Economic Implications of Japan's Population Decrease —Medium-Term Economic Forecast (FY 2005-2015)

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The projected population decrease and retirement of baby boomers will cause a full-fledged labor force decline. To maintain economic vitality, efficiency must be improved by trimming the public sector and making better use of the labor force and savings. The economy will pull out of deflation in fiscal 2006, and with the consumption tax increase, consumer price inflation will average 1.6% over the coming decade. Real GDP will maintain the past decade's average growth rate of 1.5%, while nominal GDP will surge to 2.3% per year. With deflation overcome, the long-term interest rate will gradually rise.

1. Global Structural Changes

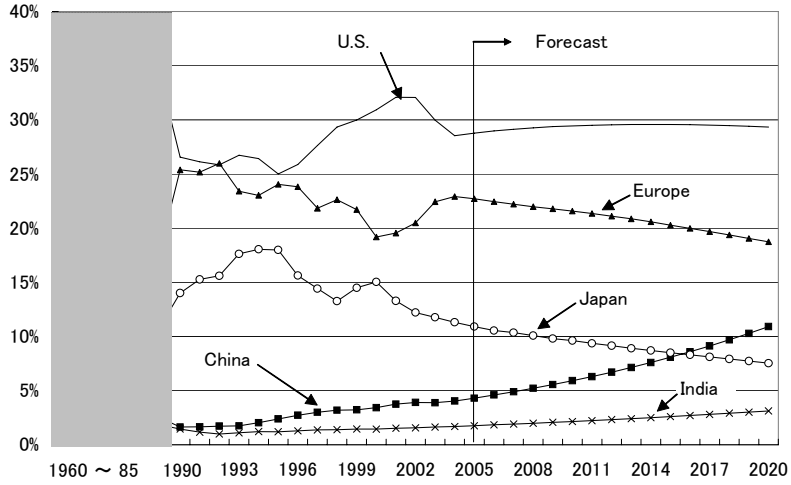
(1) Emergence of China and India

The structure of the global economy, once centered around western industrialized economies, is changing radically. In the past, global economic issues were typically addressed by the G7 advanced industrial economies in Europe, the U.S. and Japan. But as seen by China's regular attendance at recent G7 meetings, China can no longer be ignored. The rapid emergence and growing prominence of China and India is a major factor affecting Japan's medium-term economic outlook as well.

Back in 1960, the U.S. boasted a 38.6% share of global GDP and was the world's preeminent economic power. By 2000, that share had declined to 30.9%. Meanwhile, if we extrapolate trends from the past decade, the global shares of China and India will expand remarkably. Since Japan's projected population decrease and aging will limit any significant economic growth, China's economy will catch up with Japan by 2015. By 2050, China will rival the U.S. economy in size, while India will pass Japan. Despite the predicted expansion of the euro zone into central and eastern Europe, slower population growth among present euro economies suggests that Europe's global share will decline.

Moreover, these changes are likely to be accelerated by exchange rate movements. The Chinese renminbi was revalued approximately 2% against the U.S. dollar in July 2005, and the renminbi and Indian rupee are likely to appreciate over the long term. Although the U.S. economy has experienced robust growth since the 1990s and its global share has edged upward, it is saddled with large distortions including the twin deficit problem (fiscal and current account deficits), and may resort to a policy to devalue the dollar similar to the Plaza Accord of 1985.

Figure 1　Global GDP Shares



Source: Historical data is from World Bank, *World Development Indicators*.

(2)　The Global Supply–Demand Balance and Inflation

A common view of China and India's economic development is that by producing and exporting a huge supply of low-cost goods, these economies will have a deflationary effect on the global economy. But this view considers only part of the development process. While China's investment boom may generate excess production capacity, economic development will also lead to growth of domestic demand. Indeed, Japan's own rapid growth experience shows that investment booms caused temporary excesses in capacity, which were later absorbed by rising income and domestic demand.

In 2004, China posted a current account surplus of US$32 billion. If China keeps supplying more goods and services to the world, the current account surplus will expand, triggering further currency revaluations like the one last July. This will boost import prices for Japan and other industrialized economies. In addition, as incomes rise in China and India, wages and production costs will increase, pushing up their export prices.

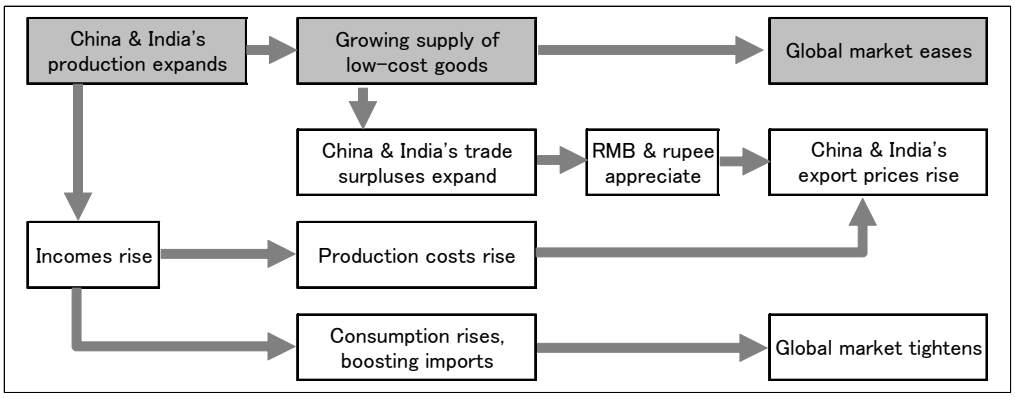
Rising incomes in China and India will also increase domestic consumption and imports, thereby tightening global market conditions. For example, demand from China and India has caused oil prices to surge in recent years. This is especially true of primary products whose production is limited.

In terms of the oil consumption necessary to increase GDP one unit, China and India are not energy efficient. And as incomes rise, per capita energy consumption—now far less than in industrialized economies—is bound to grow, increasing total oil consumption despite efficiency improvements. The recent oil price surge has been excessive in many respects, and should ease with further interest rate hikes in the U.S. But we predict oil prices will resume a moderate

uptrend in the long-term.

Thus while China and India's development will cause global supply to keep growing, global deflation is not a certainty in the 21st century. In the long term, as other populations in Asia start aging—China's working-age population will decrease from around 2015—production capacity will grow more slowly. Asian economies will thus not be a stabilizing influence on global prices indefinitely.

Figure 2　China and India's Impact on the Global Economy



(3)　Aging and Inflation in Japan

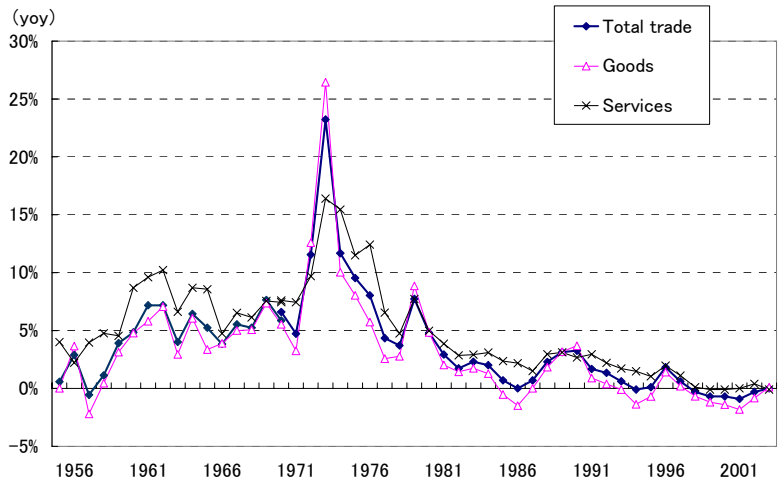
We predict that aging will make Japan's economy more prone to inflation. First, as the labor force shrinks, the labor market will tighten and wages will rise, pushing prices upward. Wages stabilized in the early 1990s amid a persistent labor surplus and soaring unemployment above 5%. After falling in the late 1990s, wages began rising in fiscal 2005 as companies confront the retirement of baby boomers in 2007. Wage growth should accelerate as the younger labor force shrinks and unemployment drops to around 3%. The inflationary effect will be more prominent in services than goods because labor cost is a larger component of services prices, and also because services are more difficult to import than goods.

Historically, barring exceptional events such as the oil crisis and consumption tax hike, services prices have risen more rapidly than goods prices in the CPI. The same pattern appears in the U.S., where the services sector is larger than in Japan. While goods prices tend to be restrained by advances in information technology, services prices will tend to keep rising with wages. Since the weight of services prices in the CPI is approximately 60% in the U.S. and 50% in Japan, rising services prices can trigger consumer price inflation even if goods prices remain extremely stable.

Second, the low inflation rate of goods prices in Japan thus far can be largely attributed to the yen's appreciation over the long-term, which has reduced import prices. As explained later, if Japan's current account surplus decreases in the future, we predict that the yen will appreciate

more slowly, and eventually level off. Then the yen's stabilizing effect on consumer prices—through lower import prices—will diminish, making the economy more prone to inflation.

Figure 3　CPI (Japan)



Note: Data for overall CPI and services CPI up to and including 1970 excludes imputed rent.
Source: MIC

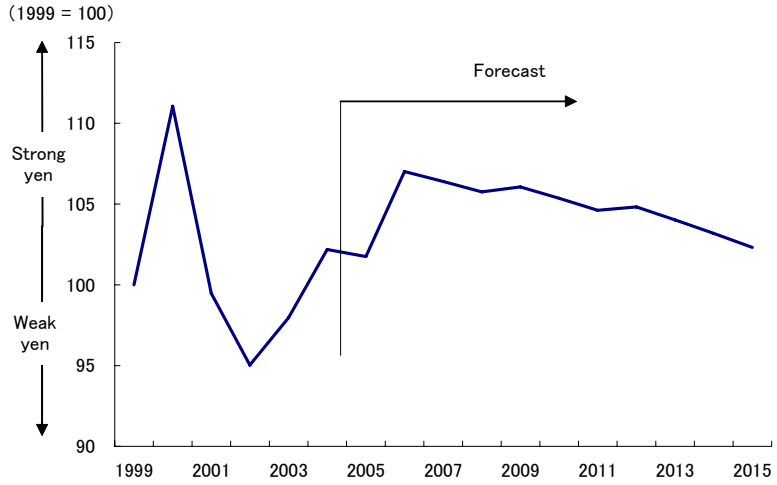
(4)　Weak Yen No Longer Means Strong Dollar

In the past, the yen's exchange rate was quoted almost exclusively against the dollar. Looking ahead, as the yen appreciates more slowly and eventually weakens, a weaker yen will no longer imply a stronger dollar. The U.S. no longer stands head and shoulders above Japan's other trade partners in trade volume, while Japan's trade with China has grown at an extraordinary rate. The composition of trade by value is especially revealing. In 1963, 27.6% of Japan's exports went to the U.S., 6.1% to Europe (now the euro zone), and 1.1% to China. By 2004, the export composition had shifted to 22.4% for the U.S., 15.5% for Europe, and 13.1% for China.

As Japan's structure of trade shifts, we can no longer ignore the growing disparity between the dollar rate and the effective exchange rate experienced by the economy. In the forecast period to fiscal 2015, we predict the yen will appreciate moderately against the dollar and euro, but depreciate against Asian currencies such as the Chinese renminbi and Korean won.

The yen's effective exchange rate can be estimated as a chained average of the dollar, euro, and renminbi, weighted by annual export values to each area. We used a simple simulation that explains export growth to each area based on its economic growth rate. In fiscal 2005, Japan's export composition is 42.8% for the U.S., 30.2% for the euro zone, and 27.1% for China. In fiscal 2015, the composition shifts to 29.6% for the U.S., 26.6% for the euro zone, and 43.8% for China. Even assuming that the renminbi is revalued 2% per year against the dollar—a very moderate pace—we predict that the yen's effective exchange rate will depreciate at a moderate pace.

Figure 4　Effective Exchange Rate (Yen per Dollar)



Notes: The effective exchange rate is export-weighted with Japan's exports to China, U.S. and euro zone. We assume that the renminbi will be revalued 2% per year against the dollar from 2005 onward. We used our own forecast of Japan's exports to the three areas.

(5)　Low Global Interest Rates Will Rise

Even though the FRB has gradually raised the federal funds target rate since mid 2004, long-term interest rates in the U.S. have barely budged. Meanwhile, in Europe, Germany's long-term government bond yield remains in the mid 3% range. The stable behavior of global long-term interest rates has been described by FRB Chairman Alan Greenspan as a "conundrum."

Mr. Greenspan offered four possible reasons for this behavior, noting that none adequately explains the conundrum. They are: (1) expectations of recession, (2) increased demand from pension funds for long-term maturities due to the aging population, (3) increased purchase of U.S. Treasury securities by foreign monetary authorities, and (4) reduced risk of inflation.

The problem is, aging is not a recent phenomenon, nor is the reduced risk of inflation from expanded production in China and India. Moreover, while foreign monetary authorities finance the U.S. current account deficit by purchasing more Treasury securities—China in particular still intervenes massively in currency markets to sustain the effective dollar peg—foreign purchases fail to explain the extent of the decline in long-term interest rates. Thus at present, no convincing explanation exists for why global long-term interest rates have fallen so much.

However, the global liquidity glut is about to shift. As the U.S. twin deficits start to ease, central banks in other countries will intervene less in currency markets, reducing their purchases of U.S. Treasury securities. In Japan, the end of deflation will cause quantitative easing to be lifted. In Europe, we predict key policy interest rates will be raised. Oil prices may draw back from recent highs, but will stay high as China and India continue to develop. Thus several stabilizing factors of long-term interest rates will likely disappear. Moreover, long-term rates in Japan are at risk of surging upward for several reasons—short-term interest rates will rise above zero when deflation

ends; aging will reduce household savings; and the expanding public debt will raise the financing premium.

As the above changes take place, global long-term interest rates will gradually turn around and start rising throughout Japan, the U.S., and Europe.

2. U.S. Juggles Twin Deficits, Europe Pursues Expansion and Integration

(1) U.S. Economy

① *Retirement of baby boomers*

Even after taking immigration into account, aging will pick up in the U.S. as baby boomers start to retire in 2010—though not as severely as in Japan. Growth in the over-15-year-old segment will edge down from 1.1% in 2004 to 0.8% in 2013, but rise from 1.1% to 3% in the over-64 segment. As a result, the 16–64 working-age population will decrease from 1.1% in 2004 to approximately 0.3% in the early 2010s. The slower growth of the working-age population will not only depress the economy's potential growth rate, but cause the entire population structure to age (the over-64 segment is projected to grow from 12% of the population today to approximately 20% in 2030), increasing the urgency of social security reform.

② *Policies indicate low growth*

The U.S. economy is still in a recovery phase following the 2001 recession, and the economy remains healthy overall. But much of its strength has come from major tax cuts and a low interest rate policy. As a result, the fiscal deficit has ballooned, while low interest rates have boosted housing prices. Confronted also with high oil prices, policymakers are reining in inflationary pressures by curbing the fiscal deficit and raising interest rates. These tightening measures suggest that the economy will likely maintain a low growth rate ahead.

③ *Growing twin deficits*

In the short term, many factors impede the fiscal deficit' reduction—including major spending commitments such as the Iraq war and hurricane reconstruction, and the growing support for permanent tax cuts ahead of next year's mid-term election. Fiscal management will continue to rely on economic expansion to increase tax revenues. Major spending cuts appear difficult even if Democrats win the 2008 presidential election, because any defense spending cuts will be offset by higher social security spending. Ultimately, baby boomers are likely to reach retirement before the fiscal deficit is reined in, which implies that it could start growing again.

As for the current account deficit, since the advanced economies have become closely correlated in recent years, the U.S. cannot hope to boost exports and improve its trade balance based on the

economic growth of trade partners. Moreover, higher oil prices have enhanced the presence of oil exporting countries, accentuating the need to reduce dependence on imported oil. These factors make it difficult to slash the current account deficit in the short term. More likely, the deficit will decline when the economy slows and consumption growth decreases, thereby reducing import growth. Meanwhile, the sustained current account deficit is worsening the net international investment position of the U.S., a longtime debtor nation. The risk looms that at some point, the debt position will be deemed excessive, triggering a major exchange rate adjustment. In the meantime, if confidence in the economy slips for some reason, confidence in the dollar will also likely plunge.

While the strong growth in the late 1990s increased America's global presence and boosted confidence in the dollar, it also led to the sustained growth of the current account deficit. Meanwhile, the fiscal deficit may worsen due to higher social security expenditures when baby boomers start to retire in 2010. Clearly, the twin deficits must be contained before the situation gets out of hand. But at present, we see no sign of improvement.

(2) Europe

① *Growth disparities linger*

We predict that the euro zone's moderate recovery will continue through 2006 led by exports. Germany, after dragging the euro zone into stagnation, is firming up. Corporate performance has turned upward thanks to the favorable financial environment and restructuring efforts, and capital investment has recovered. Germany has maintained its export competitiveness by optimizing the division of functions inside and outside the euro zone. Moreover, its domestic capital investment has grown more capital and technology-intensive in response to European integration and global competition. But since this form of investment pushes down employment and wages, personal consumption will continue to lag behind exports and production. Meanwhile, in low-cost countries that receive direct investment, the improving employment environment continues to support consumption growth. As a result, economic growth disparities within Europe are likely to continue in the medium term.

According to the European Commission's baseline projection for long-term population growth, the euro zone's working-age population will keep growing as immigration exceeds the natural decrease until 2011. Moreover, EU expansion and integration will intensify competition and trigger structural reforms, leading to productivity growth. Thus despite Europe's maturing economies, we predict that the economic growth rate in 2005–2015 will be unchanged from the 1995–2005 period.

② *ECB to raise key interest rates in 2006*

The European Central Bank has kept the key interest rate (interest rate on the main refinancing operations) unchanged at 2% since June 2003. Recently, the ECB heightened its awareness of risk

factors that could destabilize prices in the medium term—the impact of high oil prices on the price level, and the overheated and excess liquidity condition of housing markets in Spain and Ireland. The ECB is preparing to revise its interest rate stance in 2006 after confirming the recovery's sustainability. We predict that the key interest rate will be raised to 2.5% by the end of 2006 and 3% by the end of 2007, subsequently averaging 3.75% in the second half of the forecast period.

③ Expansion and integration to continue

When voters in France and the Netherlands rejected the EU draft constitution in May and June 2005, the European unification and expansion movement lost some momentum. Nonetheless, the movement continues, as do structural changes in the euro zone economy.

We expect the ten Central and Eastern European members who joined in May 2004 to adopt the euro in turn as they fulfill the economic convergence criteria for inflation, fiscal condition, exchange rate, long-term interest rate. The near-term impact on the euro exchange rate will be limited for two reasons. First, the ten new members together account for only 6.3% of the euro zone economy in size. Second, with larger countries such as Poland, Hungary and the Czech Republic struggling to reduce their fiscal deficits, the earliest adopters will be smaller countries such as the three Baltic states in 2007. The expansion's full impact on the euro will unfold gradually as barriers between old and new members are lifted—particularly the transitional restrictions on labor movement, slated for complete removal in April 2011.

Bulgaria and Rumania are scheduled to join the EU in January 2007. Turkey and Croatia began membership negotiations in October 2005. Current members are particularly wary of the potential financial burden and labor inflow from Turkey. Turkey's population of 72.22 million is not only 90% Moslem—making it culturally distinct from the predominantly Christian EU—but larger than France, Italy and the U.K. Meanwhile, its per capita GDP of 2,711 euros falls well below the average of the ten new members (5,171 euros). Although Turkey is ambitiously pursuing structural reforms to meet the criteria for EU membership and the IMF-led economic reform program, the odds of achieving membership by the 2015 goal remain elusive.

3. Bringing Normalcy to Japan's Economy

(1) Correcting the Abnormal Flow of Funds

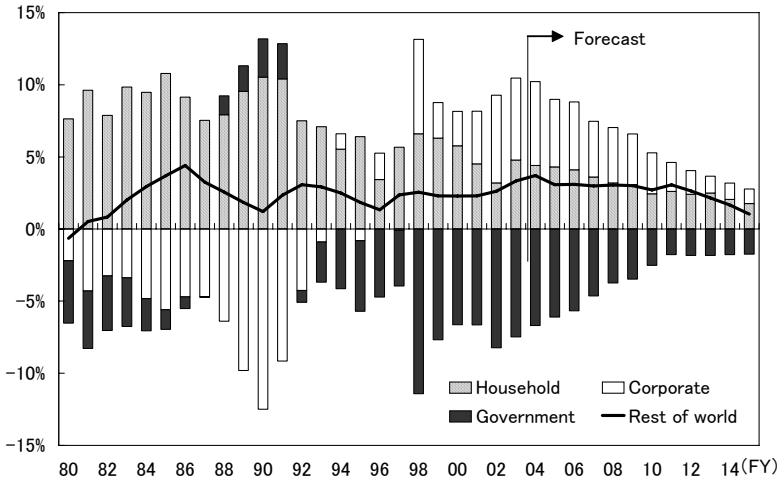
Japan is on the verge of recovering from the bubble's aftereffects and overcoming deflation. The abnormal condition of the economy in the past decade can be gleaned from the flow of funds data. In the late 1990s, amid the household sector's sustained financial surplus, the corporate sector also amassed a large financial surplus after shedding debt and writing off nonperforming loans. Since the economy's aggregate financial surplus is equivalent to the current account surplus, the

only way to contain the current account surplus was for the government to generate a large financial deficit.

Looking ahead, the corporate sector's large surplus is bound to shrink. Financial institutions no longer need as much savings to write off nonperforming loans, nor do non-financial businesses need it to reduce debt. Moreover, given the economy's potential growth rate in the mid 1% range, high investment growth will not be required. Thus the corporate sector is unlikely to invest heavily and repeat the large financial deficits of the past.

But as the economy normalizes and the large corporate surplus diminishes, other sectors may not necessarily adjust. For instance, the government sector's financial deficit (or fiscal deficit) will not automatically decrease, and the household sector's financial surplus is decreasing due to aging. Unless the government's fiscal deficit decreases at a suitable pace, domestic savings will grow inadequate, posing the risk of a surge in long-term interest rates.

Figure 5 Saving-Investment Balance by Sector (as ratio to nominal GDP)



Source: ESRI, *Annual Report on National Accounts*.

In fiscal 2005, the combined fiscal deficit of local and central governments expanded to 6.1% of nominal GDP, while the outstanding public debt reached 151.2% of nominal GDP. Japan's fiscal condition is even worse than Italy's was back when it was cited as the worst among the industrialized economies. Of course, reducing the fiscal deficit requires serious spending cuts, especially in social security spending, which grows due to aging. But in addition, we must note that the public burden rate dipped to 35.1% in fiscal 2003 after repeated large tax cuts to stimulate the economy, and is even below the 38.1% level of fiscal 1990 just before the booming economy collapsed. Thus once the economy overcomes deflation, spending cuts will need to be accompanied by revenue increases from higher taxes and social insurance premiums.

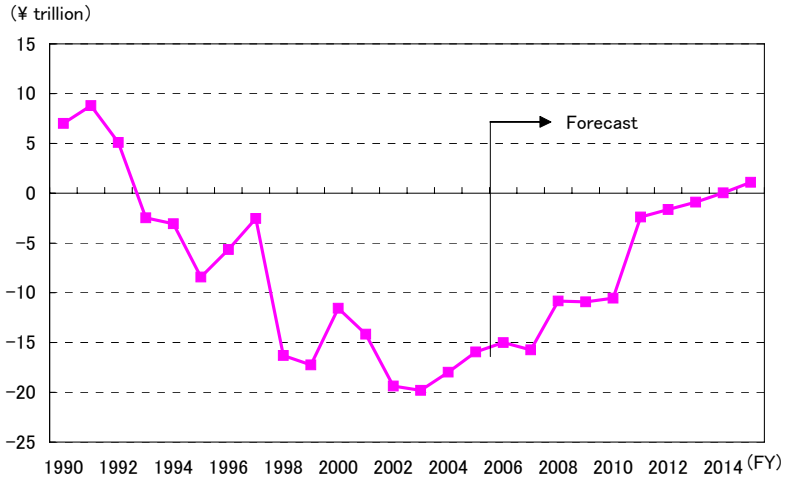
(2) Reducing the Fiscal Deficit

The government has announced the goal of achieving a surplus in the primary balance of central and local governments by the early 2010s. Once the primary surplus is achieved, bond revenues will be needed only to service the outstanding debt. If the nominal GDP growth rate equals the nominal interest rate, the outstanding public debt and nominal GDP will grow at the same rate, such that the ratio of debt to nominal GDP will stop rising. In this sense, achieving a primary surplus represents the first step toward fiscal restructuring.

In our forecast, we assume that growth of government expenditures is held down by reducing public payrolls and health insurance benefits, and that public investment is gradually reduced. Thus over the next decade, government expenditures grow only 0.9% per year in real terms, and public investment decreases -3.7% per year. But due to rising social security benefits, the primary surplus of the general account is attainable only by raising the consumption tax rate to 10%. To avoid destabilizing the economy with a large tax burden, we assume that the consumption tax hike is implemented in two phases—2% in fiscal 2008, and 3% in fiscal 2011. The primary surplus in the general account is then achieved in fiscal 2014.

But even with the above spending restrictions and revenue increases, the ratio of outstanding public debt (general JGBs) to nominal GDP still rises from 105.5% at the end of fiscal 2005 to 124.2% in fiscal 2015. Clearly, achieving the primary surplus is the merely first step toward fiscal restructuring. The government must redouble its downsizing efforts before the peak aging era arrives in the middle of the century.

Figure 6 Primary Balance (General Account)



Note: Settlement basis to fiscal 2004, and initial budget basis from fiscal 2005.
Source: MOF; forecast by NLI Research Institute.

(3) From Quantitative Easing to a Normal Monetary Policy

Another key issue is how to end quantitative easing and normalize monetary policy. Barring any

economic turmoil overseas, we predict that deflation ends in fiscal 2006 as the CPI (non-perishables) rises 0.3%, allowing quantitative easing to be lifted in the second half of the fiscal year. But considering that fiscal tightening—tax and social insurance premium hikes—will have slowed the economy, after monetary policy reverts to targeting interest rates, interest rate hikes will occur at a moderate pace.

We predict that policy interest rate hikes will be suspended while the economy adjusts to the two-phased consumption tax hike, but then gradually raised in line with CPI inflation as services prices rise. In the early 2010s, CPI inflation will reach 2%, an optimal level considered neither inflationary nor deflationary. The BOJ overnight call rate will be slightly higher and neutral at around 3%, while the long-term interest rate will be in the 4% range. After quantitative easing is lifted, the anticipation of policy rate hikes will cause long-term interest rates to rise ahead of short-term rates. We thus predict the yield curve will steepen temporarily, but subsequently ease as the call rate is gradually raised.

4. The Need for Economy-Wide Efficiency

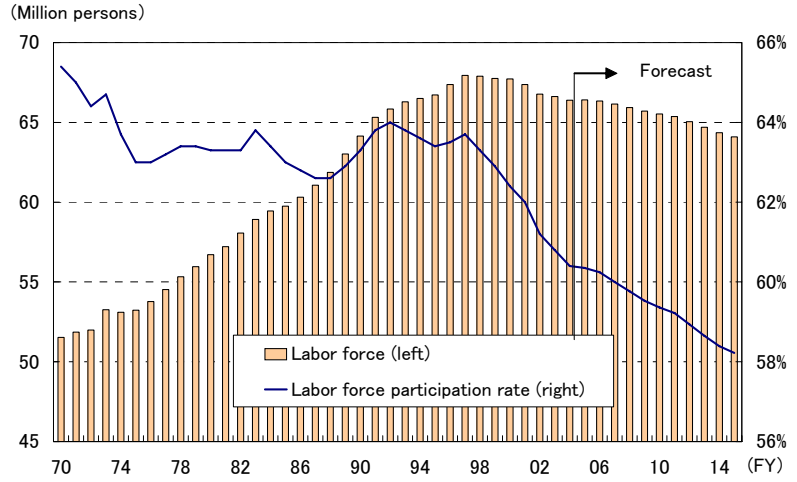
(1) Full-Fledged Aging

Japan's population is on the verge of a sustained downtrend. When baby boomers start to retire in 2007, aging will become full-fledged.

The working-age population (age 15–64) peaked out earlier in 1995 at 87.17 million, and has declined for six straight years since 1999. We estimate that the labor force may already be decreasing. This is because not only is population growth leveling off, but aging is increasing the proportion of elderly persons, whose lower labor force participation rate significantly depresses the overall participation rate.

Assuming that the structure of labor force participation rates remains unchanged by gender and age, the overall participation rate will drop from 60.4% in fiscal 2004 to 56.9% in fiscal 2015—a decrease of 3.5-percentage points—while the labor force of 66.39 million will decrease by approximately 3.50 million. However, since job opportunities should grow for the elderly and women, the actual decrease in participation rate (and labor force) will be more moderate. Thus we predict that the labor force participation rate will drop to 58.2% in fiscal 2015, and the labor force will decrease to 64.09 million, less 2.30 million from fiscal 2004.

Figure 7　Labor Force Size and Participation Rate (Forecast)

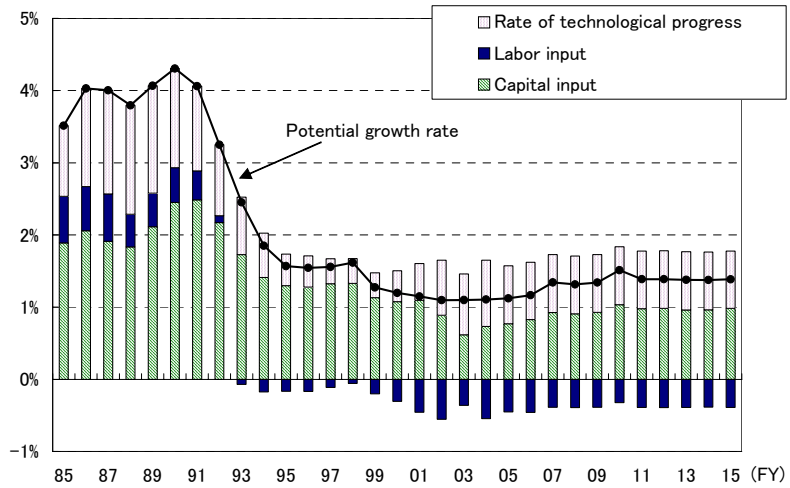


Source: MIC Statistics Bureau, *Labour Force Survey*.

(2)　The Diminishing GDP Gap

The economy's potential GDP growth rate, which stood at around 3% in the early 1980s, rose to 4% from the late 1980s to early 1990s. However, after the bubble collapsed, the potential growth rate plunged—weak investment hindered capital stock growth, population growth slowed, labor hours decreased, and the rate of technological progress fell. The potential growth rate is currently estimated in the low 1% range.

Figure 8　Contribution to Potential GDP Growth Rate



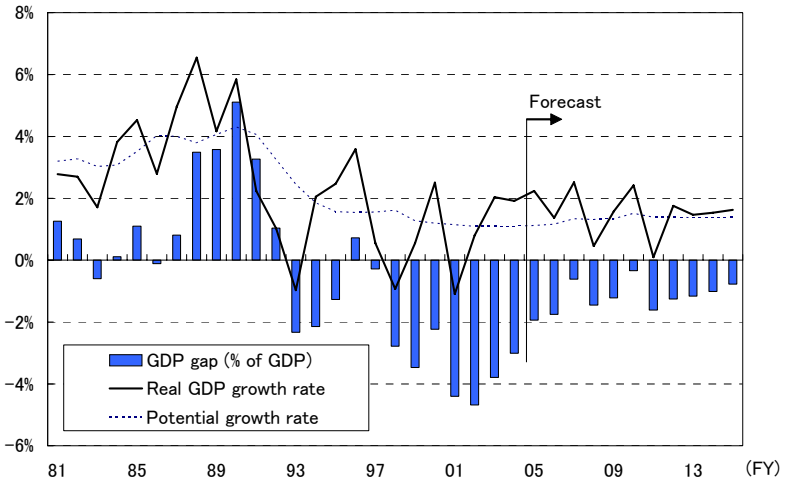
Note: Estimates are based on historical data to fiscal 2004, and on forecasts from fiscal 2005 onward.
Sources: ESRI, *Annual Report on National Accounts*, and *Gross Capital Stock of Private Enterprises*; MIC, *Labour Force Survey*; others.

Labor's contribution to potential GDP growth has been consistently negative since the mid 1990s. During the forecast period, the labor force will continue to slide as aging accelerates and the total population decreases. But the decline in labor input will stop widening as labor hours temporarily level off. Capital stock is now growing at a low rate of around 2%. However, we should note that

investment grew for two straight years in fiscal 2003 and 2004, and is certain to continue growing in fiscal 2005. We believe investment will keep growing at a high rate over the forecast period, boosting capital stock growth to the upper 2% range. To summarize, labor input will continue to contribute negatively, while the positive contribution of capital input will edge upward. Thus assuming that the rate of technological progress remains slightly under 1%, the potential GDP growth rate will rise to the mid 1% range.

The GDP gap—defined as real GDP minus potential GDP—expanded to almost -5% in fiscal 2002, but we estimate it has contracted to -2% at present following three straight years of GDP growth in the 2% range since fiscal 2003. We predict that GDP growth will drop in fiscal 2006 but resume a 2% pace in fiscal 2007, closing the GDP gap to approximately -1%.

Figure 9　Potential GDP Growth Rate and the GDP Gap



Source: ESRI, *Annual Report on National Accounts.*

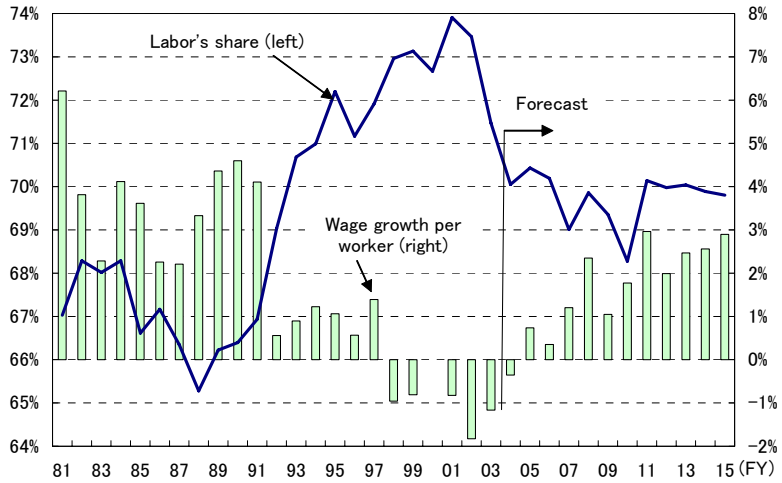
(3)　Wage Growth Will Support Consumption

The increase in labor's share, which kept rising after the bubble's collapse and squeezed corporate profits, stopped in the late 1990s as companies slashed labor costs, and turned downward in the 2000s. Labor market conditions will improve due to aging and the shrinking labor force, and the unemployment rate will fall to 3.3% in fiscal 2015. As a result, we predict that the wage per worker will rise. But since wage growth will be offset by the decrease in employed persons, labor's share will remain unchanged.

Once quantitative easing ends and monetary policy returns to normal, rising interest rates will cause interest income to grow. Thus we predict that the asset income of households, which plunged to abnormal lows following the bubble's collapse, will recover.

The above growth in household income, along with the decreasing saving rate (or rising marginal propensity to consume), will support consumption growth in the medium term.

Figure 10　Labor's Share and the Wage Growth Rate



Note: Labor's share = Compensation of employees / National income. Wage per worker = Compensation of employees / Number of employees
Source: ESRI, *Annual Report on National Accounts*.

(4)　Consumption Tax Hike and Its Impact

In line with our scenario of a two-part consumption tax hike—from today's 5% to 7% in fiscal 2008, and 10% in fiscal 2011—we predict that two ripples will occur in the economy. The economy will surge in fiscal 2007 and again in 2010 as last-minute demand rushes in, and then pull back in fiscal 2008 and 2011 as a result of the new tax rate and demand correction.

According to our macro model, a 1% consumption tax hike increases the CPI by 0.73%. This reduces real disposable household income and financial assets, dampening domestic demand centered around private consumption, and reducing real GDP by -0.38%. Moreover, demand will spike in the preceding year centered on personal spending and residential investment, and fall after the tax hike. The Cabinet Office estimates that in the fiscal 1997 consumption tax hike from 3% to 5%, personal consumption fluctuated by approximately ¥2 trillion (0.4% of GDP) before and after the tax hike.

(5)　Economy's Growth and Changing Appearance

If we smooth out growth fluctuations caused by economic policy, the real growth rate will average 1.5% in the decade from fiscal 2005 to 2015, slightly above the potential growth rate. As a result, we predict that the GDP gap will contract moderately, while CPI inflation will gradually rise. Since the consumption tax hike will boost CPI inflation, nominal GDP will grow 2.3% per year over the decade, which is significantly higher than the 0.2% growth rate from fiscal 1995 to 2005.

As aging reduces the household saving rate, the financial surplus of the economy will shrink, and the current account surplus will contract from 3.0% of nominal GDP in fiscal 2005 to 1.1% in fiscal 2015. When a trade deficit emerges in the early 2010s—net exports will contribute negatively to

economic growth—the current account surplus will consist entirely of the income account surplus.

(6) The Imperative of Structural Reform

Generally, the economy's maximum production level is determined by the combination of available labor, capital, and technology. If growth in capital per worker rises, the economy can continue to expand despite a shrinking labor force. However, there are two problems. First, as aging reduces the household saving rate, capital accumulation becomes more difficult. Second, since increasing capital per worker reduces the return on capital, large investment will become unsustainable within Japan.

For the economy to keep growing, the rate of technological progress thus becomes all the more critical. Technological progress involves not only science and technology, but a diverse range of institutions including government administration, legal and legislative systems, labor management, and financial market rules. In the broadest sense, technological progress also covers the optimal utilization of labor by employing the elderly and women, and maximizing return on investment on the diminishing domestic savings.

Developing new technologies and products is essential for Japanese companies to survive in global competition. To encourage domestic manufacturing, Japan needs to establish conditions for corporate activity that are competitive with other countries. In addition, to ensure the prosperity of the aging society, progress in science and technology must be accompanied by efficiency enhancements in the management of society, including downsizing of the inefficient public sector.

In overcoming deflation and the post-bubble economic malaise, structural reforms have long been emphasized. As aging accelerates in the 21st century, the economy will increasingly demand efficiencies acquired through structural reform.

Medium-Term Forecast for Japan

(% yoy change, otherwise otherwise noted)

Fiscal year	2004 actual	2005 forecast	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Annual average 95～05	Annual average 05～15
Nominal GDP (expenditures)	0.8	1.0	1.2	3.0	2.2	1.7	3.0	2.2	2.3	2.4	2.5	2.8	0.2	2.3
(¥ trillion)	(505.5)	(510.4)	(516.6)	(532.1)	(544.1)	(553.3)	(570.1)	(582.6)	(596.0)	(610.3)	(625.7)	(642.9)		
Real GDP (expenditures)	1.9	2.2	1.4	2.5	0.5	1.6	2.4	0.1	1.8	1.5	1.5	1.6	1.2	1.5
Domestic demand	1.5	2.2	1.2	2.9	0.4	1.8	2.8	−0.0	2.1	1.7	1.8	1.9	0.9	1.7
Private demand	2.3	2.7	1.5	3.7	0.5	2.3	3.5	0.0	2.6	2.0	2.2	2.3	1.1	2.1
Consumption	1.2	1.5	0.7	2.1	0.5	1.8	2.4	0.0	2.2	1.8	2.0	2.1	0.8	1.6
Residential investment	2.1	−1.0	1.2	5.3	−6.4	2.9	3.3	−4.3	3.1	−0.7	−1.3	−1.4	−2.6	0.1
Nonresidential investment	5.2	8.4	4.5	8.3	1.7	3.7	6.9	0.6	3.5	3.1	3.3	3.6	3.3	3.9
Public demand	−1.4	0.4	−0.0	0.0	−0.2	0.0	0.2	−0.1	0.2	0.2	0.3	0.2	0.4	0.1
Government consumption	2.7	1.6	1.1	0.8	0.8	0.7	0.9	0.7	0.9	0.9	0.9	0.9	2.7	0.9
Public investment	−15.1	−3.8	−4.2	−3.4	−4.5	−3.3	−3.5	−4.2	−3.2	−3.6	−3.7	−3.9	−5.5	−3.7
Net exports <contrib. to growth>	<0.5>	<0.1>	<0.2>	<−0.3>	<0.1>	<−0.2>	<−0.3>	<0.1>	<−0.3>	<−0.2>	<−0.3>	<−0.3>	<0.3>	<−0.1>
Exports of goods & services	11.9	4.9	4.8	2.8	3.0	2.6	2.5	2.6	2.5	2.6	2.5	2.5	5.7	2.8
Imports of goods & services	9.3	5.4	4.0	5.9	2.7	4.7	5.9	2.1	5.6	4.2	4.9	4.7	3.4	4.5
Industrial production	4.1	1.6	3.0	4.1	0.3	1.5	3.5	0.1	1.6	1.9	2.2	2.1	0.6	2.0
Domestic corporate goods price index	1.5	1.7	−0.1	0.6	2.4	0.4	0.8	3.4	0.5	0.7	0.9	1.0	−0.6	1.1
Consumer price index	−0.1	−0.1	0.3	0.7	2.5	0.8	1.3	3.4	1.5	1.8	2.0	2.0	−0.0	1.6
CPI (nonperishables)	−0.2	0.0	0.3	0.7	2.4	0.8	1.3	3.3	1.5	1.8	2.0	2.0	−0.0	1.6
Unemployment rate (%)	4.6	4.3	4.1	3.7	3.6	3.6	3.5	3.6	3.5	3.4	3.3	3.3	4.5	3.5
Current account balance (¥ trillion)	18.2	15.3	16.0	16.3	18.3	17.3	15.6	16.2	12.7	11.4	9.2	7.3	13.7	14.0
(as % of GDP)	(3.6)	(3.0)	(3.1)	(3.1)	(3.4)	(3.1)	(2.7)	(2.8)	(2.1)	(1.9)	(1.5)	(1.1)	(2.7)	(2.5)
Exchange rate (average, ¥/$)	107	108	102	102	102	101	101	101	100	100	100	100	116	101
BOJ overnight call rate (average, %)	0.00	0.00	0.00	0.25	0.25	1.25	2.00	2.00	2.75	3.00	3.00	3.00	—	—
10-year JGB yield (average, %)	1.50	1.50	1.80	2.30	2.60	3.20	3.70	3.90	4.20	4.50	4.50	4.50	1.61	3.52
WTI oil price (average, $/barrel)	39	57	53	50	46	47	48	49	50	51	52	53	28	50

Sources: ESRI, *Annual Report on National Accounts*; MIC Statistics Bureau, *Consumer Price Index*, and *Laobur Force Survey*; BOJ, *Financial and Economic Statistics Monthly*.

Medium-Term Forecast for the U.S.

Fiscal year	2004 actual	2005 forecast	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Annual average 95～05	Annual average 05～15
Real GDP (% yoy)	4.2	3.5	3.3	3.2	3.1	3.1	3.0	2.9	2.8	2.7	2.7	2.7	3.3	2.9
Domestic demand (% contrib.)	5.1	3.9	3.9	3.5	3.4	3.4	3.2	3.1	2.9	2.7	2.7	2.7	3.9	3.1
Personal consumption (% yoy)	3.9	3.5	3.1	3.1	3.0	3.0	2.9	2.8	2.7	2.6	2.6	2.6	3.8	2.8
Fixed investment (% yoy)	9.7	8.4	5.8	5.5	5.5	5.2	5.0	4.8	4.5	4.6	4.8	4.9	5.7	5.1
External demand (% contrib.)	−0.8	−0.4	−0.6	−0.3	−0.3	−0.3	−0.2	−0.2	−0.1	−0.0	−0.0	−0.0	−0.6	−0.2
Consumer price index (% yoy)	2.7	3.4	2.3	2.4	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.5	2.6
Current account balance (% nominal GDP)	−5.7	−6.3	−6.4	−6.1	−5.9	−5.8	−5.6	−5.4	−5.1	−4.8	−4.6	−4.4	−3.8	−5.4
10-year Treasury note yield (average, %)	2.25	4.00	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	3.15	4.50
Federal funds rate (yearend, %)	4.3	4.3	4.6	4.9	5.1	5.3	5.5	5.8	5.8	5.8	5.8	5.8	5.2	5.4

Note: Domestic demand and external demand are expressed as contribution to real GDP growth.

Medium-Term Forecast for the Euro Zone

Fiscal year	2004 actual	2005 forecast	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Annual average 95～05	Annual average 05～15
Real GDP (% yoy)	1.8	1.3	1.8	1.9	2.1	2.1	2.0	1.9	1.9	1.8	1.8	1.8	2.0	1.9
Domestic demand (% contrib.)	1.7	1.4	1.6	1.7	1.9	1.9	1.8	1.7	1.7	1.6	1.7	1.6	1.9	1.7
Private consumption (% yoy)	1.4	1.1	1.6	1.8	2.0	2.0	1.9	1.8	1.8	1.7	1.8	1.7	1.9	1.8
Fixed capital formation (% yoy)	1.3	0.9	1.9	2.0	2.3	2.2	2.2	2.1	2.1	1.9	2.0	1.9	2.2	1.9
External demand (% contrib.)	0.1	−0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
HICP inflation (% yoy)	2.1	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.7	2.0	1.9
Current account balance (% nominal GDP)	0.6	0.1	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.2	0.3
Exchange rate ($/euro)	1.24	1.26	1.26	1.26	1.26	1.26	1.26	1.27	1.27	1.27	1.27	1.27	1.07	1.26
ECB policy interest rate (yearend, %)	2.00	2.00	2.50	3.00	3.25	3.50	3.75	3.75	3.75	3.75	3.75	3.75	2.89	3.34
10-year German Govt. Bond yield (avg., %)	4.06	3.30	4.00	4.40	4.60	4.80	5.00	5.30	5.30	5.30	5.30	5.30	4.56	4.78

Note: For 12 member states of the euro zone. Average current account balance covers 1997-2005. Average ECB policy rate and dollar exchange rate cover 1999-2005.