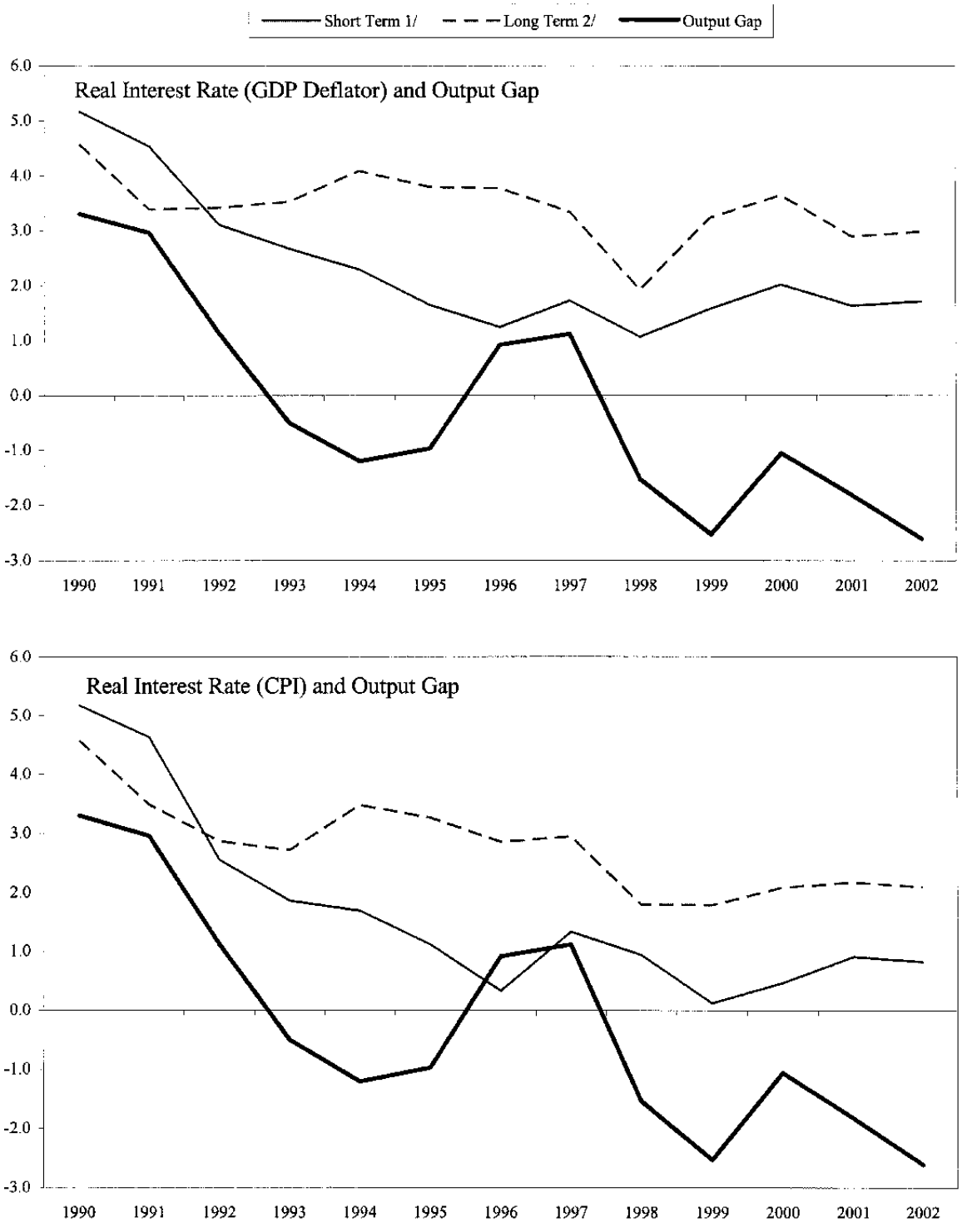
B. Development of Deflation in Japan

7. **Japan's experience with low—and now negative—inflation is hardly recent.** In the fifteen years prior to the onset of deflation in the mid-1990s, its annual core inflation rate averaged just 2.1 percent. This stands in contrast to the United States, where, over the same period, core inflation averaged nearly 4 percent. Indeed, during the mid-1980s, core inflation (CPI excluding food) in Japan fell to near zero, followed by several quarters of decline in the GDP deflator. Although demand was relatively strong during this period, a number of factors were associated with this phenomenon, including fairly tight monetary policy in the aftermath of earlier oil shocks, a rapid buildup in capacity, an appreciating yen, and a gradual removal of trade barriers.

8. **During the mid- to late-1980s, strong growth took place amid an asset price boom but only modest CPI inflation.** Economic activity picked up sharply from 1987 onward, coinciding with a tremendous run-up in asset prices, while the monetary policy stance remained relatively unchanged.[3] Broad indexes of land and equity prices peaked at the end of the decade, at four to five times their levels in 1980. The economy overheated, operating at 2–3 percentage points over potential GDP in the late-1980s and early-1990s, but goods and services prices were bid up only moderately in response.

[3] The uncollateralized overnight call rate was maintained at around 4 percent between 1986 and 1989.

Figure 2. Japan: Real Interest Rate and Output Gap, 1990-2002
(In percentage point)



Sources: Nomura database and staff estimates.
1/ Overnight call rate - Inflation (CPI)
2/ 10-year JGB yield - Inflation (CPI)

9. **Core inflation peaked at slightly above 3 percent in early 1991, and then began trending down**. The previously-exuberant markets succumbed to inevitable fatigue and a tightening of monetary policy, resulting in a collapse of asset prices and private demand. Bernanke and Gertler (2001) argue that monetary policy was behind the curve during this boom-bust cycle—the central bank waited too long before tightening monetary policy during the bubble period, and delayed in easing once the economy headed downward.[4]

10. **The unraveling of the asset price boom affected the Japanese economy considerably**. The sharp fall in land and equity prices was followed by real GDP growth coming to a crawl. A widening output gap, reflected in the sizeable excess capacity in the manufacturing and construction sectors, exerted downward pressure on prices. Banks, which had lent heavily to real estate and construction companies, struggled under a mountain of bad loans and rapidly declining profitability. They focused on consolidating their balance sheets and became very cautious in extending further credit. Reflecting the loss of economic momentum, broad money (M2+CDs) growth declined rapidly, from over 11 percent in 1990 to 0.6 percent in 1992.

11. **With demand in sharp decline, inflationary pressures virtually dissipated**. Additionally, prices in the tradable sector were affected by the further opening of the economy and the resulting competitive pressures.[5] Prices in the non-tradable sector also faced some downward pressures owing to deregulation and innovations. In its efforts to stimulate demand and prices, the Bank of Japan eased monetary policy, lowering the uncollateralized overnight call rate from 8.5 percent in early 1991 to 0.5 percent by late 1995, but that proved to be insufficient in the face of an unrelenting decline in asset prices and resulting associated problems.

12. **Core CPI deflation materialized fully in 1998 with the onset of a recession, but the GDP deflator began its near-continuous decline earlier (in 1995)**. A short-lived economic recovery around the Y2K-related investment boom in the late-1990s did little to arrest deflation. Initiatives to help the economy recover fell short, and consumption and investment remained weak. As a result, asset prices continued to decline, with both land and equity prices sitting at two-decade lows in mid-2003. Inflation expectations, which remained positive until the beginning of actual price declines, subsequently turned negative and became entrenched as a sustainable economic recovery proved to be elusive.

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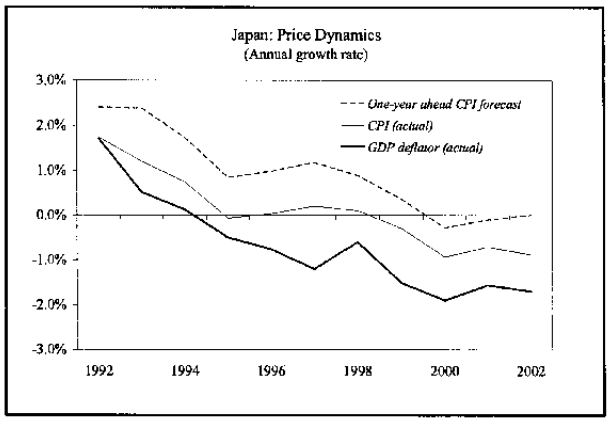
[4] In their analysis, Bernanke and Gertler (2001) use a forward-looking Taylor rule estimation of the target interest rate. These findings have been questioned by Okina and Shiratsuka (2001), on the ground that they are only valid when using ex post realization of the data. The latter authors argue that policy appears to have been broadly appropriate if the analysis is restricted to data available ex ante.

[5] Kamada and Hirakata (2002), estimating a comparative advantage model for Japan, show that some of the downward pressure on consumer prices in the mid- and late-1990s could be explained by the increase in international competition.

13. **Two key characteristics stand out with respect to Japan's price developments in recent years**:

(i) *Deflation has been hard to predict*

- Deflation was largely unanticipated in Japan, thus making the adjustment process particularly difficult. Ahearne *et al* (2002) note that as the rate of inflation fell through the mid-1990s, official and private forecasts consistently failed to anticipate the occurrence, and subsequently the magnitude and duration, of deflation. As a result of persistent deflation in recent years, surveys indicate that deflationary expectations have become entrenched.[6]

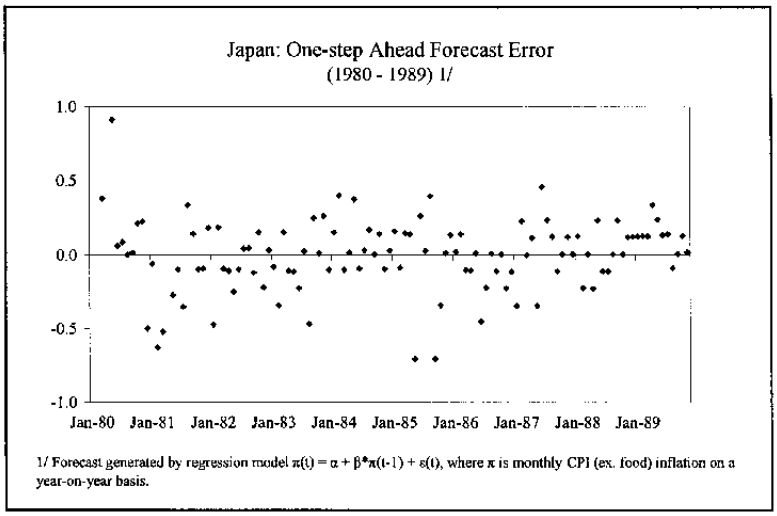


- A time-series forecasting exercise suggests that deflation was difficult to predict. In this exercise, inflation expectations are assumed to be generated by a simple rule of the current period's inflation being the basis for next period's forecast. Examining monthly CPI (excluding food, and adjusted for the impact of the increase in consumption tax in 1989 and 1997) year-on-year inflation data from 1980 to present, it is seen that the recent deflationary period has been characterized by a distinct set of dynamics. One-step ahead forecasts obtained from a regression with a single lagged dependent variable show that through the 1980s and during the first half of the 1990s, the number of positive forecast errors were consistently equal or greater than negative errors, but incidence of the latter mounted in the late-1990s.

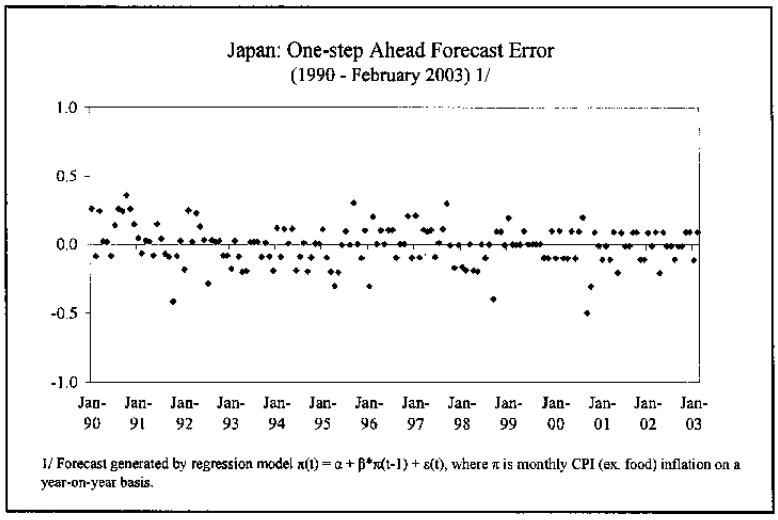
- For further ease of comparison, forecast errors from two distinct three-year periods were chosen to be contrasted with the data from 2000–02. During the three-year periods between 1981–83 and 1993–95, the forecast errors were roughly equally frequent, whereas over 60 percent of the observations had negative errors between 2000–2002. Most strikingly, in the 12-month period starting from October 1997, following which prices began to decline continuously, there were no positive forecast errors (i.e. in each successive period, deflation was stronger than expected). This contrasts with any preceding period in Japan in the dataset. The data thus underscores

[6] The 2002 Nissan Business Conditions Survey, with over three thousand companies responding nationwide, provides insight into firm-level perspectives on the impact of deflation. According to the survey, over 80 percent of the respondents reported declining sales prices, and felt that deflation was harmful to their respective businesses. Nearly 40 percent of the respondents saw deflation continuing for at least three more years.

the asymmetric nature (with respect to predictability) of the deflationary period in Japan.[7]



(ii) *Deflation has been broad-based*



- The ongoing deflationary episode has been broad-based.[8] Very few items in the consumer price index have experienced increases or stability in prices. Items such as clothes and footwear, furniture, transportation and communication, private housing rent, reading and recreation have registered a declining trend (Figures 3A–3D). The general decline in price levels thus cannot be explained by factors affecting specific sectors, such as competitive pressure from abroad, or excess capacity and deregulation in certain industries. Rather, a combination of these and other factors, including banking sector difficulties, insufficiently loose monetary policy, and stagnant demand, is more likely to have kept prices at bay in Japan.

[7] Despite being a low inflation country, rising prices had been the norm in Japan's recent history, thus anchoring expectations and influencing the design of financial instruments accordingly. It appears that agents, when accustomed to long periods of rising prices, simply do not foresee deflation until it materializes.

[8] The GDP deflator, which is a broader measure of prices, has declined even more than the CPI.

C. Costs of Deflation

Monetary Policy

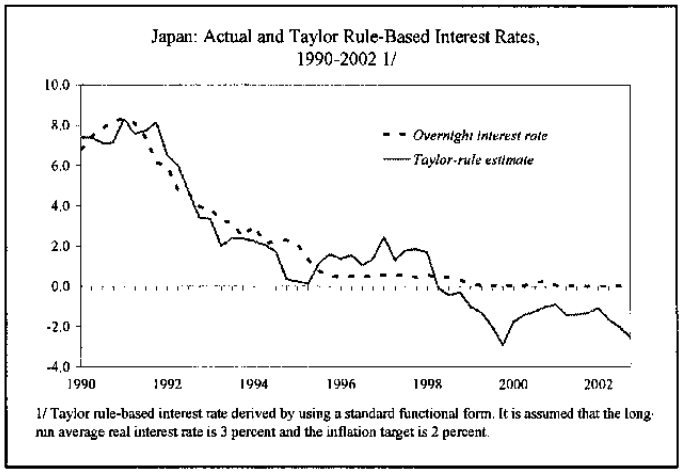
14. **Perhaps the most significant impact of deflation has been on monetary policy,** which has been constrained by the zero bound on nominal interest rates. As already noted, in recent years, the BoJ has responded to declining prices by lowering short-term interest rates to their floor. Moreover, since March 2001, it has pursued a quantitative easing framework, targeting bank and non-bank current account balances held at the central bank. The liquidity injection has been sizeable, as evidenced from the 58 percent growth of the monetary base between March 2001 and July 2003, but it has so far fallen short of reviving inflationary expectations. The BoJ's difficulties in generating positive inflation expectations illustrate the problems faced by monetary authorities when prices are falling on a persistent basis. At the zero bound, it is not impossible, but certainly more challenging, for the central bank to successfully guide inflation expectations.

15. **The costs associated with the zero bound are highlighted by Yates (2002).** The author notes that reaching the zero bound in itself need not be costly from the perspective of monetary policy. If the economy is not facing a large output gap or sustained deflationary pressure, it is conceivable that a relatively short period of time spent at the zero bound could be entirely costless. However, the zero bound is likely to be reached precisely when the output gap is widening and deflation pressures are mounting, as seen in Japan's recent experience. Therefore, the cost of deflation from a monetary policy angle is a function of the time spent at the zero bound while additional interest rate stimulus is desirable. The loss in output when the economy needs an interest rate stimulus mounts as the duration at the zero bound increases. By this measure alone, the cost of deflation in Japan has been substantial, as the Taylor rule analysis below indicates the need for negative interest rates since 1998.

16. **Following McCallum (2003), a standard Taylor rule prescription for the overnight call rate was derived**:

$$R_t = 3 + \Delta p_t^a + 0.5(\Delta p_t^a - 2) + 0.5(y_t - \overline{y_t})$$

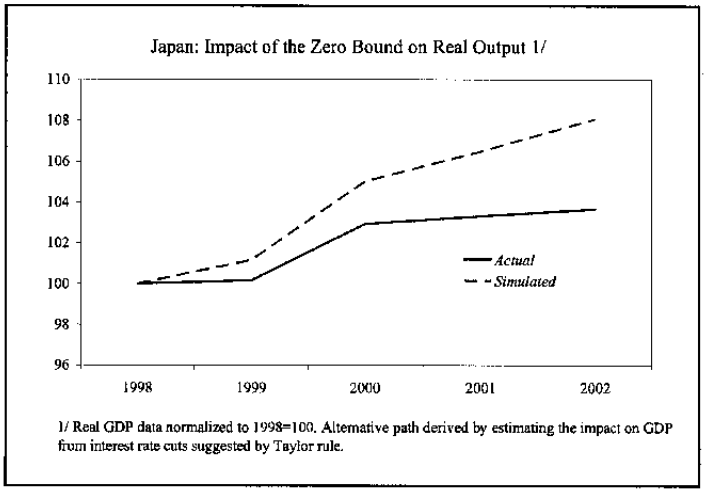
where R is the call rate, Δp_t^a is the average inflation rate (using the GDP deflator) over the previous four quarters, and $y_t - \overline{y_t}$ is the real GDP gap. The long-run annual average real rate of interest is assumed to be 3 percent, and the inflation target is set at 2 percent.



17. **Using quarterly data from 1990 to 2002, the figure compares the Taylor rule's prescribed**

interest rate with the actual rate. The estimates suggest the need for nominal rates to be negative since the second quarter of 1998, which is of course not feasible.[9] Indications by the Taylor rule that negative nominal interest rates are needed can be interpreted as underscoring the importance of short-term real rates to be negative in order to stimulate the economy and close the existing output gap. However, with the zero bound constraint under continued deflation, the challenge of providing the necessary stimulus has been magnified. In fact, as Figure 2 shows, real interest rates have been either steady or rising in recent years despite a widening of the output gap.

18. **Interest rate elasticities were used to approximate the loss in output due to the zero bound**. Using data from 1991 to 2002, the elasticity of output growth with respect to changes in the short-term interest rate was estimated to be around -0.5, i.e., a 100 basis points cut in the short-term interest rate raises real GDP growth by 0.5 percent with a one quarter lag. With the Taylor-rule estimates suggesting interest rate cuts by between 100 and 200 basis points from mid-1998, losses in output owing to the zero bound was imputed by simulating an alternative GDP path incorporating the impact of the rate cut. It is estimated that the cumulative loss was about 6 percent of GDP through 2002.[10]



19. **The above exposition suggests that an end to deflation is required to bring about much needed negative real interest rates in Japan.** However, with nominal rates at their floor, and real rates elevated by deflation, only a return to inflation and inflation expectations can accomplish this.

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[9] The estimates are broadly robust to a range of alternative long-term real interest rate and inflation target assumptions.

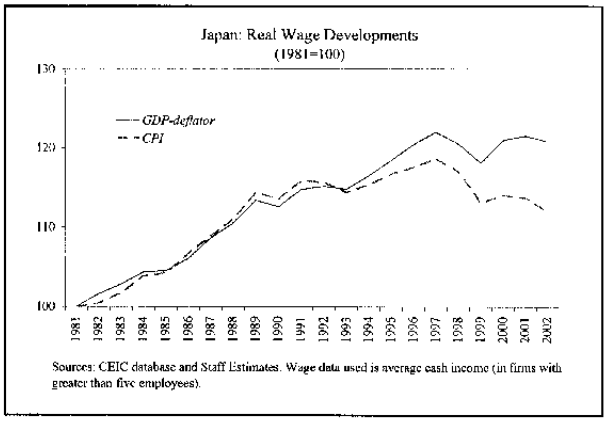
[10] The simulation was carried out as follows: first, the Taylor rule interest rate for the first quarter of 1998 was derived. Then the requisite rate's impact on GDP was estimated and incorporated in the calculation of output gap for the following quarter (second quarter of 1998). An inflation-rate-to-output-gap elasticity (-0.4) was then applied to derive the inflation rate for the same quarter. With this information, the policy rate was derived for the second quarter of 1998, which was then used for the subsequent quarter and so forth. Iterating in this manner through the fourth quarter of 2002 yielded the alternative GDP path.

Sticky Wages

20. **Aggregate demand-induced deflation raises unemployment when nominal wages are rigid downwards**. With sticky wages, price declines cause real wages to rise, profit margins to fall, and employment to be cut back.[11] Buiter (2003) notes that because of wage rigidities, an economy facing a demand shock would have to undergo a larger adjustment in output and employment under deflation than it would under a comparable magnitude of inflation.[12]

21. **Labor market adjustment to deflation has been difficult in Japan owing to downward wage rigidities**. The attached figure shows different measures of real wage developments during the past decade. During the 1980s, real wages grew by about 15 percent in an environment of economic growth and price stability. During the post-bubble years, however, as growth slowed down and price pressures dissipated, real wages did not adjust commensurately.

22. **Independent of the method of calculation, it can be seen that wages began to adjust in real terms from 1998 onward, but only at a very gradual pace**. Despite signs in recent years that nominal wage rates have begun to decline in the face of prolonged deflation, real wages are still at about (or above) the levels prevailing at the peak of the bubble around 1990.[13] This is consistent with the results of Kuroda and Yamamoto (2003a and 2003b). Examining Japanese longitudinal labor market data, the



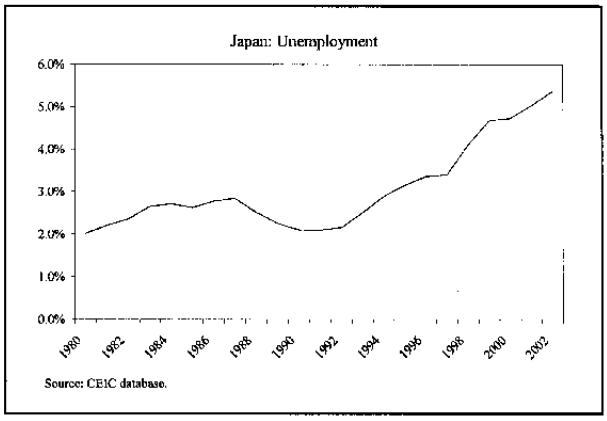
[11] It is conceivable that the stickiness of wages could in fact limit expectations of declining prices and thus prevent a deflationary spiral. This however does not mitigate the economic costs owing to increases in unemployment.

[12] Akerlof *et al* (1996) estimate that with sustained 1 percent deflation and downward rigidities in nominal wages, unemployment in the United States could rise from a long-run equilibrium rate of 5.8 percent to 10.0 percent. Phillips curve estimates suggest that output losses could amount to a multiple of the roughly 4 percentage point loss in employment. Other studies of nominal wage setting estimate the costs to be smaller, yet of significant magnitude. See Kumar *et al* (2003) for a survey of the literature on this issue. A caveat is that the behavior of nominal wages during periods of inflation—which is most of the available evidence—may be different from the behavior of nominal wages in periods of deflation. There is some evidence that suggests that wage rigidity may be reduced during deflation.

[13] Firms have reduced wages mainly in two ways: first, by switching from hiring full-time to recruiting part-time workers, as the latter group's compensation tends to be lower, and second, by cutting significantly the bonus component, thus reducing overall compensation.

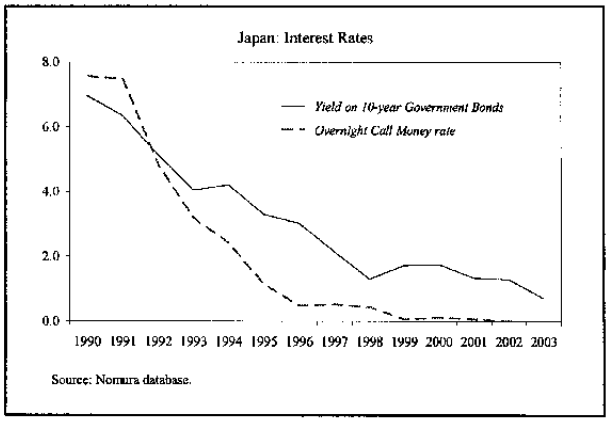
authors find nominal wage change distributions to be statistically skewed to the right, which is indicative of downward wage rigidity.

23. **The relative inflexibility of wages has squeezed corporate profits, and may have been partly reflected in rising unemployment**. Of course, an increase in unemployment in itself is not necessarily caused by deflation. However, to the extent that deflation requires firms to make even larger nominal wage cuts than they would have to under inflation (for a given real wage adjustment), it is plausible that in the presence of wage rigidities, they would be more inclined to lay off workers. The unemployment rate has risen markedly over the past ten years in Japan, from 2½ percent in 1993 to around 5½ percent in early 2003, imposing a range of social and economic costs, including rising real expenditures on safety net measures.



Financial Sector

24. **Low nominal interest rates are necessary to stabilize the financial system and to prevent an acceleration of deflation.** Indeed, higher interest rates at the current juncture could have severe negative impact on the banking system and the economy in general. Nevertheless, the low interest rate environment has also had some adverse side effects on the financial sector. In Japan (and elsewhere), most debt instruments do not incorporate adjustment against deflation. Nominal returns on bank deposits and bonds are not designed to fall below zero, effectively putting a floor on real returns during deflation at the zero bound. Activity in the Japanese interbank money market has been dampened in recent years as zero short-term rates have caused transaction costs to outweigh returns.[14] Additionally, a flattening of the yield curve has compressed credit

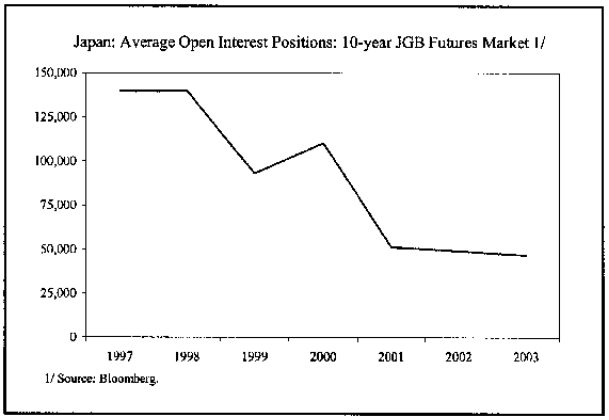


[14] It is however open to debate whether it is necessarily preferable to have a "deep" interbank market with many private participants or simply have the central bank as the lone supplier of liquidity and perform essentially the same tasks of the private participants. While the central bank may be capable of providing ample liquidity to the market, it may still be inclined to see a functioning interbank market as such an environment provides banks with greater incentives to keep in place a sound liquidity management framework. Moreover, interbank activities provide valuable information to the central bank about market perceptions about its policy stance.

spreads, and thus put pressure on bank profitability. With deposit rates close to their floor, the franchise value of retail banking has declined as banks have been unable to bid at below market rates for deposits.

25. **With short-term interest rates at their floor, Japanese financial institutions have found it increasingly difficult to price risk**. Price discovery has been impaired in the market, and participants need to search for other ways to measure credit risk. This has caused some institutions to engage in bilateral trades or private placements instead of dealing through brokers. Thus with deflation and short-term interest rate at the zero bound, the search cost for information has been magnified substantially.

26. **Low interest rates have also reduced liquidity in markets used to hedge interest rate risk**. Interest rates at the zero bound have made it very difficult to find a counterpart to hedge transactions and obtain protection against a future rise in interest rates. The JGB futures market, which was highly active and liquid during the 1990s, has become dormant in recent years, with average open interest positions (weekly basis) falling by 66 percent between 1997 and May-2003.



Redistribution of Wealth from Debtor to Creditor

27. **Sustained unanticipated deflation has implied a substantial transfer of resources from debtors to creditors in Japan in recent years.**[15] Following Bernanke (2000), a simple exercise is carried out below to illustrate the impact of unanticipated deflation on the borrowers. Assume that a borrower took a ten-year loan in 1997 at the interest rate of 2.1 percent, which was the yield on long-term government bonds during that period.[16] It would be reasonable to assume that the borrower's expectation of future price increases would have been in the range of about 1.1 percent inflation per year, which was the average of the previous decade. Subsequent deflationary developments would have however led to a significant increase in the borrower's real debt burden. Through 2003, the borrower's real obligations would have been 12 percent higher than anticipated. Even allowing for a trend decline in deflation in the coming years, it is estimated that by the time the loan matures in 2007, the real debt burden would be about 20 percent higher. Relaxing the assumptions, refinancing the loan in 2000 as interest rates come down and deflation set in, the borrower would have still found his debt burden to be about 7 percent higher by 2003 than anticipated

[15] A comparable magnitude of disinflation and deflation could have similar impact on the debt burden of borrowers. Hence this section does not exclusively deal with deflation's cost.

[16] The year 1997 has been chosen for this example as it is the last year before CPI deflation materialized in Japan.

at the beginning of the loan. Thus even the mild deflation seen in Japan in recent years has had a punitive impact on borrowers, possibly contributing to rising bankruptcies, and affecting spending and investment decisions.

28. **The transfer of wealth from the borrower to the creditor is not frictionless owing to the value of collateral.** In the post-bubble era, creditors have had difficulties recovering the value of defaulted loans owing to sharp declines in collateral value (especially land and stock). The borrower in the above illustration, if using land as collateral and expecting the asset to at least maintain its real value over the time path of the loan, would have found its real value to be 34 percent lower than anticipated through 2003.[17]

29. **A combination of the increase in real debt burden and decrease in collateral value has been deleterious for financial intermediaries in Japan.** Indebted households and corporates, faced with debt-service difficulties, curtailed spending and investment, and in some cases have entered bankruptcy, leaving banks in the aftermath saddled with bad loans with substantially lower recovery value.

Fiscal Costs

30. **Deflation has affected Japan's fiscal accounts in recent years.** Japan's public gross debt stock has risen explosively over the past decade, from around 70 percent of GDP in the early 1990s to 160 percent of GDP at end-2002. The government's attempts to revive the economy from its doldrums through a number of tax cuts and spending measures have contributed to the increase in the debt stock, but deflation has also been a key factor. First, as a debtor, the government's real debt burden has increased owing to unanticipated deflation. Second, revenues have declined alongside a contracting nominal GDP, whereas expenditures have continued to rise. Declining prices and weak economic activities have put severe downward pressure on revenue collection, and revenue as a percentage of GDP fell from 31.8 percent in 1992 to 29.3 percent in 2002, a very large decline given the size of the economy.[18]

31. **Government finances are inherently vulnerable to deflation as revenue items register a decline when prices fall, but expenditure items may not be indexed to make downward adjustments accordingly.**[19] Additionally, social security payments rise to the extent that unemployment increases accompany deflation. Even if unemployment does not rise, the real burden of such payments would increase with continued deflation.

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[17] Asset price declines can have a balance sheet impact on corporates *independent* of consumer price deflation, although the adverse effects are compounded when the two factors combine.

[18] Some of the decline is also attributable to tax cuts.

[19] An indexation scheme is indeed in place for social security payments in Japan. However, the scheme was suspended between 1998 and 2002. Otherwise the scheme would have necessitated a reduction in such payments in order to reflect the decline in the price level.

32. **Examining the government's borrowing needs in the late-1990s underscore the enormous fiscal cost of deflation.** Between 1997 and 1999, the government of Japan issued bonds worth about 31 percent of GDP. [20] Following the approach used in the previous section, it is estimated that the unanticipated increased in the real debt burden owing to deflation from just these three years borrowing amounts to over 3 percent of GDP through 2003.[21]

D. Conclusion

33. **This chapter examines the far-reaching costs of persistent unanticipated deflation in Japan in recent years**. It is evident that the generalized decline in the price level, however gradual or mild, has created distortions in many parts of the economy and substantially exacerbated the adjustment process under already difficult economic conditions. Unanticipated deflation has led to substantial transfer of resources from debtors to creditors, but the latter have not benefited fully as the increased debt burden, compounded by falling collateral value, has contributed to defaults and diminished loan recovery value. Owing to wage rigidities, deflation has caused unemployment to mount. The normal intermediation process in the financial sector has been hampered due to interest rates reaching their floor. Deflation has raised the public debt burden substantially, and constrained monetary policy. Japan's ongoing experience is a warning to policy makers elsewhere about the costs of even mild deflation and the need to prevent it from manifesting rather than face the challenge of curing it. For Japan, the lesson is painfully clear: deflation, however mild, continues to impose significant costs on the economy. Policies to revive inflation expectations are therefore critically needed.

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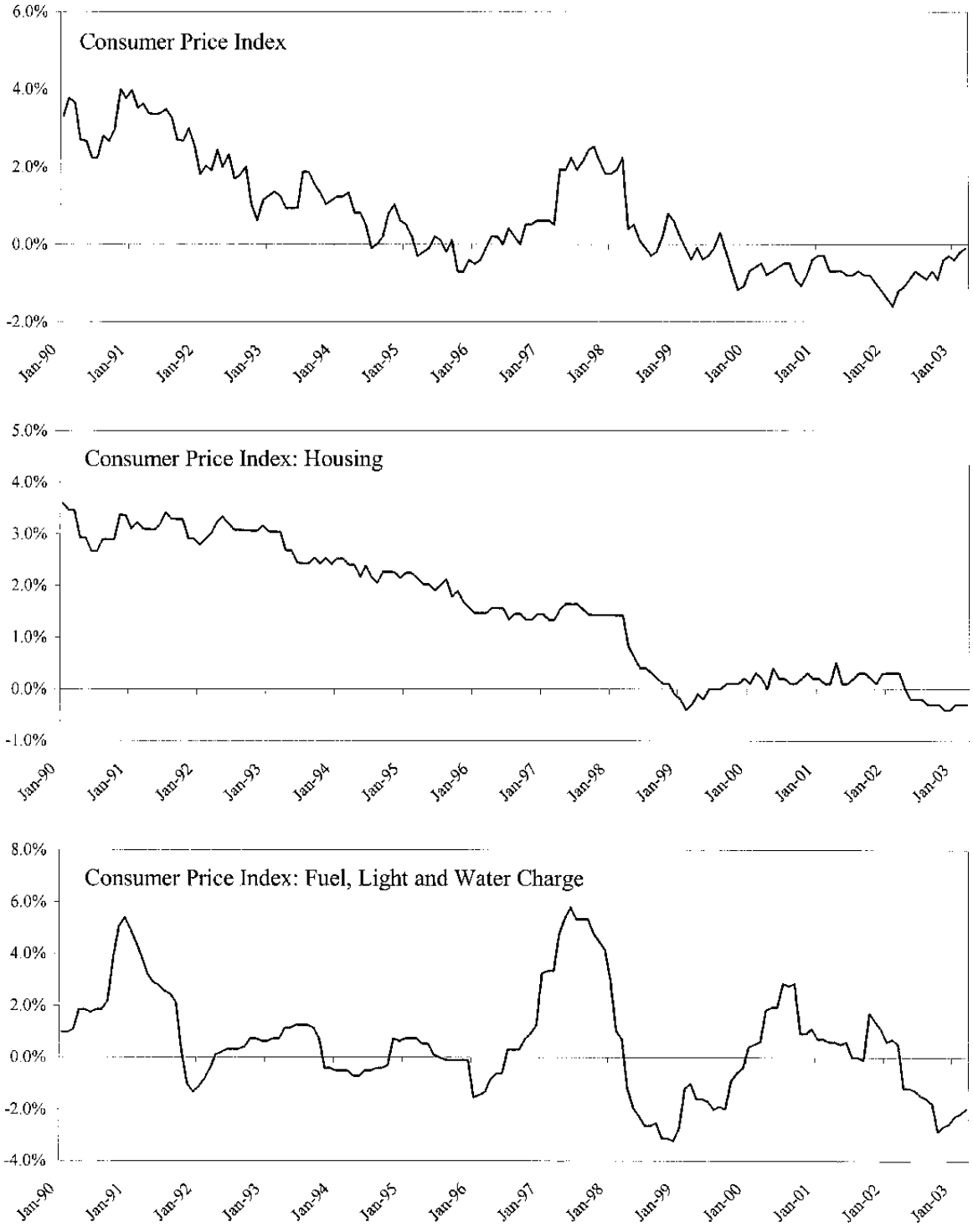
[20] The calculations done to obtain the increase in real debt burden is a better approximation of reality in the context of Japanese government debt than household debt, as the latter may be refinanced, whereas the former has been serviced without any such adjustment (barring some smoothing operation-related buyback of JGBs).

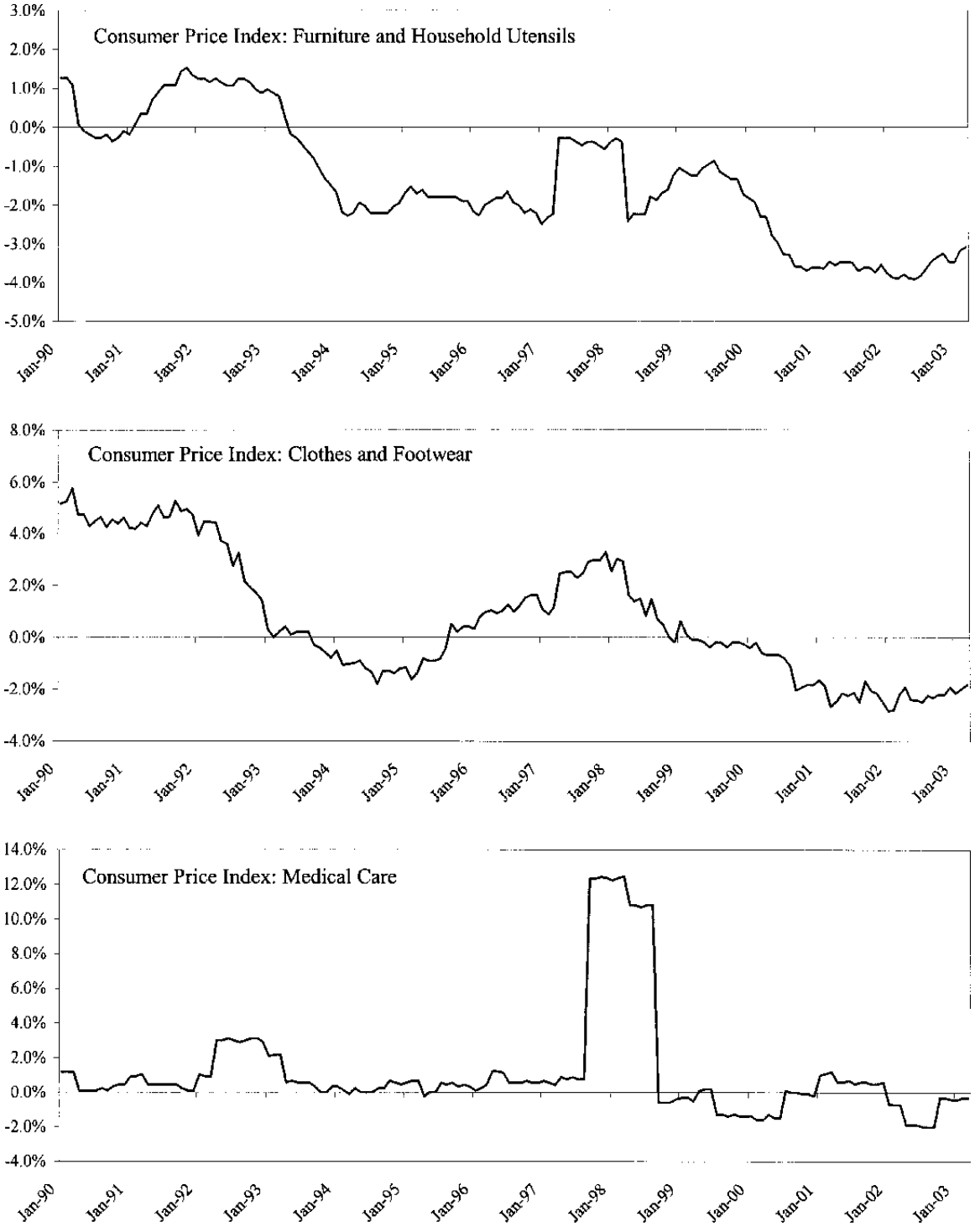
[21] Some of the unanticipated increase in the real debt burden may have been mitigated by the BoJ's purchasing of government bonds during this period, as some of the higher real payments owed on the bonds would have been offset through profit transfers from the BoJ's bond portfolio.

Figure 3A. Japan: CPI and its Components
(Year-on-year percentage change)



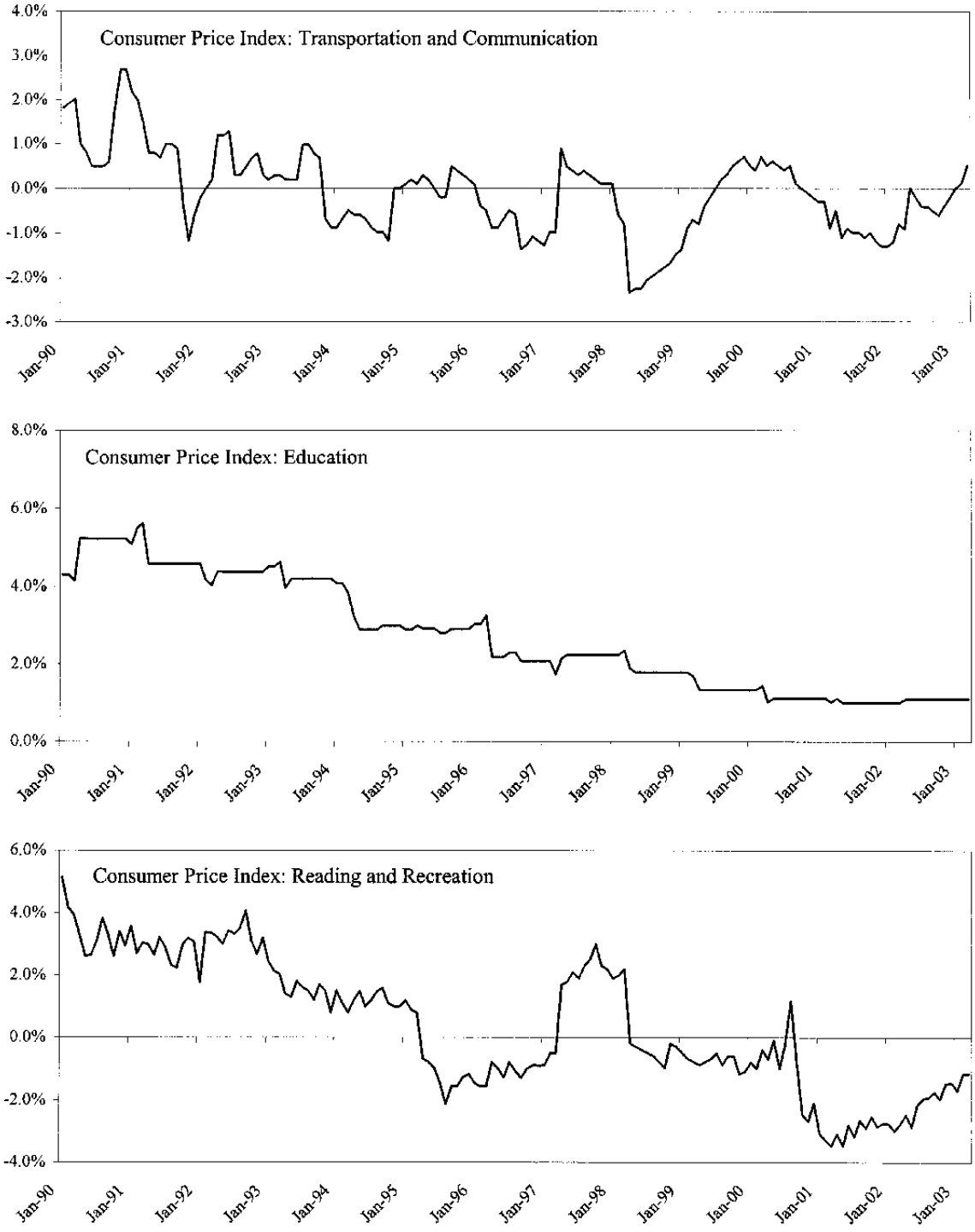
Source: CEIC database. Data not corrected for the 1997 increase in consumption tax.

Figure 3B. Japan: CPI and its Components
(Year-on-year percentage change)



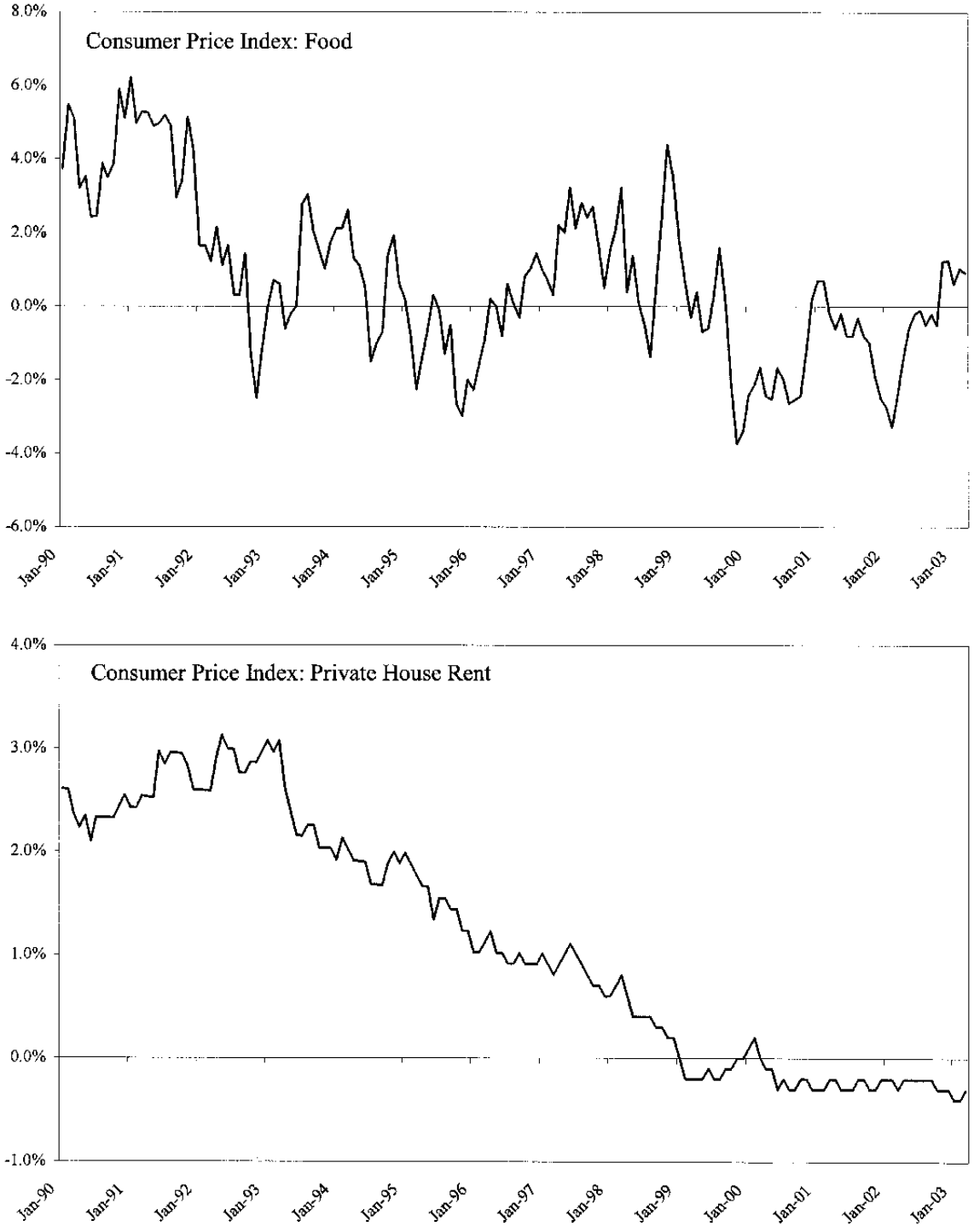
Source: CEIC database. Data not corrected for the 1997 increase in consumption tax.

Figure 3C. Japan: CPI and its Components
(Year-on-year percentage change)



Source: CEIC database. Data not corrected for the 1997 increase in consumption tax.

Figure 3D. Japan: CPI and its Components
(Year-on-year percentage change)



Source: CEIC database. Data not corrected for the 1997 increase in consumption tax.

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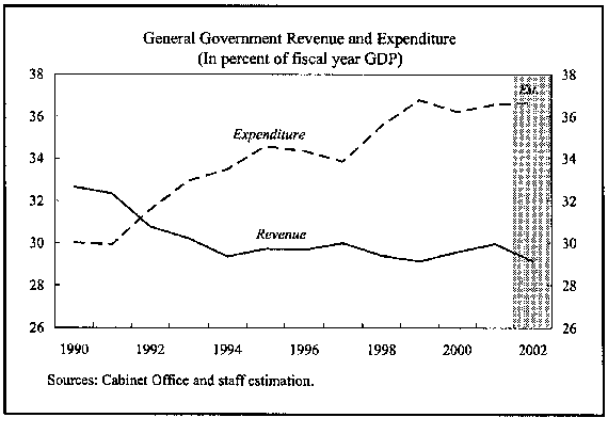
IV. Assessing the Long Term Fiscal Position of Japan[1]

A. Background

1. **Public debt in Japan has grown rapidly in recent years and is now the highest among major industrial countries** (Figure 1). By end-2002, gross debt is estimated to have reached 158 percent of GDP while net debt stood at 72 percent of GDP. The assets of the pension system (valued at 47 per cent of GDP) and financial assets of the central and local governments (38 percent of GDP) account for the difference between gross and net debt. The pension system in Japan is only partially funded—the social security assets are exceeded by the net future liabilities of the system.[2] Demographic trends and pressures on the pension and healthcare systems are expected to make fiscal sustainability an increasingly challenging goal to achieve. This chapter demonstrates the impact of a continuation of current fiscal policies on public debt and estimates the expenditure and revenue adjustments needed to restrain the growth of debt.

2. **The increase in public debt reflects a decade of economic stagnation, during which the government pursued expansionary fiscal policy to support the weak economy.** A series of tax cuts and weak growth resulted in a falling revenue-to-GDP ratio. Public expenditure increased from 30 percent of GDP in 1991 to 36.6 percent of GDP by 2001 as the aging of the population led to rising social security spending as a share of GDP.[3] The general government deficit expanded, with most of the increase accounted for by a widening of the structural deficit.



3. **The debt figures do not include the general government's contingent liabilities.** The government publishes information on explicit guarantees that it provides, which amounted to 12 percent of GDP (¥58 trillion) at the end of FY2001. Losses from the special public sector credit guarantee scheme for small and medium enterprises loans, implemented during October 1998–March 2001, are expected to amount to at least ¥1.5 trillion over the

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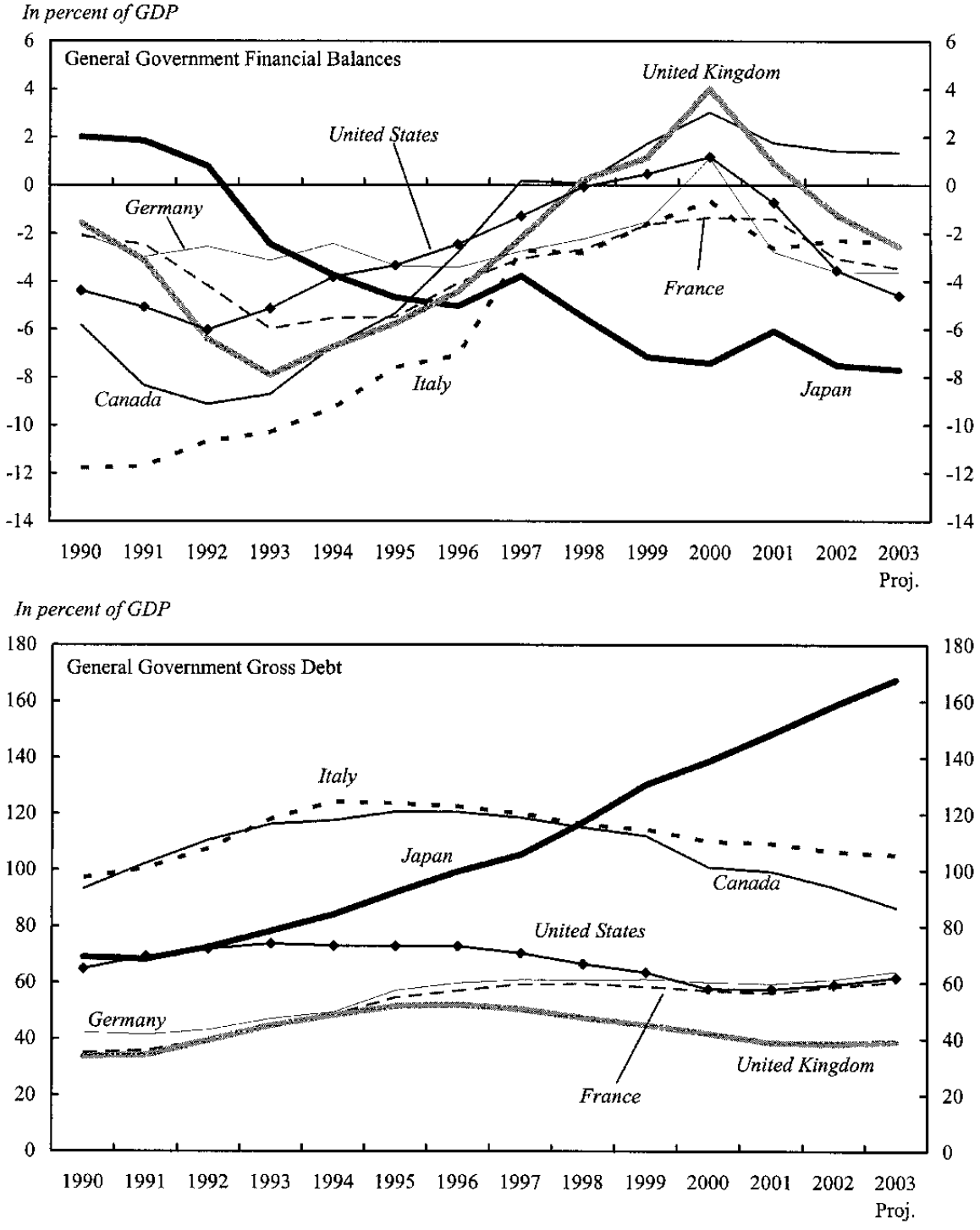
[1] Prepared by Dora Iakova (ext. 35365).

[2] The net present value of unfunded pension liabilities was estimated at above 100 percent of GDP (Actuarial Report of the Employee Insurance Program, Ministry of Health, Labor, and Welfare, 1999). No estimate is available for the medical insurance system, although medical expenditure is expected rise much faster than pension expenditure in percent of GDP.

[3] Based on national income accounts data, social security expenditure increased from 9.6 percent of GDP in FY1991 to 15 percent of GDP in FY2001.

Figure 1. Selected Advanced Countries:
General Government Financial Balance and Gross Debt, 1990-2003



Source: WEO.

medium term (the total amount transferred between July 1999 and August 2002 was ¥1.9 trillion). The Fiscal Investment and Loan Program (FILP) is also a source of potential future government liabilities. The agencies that receive FILP loans typically get fiscal transfers from the government if they do not generate sufficient returns to pay for their obligations. The government estimates the expected fiscal cost of such transfers to be about 1.5 percent of GDP (FILP Report 2002); however, some analysts estimate the cost to be much higher (Annex 1). Many large infrastructure investments appear to generate less than the budgeted returns, which may imply significant contingent liabilities for the government.[4] Finally, many analysts believe that the current problems of the banking system cannot be resolved without injections of public capital.[5]

4. **The rapid rise in public indebtedness has prompted international rating agencies to downgrade Japan's sovereign debt rating in recent years**. Standard & Poor's lowered Japan's long-term local and foreign currency sovereign credit ratings by one notch to AA– from AA in April 2002, while Moody's downgraded Japan's long term local currency sovereign credit rating by two notches to A2 at end-May, 2002. Fitch also has downgraded its Japanese Government Bonds (JGBs) rating in November 2002 from AA to AA–. Currently, Japan has the lowest credit rating among the G-7 counties according to these rating agencies.

5. **A continuous rise in public debt would eventually prompt a rise in risk premia.** However, it is difficult to specify what level of debt would trigger a significant market reaction. Studies have shown that for *emerging market* countries, the probability of debt crisis increases once debt reaches 50 percent of GDP.[6] Experience shows that developed countries can sustain much higher debt levels than some emerging markets without experiencing a liquidity crisis. There have been no instances of public debt default in industrial countries in recent decades. The probability of default in such countries is considered to be low since their governments typically have the ability to raise taxes sufficiently to service (or reduce) the debt. In addition, there are a number of favorable conditions specific to Japan that allow it to sustain high debt levels.

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[4] As an example, the government had to assume the liabilities of the Japanese National Railway Settlement Corporation (JNRSC) amounting to 5.2 percent of GDP in 1998.

[5] While it is difficult to estimate the size of the needed public injection, one indicative measure is the amount of uncovered loan losses at major and regional banks. Callen and Mühleisen (2002) estimate this amount to be between 1.5 and 5 percent of GDP. Market analysts' estimates of net loan losses vary between 4 and 14 percent of GDP (Kashyap (2002), Table 2).

[6] IMF, World Economic Outlook (September 2003) finds that the probability of crisis increases when public debt reaches the 25–50 percent of GDP range. Most other studies have looked at how debt crisis probabilities change when *external* debt-to-GDP increases—or example, IMF (2002) suggest that 40 percent of GDP is a useful threshold and Manasse *et al* (2003) find that countries with external debt higher than 50 percent of GDP are more likely to experience default episodes.

6. **Public debt is denominated in yen and held almost exclusively by domestic investors, including by the government itself.** Japan is a large net creditor and does not depend on foreign funds to finance its public debt. The current account surplus over the last ten years has averaged 2.4 percent of GDP. Private savings in Japan are very high by international standards and there is an institutional bias towards domestic investment. For example, pension funds are required by guidelines based on law to invest a significant share of their assets in domestic bonds (68 percent). Special treatment of the postal system (which has also been extended to the new Japan Post Corporation) allows it to provide favorable terms that attract a significant share of retail deposits (one third of all deposits presently). Some of those funds are channeled to the JGB market (Japan Post is the largest holder of JGBs). The distribution of JGB holdings is listed in the table.

Holdings of JGBs by Sector

(In percent of total)

	Mar. 1998	Sept. 2002
General Government	39.2	41.1
Fiscal Loan Fund	23.2	13.4
Postal Savings	7.7	12.4
Postal Life Insurance	4.5	8.5
Central Bank	11.5	15.5
Financial Institutions	36.7	32.2
Domestic Banks	12.6	12.4
Private Life Insurance Companies	5.9	5.1
Private Nonlife Insurance	0.3	0.4
Securities Investment Trusts	1.0	1.8
Overseas	6.0	3.7
Securities Companies	0.7	1.7
Households	2.7	2.6
Private Nonprofit Institutions	1.9	1.2
Nonfinancial Corporations	0.1	0.3

Source: Flow of Funds Accounts (BoJ).

- Foreign investors currently hold only 3.7 percent of the outstanding stock of government securities, so further shifts in their portfolio out of JGBs would be unlikely to have a significant impact on the market. Households also hold directly a very small share of JGBs.

- Close to 60 percent of all outstanding JGBs at end-September 2002 were held by government-related institutions, including government financial institutions, pension funds, and the Bank of Japan. Since the FILP reform was initiated, the JGB amounts held by the Fiscal Loan Fund, the Postal Savings, and Postal Life Insurance have been declining gradually. This may improve pricing signals and increase the market pressure for fiscal adjustment.[7] However, the Bank of Japan has increased its purchases of JGBs, so the overall share of government holdings of JGBs has not changed significantly.

- Domestic banks and life insurance companies hold 30 percent of outstanding JGBs. JGBs have been a safe asset of choice for private financial institutions as their risk appetite has declined together with the deterioration in their loan and equity portfolios. Fixed income investment in foreign instruments is pursued only if the

[7] As an example of the potential strength of market discipline, long-term interest rates recorded their largest monthly increase (105 bps) in the past 20 years in December 1998, when the Ministry of Finance announced the reduction of JGB purchases by the Trust Fund Bureau.

expected profits significantly exceed the cost of currency hedging. Buying JGBs in recent years has proven a good strategy, as falling yields have brought capital gains to the holders, and real returns have remained high (in recent months, there has been a shift in bank holdings towards shorter maturities to reduce the risk from a possible steepening of the yield curve). Life insurance companies also choose to hold JGBs as safe liquid instruments that match the currency and maturity of their obligations.

7. **The sharp decline of nominal interest rates will keep effective interest payments on government debt relatively low in the medium term**. Nominal interest rates have declined sharply in recent years, reaching historically low levels in the first half of 2003, which has kept debt service costs very low (the 10-year government bond yield fell to 0.43 percent in early June, before rebounding more recently). The average remaining years to maturity of outstanding JGBs is about 5 years, so the current low interest rates, will keep down the effective interest payments on government debt for the next few years.

8. **Despite these favorable factors, consolidation cannot be postponed indefinitely**. While Japan has so far accumulated high debt levels without facing liquidity problems, the rapid aging of the society and the projected decline of the labor force will limit potential growth of the economy in the coming years, complicating efforts to restore fiscal sustainability. Further delays of fiscal adjustment would only increase the tax burden on future generations. If the projected burden becomes excessively high, the market may come to expect an eventual monetization of the deficit and factor a higher risk premium into interest rates. This may lead to increasing real interest rate and worsening debt dynamics, and potentially to liquidity problems.

B. Debt Dynamics and Sustainability Analysis

9. **A number of studies have indicated that a continuation of current fiscal policies in Japan will lead to a rapid build-up of debt**. Dekle (2002a, 2002b) estimates that with unchanged fiscal policies, Japan's net debt will increase to between 700 and 1300 percent of GDP by 2040—clearly unsustainable levels. Using generational accounting, Takayama and Kitamura (1999) show that in the absence of adjustment in fiscal expenditure patterns, the result will be large intergenerational imbalances and future generations will have to bear very heavy tax burden. Based on their estimation, future generations would pay between 2.7 and 4.4 times more taxes as a share of income than the current generation pays to sustain the current level of government services.

10. **However, economic theory provides little practical guidance for evaluation of debt sustainability**. Theoretically, the current debt is sustainable as long as it is possible to generate sufficiently large primary surpluses in the future, so that their present discounted value equals the current debt level. The present value budget constraint (after imposing the transversality condition) is as follows:

$$Debt_t = -\sum_{j=0}^{\infty} R(t,t+j)^{-1} PB_{t+j}$$

where $Debt_t$ is net public assets at time t, PB_t is the primary balance (the fiscal balance excluding net interest payments), and $R(t, t+j)$ is the discount factor applying between periods t and $t+j$ (if the interest rate r is constant over time, $R(t,t+j) = (1+r)^{-j}$). The present value budget constraint provides little practical guidance for fiscal policy since it allows for many different paths for debt, some of which may not be feasible in practice. For example, the government could run large deficits for a prolonged period of time, if it could commit to running sufficiently large primary surpluses in the future. However, such commitments may not be possible because of political and economic constraints, especially if the necessary adjustment becomes very large.

11. **This paper employs three different approaches to assess debt sustainability.** First, illustrative scenarios are prepared to show the path of government debt under announced fiscal policies and under a pension reform scenario. Second, the primary balance necessary to stabilize the debt-to-GDP ratio is estimated to illustrate the adjustment that would need to be undertaken by the government. Finally, results of empirical analysis of a fiscal policy reaction function of the government are reviewed.

Scenario Analysis

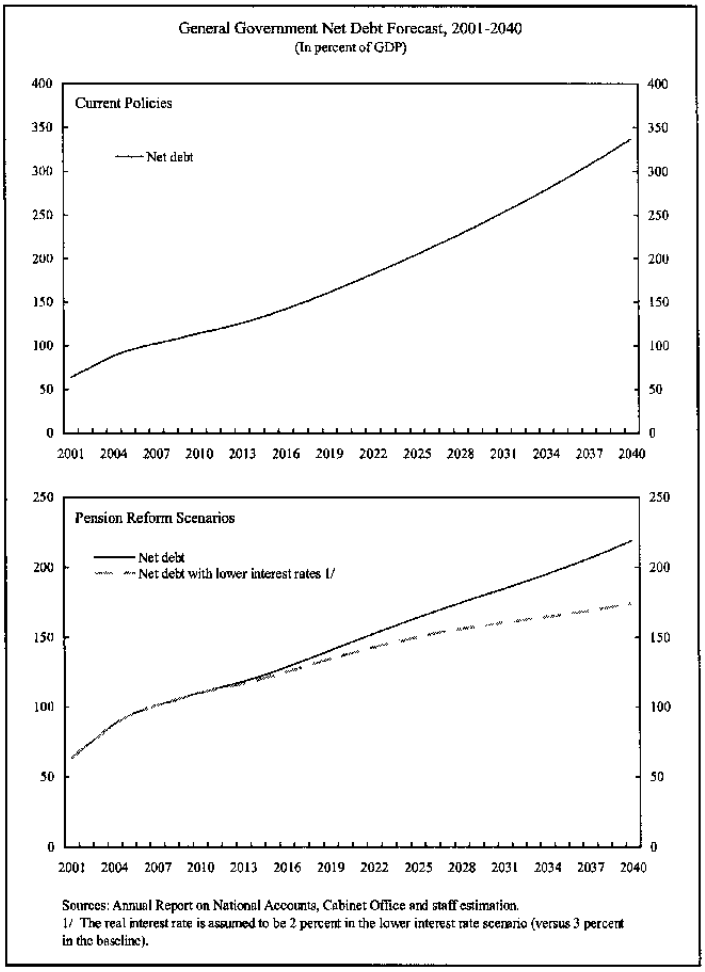
Baseline Scenario

12. **The baseline scenario is broadly based on the authorities' current policy targets. The main assumption is that the primary deficit of the central and local governments will be eliminated by the early 2010s.** This implies a significant adjustment since the cyclically-adjusted primary deficit of the central and local governments as of FY2002 was about 4.5 percent of GDP. [8] Real GDP growth, the GDP deflator, and the long-term bond rate follow the most recent WEO projections for the medium term (over 2003–2008 real GDP growth averages 1.6 percent, the annual change in the GDP deflator averages -0.5 percent, and the effective real interest rate on public debt averages 3.2 percent). In the long term, potential real GDP growth is presumed to be constant at 1 percent.[9] The steady state inflation

[8] The calculation of the deficit of the central and local governments includes transfers to the social security system, but excludes the deficit of the social security system. In the simulation we assume that the adjustment is achieved by a combination of tax increases and expenditure reductions.

[9] The Cabinet Office used 1 percent potential growth rate for its medium term fiscal estimates ("2002 Reference Estimates"). The Bank of Japan (*Quarterly Bulletin*, May 2003) also estimates the current potential output growth rate to be about 1 percent. However, a 1 percent real growth rate in the longer term may turn out to be a rather optimistic assumption, given the expected rapid decline in the working age population over the next 50 years. For instance, a significantly more pessimistic scenario is presented by Ishikawa (2002): accounting for the expected decline in the labor force and assuming a total factor productivity growth rate of 0.7 percent, he estimates that real GDP growth will decline to minus 0.4 percent by 2050.

rate is also set at 1 percent and the real interest rate is assumed to be constant at 3 percent (equal to the 1994–2003 average of 10-year government bond yields). Government investment is projected to decline to about 3 percent of GDP (the current OECD average) and stabilize at that level. Government consumption also declines in the initial years and then remains flat at 10½ percent of GDP.



13. **The pension contribution rate is assumed to remain at its current level** (the contribution rate has been frozen by the government for the last few years). Pension benefits and health expenditures increase in line with the rise in the aged population. Annex II describes in detail the projections of social security income and expenditure. The cyclically-adjusted primary deficit of the social security system would increase from about ½ percent of GDP in 2002 to 2 percent of GDP in 2012 and would continue growing thereafter.

14. **Under the baseline scenario, the net public debt-to-GDP ratio continues to grow without bound** (Figure). It is estimated to increase from 72 percent of GDP in 2002 to about 340 percent of GDP by 2040.[10] The rapid increase is driven by increasing social security expenditure and by adverse debt dynamics (the assumed steady state GDP growth rate is lower than the interest rate). In practice, the assumption of steady growth and stable interest rates during a long period of high and rapidly increasing debt will not necessarily hold—probably interest rates will rise and an adjustment would be forced at a much earlier stage.

[10] The simulation is done in terms of net debt for analytical convenience since using gross debt would require specific assumptions on asset accumulation. Whether gross or net debt is the focus of analysis depends on the quality and liquidity of government assets. About a third of Japan's government assets are in the form of liquid bonds and cash deposits. However, a large share of the assets are invested in long-term projects through the FILP system and are highly illiquid. Therefore, most assets may not be easily used to reduce gross debt.

Pension Reform Scenario

15. **The second scenario illustrates the effect of a gradual increase in the pension contribution rate on government finances.** All other assumptions remain as in the first scenario. The Employee Pension Insurance contribution rate (as a share of employment income) is assumed to increase gradually from 13.6 percent in 2003 to 26 percent by 2020, and contributions to the National Pension increase by 100 percent in real terms over the same period. The assumed changes are similar to the profile of contribution increases that would make the pension system actuarially sound based on projections by the Ministry of Health, Labor, and Welfare (MHLW). This is a rather optimistic scenario—an increase of contribution rates of such a magnitude may not be politically feasible, and if achieved, may have adverse effects on labor participation, saving, and growth that are not captured in the simulation.

16. **Nonetheless, even such significant adjustments in the pension system are not sufficient to stabilize the total debt-to-GDP ratio.** The simulation shows net debt increasing to 220 percent of GDP by 2040 in the pension reform scenario (second panel of Figure 2). Of course, the dynamics of debt are very sensitive to assumptions about the long run interest rate and GDP growth. For example, assuming a real interest rate of 2 percent beyond 2009 (instead of 3 percent as in the baseline scenario) will lead to much slower debt accumulation.

17. **The simulations suggest that Japan's public finances are on an unsustainable track unless a significant adjustment is implemented.** Even a combination of fundamental pension reforms and an elimination of the primary deficit of the central and local governments will not be sufficient to restore the sustainability of public finances, especially if the interest rate on public debt exceeds GDP growth, as it has historically. Substantial reductions in social security expenditures and an increase in general tax revenues will be needed to halt the increase in the debt ratio.

Fiscal Gap Analysis

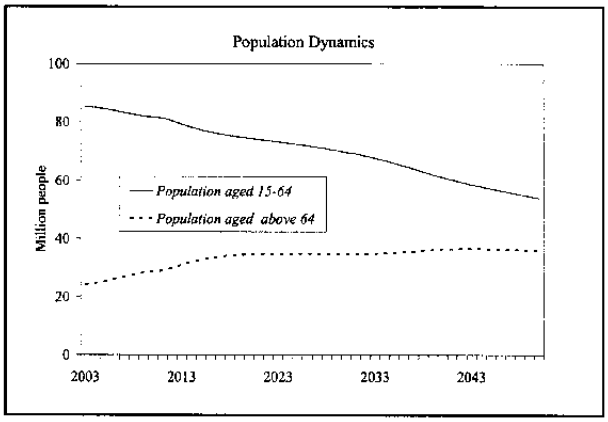
18. **A practical approach commonly used for assessing debt sustainability is based on the primary gap indicator developed by Blanchard (1990).** The primary gap is defined as the difference between the actual primary deficit and the deficit required to stabilize the debt-to-GDP ratio (or bring the ratio down to a desirable level) over a certain time horizon. The required primary surplus to stabilize the debt-to-GDP ratio depends on the level of debt, the GDP growth rate, and on the interest rate.

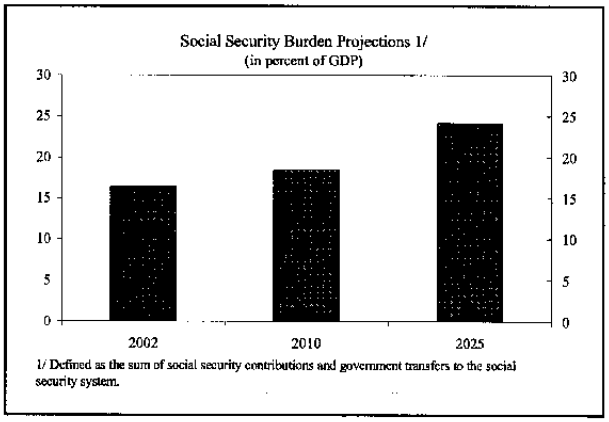
$$\overline{pb}_t = (g - r)/(1 + g)Debt_t,$$

where g is the nominal growth rate, r is the nominal interest rate, $Debt_t$ is the target debt-to-GDP ratio at time t (where debt is defined as net government assets), and $\overline{pb}_t$ is the primary balance required to stabilize the debt-to-GDP ratio from time t on. The difference between the current primary balance and $\overline{pb}_t$ indicates the amount of adjustment that needs to be achieved to stabilize the debt-to-GDP ratio.

19. **A significant adjustment in the primary balance will be required to stabilize Japan's debt ratio in the medium term.** For this exercise, the focus of analysis will be the general government account which combines the accounts of the central government, local governments, and the social security system. The primary balance of the general government will need to increase gradually to about 2 percent of GDP to stabilize net debt at around 100 percent of GDP by 2013 (the current level of the cyclically-adjusted general government primary balance is about -5 percent of GDP). Therefore, the required combination of expenditure reductions and revenue increases over the next ten years is on the order of 7 percent of GDP.[11] This estimation is based on the steady state real GDP growth and real interest rate assumed in the baseline scenario. If the steady state real interest rate is lower (at 2 percent instead of 3 percent) or if the long-term growth rate is higher (2 percent instead of 1 percent), then the primary balance necessary to stabilize debt would be about 1 percent of GDP. The time horizon also matters—postponing consolidation to a later date would increase the needed adjustment as the cumulative debt would be higher.

20. **The medium-term horizon is chosen in light of deteriorating demographics that would make debt consolidation increasingly difficult in the long run.** The number of working-age people is already declining, and the decline will accelerate in the early 2010s (see Figure). That will reduce the potential GDP growth going forward. In addition, the rapid aging of the population is likely to lead to a reduction in private savings. Social security expenditure will continue to rise rapidly as a share of GDP in the coming years (Figure). These developments would negatively affect the fiscal position and make financing of the public deficit increasingly difficult.





21. **The adjustment indicated by the primary gap indicator represents a lower bound on what may be needed to restore sustainability,** for three main reasons. First, since debt is already at very high levels, it may be desirable to reduce it rather than stabilize it and that would require a greater adjustment. Second, the estimated path of debt does not take into account the possible

[11] For comparison, the debt-stabilizing adjustment in the primary balance of the general government is higher than the adjustments assumed in the baseline and pension reform scenarios of the last section by 4 percentage points and 2 percentage points of GDP respectively.

realization of contingent liabilities, which would increase the debt stock. Third, social security expenditure in percent of GDP will continue to rise beyond the stabilization horizon as the share of the aged in the population increases, so to keep the public debt ratio from rising, a corresponding increase in the tax burden will be required. Based on estimates by the Ministry of Health, Labor, and Welfare the tax burden of social security (in terms of GDP) would have to increase by about 5.7 percentage points between 2010 and 2025 to support the expected increase in benefits. An additional increase of revenue of that magnitude is probably not realistic, therefore a significant part of the adjustment will have to be implemented through expenditure rationalization.

Fiscal Reaction Function

22. **An empirical analysis of the authorities' fiscal reaction function also suggests that the current fiscal policies are unsustainable**. Ihori and Sato (2002) apply the test developed by Bohn (1998) for Japan over the period 1965 to 1998 and conclude that the hypothesis that Japanese government debt is unsustainable cannot be rejected. The test rests on the intuition that if the primary surplus responds positively to an increase in debt, then the government's fiscal policy reaction function is consistent with sustainability. This clearly has not been the case in Japan over the last decade—primary balances have declined in every year while debt accumulated rapidly. In that respect, Japan is an outlier among industrialized countries—similar analysis of industrialized countries for the period 1990–2002 (IMF WEO, Chapter 3, September 2003) finds that the primary surplus tends to adjust when the debt ratio rises, and the adjustment has been more aggressive once gross debt rises above 80 percent of GDP.

C. Options for Consolidation

23. **To achieve the substantial consolidation required over the coming years, it would be important to secure broad political support for specific measures and commit to their implementation**. The feasibility of specific policy options will depend on economic conditions and on social preferences. Persistent weakness of the economy has made it difficult to achieve political consensus on the appropriate timing and modalities of consolidation. The on-going debate on pension reform illustrates the divergence of views among business groups, academics, and different Ministries within the government. In order to gain consensus for consolidation, the government may have to raise public awareness of the dangers involved in delaying adjustment and to present a credible set of measures through which the needed adjustment could be achieved.[12]

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[12] Strengthening the institutional framework for fiscal policy implementation can help sustain fiscal consolidation efforts. Fiscal adjustment in many OECD countries in the 1990s was accompanied by institutional reforms, including the formal adoption of fiscal rules, such as expenditure ceilings or balanced budget rules. For fiscal rules to be credible, they may need to be sufficiently flexible to accommodate automatic stabilizers and allow responses to unexpected negative shocks.

24. **The composition and sequencing of fiscal reform is an important factor in the sustainability and success of the consolidation**. Based on other countries' experiences, successful fiscal consolidations have typically relied on expenditure cuts in addition to revenue raising measures.[13] The authorities have recognized that there is scope for reduction in inefficient government expenditure and public investment outlays have been cut substantially since 2001. Revenue measure will also be needed to restore sustainability, but may have to be introduced gradually to avoid adverse economic effects.

Expenditure

25. **The level of public investment in Japan, at around 6 percent of GDP is higher than in other developed countries**. The average public investment for the other G-7 countries was 3 percent of GDP in 2002 (Table). The higher level in Japan partly reflects the fact that infrastructure was not sufficiently developed in the past. However, as infrastructure accumulated, rigidity in the allocation of funds and institutional inertia have prevented public investment from falling. Indeed a number of studies have shown that returns on public investment have declined.[14] Public investment also has been increasingly used as means of income redistribution.[15] OECD (2000a) argues that the inefficiency of public investment in Japan stems from poorly defined objectives, lack of cost effectiveness, and poor design of the project bidding process. Starting in 2001, the government has acknowledged that the level of public investment is too high and that some investment projects are inefficient (especially in agriculture and rural infrastructure) and has made efforts to reduce public investment in these areas and redirect funds to urban infrastructure.

Gross Public Fixed Capital Formation, 2002	
(In percent of GDP)	
Canada	2.6
France	3.1
Germany	1.6
Italy	4.2
Japan	6.3
United Kingdom	1.5
United States	1.5
Source: WEO Data.	

26. **Current government expenditure should also be reviewed for possible savings**. The current medium-term guidelines for budget formulation reflect that view—the projections assume annual reductions of personnel expenditures by about 0.5 percent, and in

[13] Alesina and Perrotti (1996) find that in OECD countries adjustments that have relied mainly on current expenditure reductions have typically been more successful, and such adjustments have also tended to be expansionary.

[14] See Doi (1998) and Yoshino and Nakano (1996). Kondo (2002) finds that rates of return differ significantly for different types of public capital and are relatively low in road construction and agriculture.

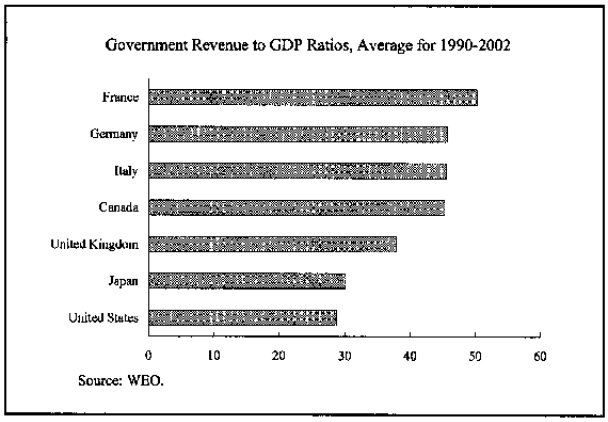
[15] Braun and Kubota (2000) show that there is a strong negative correlation between the per capita income of prefectures and the level of public capital they receive. EPA (1997) estimates that the return to social capital in cities is roughly twice the rate of return in rural areas. The high level of investment in poorer areas has not stimulated self-sustaining growth as hoped. Instead, the areas have become heavily dependent on public construction.

general material by about 1 percent over the next few years. Medical care expenditure has been the fastest growing component of the budget. Given the government commitment to finance a certain share of the costs of the different medical insurance schemes, especially for elderly care, government obligations in that area will continue to grow fast as the population ages. More fundamental reforms in the medical care system are needed to contain this trend. Delegation of greater expenditure flexibility to local governments, as envisaged in the current debate on local government reform, could improve the efficiency of public expenditure and help the consolidation effort.

27. **Finally, downsizing off-budget expenditure could reduce the contingent liabilities of the government**. The FILP reform initiated in 2001 aimed at improving the financial discipline of the recipient institutions through better financial disclosure and increased reliance on self-financing. The reform also envisaged a review of the role of a number of special-status public corporations, including the highway public corporations. The intention was to limit their scope, transfer some of the functions to the private sector and reduce government subsidies. The success of the reform will depend crucially on the design of the new entities that will replace the current public corporations. To reduce the future drain on the budget, the government should seek real reforms, avoiding a simple transformation to different public entities. Greater use of ex-ante cost-benefit analysis of projects should help increase the efficiency of public corporations.

Revenue

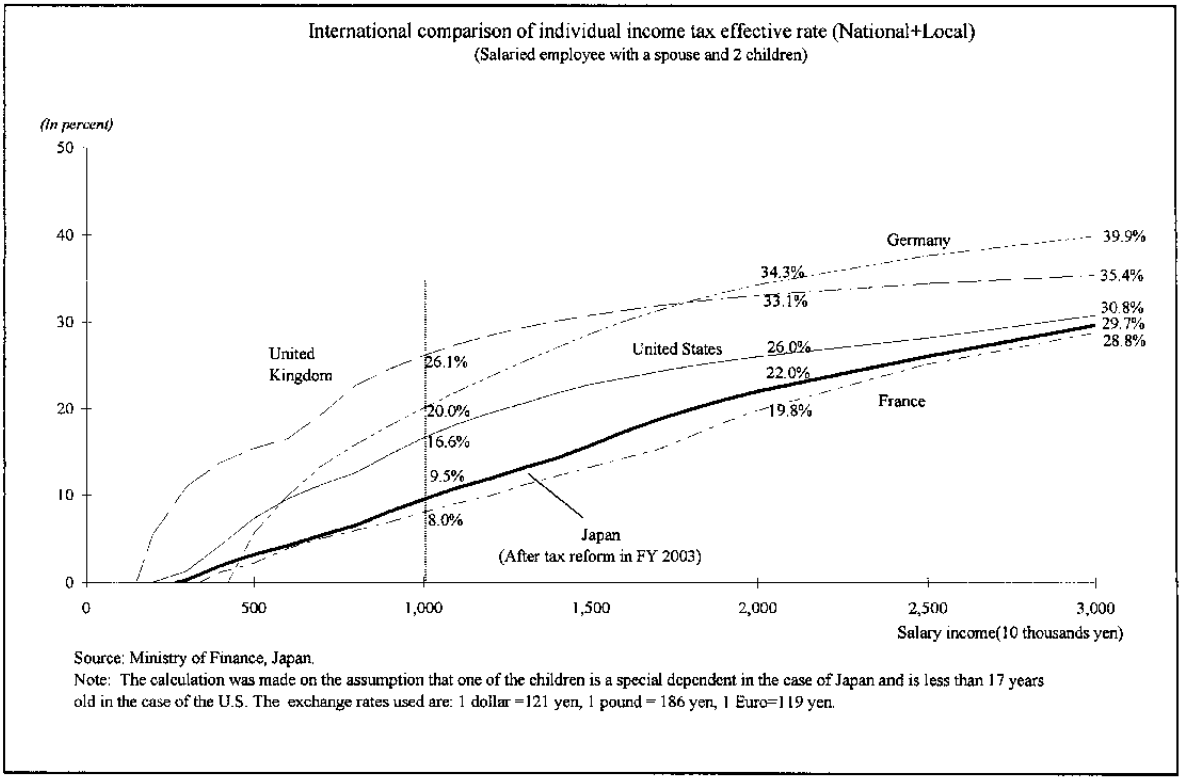
28. **The government revenue-to-GDP ratio in Japan is low relative to most other developed countries** (Figure). The size of the government is a matter of social preference and historically the U.S. and Japan have favored smaller governments compared to most European countries. However, the expansion of social expenditure in Japan would require a corresponding increase in revenue.



29. **Corporate taxes in Japan are close to the levels of other advanced economies.** In fact, this was one of the objectives behind several reductions in tax rates during the 1990s, and thus there is not much scope for marginal rate increases in the future. The recent introduction of a local corporate value-added tax will help broaden the tax base and stabilize revenues (about two-thirds of all corporations do not pay income taxes currently as they do not have net profits).

30. **Personal income tax revenue can be increased through tax base broadening.** Effective personal income taxes are lower than in other major OECD countries (Figure). Although marginal personal income tax rates in Japan are similar to those of the US and UK, there are numerous allowances and credits, so the share of exempt income is large by international standards. Some of the existing exemptions and allowances distort labor market

participation decisions (see OECD, 2000b). The decision to reduce the dependent spouse allowance starting in 2004 is a step in the right direction. Intergenerational equity in the tax system can be improved by reducing income deductions for the wealthy elderly (the minimum tax free income for an elderly family is about 50 percent higher that the tax-free income for a typical young family). Tax administration will also benefit from the introduction of a taxpayer identification system.



Source: Ministry of Finance, Japan.
Note: The calculation was made on the assumption that one of the children is a special dependent in the case of Japan and is less than 17 years old in the case of the U.S. The exchange rates used are: 1 dollar =121 yen, 1 pound = 186 yen, 1 Euro=119 yen.

31. **Comparison with other G-7 countries shows that the tax treatment of social security is very generous**. In Japan, social security benefits are practically exempt from taxes (only about 7 percent of public pensions are subject to taxes), which makes the tax burden very low for pension recipients. Social security contributions are also exempt from taxes (therefore the tax base will narrow further if social security contributions are increased in the next round of the pension reform). In Germany, pension benefits are fully taxable. In the United States and the United Kingdom, neither contributions nor pension benefits are tax-deductible.[16]

32. **Higher consumption tax is likely to play an important part in the fiscal consolidation effort**. The consumption tax rate in Japan is much lower than in most other countries (5 percent versus a 19.4 percent average for the European Union). Consumption taxes are efficient, easy to enforce, and have a very broad basis; therefore, a small rate

[16] Source: "Annual Report on the Japanese Economy and Public Finance, 2001–2002," Cabinet Office, Government of Japan, page 165.

increase results in significant additional revenue. On the downside, the consumption tax is regressive and highly politically unpopular.[17] The regressiveness of the tax can be mitigated through targeted social transfers.

Social Security Reform

33. **A fundamental reform is needed to restore the long-term solvency of the pension system.** Currently, there is an active debate on different options—a reduction in benefits, an increase in contributions, or an increase in the share of government contributions (financed through an increase in the consumption tax rate).[18] Most likely, a combination of these options would be necessary. As life expectancy increases, consideration could be given to increasing the required contribution period or further raising the age of eligibility for benefits. Partial consumption tax financing could improve intergenerational equity in the short run, since the elderly would shoulder some of the cost of the pension system (the current elderly generations receive higher returns on their pension contributions than the younger generations expect to receive). However, higher government transfers to the pension system would reduce the self-insurance nature of the pension system, and may raise objections on equity grounds since the National Pension is not means-tested. An increase in pension contribution rates is another option, although social security contributions are already relatively high (the amount of total contributions is 2.3 times the amount of personal income tax collected) and further substantial increases may have distortionary effects on the labor market.[19]

34. **The discussion of social security reforms should be made in the context of a broader discussion of fiscal sustainability.** Increasing the share of pension benefits financed by general government revenue will reduce the social security deficit, but not the deficit of the general government as a whole. Estimates by the Ministry of Health, Labor, and Welfare suggest that the funds necessary to support the social security system will increase from about 16 percent of GDP in 2002 to 24 percent of GDP in 2025, unless benefits are

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[17] The 1998 downturn was widely ascribed to the 1997 VAT rate increase (from 3 to 5 percent), although there is no empirical evidence to that effect. The financial crisis that developed shortly after the VAT increase was a more likely cause of the economic problems. Short-term intertemporal consumption substitution may have also played some role.

[18] Some academics also call for more radical changes of the system, such as moving to defined contribution plans (the public pension system in Japan is a defined benefit plan), or indexing benefits to aggregate macroeconomic variables (to account for the decline in population and possible decline in the potential growth rate). See Takayama (2003). The MHLW has also proposed a version of benefit indexation to macroeconomic variables.

[19] In addition, currently about 37 percent of all participants do not make the required contributions to the National Pension system, and increasing the contribution amount may lead to a rising share of nonpayers.

adjusted.[20] Excessive reliance on revenue measures in social security reform could reduce the ability of the government to raise tax revenue to address the problem of rising public debt. Significant increases in contribution rates may also have negative growth effects. Faruqee and Mühleisen (2001) simulate the effect of different social security reform options using a general equilibrium model of Japan's economy. Their results suggest that benefit reductions are the most preferable option with regard to growth and economic welfare. More generally, Alesina, Perotti, and Tavares (1998) find that fiscal consolidations relying mostly on cuts in transfers and government wages have typically been expansionary for OECD economies, while those relying mostly on tax increases have been contractionary.

35. **The medical system's reliance on transfers from the central and local governments will increase going forward.** The portion of medical costs financed by general taxes revenue will rise significantly as the population ages, since the government finances a large share of the medical care provided to the elderly. Estimates by the Ministry of Health, Labor, and Welfare suggest that public subsidies as a share of medical expenditures will rise from about 27 percent in 2002 to 36 percent by year 2025. Therefore, maintaining a balance in the central and local government finances beyond the early 2010s (which is the current official target) will require continuing adjustments in areas other than medical expenditures, unless a fundamental reform of the medical system is undertaken.

Economic Growth

36. **Finally, policies that enhance economic growth and tackle deflation would contribute significantly to the fiscal consolidation effort.** It would be easier to implement the required adjustments under more stable growth and positive inflation. The government can play a role by creating an environment conductive to growth through the implementation of sound macroeconomic and structural policies.

D. Conclusion

37. **Public debt in Japan has been rising rapidly over the last decade and stabilizing it would require significant adjustment.** Continuation of the current fiscal policies would increase the debt stock further from an already very high level. The need to finance a sizable public debt may constrain private investment, limit the degree of fiscal policy flexibility, and increase the vulnerability of the economy to adverse shocks. There is no specific threshold above which public debt becomes unsustainable. However, the adjustment required to at least

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[20] Most of the increase is due to an expected rise in medical and long-term care expenditures. The finances of all the major schemes in the social security system—medical, pension, long-term care and unemployment insurance—have been deteriorating in recent years and all the schemes are currently either running deficits or are close to running deficits. Only the pension schemes have assets which can be used to cover the deficits. Therefore, unless benefits are reduced, substantial revenue measures would be required to meet rising expenditures.

stabilize the debt-to-GDP ratio in Japan is already very substantial and further delay of consolidation is no longer an option.

38. **Significant expenditure and revenue measures and a reform of the social security system would be needed to restore the health of public finances**. The focus on expenditure restraint in the near term is welcome, since experiences of other countries show that successful consolidations have relied mainly on expenditure reduction. However, revenue measures would also be necessary to stabilize or reduce public debt. The forthcoming pension reform should adopt policies that would eliminate the net present liabilities of the system under conservative assumptions about demographics, growth, and return on assets. Frequent partial adjustments in the past have increased uncertainty and reduced public confidence in the pension system. Substantial reliance on revenue measures in social security reforms may result in too heavy tax burden on future generations. It would be important to secure political agreement on the needed measures to stop the increase in public debt and to commit to the reform. The alternative—to allow debt to continue growing fast—could eventually result in a rise in real interest rates and an abrupt fiscal adjustment with serious consequences for growth and economic welfare.

The Fiscal Investment and Loan Program (FILP)[21]

39. **The FILP provides investment financing for public policy purposes.**[22] Historically, most of the funds for the FILP program came from peoples' deposits in the Postal Savings system and from the pension system assets. The program has been an important tool for fiscal management—it extends loans to government financial institutions, public corporations, local governments, and several special central government accounts (jointly referred to as "FILP agencies"). In recent years, the largest loan allocations have been for mortgage financing, small and medium businesses, and road construction. While not formally a part of the general government sector, the FILP annual plan is formulated in coordination with the budget process, and is submitted by the Diet together with the general account and special accounts budgets. Owing to its size, the FILP is often referred to as the "second budget". Total outstanding FILP loans at the end of FY2001 were equivalent to 66.5 percent of GDP (*FILP Report 2002*).

40. **Reform of the FILP was initiated in April 2001**, aiming at a gradual alignment of the activities of the program with market principles. The key elements of the reform were to increase the role of direct market financing for FILP agencies and to initiate subsidy cost analysis of FILP projects.[23] As part of the reforms, the compulsory transfer of deposits from the postal savings and pension systems to the FILP has been abolished, and the FILP has to finance itself by issuing bonds (which are issued in the same auction and have the same yields as JGBs). For an interim time period of seven years, the postal savings and pension systems are to continue to underwrite FILP bonds, but at successively lower levels. The recipients of FILP funds are required to issue "FILP-agency bonds" directly to the market, and to apply for FILP loans only if sufficient funding cannot be secured in the market. The yields on these bonds have stayed very close to the respective JGB yields, suggesting that the market perceives the FILP-agency bonds to be implicitly guaranteed by the government. To assess the prospective financial implications of the program and to improve its efficiency, subsidy cost analyses of all FILP agencies have been undertaken and published. The most recent official estimate of the future cost of the program to taxpayers is ¥7.5 trillion (*FILP Report 2002*).

41. **The FILP constitutes a key source of government contingent liabilities, recent efforts at reform notwithstanding.** Kikkawa *et al* (2000) find that the FILP agencies have been very optimistic in their revenue forecasts and therefore the estimated subsidy costs probably underestimate the likely losses. Doi and Hoshi (2002) evaluate the balance sheets of

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[21] Sanjay Kalra contributed to this Annex.

[22] For a description of the institutional arrangements of the FILP, see Cargill and Yoshino (2002), and Doi and Hoshi (2002).

[23] The subsidy cost of a project is the estimated total amount of subsidies, financial assistance and grants-in-aid to be provided by the treasury until the project's completion. Subsidy cost analyses of FILP agencies are published by the Ministry of Finance (2002).

FILP agencies and provide estimates (in net present value terms) of expected taxpayer cost related to FILP loans. They estimate the likely losses on loans to government financial institutions and special corporations to be ¥36½ trillion (about 7 percent of GDP).[24] These expected losses are the sum of the estimated under-provisioning for nonperforming loans, overvaluation of assets, and subsidy costs. However, Takahashi ("Economic Society Policy", May 2003, Cabinet Office) has questioned the accuracy of these estimates.

[24] The authors also estimate that local governments would not be able to repay FILP loans equivalent to about 8 percent of GDP. However, these obligations should already be accounted for in the general government liabilities and therefore do not represent contingent liabilities.

Social Security Projections, 2003–2050

42. **The projection model is built around a set of equations for the revenues and expenditures of the pension and medical systems**. The "median" official 2002 population projections are used in the simulation—these assume a recovery of the average fertility rate from the current 1.36 to 1.39. Japan's social security system is very complex and consists of a large number of schemes with different contribution and benefit rules, different shares of government participation, and a complicated system of cross-transfers. Modeling it requires a large number of simplifying assumptions and the projections therefore represent only broad trends in social security finances. As with any long-term projection exercise, the assumptions underlying these projections are subject to great uncertainty.

43. **The simulation of the pension system was roughly calibrated against the MHLW's actuarial projections of the Employment Pension Insurance (EPI) and National Pension systems**. Contributions depend on changes in the contribution rate as a share of income and on the rate of increase in employee compensation in the case of EPI and the Mutual Aid Associations, and on the flat contribution amount in the case of the National Pension. Benefit payouts grow in proportion to the growth in the elderly population, and inflation, and partially depend on wages (since the starting level of EPI benefits depend on the average level of the employee's past salary). An adjustment is made in attempt to account for the 2000 pension reform plan, which called for a 5 percent reduction of benefits for new retirees starting in 2004, and a gradual increase of the pension eligibility age from 60 to 65 (the adjustment is made so that the results broadly follow the MHLW's pension expenditure projections). Contributions from the government are assumed to remain at 1/3 of the basic pension (this is relevant only for the deficit of the social security system, not for the projection of the general government total net debt, which is independent of variations in the government contribution share).

44. **Medical expenditure forecasts reflect the expected increase in per capita expenditures as the population ages**. Based on data from the MHLW, per capita medical expenditures for people aged 65 and above are about 5 times higher than per capita expenditure for people younger than 65 and this differential is assumed to remain. The growth rate of the price for medical services over the last decade has exceeded CPI growth by about 1 percentage point in Japan and this is assumed to continue in the future. The actual growth of medical costs will depend on regulatory developments in the pharmaceutical and medical service sectors, and on future changes in the medical insurance system rules. Contributions are assumed to grow in line with employee compensation (proxied by GDP growth). Under the current system, medical benefits for the elderly are financed by transfers from the government and from employment insurance schemes (the elderly make practically no contributions to any insurance scheme, except that under the new long-term care system, elderly insured persons will also have make a small annual contribution). A detailed long-term government projection of the medical system finances under a consistent set of macroeconomic assumptions is not available, but a comparison with published MHLW's projections for year 2025 show that our medical expenditure forecast is rather conservative.

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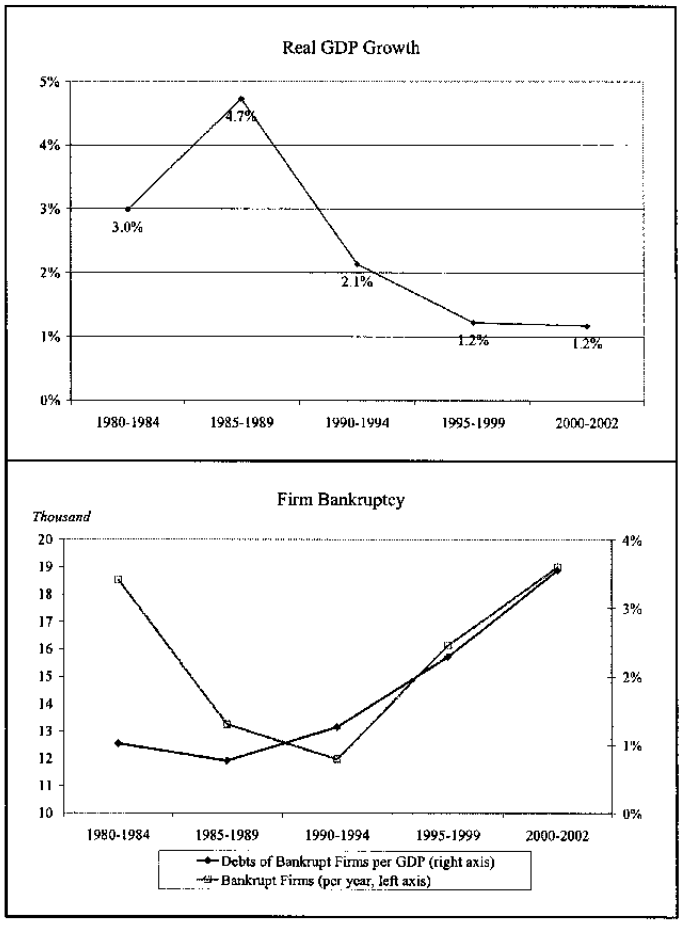
V. Structural Changes in Japan's Labor Market[1]

1. **Japan's employment situation has deteriorated, mainly due to the long economic slump during the 1990s**. The unemployment rate has reached a record high, and long-term unemployment has increased. Amid the worsening employment situation, stakeholders, including firms and labor unions, have changed their responses to economic hardships.

2. **This chapter deals with a broad set of issues in the Japanese labor market, paying particular attention to structural developments and changes in the behavior of stakeholders**. The structure of the paper is as follows. Section A introduces recent developments in the Japanese labor market, in particular, increases in noncyclical unemployment, long-term unemployment, and youth and old age unemployment. Section B describes the changing practices of corporations in reducing their labor costs and their recent actions to decrease the number of regular workers and their wages. Section C discusses recent weaknesses in job creation and business start-ups as well as increased job losses and business closures. Section D considers possible policy measures to revitalize the labor market by making it more flexible, by decreasing mismatches between labor supply and demand, and by creating more jobs.

A. Recent Developments in the Labor Market

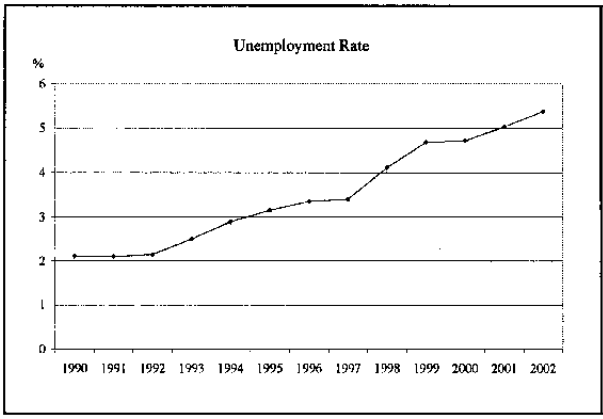
3. **After the asset price bubble burst, the Japanese economy entered a long slump in the early 1990s**. Since then, the real GDP growth rate has dropped significantly compared to its 1980s level. In addition, corporate bankruptcies increased to the highest level in history, in terms of both the numbers of bankrupt firms and the amount of debt left by bankrupt companies (Figures).

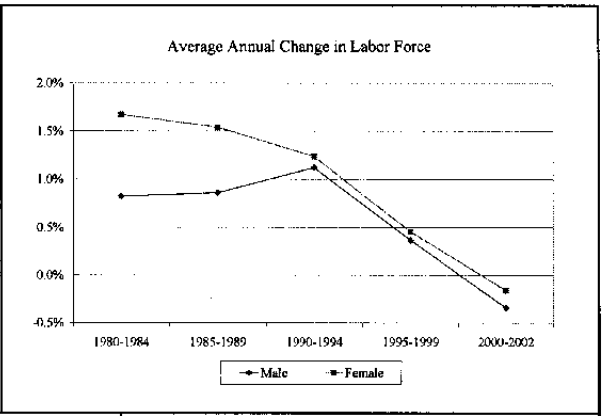


4. **Reflecting this economic slack, Japan's employment situation has deteriorated**. Japan experienced remarkably low unemployment before the 1980s; the unemployment rate was still only 2.1 percent in 1990 (Figure). (The low unemployment rate once puzzled researchers and was sometimes attributed to statistical differences between, say, the U.S. and Japan. The recent rise in the unemployment rate makes this argument less persuasive (see Annex I); Japan's low rate in the past

[1] Prepared by Takuo Komori (ext. 37613).

may be better explained by Japanese corporations' past practice of retaining workers even during a depression.) However, the rate steadily increased thereafter and reached 5 percent in 2001, more than doubling within a decade. The labor force grew at a subdued rate in the 1990s and even started to decline at the end of the 1990s (Figure). At the same time, total nominal wages peaked in 1997 and began to decrease thereafter (Table). As a consequence, employment insurance expenditures skyrocketed, putting pressure on the finances of the insurance system.[2]





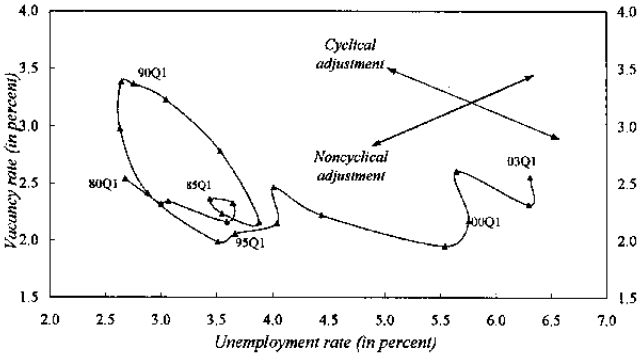
5. **Among these weak labor statistics, four characteristics should be noted in particular**: increases in noncyclical unemployment; rising long-term unemployment; high unemployment among young (aged 15 to 24) workers; and increased unemployment among old (55 to 64) workers.

Paid Monthly Wages per Worker

	Thousand (In Yen)	Annual Change (In percent)
1997	372	1.6
1998	366	-1.3
1999	354	-1.3
2000	355	0.5
2001	351	-1.1
2002	343	-2.4

Source: MHLW.

6. **First, data clearly show increases in noncyclical unemployment**. Japan's Beveridge curve, which shows the relation between unemployment rates and vacancy rates, has noticeably shifted to the upper right since 1995, showing a rapid and large increase in noncyclical unemployment during the late 1990s and the early 2000s.[3]

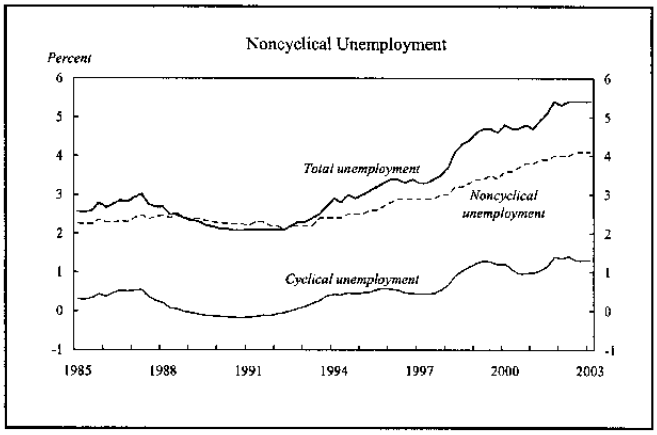


1/ Definition of the unemployment rate here excludes the self-employed from the workforce.

[2] The next chapter will discuss employment insurance issues in more detail.

[3] On Beveridge curves, movements either to the lower right or to the upper left represent cyclical labor adjustments. Movements to the upper right/ the lower left indicate increases/ decreases in noncyclical unemployment. For more discussions of Beveridge curves, see Mortensen and Pissarides (1999).

Similarly, the Ministry of Health, Labor and Welfare (MHLW) estimated that the noncyclical unemployment rate increased to about 4 percent by 2002 from 2 percent in the early 1990s (Figure).[4]



7. **High noncyclical unemployment implies increased mismatches between labor supply and demand.** These mismatches may reflect two possible underlying factors: first, rapid technological changes in business, including the IT sector, that may have made workers' skills obsolete; second, the entry of a greater number of middle-aged workers into the labor market because of increased business restructuring, as firms have become more likely to lay off workers in response to economic hardships. The data show imbalances across sectors: manufacturing, construction, and wholesale and retail industries have too many workers while transportation and communication and service industries have too few (Table). Across types of jobs, there is more demand for professional and technical staff and less for management and clerical staff. Since job mismatches are closely connected with long-term unemployment, policy measures such as improving career consultation services could play a useful role in diminishing these mismatches.

Labor Insufficiency/Excessiveness Index

	Insufficient (a)	Excessive (b)	Index (a)-
Construction	13	36	-23
Manufacture	13	25	-12
Transportation/Communication	27	10	17
Wholesale and Retail	18	16	2
Finance/Insurance	18	13	5
Real Estate	15	14	1
Service	20	18	2
Total:	17	21	-4

Source: MHLW.

8. **Second, long-term unemployment, in terms of both the ratios and the number, expanded during the last decade.** In 1990, the ratios of those unemployed: (i) over six months; and (ii) over 12 months to the total unemployed in Japan were below the weighted average of OECD countries.

Incidence of Long-term Unemployment
(As Percentage of Total Unemployment)

	1990		2001	
	Six months and over	12 months and over	Six months and over	12 months and over
Japan	39.0	19.1	46.2	26.6
OECD Europe	64.7	46.8	67.6	51.5
US	10.0	5.5	11.8	6.1
Total: OECD	44.6	30.9	41.8	27.5

Source: OECD Employment Outlook (2002).

[4] The estimate was based on the relationship between vacancy rates and unemployment rates (See Annex II for details). The cyclical unemployment rate, unsurprisingly, has also increased.

However, in Japan both ratios increased during the 1990s and by 2001 were broadly in line with those in other OECD countries (Tables). Long-term unemployment rates have increased the most among young and old males. Furthermore, the data on the number of long-term unemployed are more discouraging: the number of unemployed over six months and over 12 months in 2001 were triple those in 1990, because the total number of unemployed in 2001 was more than double that in 1990.

Number of Unemployed
(Ten thousand persons)

	1990	2001
Six months and over	52	157
12 months and over	26	90
Total:	134	340

Source: OECD Employment Outlook (2002).

9. **Policy actions can alleviate the self-reinforcing nature of long term unemployment.** While the increases in long-term unemployment can be mainly attributed to both demand and supply factors, the self-reinforcing nature or *hysteresis* effects of long-term unemployment should be kept in mind: the longer unemployment lasts, the more people's skills diminish, and the more difficult it becomes for them to find jobs. Effective policy actions to help the unemployed find jobs earlier can break the vicious cycle.

10. **Third, Japan, once free from serious unemployment problems among young people, now faces the same problem as many other advanced countries do.** As in other countries, the unemployment rate among young workers was higher than the total unemployment rate in 1990 (Table). That said, the problem was much less serious than in other countries at that time since the youth unemployment rate was just above 4 percent. However, along with the increase in overall unemployment, the unemployment rate among young workers increased to just under 10 percent in 2001, close to the weighted average for OECD countries.

Unemployment Rate by Age

Year	1990			2001		
Country/Age	15–24	25–54	55–64	15–24	25–54	55–64
Japan	4.3	1.6	2.7	9.7	4.4	5.7
OECD Europe	16.0	6.5	5.6	17.1	7.4	6.2
US	11.2	4.6	3.3	10.6	3.8	3.1
Total: OECD	11.7	4.8	3.9	12.4	5.5	4.7

Source: OECD Employment Outlook (2002).

11. **While both demand and supply factors have contributed to high unemployment among young workers, the economic downturn (demand) seems to have had particularly large effects.** Since corporations with excessive workers reduce new hiring before firing existing employees, new graduates are always the first to be unemployed. In addition to this demand factor, the changing behavior of young workers is often referred to as a factor in high unemployment among them: some young workers now opt not to find regular jobs and instead work as the need arises. These young people are nicknamed "free-ters"; the government estimated that about two million people, 18 percent of young people, were free-ters in 2000, twice as many as these were eight years ago.[5] However, over 70 percent of free-

[5] In this survey, the government defined young workers as those aged between 20 and 34.

ters surveyed in 2003 said that they had originally wanted to be hired as regular employees. Thus, this phenomenon may be better explained by demand factors than supply factors: fewer attractive jobs have been offered to them amid the long economic slump. The same survey showed that free-ters had poorer morale and lower job skills than regular workers. This suggests the desirability of policies to ensure that more jobs are offered to young people so that they can find more attractive jobs among the offered jobs.

12. **Fourth, old Japanese workers suffer high unemployment**. In 1990, thanks to generally favorable employment conditions in the past, the unemployment rate for old Japanese workers was below the weighted-average for old workers in all OECD countries. As total unemployment increased, however, the situation changed: the unemployment rate for old Japanese workers increased, and exceeded the weighted average in all OECD countries in 2001. As in the past, the unemployment rate among the old exceeds that among middle-aged workers—the opposite of the case in other countries. This partly reflects a high labor force participation rate among old Japanese people.

13. **High unemployment among old workers partly reflects the retirement age system**. According to a MHLW survey, 90 percent of Japanese firms set a uniform retirement age, and 89 percent of these firms set the age at 60 years old.[6] At the same time, high unemployment among the old workers has only held true for males but not for females. As the labor force participation rate is high among old Japanese males, there may be room for policy efforts to facilitate the provision of appropriate jobs to old workers so as to utilize their labor.

B. Structural Changes in the Labor Market

14. **This section describes a key factor underlying the deterioration in labor market conditions**: the changing practices of firms in reducing their labor costs, which started in the 1990s.[7] There are three main reasons why firms recently tried hard to reduce their labor costs.

15. **First, productivity has grown more slowly than wages**. The Cabinet Office (CAO) reported that labor productivity rose by 2.0 percent per year in the 1990s, much subdued compared with the 3.7 percent rate in the 1980s.[8] In the meantime, real wage growth declined modestly to 1.0 percent per annum in the 1990s from 1.5 percent in the 1980s, despite a sharp decrease in nominal wage growth to 1.1 percent in the 1990s compared with 3.5 percent in

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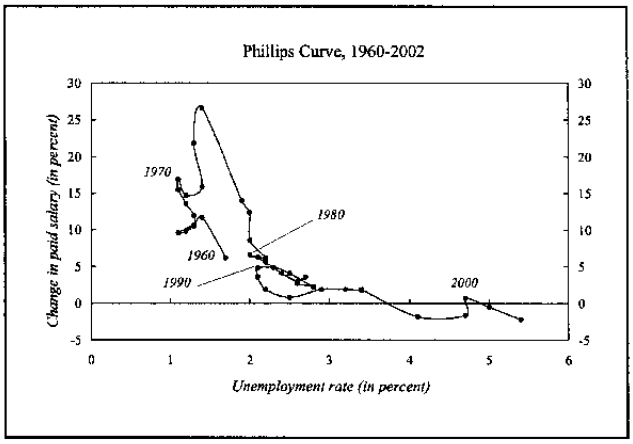
[6] MHLW (2003). The survey was of firms that had 30 or more employees.

[7] Osawa *et al* (2002) compared recent developments in employment and wages with those in the past recessionary periods and identified two characteristics as unique to the late 1990s: Employment and wages have become more responsive to economic fluctuations, and growth rates for both employment and wages have structurally fallen.

[8] In addition, total factor productivity growth deteriorated to 0.2 percent in the 1990s from 1.6 percent in the 1980s.

Productivity and Wage Increase						
	Labor Productivity Growth	Total Factor Productivity Growth	Real Wage Increase	Value Added Increase	Nominal Wage Increase	Salaries and Wages per Value-Added
	(In percent)					
1980s	3.7	1.6	1.5	4.3	3.5	70
1990s	2.0	0.2	1.0	0.3	1.1	73
Source: CAO, MHLW, and MoF.						

the 1980s (Table). In this regard, the Phillips curve plainly shows that the elasticity of wages with respect to the unemployment rate has been reduced in recent years (Figure). Although nominal wage growth has slowed, due to nominal wage rigidity the slowing has not kept pace with price deflation (that is, deflation may have exacerbated the effects of nominal wage rigidity).



16. **By the same token, productivity per Japanese worker remains low**. According to the MHLW, hourly productivity per Japanese employee was 20 to 30 percent lower than that in most other G-7 countries in 2000 based on the OECD data. Hourly productivity per employee was 134 in the United States, 134 in France, 137 in Italy, and 129 in Germany, when productivity in Japan was 100.[9] This mainly reflects the relatively low productivity of sectors that produce non-traded goods, compared to those that produce traded goods. International Labor Organization (ILO) data in 1999 showed that Japan's manufacturing industry, which was competing in the world market, had lower unit labor costs than some of its G-7 counterparts including Germany and the United Kingdom.[10]

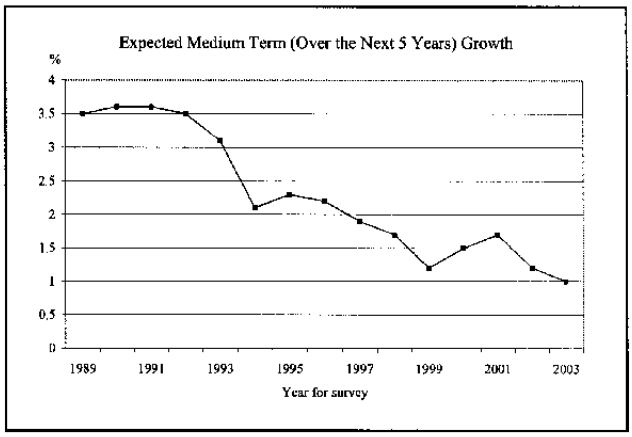
17. **Second, firms' payments to workers have increased relative to their value added.** Annual corporate surveys by the Ministry of Finance (MoF) showed that in the 1980s, firms spent 70 percent of value added on salaries and wages. The rate has exceeded 75 percent since 1998 (except in 2000), and the increased transfers to employees squeezed corporate net profits. As in the case of real wages described above, deflation and nominal wage rigidity may have contributed to this development.

18. **Third, last but not least, the traditional Japanese employment practice characterized by a combination of long-term employment and seniority based wages has become economically less sensible than in prior years**. Seniority based wages were

[9] Against this backdrop, Japanese workers work for long hours (1,821 hours per year in 2000, compared to 1,482 hours in Germany in the same year).

[10] ILO, "Key Indicators of the Labour Market 2001–02."

efficient for firms particularly when they employed more young workers than middle-aged workers and when high economic growth was expected in the future.[11] Today, however, a rapidly aging population, combined with low economic growth, has led firms to hire fewer young workers, while more middle aged and old workers, being paid more than their productivity, have remained. Also, firms no longer expect rapid growth in the future; corporate expectations of medium-term economic growth decreased to just 1 percent in 2003 from 3 to 4 percent in early 1990s (Figure).[12]



19. **Against this backdrop, firms needed to reduce their labor costs, and many firms could not maintain the same practice as in the past**. Previously, Japanese firms experiencing adverse economic shocks typically did not touch employment of regular workers or their regular wages, which could be called the core of the traditional Japanese employment system. In other words, regular workers were protected and rarely dismissed except in extreme circumstances, such as bankruptcies. Instead, firms reduced buffers for cyclical shocks, such as new hiring, part-time workers, and bonus and overtime payments. In addition, firms moved some employees to more productive departments within the firm, or to their subsidiaries (thereby reducing the parent company's labor costs).

20. **In recent years, amid the prolonged economic slump, firms have started to resort to cutting regular workers' employment**. Many firms have reduced the number of full-time workers, increasingly pushing labor adjustments into the external labor market through unemployment.[13] In particular, firms have dismissed more middle- and old- aged workers than previously. More often than not, these workers have been engaged in management or clerical jobs, and their skills have been corporate-specific—which has been one of the roots of increased mismatches in the labor market and longer unemployment.

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[11] Under the seniority wage system, workers with short work experience are paid less and workers with long experience are paid more than their respective productivity. Thus, workers have incentives to stay longer in the same firm. This enables firms to provide more training to workers to increase labor productivity than would otherwise be the case.

[12] CAO (2003b).

[13] The focus in the text is on involuntary labor adjustment. More broadly, with respect to the labor flow, most of the labor flow consists of recruitment and turnover, rather than involuntary labor adjustment such as dismissals (Teruyama (2003)).

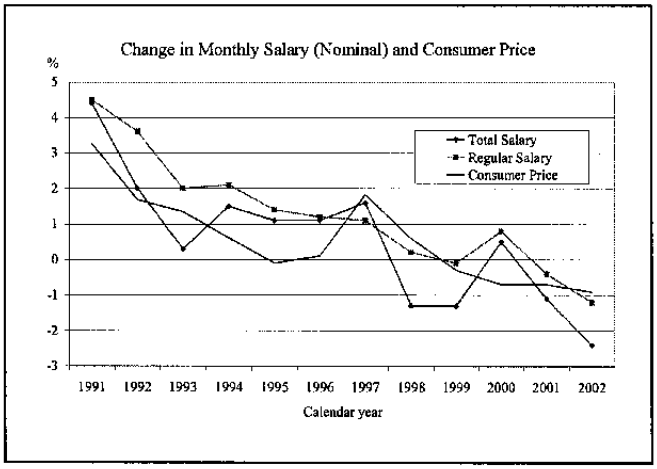
21. **In addition, firms have employed more part-time workers**, thereby increasing their future flexibility to adjust labor costs. As a consequence, the share of part-time workers in all the employed has increased to 23 percent in 2002 from about 16 percent in the early 1990s (Table).[14] The number of workers sent by temporary job agencies has also increased, partly with the help of recent deregulation measures in this sector.

Full-Time Workers and Part-Time Workers

	Annual change		Ratio
	Full-time	Part-time	Short-time workers/ all workers
	(In percent)		
1999	-1.0	3.4	21.8
2000	-1.0	3.2	20.0
2001	-1.1	3.6	22.9
2002	-1.8	4.2	23.2

Source: MHLW and Ministry of Public Management, Home Affairs, Post and Telecommunications.

22. **Firms have also started to cut regular wages.** Admittedly, total cash earnings per worker, which include bonus and overtime payments as well as regular wages, have been volatile and vulnerable to the business cycle, since bonus and overtime payments have been a buffer for the recession.[15] By contrast, regular wages had increased steadily in the past regardless of the business cycle, partly because regular wages were the main focus of the annual spring wage negotiation, known as *"Shunto,"* between management and labor unions. However, as the need to adjust excessive labor costs became clearer, firms decreased nominal regular wages two years in a row in 2002 (Figure and Box 1).



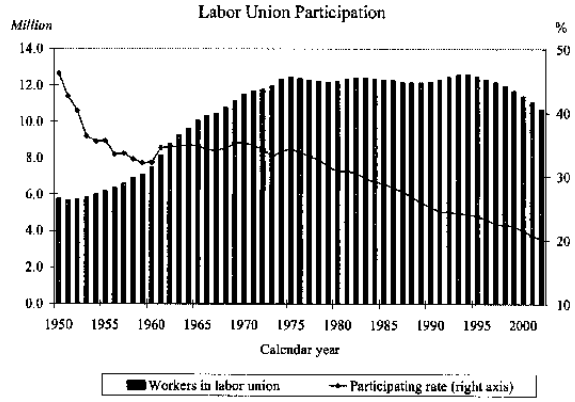
[14] The MHLW (2002) pointed out a paradox that wages for regular workers have increased faster than those for part-time workers although firms are shifting from regular workers to part-time workers. The MHLW hinted at a possibility that nominal wage rigidity for regular workers and deflation kept their wages higher than they should have been and drove firms to hire more part-time workers.

[15] In the *Monthly Labor Statistics* released by the MHLW, total cash earnings consist of scheduled (regular wages), non-scheduled (overtime payments), and special (bonus payments) cash earnings.

Box 1: Changing Labor Unions

Labor unions in Japan have become weaker over a long period of time. The participation rate among workers in labor unions, once well above 30 percent, has been declining, and was just above 20 percent in 2002.

In 1989, major labor unions merged and formed the Japanese Trade Union Confederation (RENGO). By the establishment of RENGO, a majority of labor union workers came to belong to the single confederation. However, the participation rate has continued to decline. Moreover, the number of workers who belong to labor unions was at a peak in the 1990s and began to decrease.



Amid the long economic slump, labor unions have shifted their emphasis in annual negotiations (*Shunto* negotiations) from increasing wages to maintaining employment. In the *Shunto* negotiation, which first occurred in spring 1955, labor unions have requested uniform wage increases to management. The request has both "base-up" (i.e., base increases) and seniority wage increases. However, as the Japanese economy has worsened and labor unions have been losing influence over employers as a whole, labor unions shifted their emphasis from increasing wages to maintaining employment. As a result, wages are increasingly dependent on worker' performances, rather than seniority. More significantly, in 2003, labor unions in companies with historically high profits agreed to low wage increase and high bonus payments. The agreement will enable employers to make labor cost adjustment easier in the future.

Wage Increase Set at the Spring Wage Negotiation
(For Workers in Major Corporations)

	(In Yen)	(In Percent)
1997	8927	2.9
1998	8323	2.7
1999	7005	2.2
2000	6499	2.1
2001	6328	2.0
2002	5265	1.7

C. Job Creation and Job Loss

23. **Both job creation and loss have been lackluster in Japan since the early 1990s.** Generally speaking, Japan has low rates of job creation and loss, similar to Germany and the United Kingdom and by contrast to the United States, which ranks high in both job creation and loss (Table below).[16] Moreover, mainly due to low economic growth, Japan's net job creation turned negative in the early 1990s and worsened thereafter, different from even Germany and the United Kingdom. The job creation rate has decreased particularly sharply in existing companies, while the job loss rate has increased in both existing and shut-down firms.

[16] OECD (1996) and Higuchi.

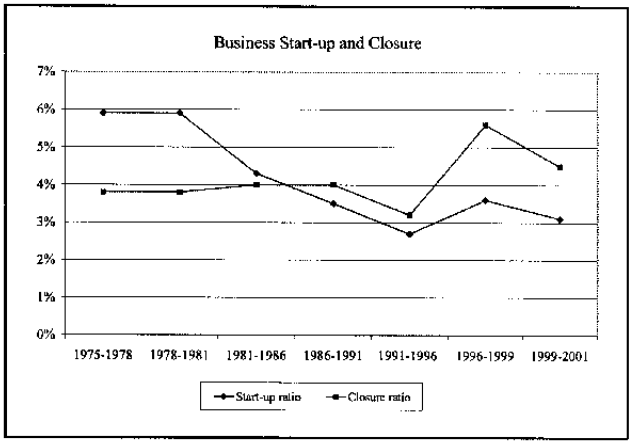
Creation and Loss Ratc								
Country		Japan		US	Germany	France	Canada	UK
Period	1986–91	1991–94	1996–99	1984–91	1983–90	1984–91	1983–91	1985–91
Net job creation rate	0.9	-0.5	-2.3	2.6	1.5	0.9	2.6	2.1
Job creation rate	8.1	7.4	6.7	13.0	9.0	12.7	14.5	8.7
New companies	3.6	4.0	3.5	8.4	2.5	6.1	3.2	2.7
Existing companies	4.5	3.4	3.2	4.6	6.5	6.6	11.2	6.0
Job loss rate	7.2	7.9	9.0	10.4	7.5	11.8	11.9	6.6
Closing down	3.4	3.3	4.3	7.3	1.9	5.5	3.1	3.9
Existing companies	3.8	4.6	4.7	3.1	5.6	6.3	8.8	2.7
Source: OECD Employment Outlook (1996) and Higuchi.								

24. **Sectors generating high productivity growth have lost jobs, while those suffering low productivity growth have created jobs.** Among sectors, the manufacturing sector, which lost the largest number of jobs (over two million) during the 1990s, generated the highest labor productivity growth during the same period. In contrast, the service sector created the largest number of jobs (over three million) but had much lower productivity growth than the average (Table). It is desirable for Japan, indeed for any country, to reallocate capital and labor to sectors with high productivity from those with low productivity, but, assuming the current relation between labor productivity growth and job creation/loss remains in place, high growth in labor productivity in the overall economy could only be realized at the expense of greater job loss. Accordingly, to avoid a jobless recovery, the Japanese economy needs growth in sectors with high productivity and positive net job creation. Unfortunately, it is not easy to identify such sectors. The best way would be to promote deregulation in sectors that are generating low productivity growth due to over regulation. Productivity in these sectors could potentially grow more rapidly through entry of new firms and heightened competition.

Job Creations and Productivity by Sector				
	Net Job Creations (In millions)			Productivity Growth
	1990–95	1995–2000	1990–2000	1990–2000
Manufacturing	-1.1	-1.3	-2.4	3.1
Services	2.1	1.3	3.4	0.4
All Sectors	2.5	-1.2	1.3	1.3
Source: MHLW (2002).				

Business Start-ups and Closures

25. **The business start-up rate has been declining, and the closure rate has been trending upward** (Figure). According to the Ministry of Economy, Trade and Industry (METI), the start-up rate decreased to about 3 percent in the 1990s from about 6 percent around 1980,



and the closure rate, which has moved in a more stable fashion than the start-up rate and even upward, surpassed the start-up rate by the early 1990s. At the same time, it should be noted that both of these rates in Japan have been much lower than in the United States, where both rates have been above 10 percent.[17]

26. **The decline in the start-up rate is of concern because business start-ups have positive spill-over effects**. First, newly-created corporations generate more employment than older ones after controlling for corporate size and sectors (Table). Second, cross country data show that a high business start-up rate is correlated with high GDP growth.[18] Last, sectors with higher start-ups and higher closures in Japan experienced a higher productivity growth, presumably because of intensified competition.[19]

Job Creation Rate (Net) by Size/Age of Firms
(Between 1995 and 1996)

Years from establishment Number of employees	0–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45+
59–99	120.3	6.8	4.9	3.5	0.6	0.7	2.2	1.2	0.9
100–99	1.4	1.4	1.8	0.9	2.3	0.0	-0.3	-1.7	-1.1
200–99	3.4	-2.0	13.8	2.3	2.0	1.4	1.1	-1.6	-1.8
300–499	2.5	0.6	5.8	4.0	-0.6	0.6	-3.4	-0.9	-0.9
500–999	0.1	2.7	3.7	1.3	0.4	1.9	0.3	-0.7	-2.2
1000+	-9.4	-4.9	-5.6	1.5	-2.1	-1.0	-1.0	0.6	-3.5

Source: Higuchi (2001) and MITI.

D. Policy Discussions

27. **In order to promote structural changes and overcome weakness in the labor market, policies can aim to increase labor mobility and flexibility in the labor market, decrease mismatches in the labor market, and create jobs.**

Increase Labor Mobility and Flexibility in the Labor Market

28. **First of all, to facilitate the reallocation of labor, the labor market should become more flexible and foster higher labor mobility**. In this context, four measures could be considered: clarifying dismissal conditions in legislation, providing portable pensions to more workers, adjusting the treatment of part-time workers in social welfare and tax systems, and improving firms' management of workers.

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[17] METI's survey shows that many people who aim to start businesses face problems of financing and lack of know-how (it also shows that that starting a business is more difficult for younger people). METI, "White Paper on Small and Medium Enterprises in Japan 2003."

[18] OECD (2001).

[19] CAO (2002).

Defining Dismissal Conditions

29. **Japanese employment protection is strict,** according to a number of studies that make international comparisons.[20] Although protection in legislation is minimal, judicial precedents require firms to satisfy strict conditions to rationalize their dismissals of workers. Against this background, to reduce workers and labor costs, Japanese firms have relied on voluntary job leaving through early retirement programs. These programs have been widespread and contributed to labor mobility; however, many researchers think that these judicial precedents have made firms too reluctant to dismiss workers because they cannot be reasonably certain *ex ante* whether their decisions can be defended in court.[21]

30. **Further changes to the law could make it easier for corporations to make necessary labor adjustments**. In 2003, the MHLW proposed a bill to the Diet that restated that corporations could dismiss workers in principle—a potential good first step to increase labor mobility in the sense that it could encourage firms to reduce workers if necessary.[22] However, due to strong resistance from trade unions and opposition parties, the bill was amended at the Diet by deleting the restatement. Looking forward, clear conditions for dismissals, rather than a principle for dismissals in legislation based on established judicial precedents, could give firms a clearer view on their decision.[23]

Providing Portable Pensions to Greater Number of Workers

31. **Lack of portability of corporate pensions has hindered labor mobility**. Previously, once workers changed firms, many of them lost their right to receive corporate pensions based on their previous contribution. In response, the government passed legislation to allow firms to adopt defined contribution pension schemes, effective in October 2001. With the scheme, workers can change jobs and take their previous pension contributions to new firms. By March 2003, 361 firms had adopted this scheme, but the majority of firms

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[20] For example, OECD (1999). Employment protection is hard to gauge because it is closely related to employment customs, which differ significantly across countries. Also, although employment protection is often indexed for the purpose of comparison, such indexation relies on arbitrary judgment. Nakata (2001) examined various papers that ranked countries' employment protection using indexation, and found significant inconsistencies across papers: some ranked a certain country as high while others ranked the same country as low.

[21] OECD (2002b).

[22] However, the government explained that the bill was not aimed at increasing dismissals, but at preventing disputes between employers and employees by restating that abuse of dismissals is unlawful. In addition, even under the new proposal, firms would continue to face uncertainty about how dismissal decisions would be judged in court.

[23] Some countries, such as the United States, have dismissal legislation that specifies detailed conditions and procedures and compensation requirements (Nakata (2001), and Ikezoe (2002)).

have not done so yet. To improve labor mobility, more rapid and widespread adoption of the scheme would be desirable and the maximum contribution amount for the defined contribution pension could be increased.

Adjusting Treatment of Part-time Workers in Social Welfare and Tax Systems

32. **The social security and tax systems have distorted incentives facing part-time workers and their employers in deciding their working hours**. According to a report by the study group on part-time working (2002) under the MHLW, many part-time workers have refrained from working longer hours beyond income thresholds in the health insurance, employees pension, unemployment insurance, and tax system. According to a survey, 27 percent of part-time workers have maneuvered their work hours and incomes in order to evade tax or social security premiums payments or to receive more favorable tax exemptions for their spouses. As a result, one can find clear discontinuities in the distribution of work hours of part-time workers.

33. **Under the current systems, these part-time workers' behaviors are broadly rational; therefore adjustments in the systems are needed.**[24] In the case of health insurance, part-time workers are exempted from paying premiums unless their hours exceed a certain threshold. This exemption discourages them from working longer hours, since their net incomes would decline when their gross incomes surpassed the threshold. Moreover, they have nothing to lose by these maneuvers: most of these part-time workers are housewives and covered by the insurance of their spouses. Corporations also respond strategically to the threshold. The threshold makes corporations, who co-pay the premium, to allow part-time workers to work only short hours in order to save their premium payments. Lowering or eliminating the threshold could provide better incentives for part-time workers to work longer hours.[25]

34. **This issue has been discussed for a long time with little progress; however, part-time workers have become increasingly important, underscoring that it is all the more important to take actions now**. As noted above, corporations are more and more reliant on part-time workers, and according to surveys an increased number of part-time workers engage in the same job as regular workers and have the same degree of discretion in their work. The government now intends to halve the threshold in the pension system.

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[24] As for the tax treatment, the distortion has its roots partly in misunderstanding. A survey showed that many part-time workers maneuvered their work hours in the mistaken belief that their household income would decrease if they worked longer. Most of them answered that they were willing to work longer if their household incomes would increase. Therefore, if not for the misunderstanding, these part-time workers would work longer hours (Study Group on Part Time Working (2002)).

[25] There is some risk that part-time workers might decide not to work at all, to avoid premium payments. However, for many of these workers their incomes are a significant part of their households' regular income.

Improving Firms' Management of Workers

35. **As explained above, under the system of long-term employment and seniority based wages, wages and positions for most workers have differed from their productivity**. Generally speaking, young people have received a wage that is below their productivity, and old people have received a wage that exceeds their productivity. On the one hand, this system can guarantee fair returns to workers in the long run, and firms can expect higher loyalty from workers and can provide more training to improve workers' capacity. Thus, this system could boost productivity growth. On the other hand, the system inherently would undermine incentives for workers to change jobs and thus could hinder labor adjustments even when rapid structural changes are necessary for the health of the economy.

36. **Against this backdrop, Japanese corporations can usefully change the management of labor, including through wage setting and promotion, to put more emphasis on workers' productivity**. For a long time, Japanese firms have tried to modernize their labor management and accelerated reforms in response to increasingly difficult situations: many firms have introduced a performance based wage system for some workers, often for high-ranked or old workers, and expanded the scope of its application. However, in most cases, their efforts so far seem gradualist: there is a sense that there is much room left to materialize full-fledged reforms. Accelerated efforts by firms are warranted, since these reforms can benefit the overall economy, in addition to the firms themselves.

Decrease Mismatches in the Labor Market

37. **As seen in section A, mismatches in the labor market have increased**. In theory, three factors would create mismatches: skill mismatches, imperfect information, and preferences of workers and firms. Efforts in the following areas could help to address these problems.

38. **First, although the government has gradually promoted deregulation measures in the labor market, further deregulation would be useful**. Thanks to the measures taken so far, firms are able to rely more on workers sent by temporary job agencies, as mentioned in section B. In 2001, about 1.75 million workers were sent to firms by these businesses, triple the number of seven years ago. However, there may still be room left for further deregulation, which would contribute to making the labor market more flexible. To give two examples:

- **Temporary job agencies**. Until 1999, temporary job agencies were able to send workers only to listed 26 industries. In 1999, these agencies became able to send workers to all business sectors in principle with several exceptions, for a maximum duration of one year. In 2002, the maximum duration for workers over 45 years old was extended from one year to three years. In addition, as a relevant bill just passed the Diet and will be effective by March 2004, the maximum duration for all age groups will be extended to three years. However, it might be useful to extend the maximum duration even further, say to five years, or abolish the limit, as requested by the Council for Regulatory Reform of the government (2002). Moreover,

deregulation in the manufacturing sector has been delayed. It was excluded from the liberalization in 1999 and had not been liberalized thereafter. [26] The recent bill allows temporary job agencies to send workers to manufacturing firms for a maximum duration of one year—less than the three years in other sectors.

- **Job placement services**. Private business had been allowed to make placements only for certain types of jobs on the "positive list" until 1999, when the government changed the method of listing from a positive list to a negative list. Even after this liberalization, a number of regulations have remained and hindered the development of placement services. For example, even for job placement services that charge no fees, the MHLW has discretion in approving local governments and other public entities (except schools) that wish to provide these services. As for job placement services that charge fees, private business could not gain a single nationwide license and needed to apply office by office. Also, these corporations that run the job placement business cannot operate certain businesses such as restaurants. Against this backdrop, the MHLW proposed a bill to the Diet to abolish some of these regulations, and the Diet passed the bill. The new measures will be in place by March 2004. However, there is still room left for further deregulation, particularly on job placement services that do not charge fees.

39. **Second, increased availability of job search consultations could reduce unemployment**. Improved job search consultation can help workers understand labor market conditions and ease the process of finding a job. Preceding studies show that early consultation after losing a job has strong effects in shortening the period of unemployment.[27] However, public job introduction offices in Japan have only one-sixth of the workers of those in the United States or Germany and thus can provide only limited consultation services to job-seekers. The government target to train 50,000 new career consultants by 2007 is expected to have positive effects in reducing unemployment, particularly if labor demand increases.[28]

40. **Third, job training could be made more effective**. In Japan, as in most other countries, public entities provide job training courses to the unemployed. Although these entities have revised their courses to reflect changes in the skills that are in demand, they may not have kept pace with an accelerated pace of structural change in labor demand, and thus continued efforts are needed. In this connection, greater use of private services by contract might help to address this issue.

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[26] Researchers attribute the delay in the manufacturing industry to stronger labor unions.

[27] Higuchi (2001).

[28] Studies show that effects of job search consultation services depend significantly on labor demand. When the demand is high, workers that engage in consultations are more likely to find jobs, but when the demand is limited, effects of consultation are elusive (Higuchi (2001)).

41. **Fourth, better information sharing can reduce mismatches related to imperfect information.** The MHLW established a "Shigoto Joho Net (Job Information Network)" website, which provides job-offer information from both public and private job placement services. This improved dissemination of information has started just recently, and there may be scope for private businesses to expand their involvement.

42. **Fifth, better job information could be provided to young people when they choose jobs.** Surveys show that many young workers who left jobs just after entering firms became "free-ters," and that if they had chosen better matched jobs, they may have stayed in the firm. Some welcome steps have been made, but much more can usefully be done. The MHLW has started five new job placement offices exclusively for young people since 2001. These offices placed over 32,000 jobs in FY2002. Internships for students, which can help them learn about jobs, have not been common in Japan. Expanding these internships could help young people find well matched jobs. The government has recently started to encourage internships, but so far the number of participating firms and students seems limited.

43. **In the midst of high unemployment among young people, in June 2003 four Ministers drafted a policy package to promote youth employment**, including improved capacity building that links practical business training with regular educational programs and strong support to business start-up projects. In addition, echoing the appeal by Ministers, associations of private firms, namely, Nippon Keidanren and the Japan Chamber of Commerce and Industry, showed their intention to cooperate with the government, for example in receiving more interns. These could be useful steps. However, the impact of the package is not yet clear, and further improvements to coordination among ministries would be welcome.

Create More Jobs[29]

44. **In addition to the measures above to improve the functioning of the labor market, job creation can alleviate unemployment and related problems.** In fact, many of the measures described above work best only if accompanied with an increased number of job offers. In Japan, where more jobs were lost than created in recent years, policy actions to create jobs would be usefully strengthened and accelerated. In particular, job creation can be pursued in a market-friendly manner, which is likely to be long-lasting; temporary solutions, for example, increasing public works spending to hire more workers in construction, should be avoided. The following are possible policy measures regarding deregulation, business start-up, foreign direct investment (FDI), and international visitors.

Deregulation

45. **Further deregulation of private business has substantial potential to bolster economic growth and job creation.** For past deregulations, CAO estimated that the

[29] Despite the current labor demand shortage, a labor supply shortage could be a serious problem in the long run (see Annex III).

consumer benefits of deregulation in major sectors accumulated to ¥15.7 trillion (¥124,000 per capita) by FY2000, over 4 percent of estimated national income.[30] For example, deregulation in telecommunication in the 1990s boosted business opportunities, brought huge profits to firms, provided innovative services to customers, and created jobs. CAO's estimate suggested that consumer benefits amounted to over ¥4 trillion in the domestic telecommunication sector.

46. **Looking forward, a study group in the influential Council on Economic and Fiscal Policy (CEFP) in 2001 estimated that of about five million jobs to be created in the service sectors in the next five years, about two million would depend on government deregulation**. Child care, elderly care, and medical services are included in the sectors it discussed. In 2003, Japanese government established a new special group, which proposed a beefed-up job creation program with comprehensive background research, and the CEFP endorsed the program.[31] To allow these job increases to materialize, the report suggests that the government needs to make steady progress in deregulation. In addition, many people including private business and researchers suggest further deregulation in the areas of postal service, electricity, and gas. The deregulation could have large effects on economic growth and job creation.

47. **Meanwhile, the Council for Regulatory Reform of the government has called for improved competition in the highly regulated "markets made by public institutions"** (medical services, social welfare services, education, and agriculture markets).[32] Also, the CAO estimated in May 2003 that regulatory reforms in medical, nursing and child care services could increase GDP by 0.92 percent. The highlight of the Council's call was to allow for-profits corporations to run hospitals or schools or own agricultural farms. However, according to the Council, relevant ministries such as the MHLW argued that if such corporations ran hospitals, they would charge higher fees by providing excessive medical services. The progress by the end of June 2003 has fallen short of the Council's aims.

48. **Amid the continued debate on deregulation between the Council and ministries, special zones for structural reform, a recent initiative by the government, promise to provide good pilot studies for deregulation measures**. Ministries, which are uncomfortable with nationwide application of certain measures, have agreed to introduce some measures in limited local areas on a trial basis. In the special zones, for example, for-profit corporations are allowed to run nursing homes for the aged and to operate farming on leased farmland.

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[30] CAO (2001).

[31] However, the revised report lacked an evaluation of progress in creating jobs between 2001 and 2003. Meanwhile, Nippon Keidanren, the largest and leading forum of Japanese corporations, estimated a much more modest 2.3 million increase in service sector jobs during the next ten years, although it is not directly comparable with the group estimate endorsed by the CEFP (among other differences, Nippon Keidanren's number was a net increase while the group estimated the gross increase).

[32] Council for Regulatory Reform (2003).

49. **Local governments have shown much interest in this initiative**, applying for 129 plans in April 2003, of which 117 were approved by the national government. Some of these plans are expected to generate large positive effects in local economies and employment. Furthermore, successful pilot deregulation measures could be applied nationwide in the future (Box 2).

Box 2: Special Zones for Structural Reform

The government crafted the system of special zones for structural reform to bypass strong opposition to nationwide introduction of reform measures and to make trial implementation of these measures in some local areas. In addition, the government intends to extend successful cases nationwide. These measures provide regulatory exceptions or preferential treatments to private entities but do not entail fiscal transfers such as subsidies or tax reduction. The initiative started in 2002, and first zones were approved in April 2003.

Structure. The system consists of two pillars, namely, authorization of preferential measures and approval of special zones. Both pillars are based on proposals from the public and will repeat from time to time:

- First, preferential treatments are proposed by local governments, private businesses including foreign corporations, and citizens. Based on these proposals, the government authorizes measures and sends a bill to the Diet for its approval. The process repeats from time to time and the new preferential treatments will be continuously added to the toolbox of these measures. The first law was passed in December 2002, which included measures such as around the clock customs clearance, preferential treatment of border entry and stay for foreign researchers, and (limited) entry by for-profit corporations in producing agricultural products. The amended law, which included measures to enable easier entry to local liquor production, was passed the Diet in May 2003.
- Second, local governments choose measures from the toolbox and apply for approval of their plan to the national government. Applications are routinely received. The first set of 117 applications was approved in April and May 2003, and 49 zones applied in July 2003 in the second round process. A promising special zone on distribution, approved in April, gained preferential treatment including in custom fees, around the clock customs clearance, and access to government research facilities. The special zone is estimated to produce an additional ¥574 billion and create 21,900 jobs in the area in FY2007.

Assessment and nationwide application. The regulatory measures in the zones will be assessed by an independent third-party committee, which will hold its first meeting in early August. The committee will make its first recommendations to the Prime Minister by the end of the year on whether these measures should be applied to the nation as a whole.

The introduction of the special zones so far has been generally regarded as good progress in deregulation and structural reform. Political support from local governments, which are often very influential on national policy issues, has underpinned the progress. However, the success of the structural zone system mostly hinges on whether forceful measures will be added to the toolbox and whether measures will be extended to the country as a whole.

Support of Business Start-ups

50. **Some policy actions have been taken to boost business start-ups, with positive (albeit marginal) effects.** The minimum capital requirement in the Commercial Code was

eased, prompting the establishment of thousands of corporations within several months. In addition, while Japanese industries and academics have not had close relations, METI set a target to create 1,000 venture firms that are based on the fruit of academic research. METI decided to spend ¥120 billion for this initiative including through subsidizing joint projects of industries and academics and estimated that 800 corporations will be created by 2004.

Foreign Direct Investment and International Visitors

51. **Japan has received an extremely low level of inward FDI, suggesting that it has not utilized its potential and is missing out on new technologies and business models that inward FDI could have brought**. Inward FDI is much less than outward FDI. Outstanding Japanese inward FDI was just 1.1 percent of GDP in 2000, while outward FDI was 6 percent. Moreover, inward FDI was far below the 28 percent of GDP in the United States, 32 percent in the United Kingdom, and 22 percent in Germany. Japan has underutilized its resources to attract inward FDI, including the world second-largest market, abundant highly skilled human resources, and innovative technologies. A survey on FDI by the United Nations Conference on Trade and Development (UNCTAD) indicated that Japan ranked 131st in 140 countries in an outstanding amounts index but ranked 14th in another index for investment potential.

52. **Although Prime Minister Koizumi has recently set a target for inward FDI, the prospects for achieving the target are unclear**. In January 2003, he declared that Japan would double outstanding inward FDI in his key speech to the Diet. Based on the speech, the government took quick action to establish the office of "INVEST JAPAN" to disseminate information. These were welcome steps to the right direction. However, other measures released by the Japan Investment Council do not seem much different than past proposals.[33] This is partly because the national government has few effective measures left to introduce: regulations for both domestic and foreign businesses are fairly equal, and low FDI seems to have been mainly due to high prices (including wages) in Japan and the fact that it is a mature market with low expected return.[34]

53. **Accordingly, it could be useful to provide greater incentives to attract more inward FDI**. Since investments are closely related to local employment, local government initiatives have been strongly urged. Beyond equal treatment, local authorities could consider

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[33] The Council, for example, published its "Seven Recommendations" for promoting the inward FDI in April 1999. Its most recent report in March 2003 is similar to this "Seven Recommendations."

[34] Governmental procedures have sometimes been referred to as obstacles for foreign investment, but with little clear explanation on details (just an impression). The recent report by the Japan Investment Council merely indicated that "the impression of unclear procedure has already impeded FDI." Informal barriers including the nature of the business environment and practice are also pointed out as factors.

providing favorable treatment including reduced taxes on foreign investment, as many other countries have been doing.

54. **Similarly, Japan has had few international visitors.** In 2001, 16 million Japanese went abroad while only 5 million foreigners visited Japan, resulting in net travel outflows of ¥3.5 trillion (0.7 percent of GDP) in the balance of payments. Japanese tourism is seen as uncompetitive compared with neighboring countries, mainly because valuable tourism assets at home are underutilized, and because of high domestic prices.[35] As a result, not only do few foreign people visit Japan but also many Japanese opt to go abroad. Referring to this imbalance between inward and outward visitors, the Prime Minister (in the same speech as mentioned FDI), declared that Japan would double the number of international visitors by 2010. Much seems to be left for both the government and tourism businesses in order to attract both domestic and international visitors and to create more jobs in this sector.

[35] Japan Tourism Advisory Council.

Measure of Unemployment

Both Japan and the US follow the definition of the unemployed by the International Labor Organization. People are classified as unemployed if they meet all of the following three criteria: they had no employment during the period; they were available for work at that time; and they made specific efforts to find employment sometime during the period. However, statistics in these two countries have different treatments as shown in the table.

Different Treatment in Statistics

	Period of job-seeking		Waiting for the result of job-seeking activities	Work for the same household	
	The past week	The past two to four weeks		Work less than 15 hours per week	Work more than 15 hours per week
Japan	U	N	U	E	E
U.S.	U	U	N	N	E

E: employed, U: unemployed, N: nonlabor force

The Ministry of Health, Labor and Welfare (MHLW) estimated the Japanese unemployment rate as of August 2001 following the U.S. standard, which resulted in a lower rate than under the Japanese standard:

Japan's Unemployment Rate
(August 2001)

	Unemployed	Labor Force	Unemployment Rate
	(In millions)		(In percent)
Japanese Standard	3.36	67.68	5.0
US Standard	2.83	66.68	4.2

Source: The MHLW "White Paper on Labor Economy 2002."

Estimate of Noncyclical Unemployment Rates

First, estimate α and β in the following equation.

$$\ln(u) = \alpha + \beta \ln(v)$$

where u: unemployment rate for employers (excluding self-employed).
v: vacancy rate.

Second, define u* as equilibrium unemployment rate for employers.
(u* equals the value of u when u = v). Then,

$$\ln(u^*) = [\ln(u) - \beta \ln(v)] / (1 - \beta)$$
$$U = EE \times u^* / (100 - u^*)$$
$$u^{**} = U \times 100 / (E + U) \ (\%)$$

where U: number of unemployment at equilibrium.
EE: Number of the employed (excluding those self-employed).
E: Number of the employed (including those self-employed).
u**: noncyclical unemployment rate.

Source: MHLW "Roudou Keizai no Bunseki (Heisei 14 nen ban) (White Paper on Labor Economy 2002)".

Aging Population and Long-Term Labor Supply

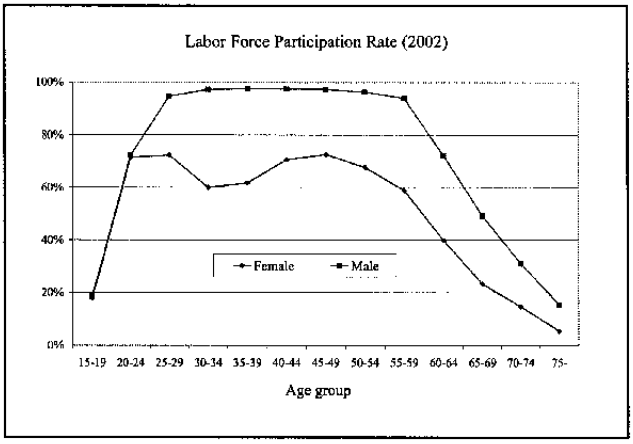
As discussed in the main text, a labor demand shortage is likely to be a serious problem for Japan for several years to come. Looking forward in the long run, however, the labor supply shortage due to the aging population could become a more serious problem. In fact, Japanese labor force was at a peak in 1998 and has been modestly declining since then. Since the labor force includes both employed (including self-employed) and unemployed, it is less prone to the business cycle than employment, so this probably represents a structural decline.

Japan's population is aging more rapidly than most other advanced countries'. The total fertility rate, which shows how many children are born per female, has continued to decline and reached 1.36 in CY2000.[1] According to the medium variant projection of the government population projection, total population will be at its peak in 2006. The government also estimated that Japan will lose about 2.9 million of the labor force of people aged 15–54 by 2010, adversely affecting growth.

Against this backdrop, increased labor participation will be critical for Japan to keep its economy afloat. Increased participation by females, old people, and foreign workers has a potential to contribute.

Female Workers

As for the labor force participation rate, there is a unique hollow (M-shaped curve) for Japanese women (Figure). Although the rate for Japanese women as a whole is above the OECD average, fewer women in their 30s are in the labor force. The hollow is mainly attributed to need to care for children. Typical Japanese females work as full-time workers in their 20s after graduation, and retire and stay at home when they have young child/children. They return to work as part-time workers in their 40s. At the same time, many Japanese women with high education would not return to work once they leave jobs, presumably because they are not re-hired as full-time workers and paid less (Higuchi (2001)). To remove the hollow, it would be necessary to provide better child care services for parents and correct distorting social welfare treatment and employment practice for women, in particular for part-time workers (see Section D). Success of these measures can increase the female labor force in the future.



Aged Workers

As the population ages, old people become more important as a source of the labor force. People aged 55 and over in the labor force were 8.0 million (15 percent of the total labor force) in 1975, and increased to 15.8 million (24 percent of the total labor force) in 2002. Looking forward, the government predicted that these people will further increase by 3.2 million during 2002–10. Although the labor force participation rate for Japanese old people is already high, room is left for further increases. In particular, an increase in the mandatory age of retirement, which is set by firms, would have positive effects.

Foreign Workers

Japan does not open its labor market to foreign unskilled workers and thus has received a limited number of foreign workers. However, foreign workers have become more important in the real world businesses. According to a government estimate, the number of foreign workers including illegal ones was 260,000 in 1990. The number increased to 710,000 in 2000. As a result, foreign workers now exceed 1 percent of total employment. Given the huge deviation in wages between Japan and other countries in the region, the supply of foreign workers will continue to be strong. If Japan can solve social and economic problems related to receiving foreign workers, Japan may be able to benefit from them and overcome a possible shortage of the labor supply in the future.

[1] National Institute of Population and Social Security Research, "Population Projection for Japan: 2001–50." To maintain the same population, the total fertility rate needs to be above 2.08.

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VI. Employment Insurance and the Social Safety Net[1]

1. **This chapter discusses issues associated with Japan's policies on employment insurance and the social safety net.**[2] The chapter is structured as follows. Section A outlines the benefits and financing of the employment insurance scheme. Section B compares social safety net expenditures in Japan with those in other G-7 countries, with a view to shedding light on whether Japan's scheme should be more generous. Section C examines active labor policies, which aim for example to reduce unemployment among young and old workers; and section D briefly discusses some policy options. One of the key implications of the analysis is that Japan's social safety net adequately protects the unemployed. Furthermore, streamlining some of its benefits and subsidies would be desirable. It is also suggested that the financing of the employment insurance scheme could be strengthened by increasing premiums if needed.

A. Benefits and Financing

2. **The employment insurance account managed by the Japanese government has two subaccounts: unemployment benefits and the so-called "three services" (Box 1). The unemployment benefits account is used by the national government to pay benefits to workers, principally to job-seekers (benefits for job-seekers).** In addition to the benefits for job-seekers, the government makes transfers to encourage the unemployed to look for jobs (benefits for employment promotion), to help workers improve their skills (benefits for training and education), and to support special categories of the unemployed such as old workers and those on child-care or home-care leave (benefits for continuing employment). The amount and duration of benefits are determined by objective criteria, and the government has no discretion to change them; for example, the basic allowance of benefits for job-seekers is determined by criteria such as the previous wage, years worked, age, and the reason for unemployment.

3. **The three services account subsidizes employers, with the aim to prevent unemployment**. The three services refer to programs that aim to stabilize the labor market, develop workers' skills, and promote workers' welfare. To stabilize the labor market, in particular, the government subsidizes firms to encourage them to retain workers. In addition, the three services account bears the cost of construction and maintenance of facilities for workers, including facilities for skill development and consultation services.[3]

4. **The two subaccounts are financed by premium contributions and budget transfers**. Premiums for unemployment benefits (1.4 percent of workers' salaries, paid

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[1] Prepared by Takuo Komori (ext. 37613).

[2] For related analysis, see the *Selected Issues* chapter entitled "Structural Changes in Japan's Labor Market."

[3] Formerly, the three services account also bore the cost of construction and maintenance of lodging facilities.

Box 1: Employment Insurance System

(As of May 2003)

				Benefits/Key Function	Rate of Budget Contribution
Employment insurance account	Unemployment benefits	Benefits for job seekers	Basic allowance	See tables below	1/4
			Benefits for older job-seekers	30 or 50 days	0
			Special short-term benefits	Lump sum payments amounting to 50 days' pay	1/4
			Benefits for day workers seeking jobs	One days' pay for each incident of unemployment	1/3
		Benefits for employment promotion	Job allowance		0
			Reemployment allowance		0
			Allowance for preparation for regular employment		0
		Benefits for training and education		40 percent of tuition (Max limit ¥200,000)	0
		Benefits for continuing employment	Benefits for continuing employment for older workers	15 percent of salaries for retaining workers aged over 60	1/8
			Child-care leave benefits	40 percent of salary, paid prior to leave	1/8
			Home-care leave benefits	40 percent of salary, paid prior to leave	1/8
	Three services	Employment stabilization services		Subsidies for employment adjustment and designated job-seekers	0
		Personnel development services		Operating institutions offering skill training	
		Employee welfare services		Operating social welfare facilities	

Source: MHLW.

Benefit Amounts and Duration—Benefit amounts are set according to the job-seeker's age and previous wage. Benefits are equal to a certain proportion (50–80 percent) of the previous wage (the proportion is higher for lower wages) and subject to upper limits that depend on the age of the job-seeker: generally, the older the job-seekers, the higher the upper limit. Benefit duration is determined by the period the beneficiary contributed to the insurance system, age, the reason for unemployment, and the prospects of being rehired.

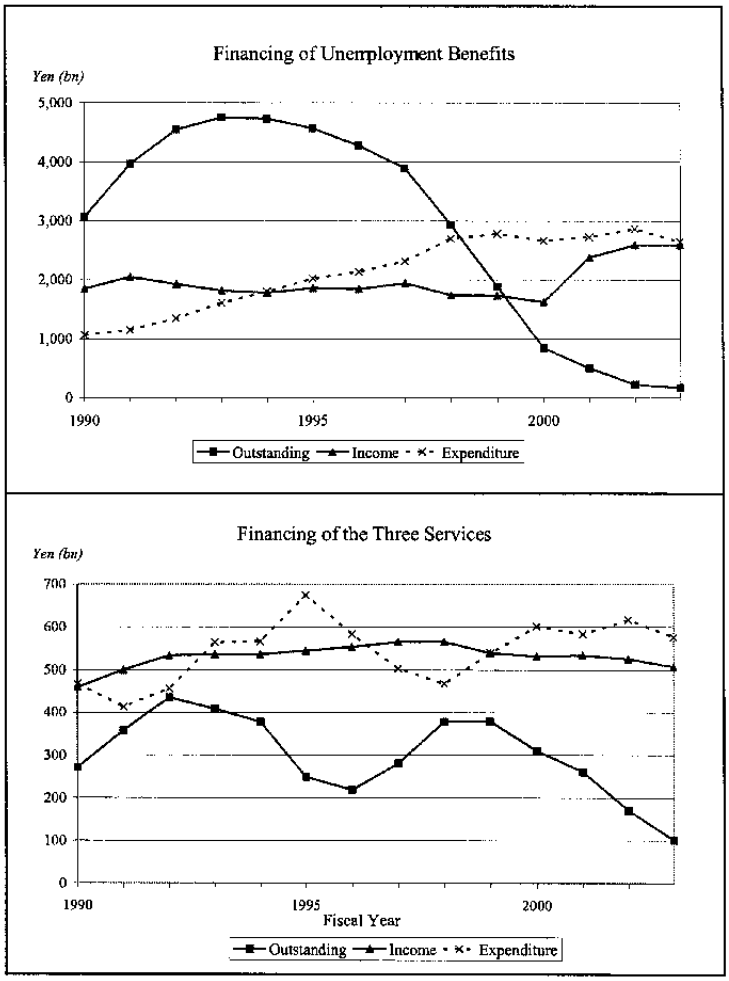
Daily Benefits	
(50–80 percent of previous daily wages, 45–80 percent for those aged 60–64)	
Age	Yen
Under 30	1712–6580
30–44	1712–7310
45–59	1712–8040
60–64	1712–7011

Benefits Duration (In days)					
(i) Regular unemployed:					
Age / Insured Period	Less than one year	One to four years	Five to nine years	10–19 years	20 years or more
All	90	90	90	120	150
(ii) Unemployed as a result of bankruptcy or dismissal:					
Age / Insured Period	Less than one year	One to four years	Five to nine years	10–19 years	20 years or more
Under 30	90	90	120	180	n.a.
30–34	90	90	180	210	240
35–44	90	90	180	240	270
45–59	90	180	240	270	330
60–64	90	150	180	210	240
(iii) Unemployed who have special difficulty in finding jobs:					
Age / Insured period	Less than one year	One to four years	Five to nine years	10–19 years	20 years or more
Under 44	150	300	300	300	300
45–64	150	360	360	360	360

Source: MHLW.

equally by both workers and firms) and for the three services (0.35 percent of workers' salaries, paid solely by firms) provide most of the financing.[4] The employment insurance premium is low in Japan compared with some other major countries; for example, the premium rate is around 6 percent in France, more than triple that in Japan.[5] Budget transfers also contribute to funding, for instance, paying for 25 percent of the basic allowance of the benefit for job-seekers. According to the Ministry of Health, Labor, and Welfare (MHLW), among other advanced countries, only Germany has the same type of government contribution, although in Germany it funds only 15 percent of the benefit.

5. During the 1990s, rising unemployment and expanding benefits have led to deficits in these accounts and nearly depleted their accounts' once-high reserves (Figures). High accumulated reserves and unpredicted higher unemployment in the 1990s led the government to introduce new subsidies and benefits. These new expenditures seem to have had limited effects on employment, but along with higher unemployment they caused a sharp fall in the systems' reserves. Reserves of the unemployment benefits account declined from ¥4.8 trillion in FY1993 to only ¥0.2 trillion—less than one month's insurance payments—in FY2002. Also, reserves of the employment stability fund (part of the three services account) fell from a peak of ¥436 billion in FY1992 to



[4] The financing of the two subaccounts is different, presumably because the recipients are different: premiums paid solely by firms (in the three services account) are spent on firms. However, for example, in the United States, premiums, which are solely paid by firms, are used for benefits for unemployed workers. In many other countries, part of the subsidy are given to workers rather than the firms, and premiums paid by firms are higher.

[5] The premium rate was 6.2 percent in France and 5.4 percent in Sweden in 1998 (White Paper on Health and Welfare (1999) by (former) Ministry of Health and Welfare). In these countries, most of the premium is paid by firms, which is in contrast to Japan where the premium is paid almost equally by firms and employees.

¥170 billion in FY2002.[6] In response to the worsening of the balance in the former account, the premium rate was increased successively from 0.8 percent in the 1990s to 1.2 percent in 2001 and further to 1.4 percent in 2002, but these increases could not stop the decline in reserves.

6. **Against this background, in 2002 the MHLW proposed to further increase the insurance premium for unemployment benefits from 1.4 percent to 1.6 percent starting in 2003**. However, the government postponed the suggested increase until April 2005 owing to concerns about its possible adverse effects on private business, limiting the options to address any possible future deterioration in the financing of the employment insurance account. Although the government could increase the premium from 1.4 to 1.6 percent without consulting the Diet if the situation is urgent, the government must obtain the Diet's approval if it wants to increase the rate above 1.6 percent.

7. **To contain demand for benefits from the employment insurance account and thus take pressure off its financing, the government recently created a new fund to encourage the unemployed to find jobs quickly**. The new fund, which amounts to ¥250 billion and will exist until March 2005, pays special benefits to job-seekers if they find a job within a specified period. The scheme aims to reduce moral hazard and encourage job-seeking. Although the unemployment benefits account already has similar benefits, the new fund provides more preferential treatment. The government expects that job-seekers will apply for the new benefits rather than the ordinary unemployment benefits (benefits for employment promotion), and that accordingly, the insurance account can stay afloat for the next five years. However, future unemployment trends and the effects of the new fund on the employment insurance account are uncertain.

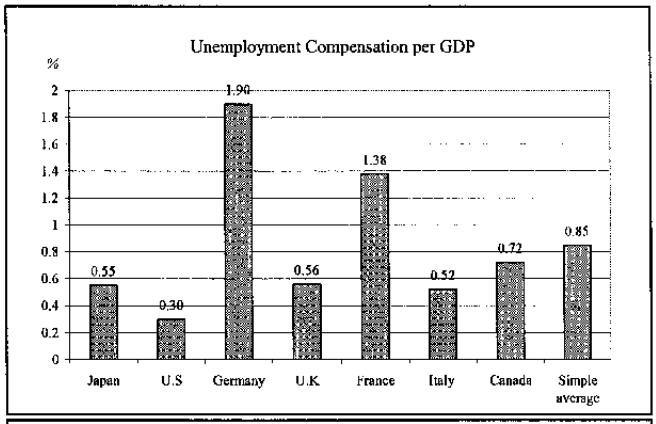
B. Assessment of Unemployment Benefits

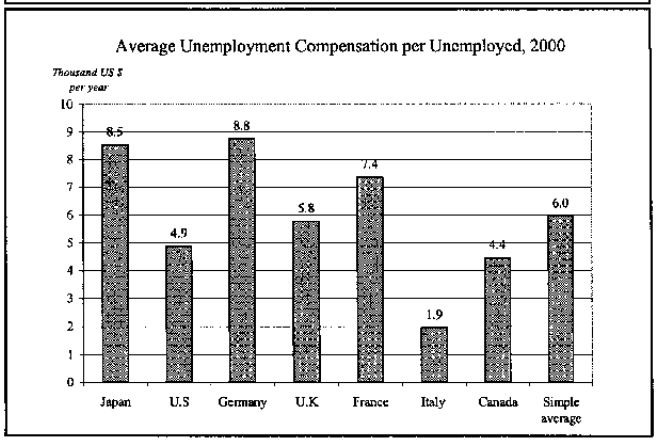
8. **This section considers whether Japanese employment insurance—along with other related social services—provides an adequate social safety net for the unemployed, and whether more generous payments should be made if unemployment increases further**. There are three reasons to believe that Japan should maintain the current level of unemployment benefits, and that expanding benefits is not warranted at this moment.

9. **First, expenditure on employment benefits in Japan is comparable to that in other G-7 countries relative to GDP, but generous per unemployed person**. According to the OECD (2002), Japan spent 0.55 percent of GDP in FY2000 on unemployment compensation, less than in France, Germany, and Canada, the same as in the United Kingdom and Italy, and higher than that in the United States. Per unemployed person, however,

[6] The fund is annexed to the account, pooling both the account surplus and the budget contribution.

compensation in Japan is among the highest in G-7 countries (Table 1 and Figures).[7, 8] In addition, the total expenditure of insurance payments would automatically respond to possible higher unemployment in the future, as the individual benefits are predetermined and government has no discretion to change them without Diet authorization. Moreover, other elements of Japan's social welfare system such as social assistance and public health insurance provide additional cushions for the unemployed (Box 2).





10. **Second, excessively generous unemployment benefits would run the risk of creating moral hazard and increasing structurally-high unemployment in the medium to long term**. A number of studies indicate that many advanced countries have suffered from this problem.[9] Moreover, there are reasons to believe that moral hazard is a from problem also in Japan. In particular, many middle-age job-seekers earned wages that were higher than their productivity when they were employed,

[7] Unemployment compensation per unemployed person was calculated, in order to adjust for the difference in unemployment rates and GDP, using total unemployment as the denominator. Denominators include unemployed people who do not receive compensation, including (i) job-seekers such as new graduates who were not eligible to receive benefits because they had not paid premiums, (ii) those whose benefits had expired, and (iii) those who simply did not apply for benefits. In Japan, the duration of benefits is shorter than in other advanced countries, so the proportion of those people with expired benefits is likely to be higher (Table 2).

[8] Difference in ages of job-seekers and their previous wages across countries may have some effects. If all countries provide identical benefits to workers, a country that has more middle-aged job-seekers whose previous wages were high would have higher average compensation than other countries. Japan might be such a country. However, it seems unlikely that Japan has so many middle aged job seekers that it would change the thrust of the result.

[9] For example, see IMF "Unemployment and Labor Market Institutions: Why Reforms Pay Off" (2003). This study demonstrates that high unemployment is largely structural in nature, and provides evidence on the linkages between structural employment and the institutional features of labor markets, such as generous unemployment insurance.

Table 1. Annual Public Expenditures in Labor Market Programs
(In percent of GDP)

		Japan	US	Germany	UK	France	Italy	Canada
1	Public employment services and administration	0.20	0.04	0.23	0.13	0.18	--	0.17
2	Labor market training	0.03	0.04	0.34	0.05	0.25	0.05	0.17
3	Youth measures	-	0.03	0.09	0.15	0.42	0.23	0.02
4	Subsidized employment	0.08	0.01	0.25	0.01	0.37	0.32	0.03
5	Measures for the disabled	0.01	0.03	0.29	0.02	0.09	--	0.02
6	Unemployment compensation	0.55	0.30	1.90	0.56	1.38	0.52	0.72
7	Early retirement for labor market reasons	--	--	0.02	--	0.27	0.11	--
	TOTAL	0.86	0.45	3.13	0.92	2.96	--	1.13
	Active measures (1–5)	0.31	0.15	1.20	0.36	1.31	--	0.41
	Passive measures (6–7)	0.55	0.30	1.92	0.56	1.65	0.63	0.72
	Unemployment rate	4.70	4.00	7.90	5.90	9.30	10.40	6.80
	Year	2000–01	2000–01	2001	1999–2000	2000	2000	2000–01

Source: OECD Employment Outlook 2002.

Table 2. Minimum Unemployment Contribution Periods and Entitlement Duration
(Workers aged 40, not the first claim)

	Minimum Contribution Period	Duration of Benefit Entitlement Following Minimum Contributions	Benefit/ Contribution Ratio
Austria	28 weeks	20 weeks	0.7
Belgium	468 days (78 weeks)	Indefinite	--
Canada	410 hours (11 weeks)	45 weeks	4.1
Denmark	six months or one year	four years	4 or 8
Finland	10 months	500 days (100 weeks)	2.3
France	four months	four months	1.0
Germany	12 months	six months	0.5
Greece	125 days (25 weeks)	five months	0.9
Ireland	13 weeks	390 days (65 weeks)	8.5
Italy	78 days (3 months)	78 days (three months)	1.0
Japan	six months	90 days (three months)	0.5
Korea	six months	90 days (three months)	0.5
Netherlands	26 weeks	six months	1.0
Norway	about 10 weeks	three years	15.6
Portugal	540 days (18 months)	18 months	1.0
Spain	360 days (12 months)	120 days (four months)	0.3
Sweden	six months	300 days (60 weeks)	2.3
Switzerland	12 months	two years	2.0
United Kingdom	about 10 weeks	182 days (six months)	2.6
United States	two quarters	six months	1.0

Source: OECD Employment Outlook 2002.

Box 2: Social Assistance and Health Insurance

Low income households can receive social assistance from the government. This assistance encompasses eight types of aid, including key aid for living expenses, medical fees, and housing fees. The government decides a minimum level of living expenses and provides an allowance that increases the household income to that minimum. The minimum level of living expense is about 70 percent of the consumption of the average household and varies depending on the number and age of people in the households and where they live. For example, a typical household of three people in Tokyo would receive assistance to reach a total income of ¥162,000 (equivalent to about US$1,400) per month, including the assistance and the other incomes. Since there is no maximum allowance, households without any other income can receive the same amount as the minimum living expenses (for example, ¥162,000). Social assistance is not taxable and has no duration limit. In 2001, the government spent over ¥2 trillion (0.4 percent of GDP) on assistance to low income households.[1,2]

In addition, the unemployed have access to the public health insurance system. Unemployed people are insured by the National Health Insurance (NHI) system, which is part of the public health insurance system and run by local governments. The NHI charges insurance premiums, but the fee depends on the household's ability to pay; thus, low income households can be exempted. For most health problems, those insured have access to all necessary medical treatment at any medical facility, with a 30 percent co-payment. The health insurance system is considered to provide proper medical care including to people in need, such as aged and low-income people; some consider that this has helped to keep the life expectancy of Japanese citizens above the level in any other country.

[1] According to the expenditure assessment survey by the government in 2003, local governments raised concerns about moral hazard problems related to generous benefits. In this connection, a government council on social welfare under the MHLW recommended a further review of social assistance.
[2] Rising unemployment has increased the number of recipients of social assistance. In 2001, 1.1 million people (0.9 percent of population) received assistance, up from 0.9 million in 1995.

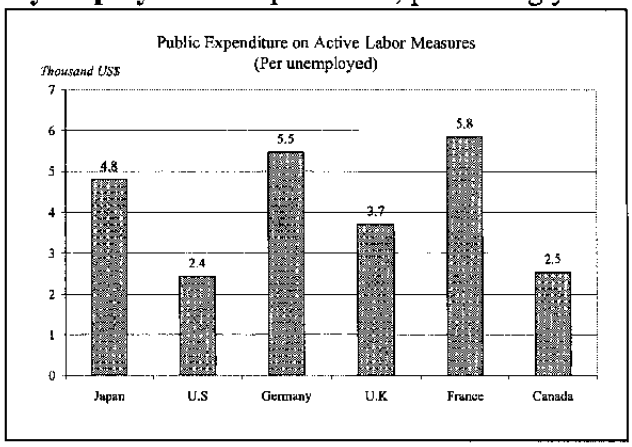
and thus their unemployment benefits are often higher than the wages they would receive if rehired. Therefore, they have small incentives to find jobs before the benefits payment period expires. According to surveys, quite a number of job-seekers find jobs within a month after the payment period lapses.[10]

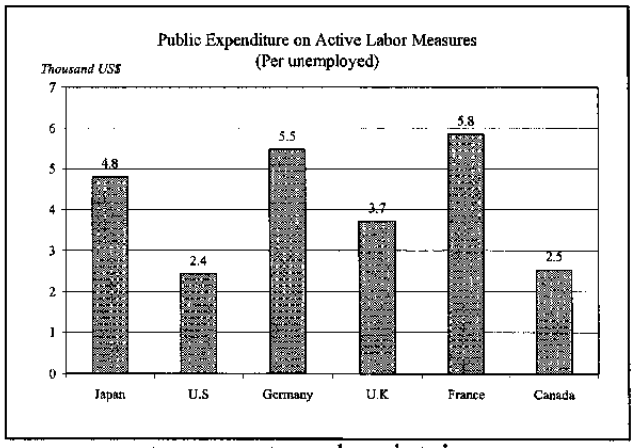
11. **Third, job-seekers seem to be more concerned about finding jobs than about receiving higher unemployment benefits**. People in Japan emphasize maintaining or increasing employment rather than improving unemployment benefits, presumably because (as often reported) most people regard unemployment as a social stigma. In a survey by RENGO, Japan's largest labor union confederation, even among job-seekers, more people asked the government to take measures to promote employment than to upgrade unemployment benefits.

[10] Employment Insurance Team, Labor Stabilization Sub-committee, Labor Policy Council (2002).

C. Active Labor Policy and Policy Efficiency

12. **Recent increases in unemployment have intensified the debate about active labor policies, such as promoting youth and elderly employment**. In particular, promoting youth employment is under heated discussion, as noted in the previous chapter. However, the effectiveness of such measures in the past has been questioned. As is the case with passive labor policy such as unemployment benefits, expenditure per unemployed person on active labor measures is lower than in some European countries, but on the other hand, Japan spends more on active policy measures than do the United Kingdom, United States, or Canada (Figures).[11]





13. **As in other countries, the experience in Japan implies that spending on active policies has not always been very effective in bolstering employment, particularly during recessions.**[12] In response to rising unemployment, the Japanese government has introduced a number of measures in recent years, especially under the three services account, to promote employment (Box 3). These measures included expanding existing subsidies and establishing new ones to generate and maintain employment in local areas and in small- and medium-sized enterprises, creating employment in business sectors that are growing, deregulating private job placement services, and promoting employment of old job-seekers. Despite these measures, unemployment has risen amid weakness in the economy.

14. **Against this background, in 2000, the Diet asked the government to examine the effectiveness of subsidies under the three services account and to streamline and restructure them.** In response to this request and related recommendations from a government council in 2002, the MHLW reduced the number of these subsidies from 46 to

[11] Most of the subsidies under the three services account are for active labor policy. In addition, some expenditures under the general account are also for active labor policy.

[12] OECD (1993) discusses the advanced countries' experience including those in other countries.

Box 3: Recent Policy Initiatives

(By March 2002)

Since the late 1990s, the government launched a number of policy initiatives to create and maintain employment. Below is a summary of these initiatives:

Month	Name	Budget (¥)	Key Measures
April 1998	Emergent Program for Job Creation	50 billion	Expand subsidies to employers that retain workers
November 1998	Comprehensive Plan to Accelerate Employment Creation	1 trillion 1/	Establish subsidies to SMEs employers that hire new workers
June 1999	Emergency Measures on Employment	330 billion	Establish subsidies to employers in business sectors that are growing
November 1999	Measures on Employment (part of the "Economic Revival Package")	1 trillion 1/	Establish subsidies to SMEs employers that hire new workers in certain local areas
May 2000	Emergency Measures on Job Creation to Solve Mismatch Problems		Expand subsidies to employers in business sectors that are growing
October 2000	Measures on Employment (part of the "New Measures for Japanese Revival")		Improve job training in IT areas for middle-aged
April 2001	Measures on Employment (part of the "Emergency Economic Policy Package")		• Expand subsidies to employers that hire new workers • Expand benefit in unemployment insurance
September 2001	Comprehensive Measures on Employment	877 billion	Establish subsidies to prefecture governments that implement projects to create jobs.

Source: MHLW.

1/ Budgeted amounts were for 15 months.

35 by 2003 by abolishing and combining some subsidies. In addition, the council recommended a continuous review of these subsidies thereafter.

15. **The government also began to cut back some measures amid tight fiscal constraints**. In the past, ample reserves (reflecting then-favorable employment conditions and limited flexibility in using these funds) loosened the budget constraint in the three services account.[13] Now, however, with the unemployment rate at near record highs and a pressing need to curtail expenditure, measures under both subaccounts are being selectively reduced. For example:

[13] As discussed, only firms are recipients of these subsidies in principle. Moreover, the money in the three services account cannot be transferred to the unemployment benefits account even when the latter suffers a shortage of money, and vice versa.

- ***Training and education benefit.*** The benefit was created under the unemployment benefits account in 1998 and subsidized both employed and unemployed workers who complete eligible private courses to develop their work skills. The subsidy was generous: 80 percent of expenditure was covered, up to a limit of ¥300,000 (equivalent to about US$2,500). Over 20,000 education and training courses were approved as eligible, even though some of them were just for beginners.[14] During the first three years, 700,000 people received benefits, and the benefit payments amounted to ¥80 billion (equivalent to about US$700 million). There was criticism, however, that some of the courses were not effective in enhancing workers' skills and that the high subsidy rate attracted students who were not sufficiently motivated to take advantage of the courses. The MHLW recently decreased the subsidy rate and its upper limit, and removed some courses from the list of those that qualify for the subsidy.[15]

- ***Employee welfare services.*** As a part of the three services, a government affiliated body has built and run facilities such as hotels and gymnasiums to improve the welfare of workers, receiving over ¥1.5 trillion (0.3 percent of GDP) from the employment insurance account to build these facilities and additional subsidies to operate them. The government has decided to dispose of these facilities by transferring them to local governments or closing them by FY2005. However, progress in disposal has been slow and some facilities have been sold at very low prices.

16. **The creation of the training and education benefit in 1998 represented a gradual shift of the government spending from firms to workers.**[16] The government often subsidizes firms to provide courses to increase the skills of their workers belonging to the firms. Under this arrangement, firms usually decide which workers are allowed to attend these courses, and the topics are limited to those relevant to the firms and specific sectors. This would not help workers find new jobs in different industrial sectors, even though labor movement from unproductive sectors to productive sectors is desirable. If, alternatively, the subsidies were provided directly to workers, they would have the opportunity to choose among a wider set of courses, including some that may be relevant to finding a job in a different firm, or even in a different sector.

17. **The experience so far suggests that the assessment of active labor policy measures' effectiveness can be improved**. These measures are now under the government comprehensive policy assessment system, introduced in FY2002, but the quality of assessment of these measures has been unsatisfactory. For example, the assessment of

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[14] Eligible courses include those regarding English conversation and computer skills.

[15] The MHLW decreased the subsidy rate from 80 percent to 40 percent and its upper limit from ¥300,000 to ¥200,000. The change came into effect in May 2003.

[16] Higuchi (2001).

training and education benefits described the use of the funds but did not include an evaluation of their effect on employment. In addition, the assessment did not include useful recommendations for reforming existing policy and formulating new policies. For example, the decision to downgrade the subsidy in the training and education benefit was not based on the previous policy assessment, as this assessment did not evaluate the level of the subsidy. Better-designed assessments could provide guidance on where expenditures might be targeted and whether, for example, improving the counseling function, and making greater use of private expertise including in lectures at public institutions to build workers' job skills, could be beneficial compared with the cost.

D. Policy Appraisal

18. **The government has taken reform steps including financial measures and streamlining subsidies, but more needs to be done given current tight fiscal constraints.** In particular, more focused and effective spending would be useful. In this connection, six main conclusions may be drawn.

19. **First, the current level of the core unemployment benefit (the basic allowance of the benefits for job-seekers) seems appropriate and should be maintained.** Compensation per unemployed person is high by G-7 standards, so an increase in benefits per person would seem difficult to justify. However, if the number of unemployed persons increased, it would be reasonable to allow *total* employment insurance expenditure to increase, to avoid adverse effects on the economy.

20. **Second, it would be useful to further review non-core benefits disbursed under the unemployment benefits account**. Spending could be more effective if it were focused on benefits for job-seekers. Among non-core benefits, those for training and education, which are still generous after the reform, may warrant further review, in order to increase effects on employment and to reduce possible moral hazard.

21. **Third, it would be useful to further streamline expenditures under the three services account, based on strict policy assessments**. More decisive steps to dispose of facilities to improve employee welfare, at fair prices, would be useful. Also, education and training at public institution to build workers' job skills can be improved through more active use of private sector expertise. In addition, further efforts to assess the impact of such policies, and use these assessments to direct further reforms, would be warranted.

22. **Fourth, if necessary the unemployment insurance premium could be increased to 1.6 percent to bolster the financing of the system**. If unemployment increases further, it would be useful to request Diet authorization to increase the rate beyond 1.6 percent, given that the current premium is relatively low.

23. **Fifth, more should be spent on the workers rather than on the firms**. The suggested shift in spending from firms to workers could increase labor mobility and help to decrease mismatches in the labor market.

24. **Sixth, the government could consider consolidating the unemployment benefits account with the three services account to increase flexibility in using these funds**. As explained, money in one account cannot be used for expenditures under the other account in principle, even when the former has ample funds and the latter faces a shortage. However, given the tight budget constraint, money saved by streamlining subsidies in the three services account should be available for the financing of the benefits for job-seekers. The law governing employment insurance, which was amended in 2003, enables the government to transfer the funds in the three services account into the unemployment benefit account. This change was a welcome step, but even under the amended law, the government has to repay the transfer at some point in the future.

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