

**Development Bank of Japan
Research Report
No. 19**

**Recent Trends in the Japanese Economy:
The Japanese Economy under Deflation**

August 2001

**Economic and Industrial Research Department
Development Bank of Japan**

Contents

Summary
I The Japanese Economy in an Adjustment Phase.....	1
1. Overview: Rapid Contraction of Production	1
2. Shipments: Down on Previous Year, Inventories: Further Adjustment.....	3
3. Income: Stagnating, Consumption: Sluggish.....	5
4. Plant and Equipment Investment: Leading Indicator Implying Substantial Slowdown	9
5. Housing Investment: Decreasing	12
6. Public Investment: Decreasing.....	13
7. Exports: Decreasing, Imports: Slowed Growth.....	15
8. Weak Prospects for Overtime Hours and Job Offers.....	16
9. Short-term Interest: Moving Around Zero with Quantitative Easing, Consumer Prices: Continuing to Decline	18
II The Japanese Economy under Deflation	21
1. Introduction	21
2. Deflation and Structural Issues of the Japanese Economy.....	21
3. Falling Prices Explained by both Supply and Demand Factors.....	23
4. Increased Imports Contributing to Falling Prices.....	25
5. Loan Repayment Burden Restricting Consumption Despite Stable Real Income.....	28
6. Corporate Profits Secured by Reduced Personnel Cost Despite Downtrend in Sales Prices	32
7. Real Interest Rates Remain High, Corporate Debt Repayment Burden Still Growing.....	34
8. Financial Assets Increasing in Parallel with Liabilities while Real Assets Decrease.....	36
9. Increased Government Debt Burden and Mounting Concerns about the Future.....	38

Analysts and writers:

Hajime Wada	Overall supervision
Jun-ichi Nakamura	Sections I-1, I-2, I-4, II-1, II-2, II-3, II-6 and II-7
Koichi Ando	Sections I-5, I-6, I-9, II-8 and II-9
Wataru Miyanaga	Sections I-3, I-8, I-9, II-5 and II-9
Naoki Shinada	Sections I-7, II-4 and II-9

Recent Trends in the Japanese Economy: The Japanese Economy under Deflation

Summary

1. Following a mild recovery from a trough in April 1999, the Japanese economy has now entered an adjustment phase, mainly due to a slowdown in the US economy and the rapid deterioration of supply-and-demand conditions in areas related to information technology (IT). Consumption has remained stagnant, reflecting the harsh employment and income environment, while exports to Asia as well as the US have declined. Coupled with weak prospects for plant and equipment investment, which has led the recovery to date along with exports, it's hard to find a driving force for the Japanese economy.

Personal consumption has remained sluggish and is expected to remain weak for the time being: Management conditions are tough, and a rise in corporate profits has not led to any discernable increase in household income. Furthermore, issues such as the budget deficit and difficulties encountered by pension plans have fueled concerns about the future.

Plant and equipment investment has been increasing since late 1999. The growth has been less robust than in the past, however, led solely by manufacturing related to information technology. As production has already peaked mainly in IT-related industries and the leading indicator of machinery orders has slowed down substantially, plant and equipment investment will likely remain stable or even decline in fiscal 2001.

Housing investment decreased for the first time in two years as the effect of tax relief measures for housing loans ended. Although there has been some progress in implementing the supplementary budget (new development policy) adopted in the autumn of 2000, public investment will probably continue to fall as efforts for budget reform gather momentum.

Exports turned down with the slowdown in the world economy, particularly the US economy, in the second half of fiscal 2000. In contrast, imports are expected to remain firm due to structural factors such as imports from Asia, although growth has slowed in line with domestic demand.

The industrial inventory cycle points to an adjustment, particularly for producer goods (intermediate goods including semiconductors and liquid crystals), since January-March 2001. As regards employment, overtime hours as well as job offers have fallen slightly mainly in the manufacturing sector, which suggests a further rise in the unemployment rate.

In the financial sector, bank lending has declined while the money stock has continued to rise, implying a preference for low risk investments including government bonds, whose yields are now on the decline. Short-term interest rates were just above zero following the lifting of quantitative controls by the Bank of Japan. As consumer prices continue to decline particularly for industrial products, the easy monetary policy will be maintained for the time being.

2. As prices continued to decline since 1999 even during the economic recovery phase, the Cabinet Office finally described the current economic situation as "deflation." This report analyzes the background of deflation and its effects on the real economy, regarding deflation as a phenomenon that encompasses various structural problems/changes the Japanese economy faces on both the demand side and the supply side.

Deflationary factors on the supply side include, improved productivity through technological progress (electric machinery, etc.), deregulation and increased entries into markets (communications, etc.), and the growth of low-priced imports (textile products, etc.). Data analysis indicates, among others, that prices have declined for machines and appliances due to cost reduction through improved productivity and competition with imports, and that import prices for textile products have fallen due to productivity improvements and cost reductions with direct investments from Japanese manufacturers.

On the demand side, deflation largely stems from balance sheet problems in all sectors including household, business, finance and government. The continuous fall in prices that resulted has created further balance sheet problems primarily through the increased debt burden in real terms. In the household sector, consumer demand has been stagnant due to concerns about retirement and pension benefits in the future, as companies come under pressure to restructure, financial institutions are obliged to write off non-performing loans and the government faces an ever-increasing debt burden. Also, the consequent decline in prices has led to lower consumption among households with housing loans to repay. In the corporate sector, analysis shows that the restriction on plant and equipment investment is largely attributable to high real interest rates, as the decline in output prices has already been taken into account. Another cost of deflation is increased real-term repayment burden on existing loans.

In addition to falling prices, the decline in asset prices suppresses consumption through the negative wealth effect, and may also restrain plant and equipment investment by reducing collateral values.

Future policy measures should address structural reforms to increase potential supply as well as create corresponding demand and employment opportunities. It is also essential to safeguard against possible economic downturn.

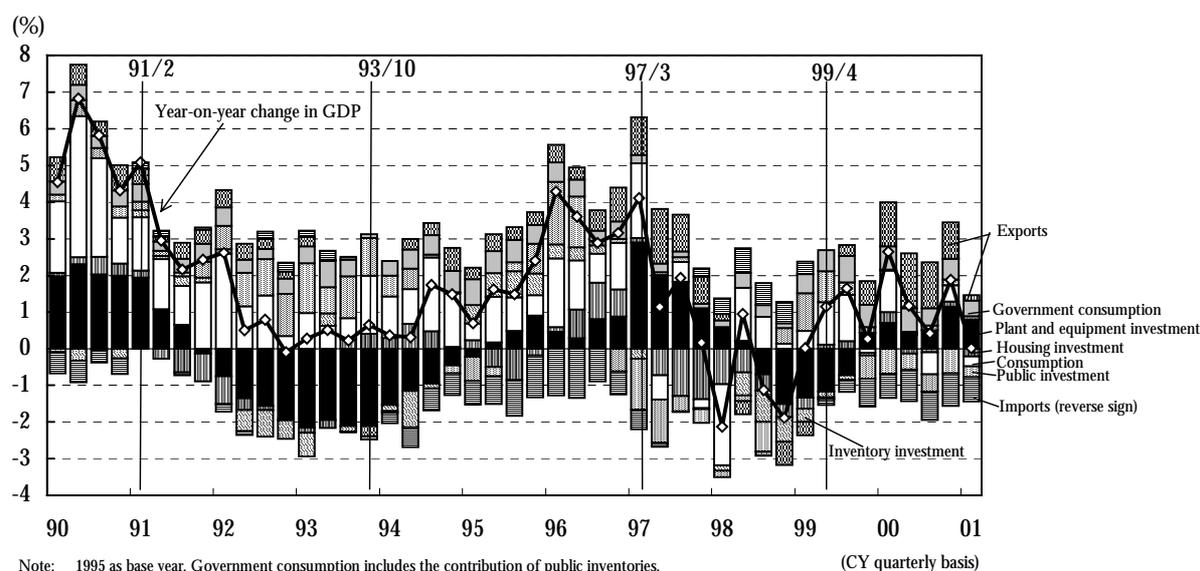
I. The Japanese Economy in an Adjustment Phase

1. Overview: Rapid Contraction of Production

Following a mild recovery from a trough in April 1999, the Japanese economy has now entered an adjustment phase, mainly due to a slowdown in the US economy and the rapid deterioration of supply-and-demand conditions in areas related to information technology (IT). Consumption has remained stagnant, reflecting the harsh employment and income environment, while exports to Asia as well as the US have declined. Coupled with weak prospects for plant and equipment investment, which has led the recovery to date along with exports, there has been growing concern about the virtual collapse of the Japanese economy.

Real GDP for fiscal 2000 increased for two years running, up 0.9% from the previous year, but the growth rate did not reach the level of fiscal 1999 (1.4%). On a quarterly basis, GDP grew for nine consecutive periods from January-March 1999 (change on the previous year for the purpose of this section), only to level off in January-March 2001 largely due to the substantial slowdown in exports (Figure 1-1).

Figure 1-1. Trends in Real GDP (Year-on-year change by component)



Although private final consumption expenditure showed signs of recovery in some demand items including those related to durable goods, it remained sluggish overall. Its year-on-year growth in fiscal 2000 hovered around zero and stood at -0.5% in January-March 2001 despite the eleventh-hour demand before the Household Electric Appliance Recycling Law went into effect. Consequently, consumption for fiscal 2000 as a whole declined for the first time in three years, down 0.2% from the previous year. Consumption has been sluggish because of tough management conditions, which has not allowed any increase in household income through wage rises reflecting the improvement in corporate profits, as well as growing concerns about the future due mainly to budget deficits and difficulties experienced by pension plans. With such situations being unchanged, consumption is expected to remain sluggish for the time being.

Plant and equipment investment by private firms has increased for six consecutive quarters since October-December 1999, thanks to strong production in IT-related industries from fiscal

1999 to the first half of fiscal 2000. As a result, investment increased for the first time in three years for fiscal 2000 overall, up 4.5% from the previous year. On a quarterly basis, however, the growth has never reached double figures, reflecting the relative weakness of recovery, as the expansion has been almost solely led by IT-related industries. Investment has been cautious compared with the improvement in profits. Production has already peaked mainly in IT-related industries and the leading indicator of machinery orders predicts a substantial slowdown. Thus, it is likely that plant and equipment investment will begin to show signs of decline by mid-fiscal 2001.

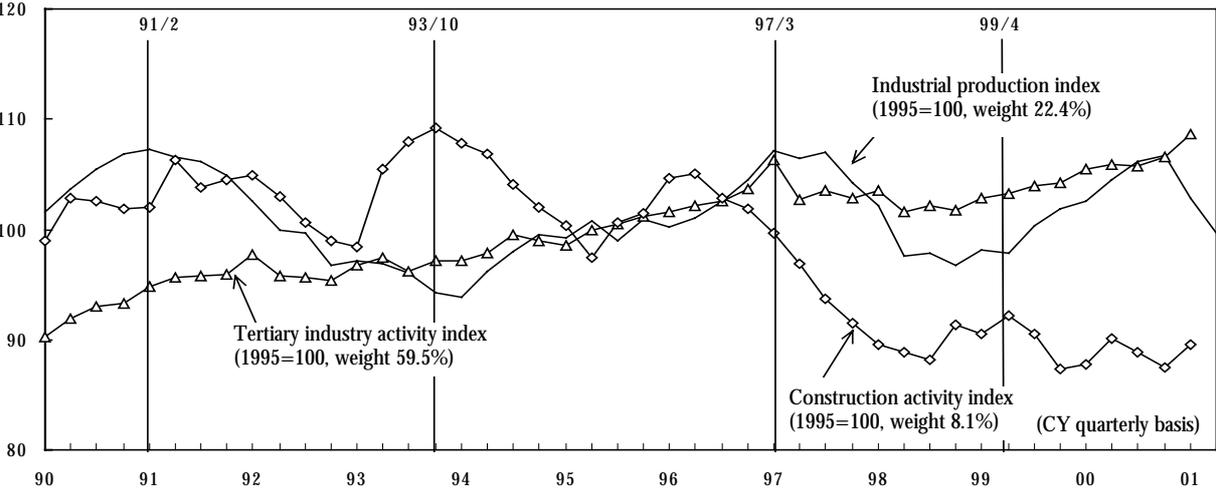
Housing investment for fiscal 2000 declined for the first time in two years (down 1.9%) as the inflating effect of tax relief measures for housing loans has subsided and housing starts for owned houses fell. Housing starts as a whole are expected to remain weak, decreasing for owner-occupied houses and leveling off for condominiums.

With little recovery in private demand and financial difficulties experienced by the central and local governments, public investment has declined for six consecutive quarters since October-December 1999, resulting in a sizable drop of 6.1% for the whole fiscal 2000. Looking ahead, expected progress in the New Development Policy (total cost of ¥11 trillion) adopted in October 2000 will not be sufficient to reverse the downtrend in public investment, as budget reform efforts gather momentum.

Backed by the strong European and US economy as well as the rapid recovery of the Asian economy, exports rose in July-September 1999 and then peaked between January-March and July-September 2000, recording double-digit increases for three quarters running to lead the overall growth of GDP. But as the world economy lost steam, particularly in the US, which became apparent in the second half of fiscal 2000, exports slowed to a growth of 1.4% on the previous year in January-March 2001, recording the first decline in eight quarters from the previous period in seasonally-adjusted terms.

Imports have been increasing steadily mainly from Asia, despite a slight slowdown in the second half of fiscal 2000. Consequently, the contribution of net exports in January-March 2001 declined for the first time in five quarters. Exports are expected to continue to decline due to increased uncertainties about the timing and speed of recovery in the US economy, while imports

Figure 1-2. Trend of Production Indicators (Seasonally adjusted)



Note: Industrial production index for 2Q/01 represents forecast based on actual data for April and the Survey on the Forecast of Manufacture Production.
 Sources: Various indices reported by the Ministry of Economy, Trade and Industry.

will remain firm due to structural factors. On balance, net exports are expected to make a negative contribution to GDP.

Judging from the conditions described above, the government forecast of real GDP for fiscal 2001 (up 1.7%, adopted by the Cabinet Meeting on January 31, 2001) will almost certainly be revised downward, possibly to a negative figure.

Figure 1-2 shows the trend of major production indicators including industrial production index, tertiary industry activity index and construction activity index.

The industry activity index in January-March 2001 fell for the first time in seven quarters due to inventory adjustment and the decline in demand related to electric machinery, which had led the previous recovery from April-June 1999. An estimate using the results of the Forecast Survey on Manufacturing Production clearly indicates a substantial drop for the following April-June period, thus confirming the rapid decline in industrial production.

The tertiary industry activity index has been rising as a whole on the back of growth in telecommunications and firmness in the heavy-weighted service sector. Construction activity has remained weak since the latter half of fiscal 1999, when recovery led by a surge in public works came to a halt.

2. Shipments: Down on Previous Year, Inventories: Further Adjustment

In a graph with the year-on-year growth of inventories on the horizontal axis and that of shipments on the vertical axis, the level of inventories is empirically known to move in clockwise circles. This confirms the existence of a so-called inventory cycle; although producers basically try to adjust their production to shipment volume, the time lag between the recognition of any change in shipment growth in parallel with the economic cycle and the subsequent adjustment of production volume results in changes in the inventory level.

For instance, when shipments start to recover, the level of production remains low for some time, resulting in an unintentional reduction in inventories by producers (recovery phase in the conceptual chart on page 4). As shipments continue to increase, producers intentionally build up inventories by increasing production until they recover to a reasonable level (intentional buildup phase). Subsequently, the growth of shipments begins to slow as the economy peaks, while a high level of production is still maintained by producers. As a result, the growth of inventories exceeds that of shipments (crossing the 45-degree line in the first quadrant from upper left to lower right). This means that inventories, against the will of producers, continue to increase above the reasonable level (unintended accumulation phase). Further recession, hence further decrease in shipments, will lead producers to cut back production at a pace faster than the decline in shipments until inventories fall to a reasonable level (inventory adjustment phase). This creates the inventory cycle consisting of the above four phases.

The inventory cycle in January-March 2001 shows that industrial shipments as a whole decreased for the first time in seven quarters while inventories continued to increase mainly for producer goods. Thus, the cycle is already in the adjustment stage, and inventories have been rapidly adjusted since April (Figure 1-3).

By type of goods, shipments have increased only for capital goods (excluding transport equipment), but the double-digit growth has slowed as domestic plant and equipment investment has leveled off. Consequently, the inventories of capital goods have started to increase slightly (Figure 1-4). The shipments of construction materials have been falling, as public investment has been reduced and private construction investment has remained weak except for some items including factories (Figure 1-5). As regards consumer goods, shipments of non-durable goods continued to decline while shipments of durables, which had been increased by the contribution of domestic demand, decreased for the first time in seven quarters (Figure 1-6). As for producer

goods, shipments turned downward mainly for IT-related products such as semiconductor integrated circuits, while the growth of inventories accelerated, raising concerns about a prolonged inventory adjustment (Figure 1-7).

In the manufacturing and mining sector as a whole, the current inventory cycle, which has entered the adjustment stage, is characterized by a slow accumulation of inventories while shipments have been decreasing at a pace similar to the adjustment stage in the previous cycle. Thus, except for producer goods, production is expected to pick up earlier if only final demand bottoms out, future developments will depend largely on factors such as the recovery of the US economy and the trend of domestic consumption.

Figure 1-3. Inventory Cycle (Mining and manufacturing sector)

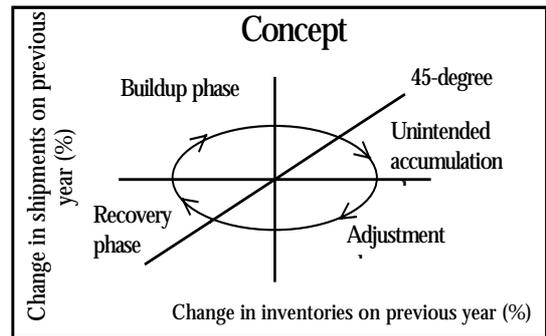
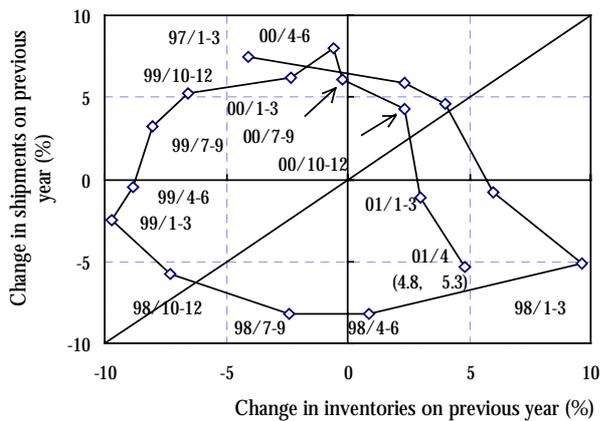


Figure 1-4. Inventory Cycle of Capital Goods (Excluding transport equipment)

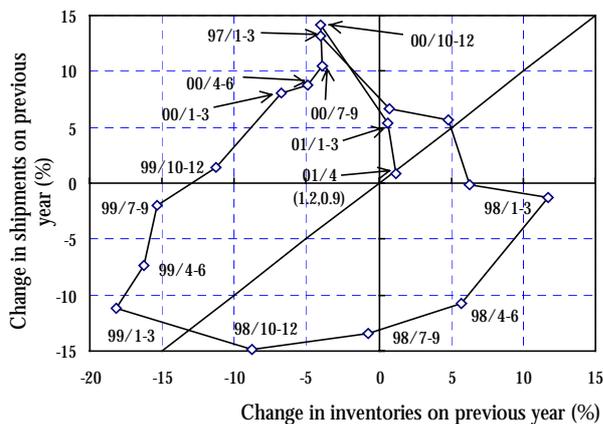


Figure 1-5. Inventory Cycle of Construction Materials

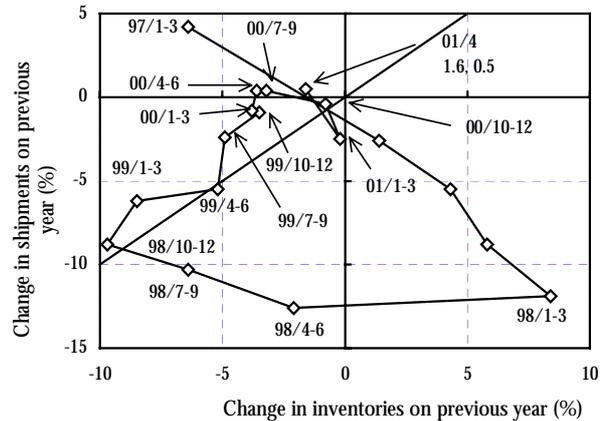


Figure 1-6. Inventory Cycle of Consumer Goods

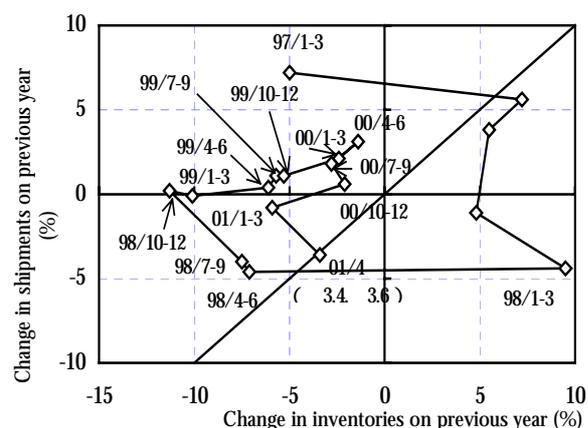
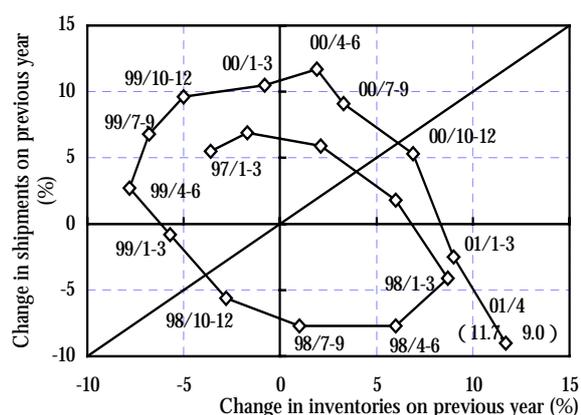


Figure 1-7. Inventory Cycle of Producer Goods



Source: Ministry of Economy, Trade and Industry, "Industrial Index."

3. Income: Stagnating, Consumption: Sluggish

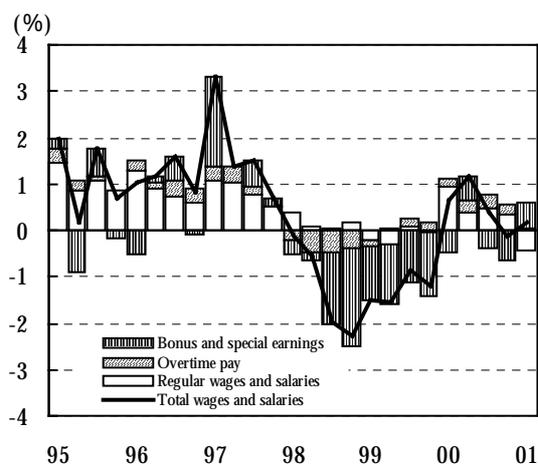
According to the Monthly Labor Survey, after the increase for the first three quarters of 2000, total wages and salaries per person (Figure 1-8) stay around a year ago level, showing signs of stagnating. By component, the growth of overtime hours and pay since 1999 began to slow, while regular wages and salaries actually fell in the most recent period. Although bonuses and special earnings increased in January-March 2001, data on bonuses alone (Figure 1-9) indicate that the 2000 year-end bonus declined 3.1%, following the first increase in three years recorded in the summer. The wage increase after the spring labor campaign, which remained at the record-low level for three consecutive years, is expected to be even lower in fiscal 2001. Thus, the income environment is likely to deteriorate further in the coming months.

Figure 1-10 adjusts the consumption expenditure appearing in the Family Income and Expenditure Survey (households with two or more members excluding those engaged in agriculture, forestry or fisheries) to identify the trend of household consumption expenditure up to the most recent period.¹ Consumption expenditure has been stagnant in both nominal and real terms, increasing only slightly in the economic recovery phase since April-June 1999. Although real consumption has remained below nominal consumption since the consumption tax rate was raised in 1999, the former has been growing faster than the latter due to falling prices in recent years, underlining the continued sluggishness of nominal consumption. Still more, the consumption expenditure of single-member households, which are not included in the said data, rose 1.0% and 4.6% from the previous year in fiscal 1998 and 1999 respectively, but declined 6.8% in fiscal 2000, due to a huge drop in non-elderly households. It is difficult to make a judgment solely from those figures, as they are far more volatile than the data for households with two or more members. Nevertheless, the consumption of single-member households, which accounts for a quarter of total households and are considered in provisional GDP data, is much weaker than previously thought.

¹ Here, consumption items without any identified purposes (pocket money, gifts, other social expenses and remittances) are excluded as well as automobiles, which fluctuate widely. Data were converted into Macro-based consumption expenditure and count out the influence of the downtrend in the number of household members. Finally, real values calculated for each type of goods/services were seasonally adjusted according to the Census Bureau X-11 program. Conceptually, the data does not correspond to those of GDP which incorporates single-member households, agricultural forestry and fishery households, imputed rent for owned houses, automobile purchases, etc. The figures are indexed on 1995 average (=100).

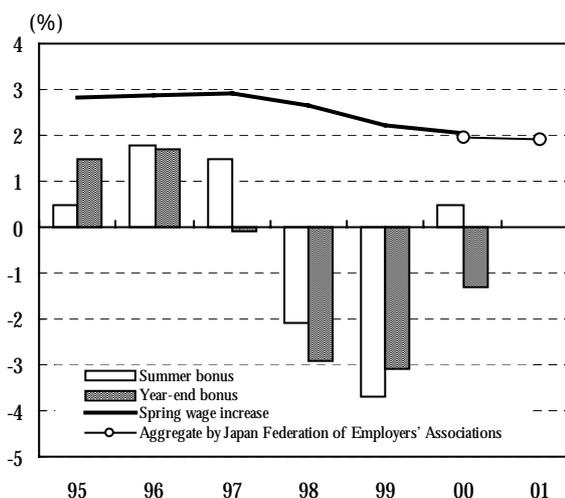
Figure 1-11 breaks down the growth of real consumer spending in workers' households of the Family Income and Expenditure Survey into three factors: income (pre-tax income including regular wages and salaries, overtime pay and bonus), tax and charges (income tax, inhabitant tax, social insurance premium, etc.) and consumption propensity (ratio of consumption to disposable income). Although real consumer spending has been recovering slightly since last year, the income factor has made a negative contribution for eight consecutive quarters since April-June 1999. Consumption propensity, which offsets the drop in income, has risen since 1999 to 73.2% (seasonally adjusted figure) in January-March 2001, the highest in four years. This trend can level off or even reverse in the coming periods.

Figure 1-8. Trends in Wages and Salaries per Person (Trend of year-on-year change by component)



Note: Firms employing five or more workers.
Source: Ministry of Health, Labor and Welfare, "Monthly Labor Survey."

Figure 1-9. Spring Wage Increase and Change in Bonuses on Previous Year

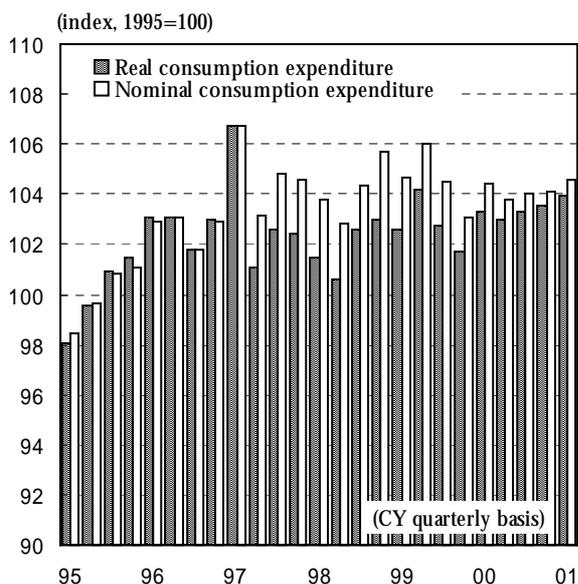


Notes:

1. Summer bonus and year-end bonus include wages and salaries paid as such in July-August and November-January respectively in firms employing five or more workers.
2. Spring wage increase covers listed companies with trade unions employing 1,000 or more workers and capitalized at ¥2 billion or over.
3. Aggregate by Japan Federation of Employers' Associations covers 209 major companies that have concluded pay raise agreements.

Sources: Ministry of Health, Labor and Welfare, "Monthly Labor Survey;" Japan Federation of Employers Associations, etc.

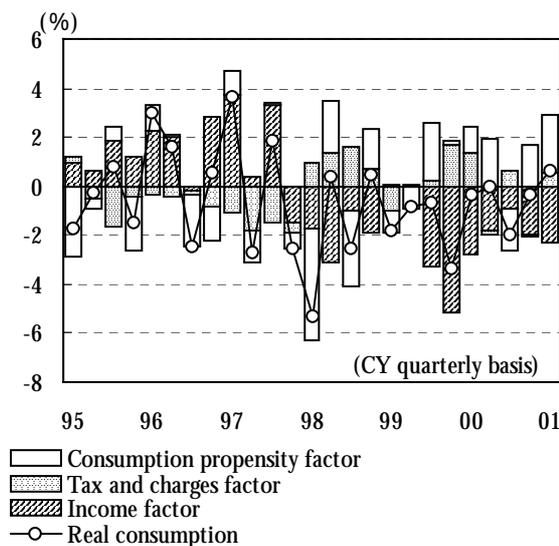
Figure 1-10. Consumption Trend according to Family Income and Expenditure Survey (Seasonally adjusted)



Note: Consumption expenditure are of all households covered by the Family Income and Expenditure Survey excluding pocket money, gifts, other social expenses, remittances and automobile purchases and is adjusted for the decrease in household members and population growth. Conversion into real terms was made separately for durable goods, semi-durable goods, non-durable goods and services, using the consumer price index (excluding imputed rent and automobiles). Finally, seasonal adjustment was made with X-11.

Sources: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Family Income and Expenditure Survey," "Consumer Price Index" and "Population Estimation."

Figure 1-11. Real Consumption (Change on previous year by component)



Notes:

1. Conversion into real terms was made for total figures by CPI excluding imputed rent.
2. Factor resolution was made as follows (all in real terms):

$$C = \text{propensity} \cdot Y - \text{tax and charges} \cdot T + \text{consumption propensity} \cdot (Y - T)$$

C: consumer spending, Y: income, T: tax and charges, : consumption propensity

Sources: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Family Income and Expenditure Survey" (workers' households) and "Consumer Price Index."

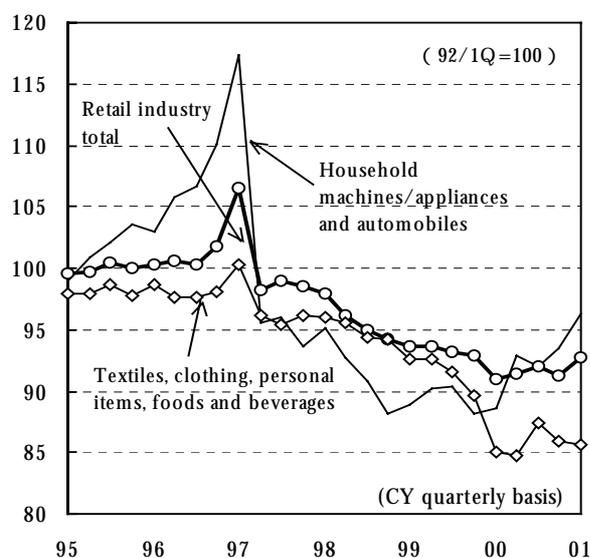
Among the supply indicators related to consumption, the retail sales index (seasonally adjusted, 1995 average=100; Figure 1-12), has been improving slightly since last year following a mild downtrend from 1997 partly due to falling prices. Although declines continued in textiles, clothes, personal goods, foods and beverages, these are more than offset by the recovery in home appliances and automobiles after bottoming out in October-December 1999.

The number of new passenger car registrations (Figure 1-13) has also remained firm since the beginning of 2000. Although the registrations of light and medium-sized automobiles have started to drop, sales of small-sized vehicles have been buoyant thanks to the successive introduction of new models. In total, sales of passenger cars amounted to 4.257 thousand vehicles (1.7% increase from the previous year), a second consecutive year of increase, and the makers also expects a slight increase for fiscal 2001.

Along with automobiles, buoyant sales were observed for household durable goods due to the last minute demand prior to implementation of the Recycling Law in April 2001. Figure 1-14 makes a similar adjustment to Figure 1-10 to identify the change on the previous period by component. Spending on the four products covered by the Recycling Law (refrigerators, washing machines, air-conditioners and TVs) increased 69% from the previous year level in January-

March 2001, raising overall consumer spending by 0.8%. The effect was greater than January-March 1997, just before raising the consumption tax rate. At that time, the subsequent reactionary drop was substantial, as the 5.4% increase in private final consumer spending recorded in January-March 1997 was followed by a 6.3% drop (change from the previous period in seasonally adjusted real terms) in the April-June period. In the present case, however, both the Family Income and Expenditure Survey (after adjustment) and provisional GDP data indicate that sales did not grow faster than in the previous two quarters. Unlike the consumption tax hike, which affected a wide range of goods and services, the Recycling Law is only applicable to the four products that only accounted for 0.9% of consumer spending on average between 1995 and 1999. Thus, any repercussion from April onward is expected to be limited.

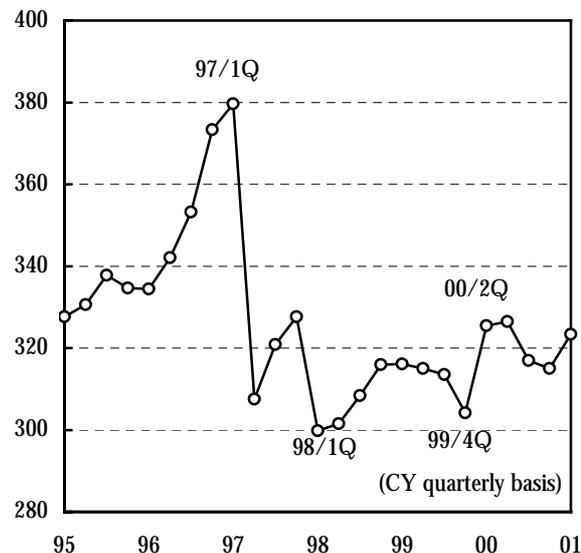
Figure 1-12. Retail Sales Index (Seasonally adjusted)



Note: Retail sales index except for total represents the average of published seasonally adjusted figures weighted by the sales of each industry.
Source: Ministry of Economy, Trade and Industry, "Report of the Current Survey of Commerce."

Figure 1-13. New Car Registrations (Seasonally adjusted)

(annual rate, 10,000 vehicles)



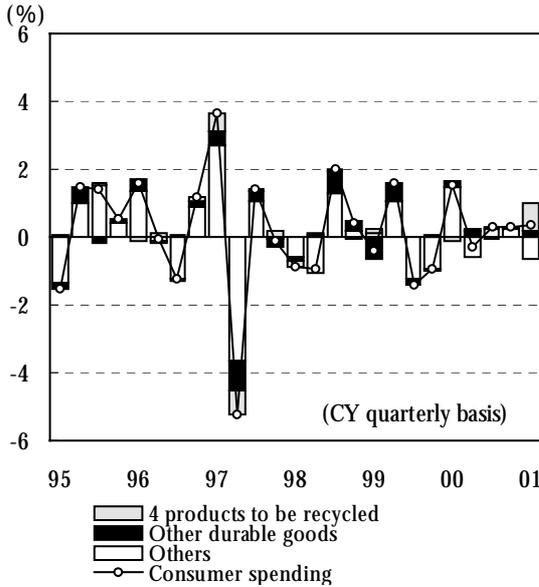
Source: Cabinet Office, "Indexes of Business Conditions."

Although some positive factors have been observed particularly for durable goods, such as relatively robust car sales and a surge in demand just before the Recycling Law went into effect, consumption is expected to flatten or weaken in the coming periods. As shown in Figure 1-14, consumer spending on the products not covered by the Recycling Law declined in January-March 2001, just before it came into force. One prospect is that, consumption may stay almost flat overall, as spending on such products recovers from April. Alternatively, if consumption of those products does not recover, it implies that consumer spending in January-March was supported only by the last minute demand and a underlying trend has already started to stall. The monthly Family Income and Expenditure Survey for April indicates a substantial drop in consumption expenditure for the products not covered by the Recycling Law, and supports the latter view.²

² The April survey indicates a substantial decline on the previous year especially in automobiles, tuition and funerals due to sample factors. Thus, 5.2% plunge should be treated with caution.

Figure 1-15 shows the consumer outlook for the coming six months according to the Survey on Consumption Trends. The consumer confidence index (simple average of five survey items) continued to improve slightly for five quarters from July-September 1999 but then fell since October-December 2000 due mainly to deteriorating employment conditions, with all survey items except prices declining from the previous quarter in the most recent period. Overall, consumption is likely to weaken, influenced by worsening income and employment conditions.

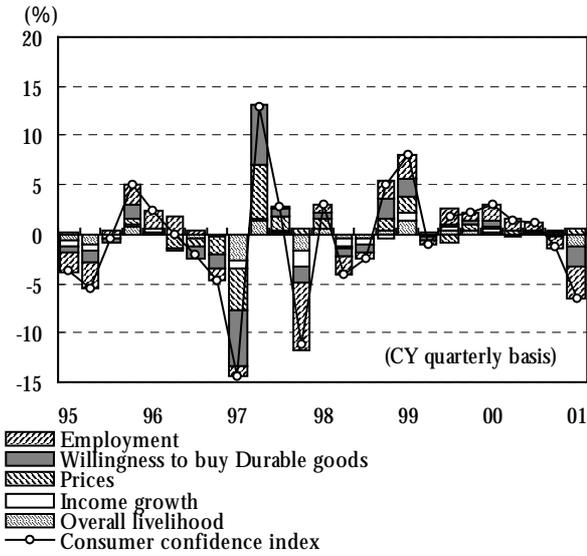
Figure 1-14. Impact of Recycling Law on Real Consumption



Notes: The same adjustments were made as in Figure 1-10. The 4 products to be recycled include refrigerators, washing machines, air-conditioners and TVs.

Sources: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Family Income and Expenditure Survey," and "Consumer Price Index."

Figure 1-15. Quarterly Change in Consumer Confidence Index (Seasonally adjusted)



Notes: 1. Consumer confidence index is based on questionnaire surveys for the coming six months. 2. Figures for individual components were redistributed from seasonally adjusted data.

Source: Cabinet Office, "Consumer Confidence Survey."

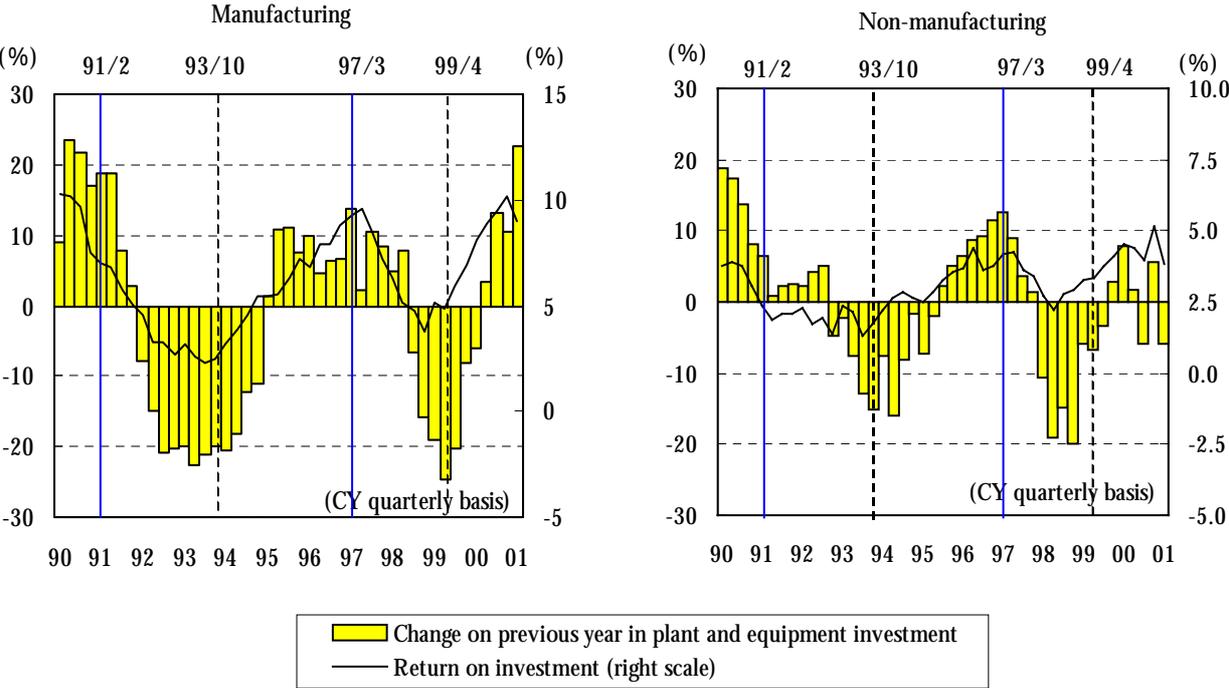
4. Plant and Equipment Investment: Leading Indicator Implying Substantial Slowdown

Plant and equipment investment by industry according to the Statistical Survey of Incorporated Enterprises indicates that spending in the manufacturing sector rose on the previous year in April-June 2000. Since then, it has recovered rapidly led by electric machinery, recording a 22.6% increase in January-March 2001, the highest growth since April-June 1990 (Figure 1-16). In the non-manufacturing sector, on the other hand, plant and equipment investment rose earlier than in manufacturing in October-December 1999. The recovery did not last long, however, with the growth rate hovering around zero in fiscal 2000. In January-March 2001, the completion of retail investment in new stores prior to enforcement of the Law on the Location of Large-scale Retail Stores and reactionary drop from the previous year in some services including hotels and inns resulted in a 5.8% decline in non-manufacturing plant and equipment investment as a whole, thus leading to the slowdown in plant and equipment investment on a GDP basis.

Return on investment (operating profit-tangible asset ratio – average interest rate on new loans: see Note of Figure 1-16), which empirically has a significant correlation with plant and equipment investment, continued to improve in the manufacturing sector until October-December 2000, exceeding a level equivalent to the previous peak, only to decline slightly in January-March 2001. In the non-manufacturing sector, return on investment weakened somewhat, though with fluctuations after a continued improvement until January-March 2000, when it exceeded the previous peak.

In the current recovery phase, manufacturers initially took a cautious attitude toward plant and equipment investment despite the recovery in return on investment. In fiscal 2000, however, plant and equipment investment grew faster than return on investment. As return on investment and production already appear to be leveling off, some over-investment may have occurred in IT-related industries, thus raising concerns about a possible reaction in the coming periods. In non-manufacturing, plant and equipment investment has constantly remained weaker than return on investment, which may be attributable to two factors. First, return on investment improved mainly due to the reduction of fixed costs. Second, investment continued to be curbed in industries under heavy pressure to cut costs due to deregulation.

Figure 1-16. Plant and Equipment Investment and Return on Investment (Corporations of all sizes)

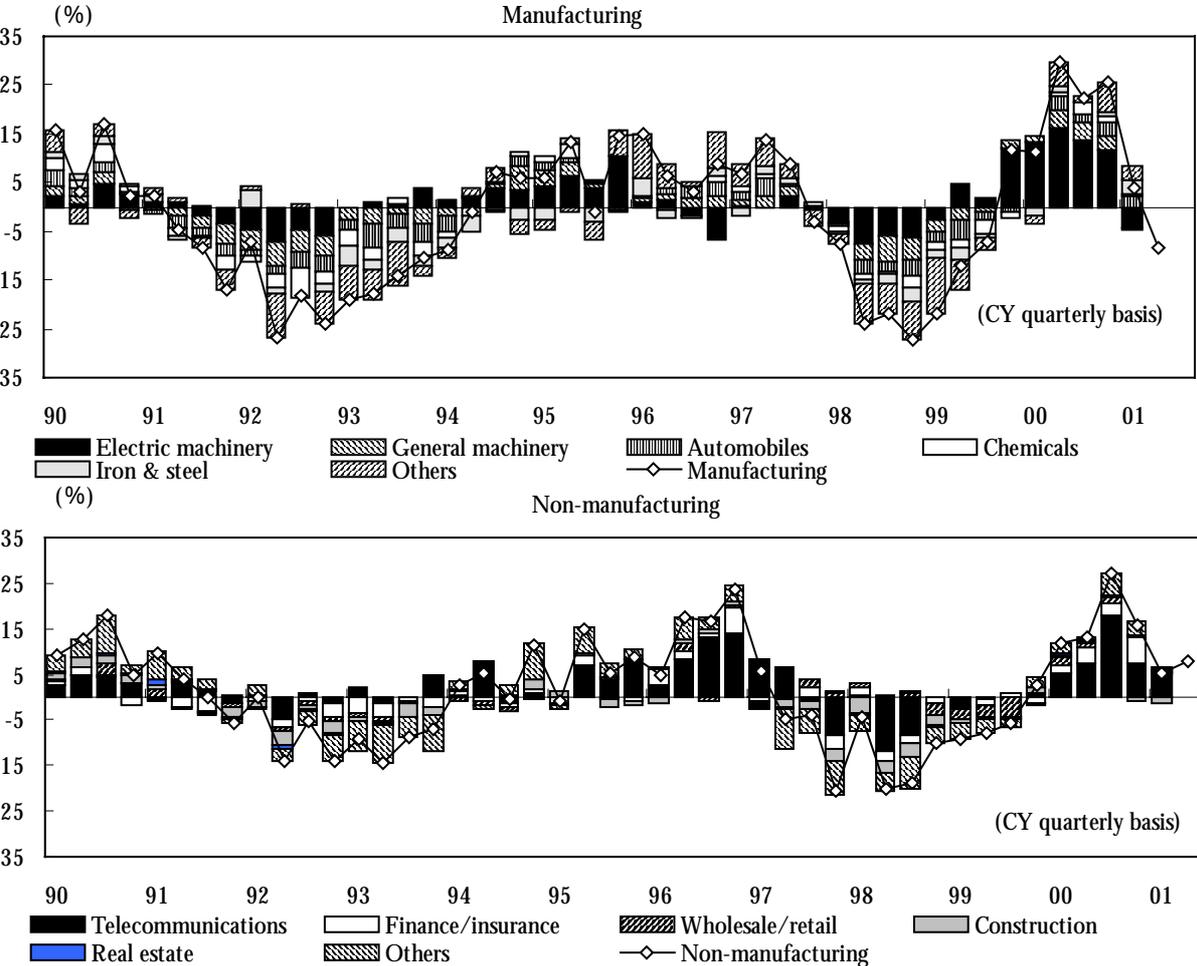


Notes: 1. Return on investment = operating profit-tangible asset ratio – average lending rate of banks (new loans, total), where operating profit-tangible asset ratio = operating profit/(tangible fixed assets + inventories).
 2. No adjustments are made for changes in the accounting rule on business tax (ministerial order revised in December 1998).

Sources: Ministry of Finance, "Quarterly Report of Statistical Survey of Incorporated Enterprises," etc.

Machinery orders (private demand excluding ships and electricity), which usually lead plant and equipment investment by approximately two quarters, continued to increase by double digits from the previous year in both manufacturing and non-manufacturing, particularly from electric machinery and telecommunications respectively, but then slowed down substantially in January-March 2001 (Figure 1-17). As regards the manufacturing sector, in particular, machinery orders from the electric machinery industry, which had played a leading role, suddenly dropped from the previous year, due to deteriorating conditions in the IT market and contract cancellations.³ According to an estimate by the Cabinet Office, machinery orders will decline for the whole manufacturing sector in April-June 2001. In the non-manufacturing sector, orders received for construction works (private non-housing), a leading indicator for the heavy-weighted construction investment, continued to stagnate, although machinery orders were stronger than in the manufacturing sector. The trend of the leading indicator implies that plant and equipment investment is likely to remain weak or even decline in fiscal 2001.

Figure 1-17. Orders Received for Machinery (Trend of year-on-year change by industry)



Note: Cabinet Office estimate for 2Q/01.
 Source: Cabinet Office, "Orders Received for Machinery."

³ In the Machinery orders statistics, any cancellation of contracts is not made retroactive to the time of placing orders but is subtracted from the value of orders at the time of cancellation.

5. Housing Investment: Decreasing

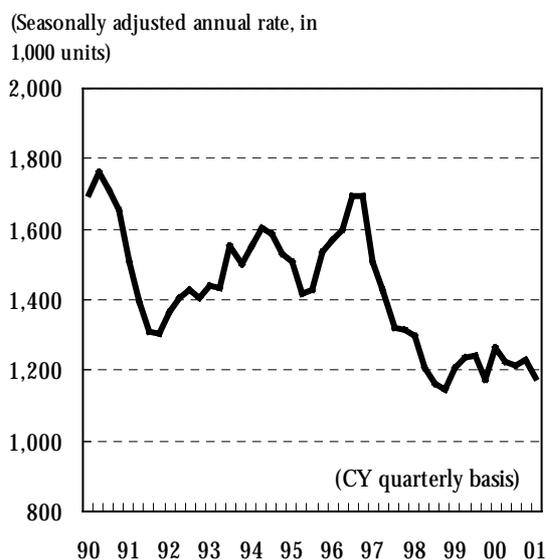
After dipping below 1.2 million units in 1998, housing starts (seasonally adjusted annual rate) slightly recovered in 1999 thanks to the introduction of tax relief measures for housing loans and the effect of low interest rates and have since stayed around 1.2 million units (Figure 1-18). They have now exceeded the 1.2 million mark for two consecutive years, amounting to 1.226 million and 1.213 million units for fiscal 1999 and 2000 respectively. However, housing starts have been decreasing lately, falling below 1.2 million units to 1.182 million units in January-March 2001.

Figure 1-19 shows the contribution to year-on-year growth by type of housing. The recovery that started in January-March 1999 was initially led by owner-occupied houses, which were followed by condominiums from the latter half of 1999. Following some fluctuations in 2000, recent developments point to stabilization for condominiums and decline for owner-occupied houses, following eleventh-hour demand to benefit from tax relief.

The construction of owner-occupied houses fell in fiscal 2000, as the deadline of tax relief measures for housing loans was extended and the standard rate of the Government Housing Loan Corporation remained stable at around 2.8% (Figure 1-20). Within the fiscal year, the construction of owner-occupied houses increased temporarily in July-September, but then declined steadily. This is largely attributable to the surge in demand before the deadline to benefit from preferential housing tax relief measures, and its subsequent withdrawal.

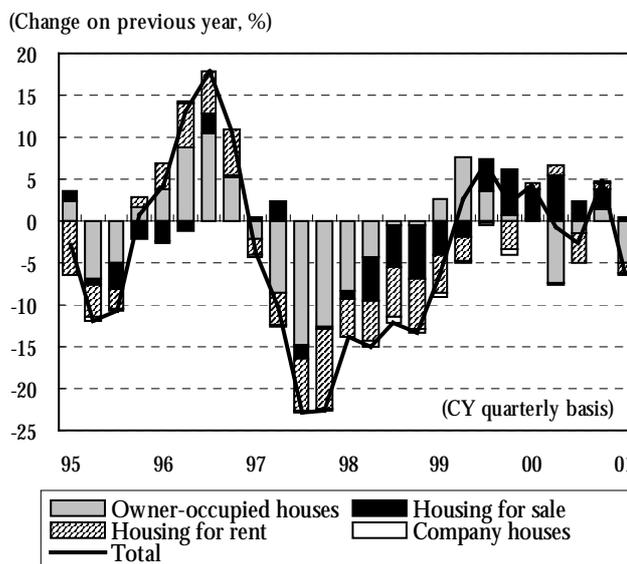
The standard interest rate of the Government Housing Loan Corporation started to decline in late 2000 and stood at 2.45% as of April 2001. However, the number of applications for the Corporation's housing purchase loans, a leading indicator of owner-occupied houses construction, has been falling, dropping 42.1% for the second invitation in 2000, followed by declines of 4.5% and 11.5% for the third and fourth invitations respectively (Figure 1-21).

Figure 1-18. Trend of Housing Starts



Source: Ministry of Land, Infrastructure and Transport, "Monthly of Construction Statics"

Figure 1-19. Housing Starts (Trend of year-on-year change by component)



Note: Same as in Figure 1-18.

Figure 1-20. Trend of Housing Loan Interest Rates

(Unit : %)

	00/1	2	3	4	5	6	7	8	9	10	11	12	01/1	2	3	4	5	6	
The Government Housing Loan Corporation	2.80	2.75	2.80	2.85	2.80	2.75				2.80	2.85		2.80		2.70	2.55	2.45	2.60	2.55
City banks variable rate	2.375									2.5						2.375			
City banks fixed rate (5 years)	2.60			2.75		2.65	2.75		2.90			2.80	2.75	2.70	2.60	2.50	2.60	2.55	
City banks fixed rate (10 years)	3.50	3.40	3.55		3.50		3.45		3.60	3.65		3.55	3.50	3.45	3.35	3.20	3.45	3.35	

Notes: 1. Interest rate of the Government Housing Loan Corporation represents the standard rate (applicable to "certain housing of good quality" for the initial 10 years).
2. The rate represents that at the end of the month.

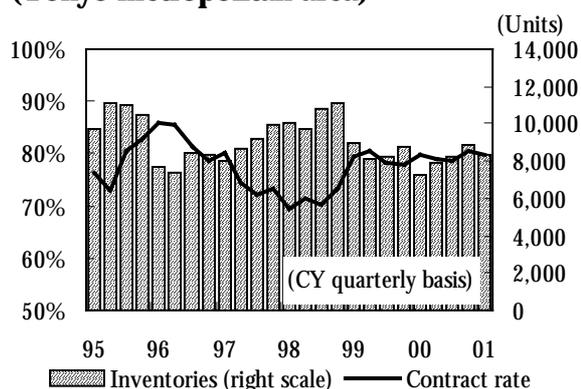
The construction of condominiums was buoyant until July-September 2000, offsetting the slump in owner-occupied houses, but its growth slowed in January-March 2001. Although the contract rate for condominiums in the Tokyo metropolitan area has stayed firm since 1999 at around 80%, completed inventories have been increasing slightly (Figure 1-22). Due to a small glut on the supply side, the construction of owner-occupied houses declined for the fourth consecutive year in fiscal 2000, albeit at a slower pace (down 1.8%).

Figure 1-21. Housing Loan Applications for Owner-occupied Houses

		Application deadline	Application period (days)	Number of applications (1,000)	Change on previous year (%)	Standard rate (%)
FY 1998	1	6/5	23	62	13.3	2.75
	2	9/30	31	67	28.8	2.55
	3	12/25	37	70	49.9	2.00
	4	3/26	48	101	75.1	2.20
FY 1999	1	6/18	36	62	0.0	2.40
	2	10/29	67	88	32.6	2.60
	3	1/14	61	37	-47.3	2.80
	4	3/10	33	38	-62.5	2.75
FY 2000	1	6/30	49	65	4.3	2.75
	2	9/22	34	51	-42.1	2.75
	3	12/22	38	35	-4.5	2.80
	4	3/23	43	33	-11.5	2.55
FY 2001	1	5/28	23	28	N.A.	2.45

Note: Simple comparison with the previous year is not possible for fiscal 2001 as the number of invitations was changed from four to six.
Source: The Government Housing Loan Corporation, "Monthly Report on Housing Loans."

Figure 1-22. Contract Rate and Completed Inventories of Condominiums (Tokyo metropolitan area)



Note: Contract rate represents the quarterly average ratio of units sold in the month to units marketed in the month. Completed inventories are measured at the end of each quarter.
Source: Real Estate Economic Institute Co., Ltd. "Trend of Condominium Market in Tokyo Metropolitan Area."

6. Public Investment: Decreasing

Public investment (public capital formation, seasonally adjusted) started to rise in October-December 1998 thanks to the economic stimulus package of April 1998 (totaling over ¥16 trillion) and the Emergency Economic Package of November 1998 (¥23.9 trillion), increasing to over 8% of GDP in the first and second quarters of 1999 (Figure 1-23).

However, public investment declined to under 7% of GDP in July-September and October-December 2000, after a partial recovery in April-June 2000 due to the economic stimulus measures of November 1999 (¥18 trillion). The ratio stayed at 7% in January-March 2001. Although the New Development Policy of October 2000 (¥11 trillion) will provide some support,

public investment is expected to continue to fall, as the financial difficulties of local governments in particular are likely to affect implementation of the policy.

The contract value of public works, the leading indicator, recorded an increase of 11.7% in fiscal 1998 thanks to the economic measures. However, it fell in fiscal 1999, particularly reflecting financial difficulties of local governments, resulting in a 9.1% drop for the year (Figure 1-24). Despite the effects of the economic stimulus package of November 1999 (totaling some ¥18 trillion), the contract value continued to slide from the previous year in fiscal 2000, resulting in a drop of 12.9% for the year. Although the New Development Policy (totaling some ¥11 trillion) should have some effect, the decline is expected to continue for some time.

Figure 1-23. Trend of Public Investment

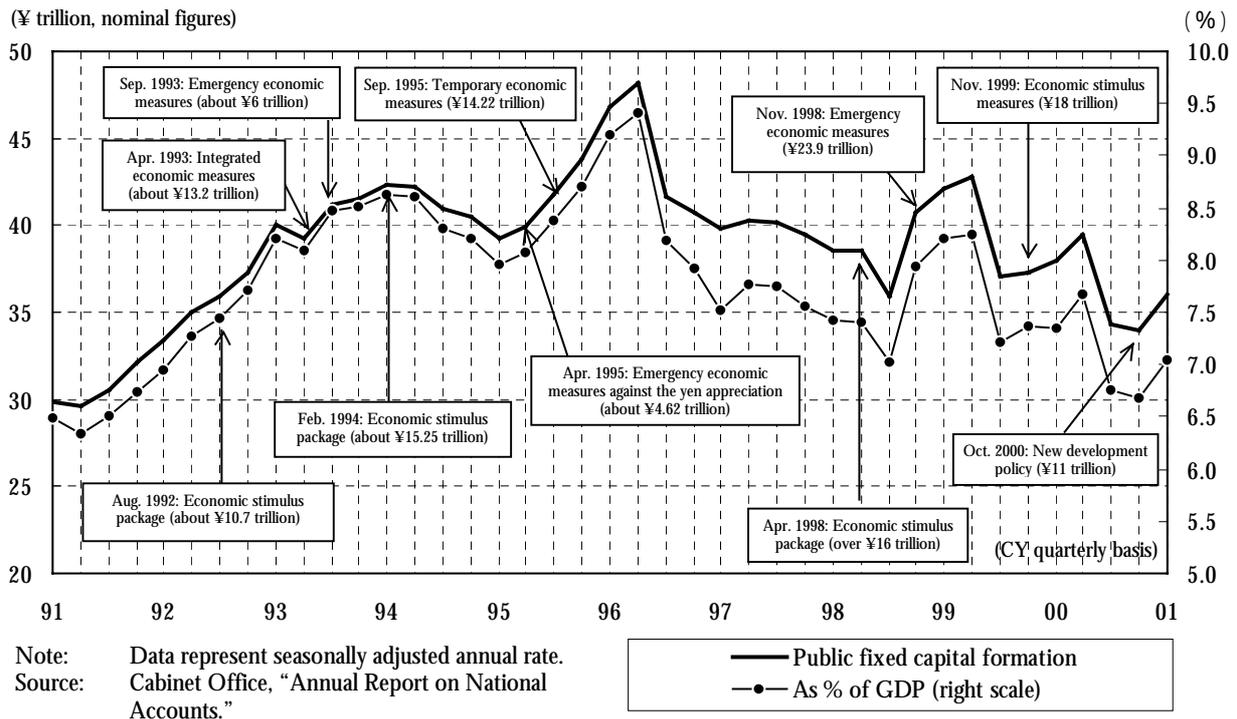
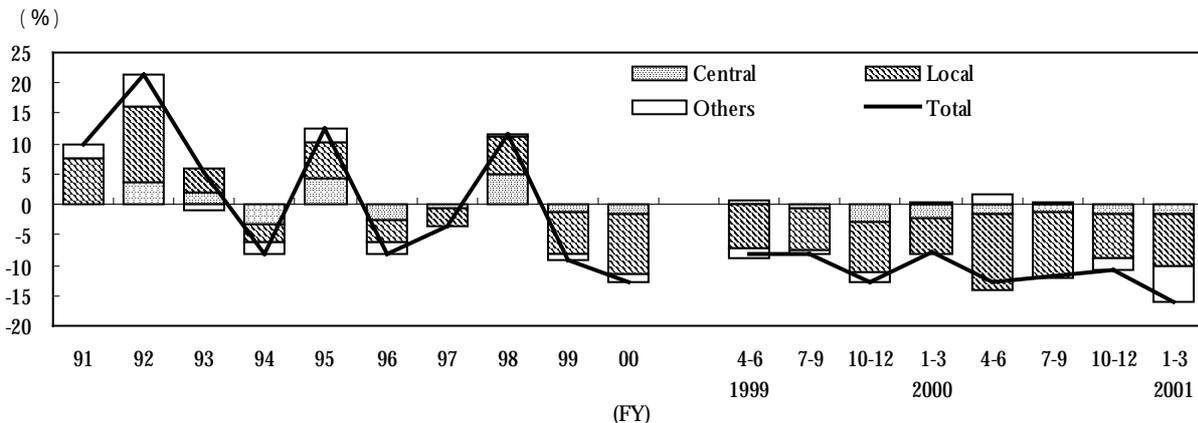


Figure 1-24. Trend of Contract Value for Public Works (Change on previous year)



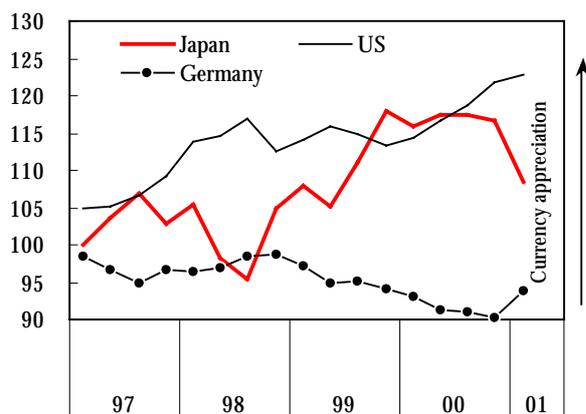
Source: Surety Association for Construction Companies, "Public Works Prepayment Surety Statistics."

7. Exports: Decreasing, Imports: Slowed Growth

Figure 1-25 shows the trend of the real effective exchange rate of major currencies. The yen remained almost flat throughout 2000, but depreciated substantially in January-March 2001, while the US dollar continues to appreciate slowly.

Figure 1-26 shows the trend of export and import volumes in terms of seasonally adjusted monthly index. The figure shows that exports have been declining since the second half of last year as economic growth slowed down overseas, particularly in the US. Meanwhile, imports increased as the domestic economy gradually recovered throughout 2000, but slowed in 2001 and has already leveled off on a monthly basis.

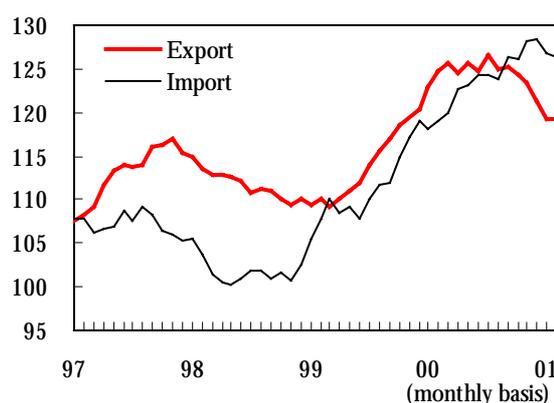
Figure 1-25. Trend of Real Effective Exchange Rate (1990=100)



Note: Exchange rate was converted into real terms with the price levels of the country and its 44 trading partners and then weighted for trade in industrial products in 1990.

Source: J.P. Morgan, "World Financial Market."

Figure 1-26. Export and Import Volume Indices (1995=100)



Note: Three-month moving average of seasonally adjusted values based on X-11.

Source: Ministry of Finance, "Foreign Trade Statistics."

Backed by the buoyant US economy and the recovery of Asian economies, export volume (Figure 1-27a) continued to grow faster than in the same period of the previous year until April-June 2000. However, exports to the US fell in July-September 2000 due to the slowdown of the US economy and recorded a double-digit decline from the previous year (down 11.3%) in January-March 2001, with substantial drops in machines and appliances and in chemicals. The growth in exports to Europe slowed as the euro continued to slide, and has stayed below the level of the previous year since October-December 2000. Exports to Asia, which led the growth of overall exports in 1999 and 2000, experienced a substantial slowdown mainly in machines and appliances as the US economy showed signs of leveling off. They finally recorded a decline from the previous year in January-March 2001.

Figure 1-27b shows the trend of shipments for export by type of goods according to the Industrial Production Statistics. The trend since the latter half of 2000 has been characterized by declines in durable and non-durable consumer goods and sluggishness in capital goods following a significant increase.

After turning upward in January-March 2000, import volume (Figure 1-28a) continued to increase, backed by the mild recovery of the domestic economy. In January-March 2001, however, its growth was reduced as imports slowed from Asia including machines and

appliances.

By type of goods (Figure 1-28b), imports of producer goods continued to increase, led by semiconductor/integrated circuits, which accounted for the majority of the year-on-year growth. The growth rate, however, declined slightly in January-March 2001. The growth of consumer non-durable imports including textile products has also been slowing.

Figure 1-27. Trend of Export Volume (Year-on-year change by component)

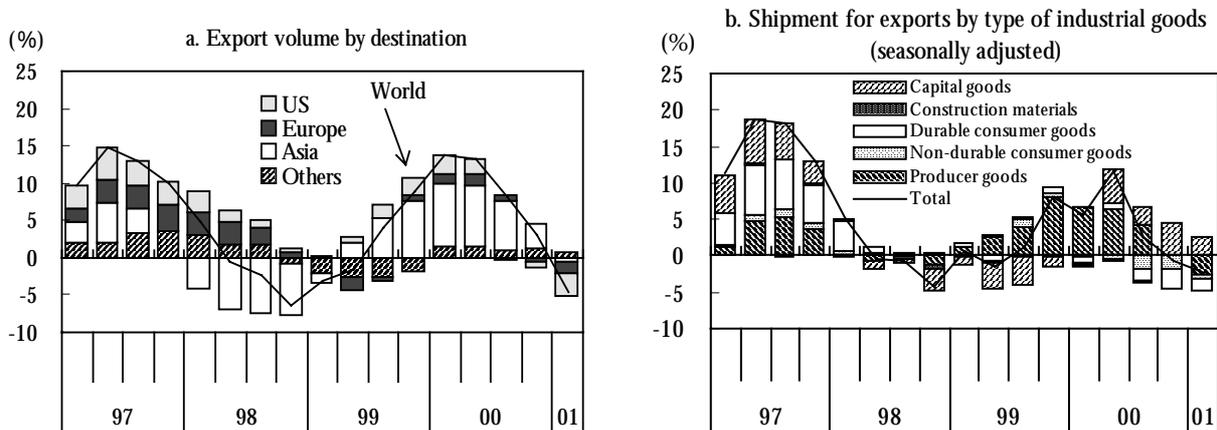
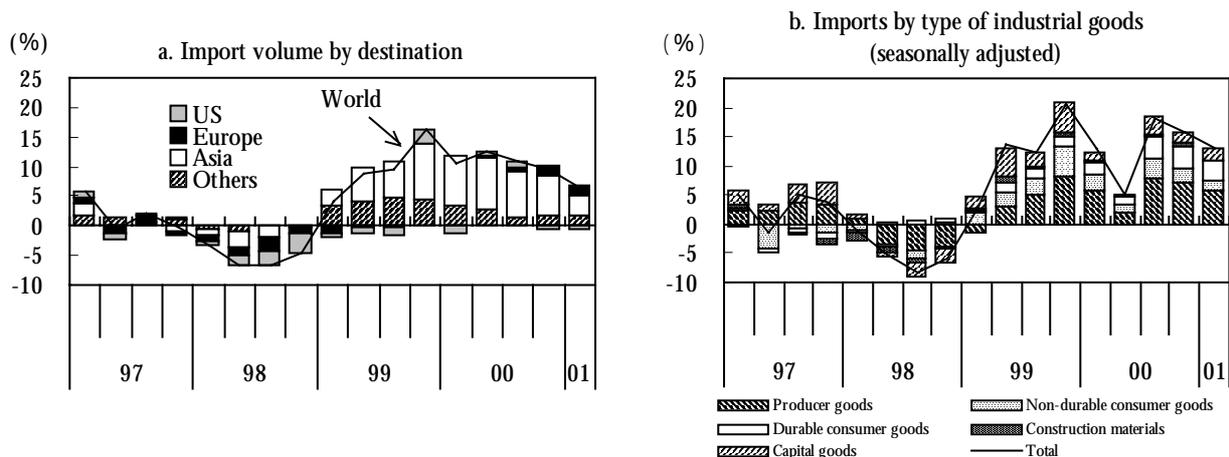


Figure 1-28. Trend of Import Volume (Year-on-year change by component)

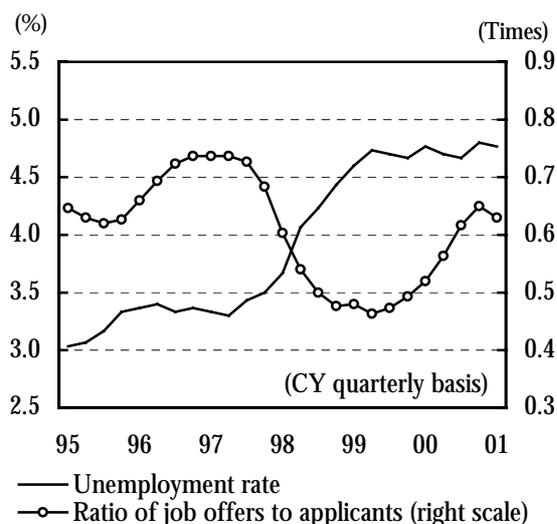


Sources: Ministry of Finance, "Foreign Trade Statistics;" Ministry of Economy, Trade and Industry, "Summary of Analysis of Mining and Manufacturing Industrial Activities."

8. Weak Prospects for Overtime Hours and Job Offers

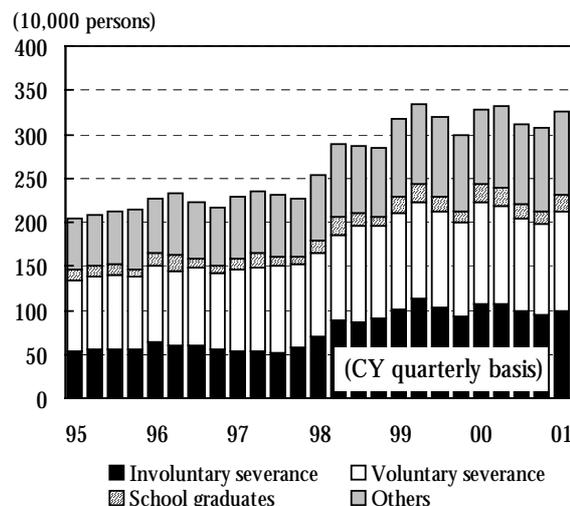
After some improvement in 2000, employment conditions appear to be deteriorating again. Figure 1-29 shows that the ratio of job offers to applicants rose from the bottom of 0.46 in May 1999 to 0.66 in December 2000, but fell back to 0.62 in April 2001, as new job offers did not increase in parallel with job seekers. The unemployment rate has stayed above 4.7% since 1999 and reached a record high of 4.9% in December 2000 and January 2001 (after the recalculation in seasonal adjustment in 2001). The number of unemployed (Figure 1-30) has been above 3 million after seeing the substantial increase in 1998 and involuntary unemployment has changed little since the economy bottomed out in April 1999.

Figure 1-29. Trends in Ratio of Job Offers to Applicants and Unemployment Rate



Sources: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Labor Force Survey;" Ministry of Health, Labor and Welfare, "Statistics on Placement Activities."

Figure 1-30. Trends in Unemployment by Reason for Job-seeking



Note: Any deviation between the total and the sum of components is included in "Others."
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Labor Force Survey."

Figure 1-31 shows the percent change in the seasonally adjusted number employed. By industry, the number employed is still rising in services but decrease in construction and others surpassed recently for the first time in three quarters. The number of self-employed and family workers continued to decline, while the number of part-time and daily workers fell in the most recent period after experiencing a steady increase. By corporate size, the number employed by medium-sized firms (employing 30-499 workers) also fell in the most recent period after increasing continuously from April-June 2000. The number of employees in large-sized firms (employing 500 or more workers) continued to stagnate.

Finally, Figure 1-32 shows the trend of overtime hours (seasonally adjusted), which is supposed to be more sensitive to economic condition. Hours increased from around the beginning of 1999 but then fell in 2001 in both manufacturing and non-manufacturing. The previous downturn in overtime hours (July-September 1997) was followed by a deterioration in employment itself. Moreover, consumers are increasingly pessimistic about future employment conditions, as indicated by Figure 1-15. Hence, employment conditions have probably entered a deterioration phase again and attention will therefore be focused on future developments of the high unemployment rate.

Figure 1-31. Trend of Year-on-Year Change in Number Employed by Component (Seasonally adjusted)

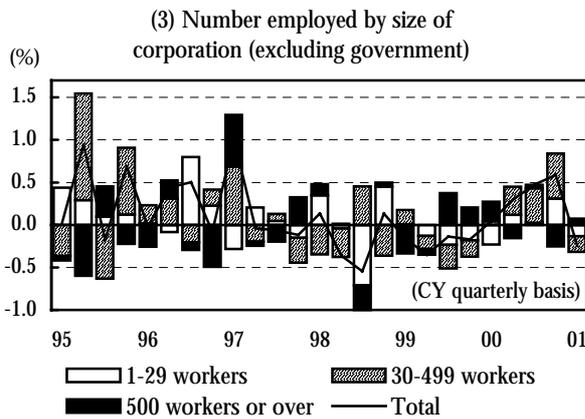
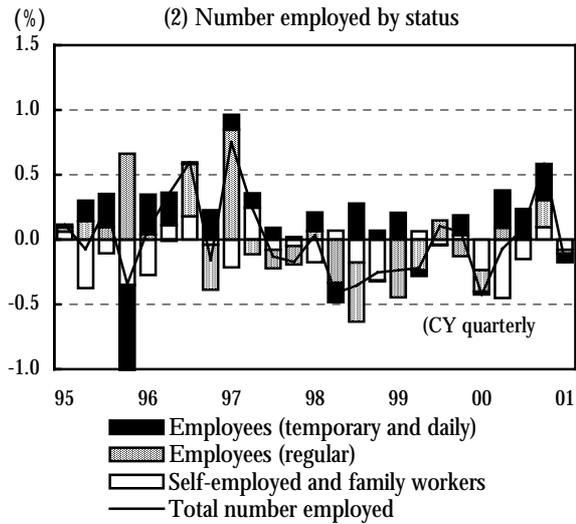
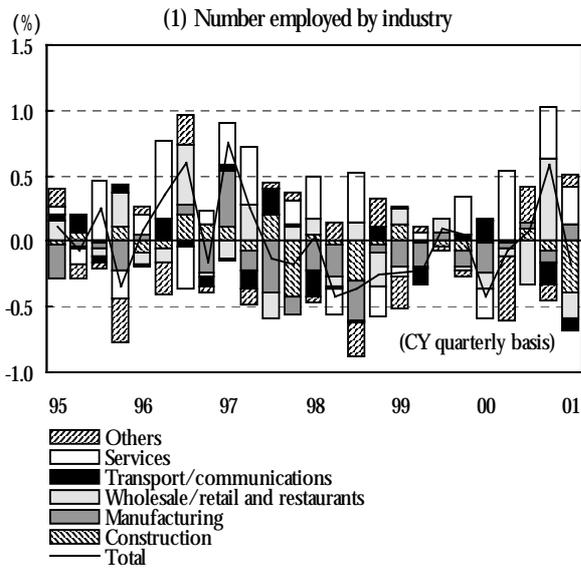
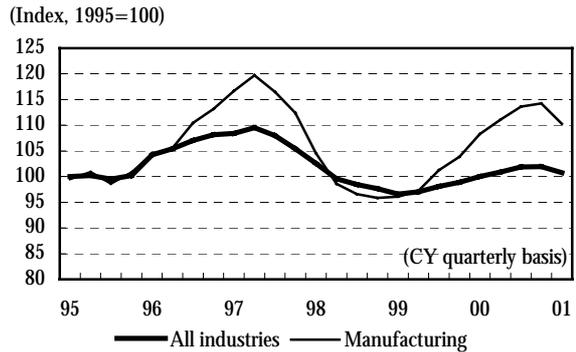


Figure 1-32. Overtime Hours (Seasonally adjusted)



Note: Seasonally adjusted with X-11.
 Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Labor Force Survey."

Source: Ministry of Health, Labor and Welfare, "Monthly Labor Survey."

9. Short-term Interest: Moving Around Zero with Quantitative Easing, Consumer Prices: Continuing to Decline

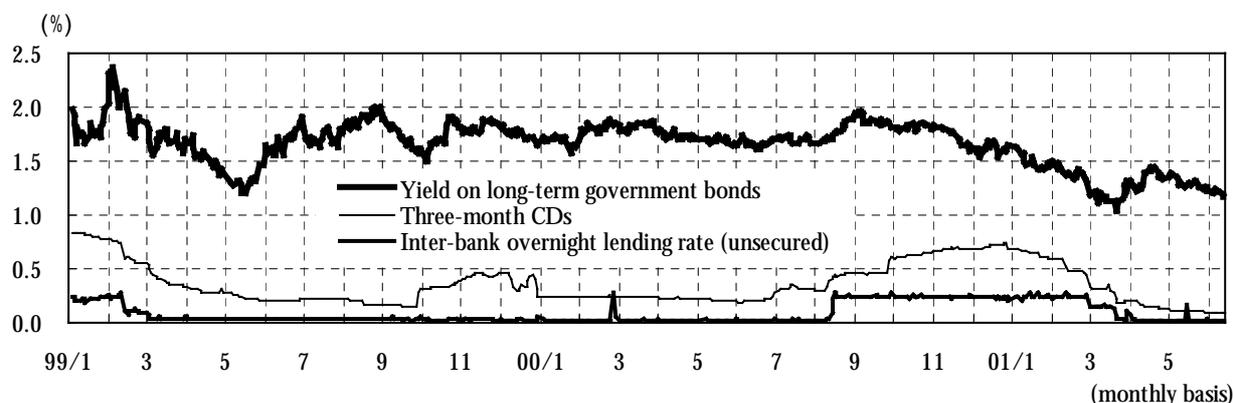
From March 1999, the inter-bank overnight lending rate (unsecured call) stayed just above 0% due to the zero-interest rate policy. Following the temporary abandonment of the policy in August 2000, however, the rate was guided to 0.25% until February 2001 (Figure 1-33). Since then, the rate has returned to almost zero reflecting the effective reintroduction of the zero-interest policy with the adoption of the easy monetary policy and quantitative easing in February and late March respectively.

Yields on three-month CDs (buy), which are representative of short-term interest rates, showed a slight increase in late 2000 due to the termination of the zero-interest policy and seasonal demand for funds in the year-end period. In 2001, however, they declined slightly with

the disappearance of the special year-end factor, which was followed by a further decline to the 0.1% range with the resumption of the zero-interest policy.

Yields on long-term government bonds stayed around 1.8% since June 1999 and remained stable with very little movement for about 10 months since October 1999. They rose to almost 2% in early September 2000, but have stayed around 1.3% in recent months.

Figure 1-33. Trends in Selected Market Interest Rates



- Notes: 1. Yield on long-term government bonds represents that on 10-year bonds.
2. Three-month CDs are represented by the quotation (buy) rate on new issues.

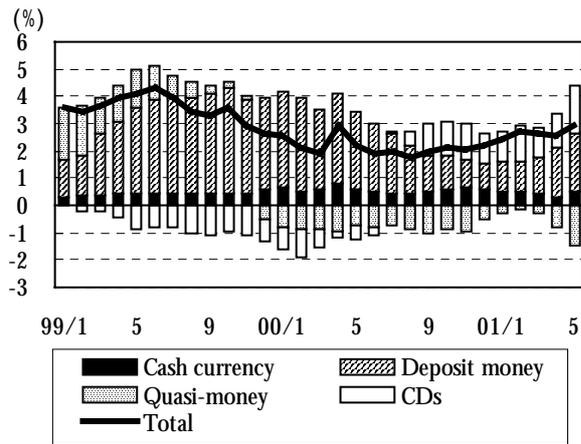
Source: Nihon Keizai Shimbun.

The year-on-year growth of money stock (M2+CD) stayed above 3.5% in general to the first half of fiscal 1999, temporarily dropped to a low of 1.9% in the latter half of the year, and has been recently in the 2% range (Figure 1-34). In detail, the growth of money supply accelerated as cash deposits were accumulated instead of term deposits reflecting low interest rates. Meanwhile, lending by private banks continued to decline. After adjustments for special factors, the lending has been decreasing at an almost constant rate. This trend reflects is due to the fact that the banking sector, being rather reluctant to lend money, is preferring to invest in government bonds, etc., in addition to sluggish demand for funds.

The quantitative monetary easing policy adopted by the Bank of Japan on March 19 is to be maintained until the year-on-year growth of consumer prices (excluding perishables) stabilizes above zero. Figure 1-36 shows the trend of consumer prices of goods and services. The decline in the prices of agricultural, marine, livestock and industrial products has been accelerating recently, while the prices of personal services (including publishing, rent and eating-out) and public utility changes (including electricity, city gas and water) have been stable or even declining slightly. For the whole fiscal 2000, consumer prices declined 0.5% for the second consecutive year. On a quarterly basis, they have fallen for 11 consecutive quarters since April-June 1998. This trend meets one of the conditions of deflation defined by the Cabinet Office in March 2001, namely, a protracted decline in prices.

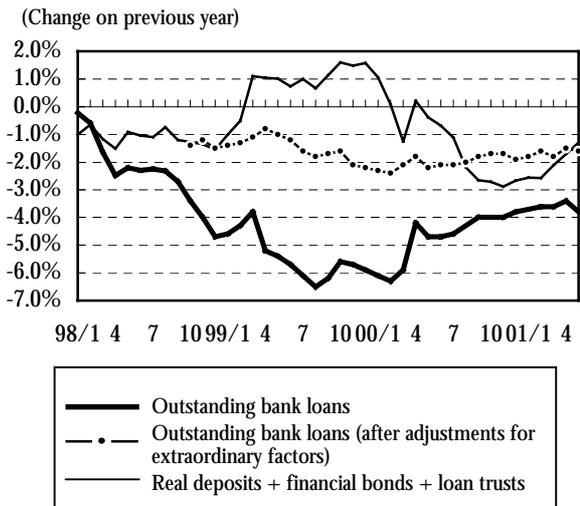
Corporate service prices, calculated as an index excluding international maritime and air transport charges, which rose due to overseas factors, have been falling from the previous year since April-June 1998, mainly for communications (including telephone and special lines), financial charges and lease charges (including computers and communication equipment). The decline in prices has been accelerating recently for communications and leasing in particular, indicating an even stronger downtrend since late 2000. Thus, prices have been falling almost across the board, including consumer and service prices.

Figure 1-34. Growth of Money Supply



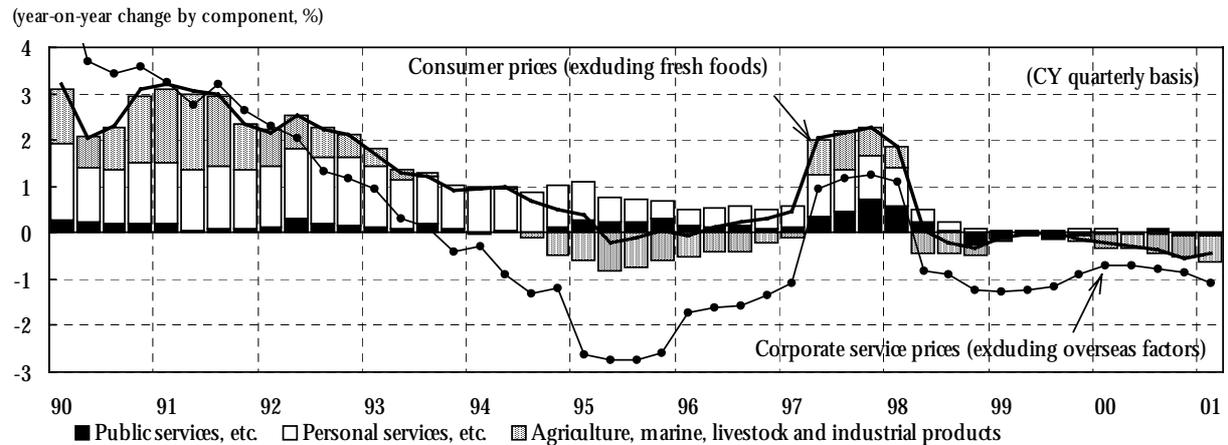
Note: Average balance, change on previous year.
 Source: Bank of Japan, "Financial and Economic Statistics Monthly."

Figure 1-35. Trends in Bank Loans



Note: Real deposits do not include deposits in long-term trust banks and trust banks.
 Source: Bank of Japan, "Trends in Absorption of Lending."

Figure 1-36. Trends in Consumer Prices (Excluding Fresh Foods) and Corporate Service Prices (Excluding Overseas Factors)



Notes: 1. Personal services, etc. include publications, rent and eating-out. Public services, etc. include electricity, city gas and water supply.
 2. Corporate service prices (excluding overseas factor) represent a corporate service price index excluding international maritime and air cargo transport.
 Sources: Bank of Japan, "Price Indexes Monthly;" Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Consumer Price Index."

II. The Japanese Economy under Deflation

1. Introduction

The Japanese economy in the 1990s was characterized by falling prices as well as by a downturn in growth rate. In 1999 and 2000, the consumer price index declined for two years running for the first time in the post-war period. The trend has been accelerating in recent years as the GDP deflator fell in both 1995 and 1996, and then dropped again for three consecutive years from 1998 to 2000. Against this backdrop, the Cabinet Office made the following remarks in its Monthly Economic Report in March:

“Although there are various arguments on the definition of deflation in Japan, the Japanese economy is currently experiencing a mild deflation if deflation is defined as a “protracted decline in prices.”⁴

This chapter considers the various causes of deflation and its impact on the real economy, and analyzes some aspects of the Japanese economy under deflation based on relevant data.

2. Deflation and Structural Issues of the Japanese Economy

In a market economy, price fluctuations reflect the changing conditions of supply and demand. Thus, deflation (a protracted decline in prices) is the phenomenon that reflects all the aspects of structural problems (or structural changes) of the Japanese economy on both the supply and demand sides.

In a standard Keynesian model, real GDP (Y) and price level (P) are determined by the point of intersection between the aggregate demand curve (AD), which runs from upper left to lower right and shows the macroeconomic condition for the balance of supply and demand in the markets of goods and money on the one hand, and the aggregate supply curve (AS), which runs from lower left to upper right and is premised on the nominal rigidity of wage or prices on the other (see the conceptual chart on page 36). Thus, the decline in prices is caused by the rightward shift of the aggregate supply curve (), the leftward shift of the aggregate demand curve (), or both ().⁵

Bearing in mind the condition of the Japanese economy in recent years, structural factors behind falling prices include technological progress and the improvement of productivity (electric machinery, etc.), deregulation and increased new entrants into markets (telecommunications, finance, energy, etc.) and increased imports (foods, textile products) on the supply side, as well as curbed consumption in the household sector due to uncertainties about the future and restriction on plant and equipment investment in the corporate sector due to incessant pressure for restructuring on the demand side.

Basically, factors on the demand side largely stem from balance sheet problems in all sectors, but it is also possible that the resultant sustained decline in prices is in turn creating new balance sheet problems through increased debt burden in real terms. In addition, deflation may restrict economic activities as real interest rates and real wages tend to remain at high levels. In particular, the so-called deflationary spiral (chain reaction of falling prices and deteriorating income levels) may emerge if price declines are led by the demand side ().

The decline in prices led by the supply side () is sometimes called “good deflation” as it is accompanied by positive GDP growth. However, it does not necessarily reduce the GDP gap

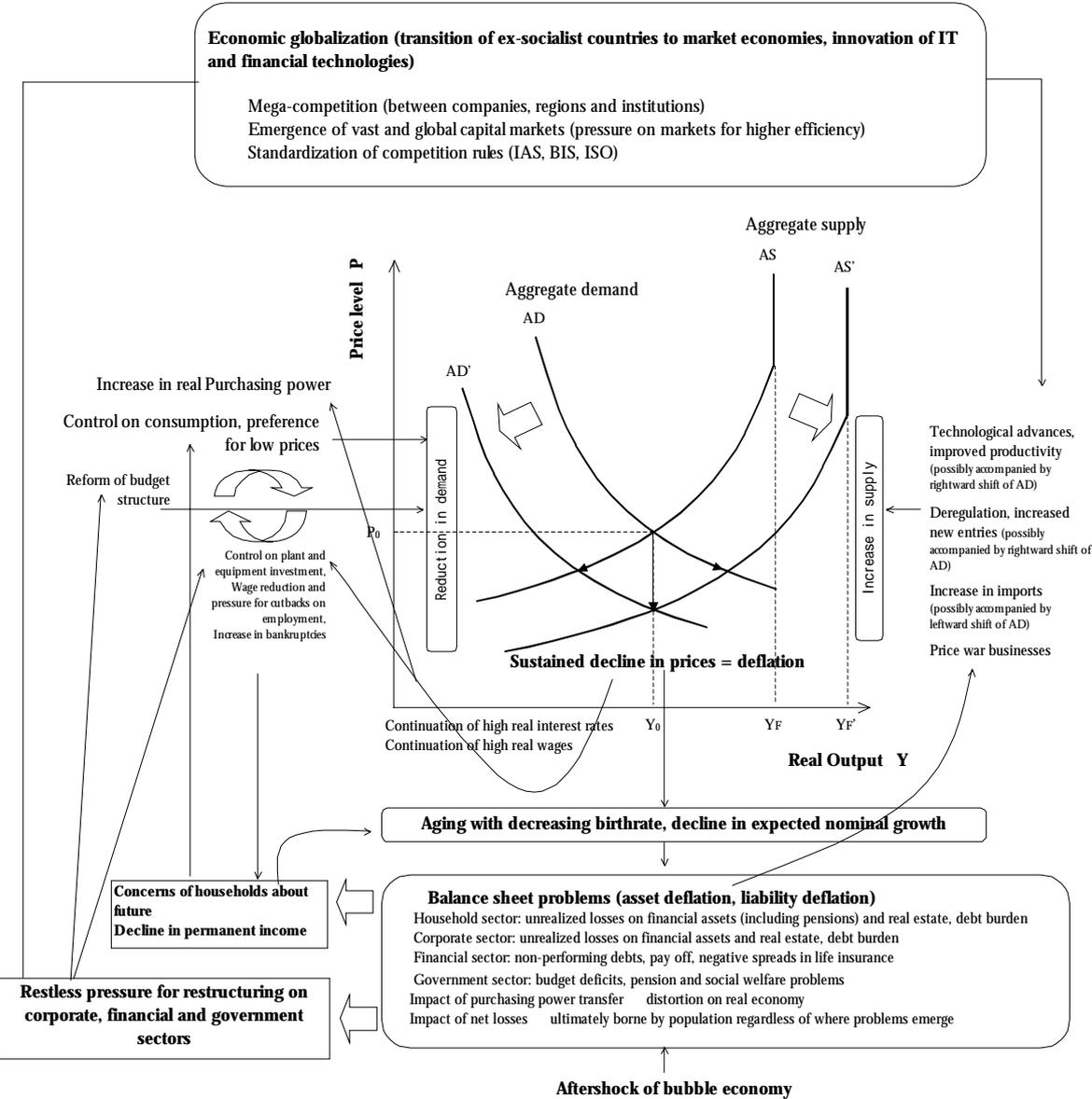
⁴ Reasons and background for revising the definition of deflation are discussed in detail in Naoki Okamoto (2000) “Defure ni Chokumen suru Wagakuni Keizai: Defure no Teigi no Sai-seiri wo Fukumete (The Japanese Economy Faced with Deflation: Including the Review of the Definition of Deflation), *Cabinet Office Economic Assessment and Policy Analysis Discussion Paper*.”

⁵ Prices may decline not only with the shift of the curves but also with the change in their shape (slope or curvature). The latter case is not considered here for the sake of simplicity.

because it entails an increase in full employment income (Y_F). Moreover, some factors that induce the rightward shift of the aggregate supply curve, such as the increase in low-priced imports, may not result in the growth of GDP as they also induce the leftward shift of the aggregate demand curve at the same time ().

Relevant policies should pay close attention to the fact that neither structural reforms to increase potential supply (the rightward shift of the aggregate supply curve) nor final disposal of non-performing loans may accelerate the deflation unless accompanied by a corresponding increase in demand, and that an increase in demand cannot be guaranteed automatically. Even though it is important to create an environment for generating demand through such measures as deregulation, provisions should be made for the risk of decline of the economy, including financial policies, as such measures may not bear fruit overnight.

Within the framework described above, the following sections analyze the background and impact of the deflation.

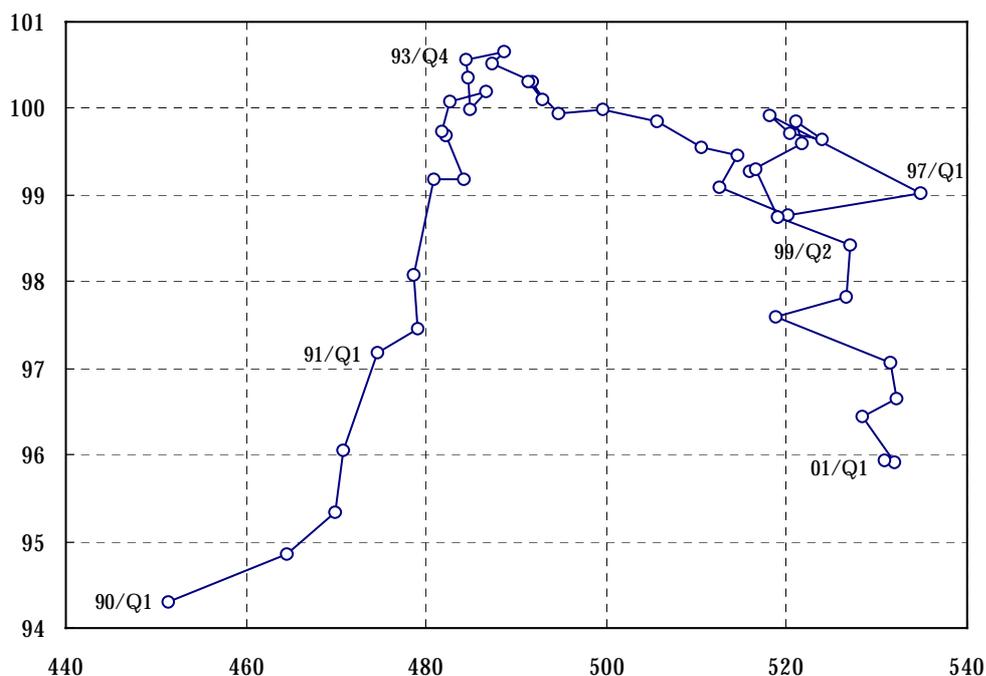


Source: DBJ.

3. Falling Prices Explained by both Supply and Demand Factors

This section first looks at the trend of the Japanese economy in terms of output and price level, namely the developments of real GDP and GDP deflator, to determine which of the above three routes in the aggregate demand/aggregate supply (AD-AS) model characterizes the current deflation. (Figure 2-1: The real GDP and GDP deflator are both seasonally adjusted. Seasonally adjusted values for the deflator are calculated by the DBJ.)

Figure 2-1. Macroeconomic Change in Output and Price Level (Horizontal axis = real GDP (¥ trillion), vertical axis = GDP deflator)



Note: Real GDP and GDP deflator are both seasonally adjusted. (Seasonal adjustment of deflator was made by DBJ based on implicit deflators, calculated from original series of nominal and real GDP.)

Source: Cabinet Office, "Annual Report on National Accounts."

Based on the movement of prices (=deflator), the Japanese economy since 1990 may be largely classified into the inflationary period until October-December 1993 (the trough of the 11th cycle) and the subsequent deflationary period. The decline in prices has accelerated since 1999 in particular. Looking at this trend in more detail, the deflator rose relatively fast, due mainly to supply side factors such as the Gulf War, as the Heisei boom peaked in February 1991 and the growth of real GDP leveled off. From 1992 to 1993, the pace of price inflation slowed due to the disappearance of the supply side factors. Meanwhile, real GDP remained stable as the decline in private demand following the collapse of the bubble economy was largely offset by the growth of public demand. The phenomenon of "disinflation" emerged in the period between 1994 and 1996, where the growth of real GDP was accompanied by a mild decline in the deflator. As demand stayed firm with the recovery of plant and equipment investment and increase in public investment, the "price war" trend gradually gained strength on the supply side,⁶ supposedly resulting in a sustained rightward shift of the aggregate supply curve. The year of 1997 starts with

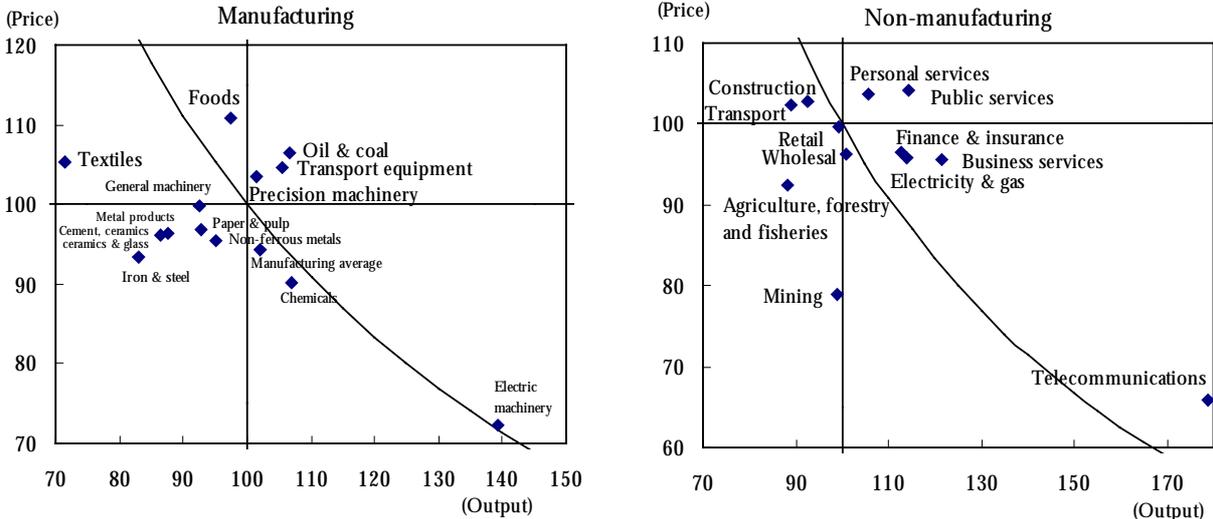
⁶ See Economic Planning Agency, "FY 1995 Annual Economic Report," for example.

the eleventh-hour demand before the consumption tax hike and the rise in deflator, then the economy turned downward initially in reaction to that. In 1998, strong downward pressure on the demand side, including the monetary and economic crisis in Asia, the rapid yen appreciation, uncertainties about the domestic financial system and the worsening credit crunch, culminated in the decline of the deflator and the negative growth of real GDP, thus raising concerns about the possibility of a deflationary spiral.

In the economic expansion phase from 1999 until recently, the growth of real GDP was accompanied by a decline in the deflator, a movement similar to that observed, the recent trend has been substantially different in that it was marked by a decline in the deflator rather than by the growth of real GDP. Indeed, the deflator dropped even faster than in the 1997-98 period, when the risk of a deflationary spiral emerged. According to the conceptual chart on page 40, the disinflation period was characterized by falling prices led by the supply side (), while both the supply and demand factors seem to have exerted downward pressure on prices () in the economic expansion period from 1999. The recent falls in prices may be attributed to uncertainties about the future in the household sector and incessant pressure for restructuring on the corporate sector, and more fundamentally to the structural weakness of demand resulting from economic globalization and balance sheet problems.

Figure 2-2 describes the background of falling prices in the late 1990s in terms of the movements of output and price level by industry according to the Annual Report on National Accounts. The figure shows output level (=real GDP) and price level (=deflator) in 1999 by industry with 1995 as the base year (=100). The decline in prices was most significant in electric machinery among manufacturing industries and in telecommunications among non-manufacturing industries. At the same time, output increased substantially in those two industries, resulting in a slight increase in nominal GDP, which is equal to the product of output and price. (The hyperbolic curve in the figure represents the 1995 level.) Price reductions and output increases were also observed simultaneously in other industries such as chemicals, finance/insurance, electricity/gas and business services. Apparently, the decline in prices in such

Figure 2-2. Change in Output and Price Level by Industry (Index for 1999, 1995=100)



- Notes:
1. Real estate is excluded due to the inclusion of imputed rent for owned houses.
 2. The hyperbolic curve in each chart indicates the combination of output and price that corresponds to 100 in nominal GDP. Nominal GDP is over 100 in the upper right portion, while it is less than 100 in the lower left portion.

Source: Cabinet Office, "Annual Report on National Accounts."

industries was led more or less by the supply side. On the other hand, price reductions in materials industries, agriculture, forestry and fisheries among others were seemingly led by the demand side, because they were accompanied by declines in output.

4. Increased Imports Contributing to Falling Prices

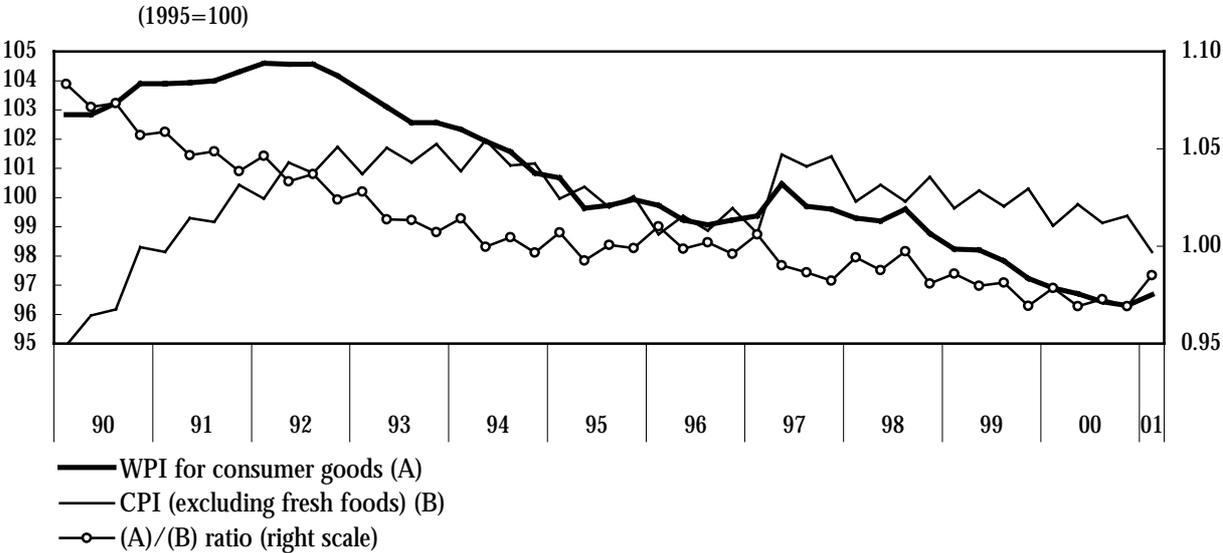
This section seeks to identify the characteristics of recent price movements based on consumer price index (CPI) and domestic wholesale price index (WPI).

Figure 2-3 compares the trends of CPI excluding fresh foods and WPI of consumer goods. The former index fell slowly from around 1995, excluding the impact of the consumption tax hike, and the latter also declined from around 1993. In 1998 and 1999, the fall of CPI was a little slower than that of WPI. Since 2000 however, the decline in WPI has been slowing, whereas that of CPI has been accelerating relatively. (The decline of CPI/WPI ratio has slowed since 2000.)

Which types of goods have led the accelerated drop of CPI recently? Figure 2-4 shows the year-on-year growth of CPI excluding fresh foods by component. The prices of general goods have declined constantly since January-March 1998, when CPI as a whole turned down on the previous year, thus greatly contributing to the drop of overall prices. Since July-September 2000 in particular, price reductions have been accelerating mainly for furniture and house furnishings as well as clothing and footwear. Moreover, the prices of general services have been declining on the previous year since turning down in July-September 2000, pointing to the weakness of consumer prices in general.

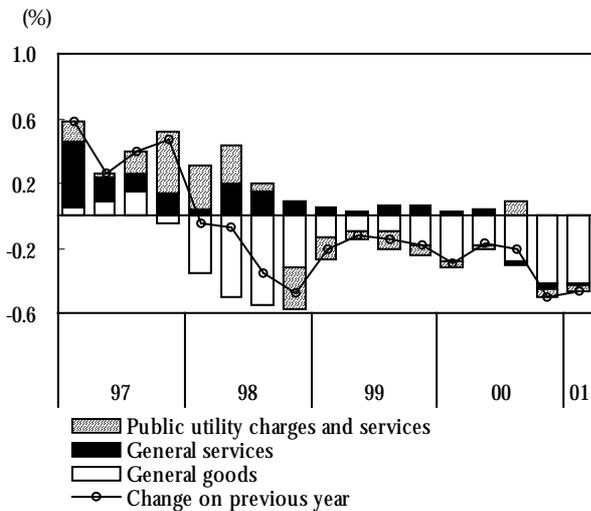
The trend of WPI is shown in Figure 2-5. The prices of materials and oil rose in 2000 due to the price hike for crude oil, pushing upward the overall level of WPI. Meanwhile, the decline of machine and appliance prices continued, particularly for electric appliances, transport equipment and precision instruments in the latter half of fiscal 2000.

Figure 2-3. Domestic Wholesale Price Index (WPI) and Consumer Price Index (CPI)



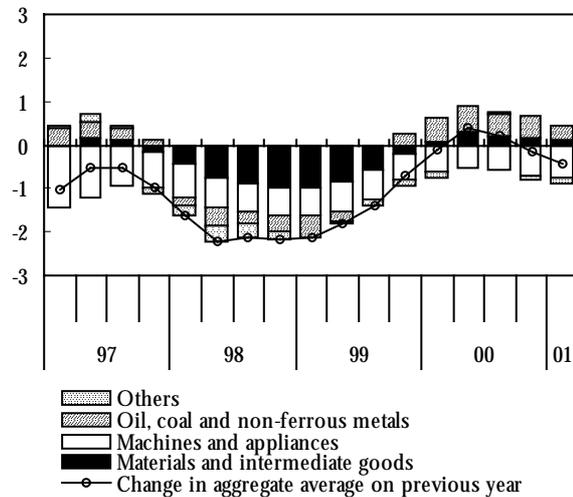
Sources: Bank of Japan, "Wholesale Price Index;" Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Consumer Price Index."

Figure 2-4. Year-on-Year Change in Consumer Price Index by (Excluding fresh foods)



Note: Adjusted for consumption tax hike.
 Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Consumer Price Index."

Figure 2-5. Year-on-Year Change in Wholesale Price Index (WPI) by Component

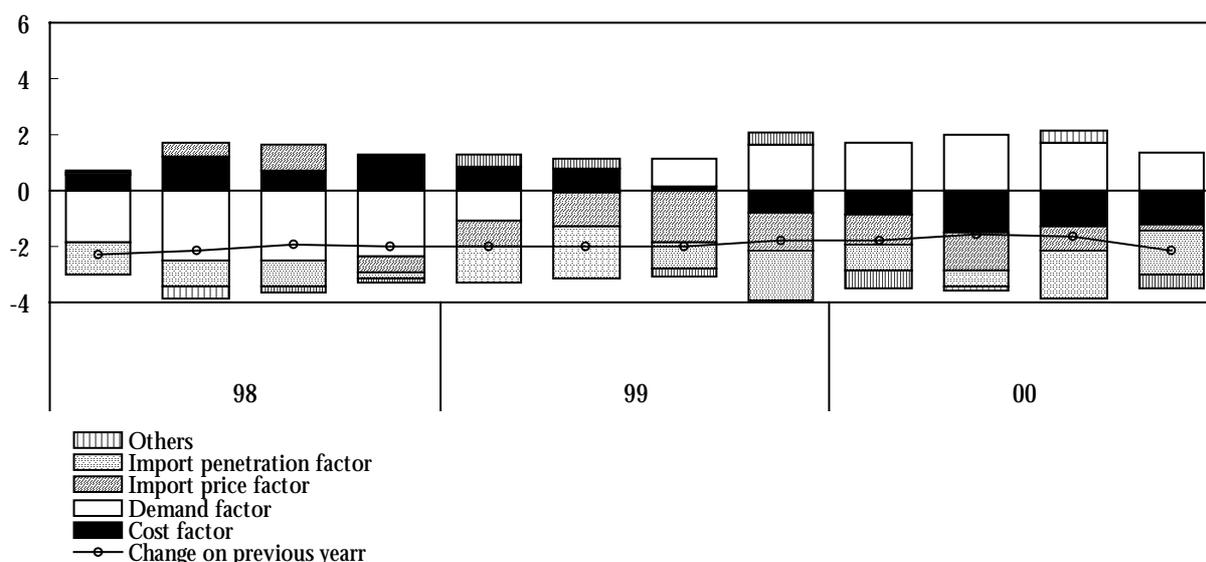


Note: Adjusted for consumption tax hike.
 Source: Bank of Japan, "Wholesale Price Index."

In order to highlight the factors behind the decline in WPI, Figure 2-6 breaks down the trend of WPI for machines and appliances, which continues to fall, into the following factors: costs, demand, import prices and import penetration.⁷ The estimation indicates a sustained decline of WPI for machines and appliances since 1998, but the major factors behind the decline changed in the second half of fiscal 1999. Until the first half of fiscal 1999, the decline was largely attributable to the deterioration of supply-and-demand balance due to the sluggish domestic economy. In the latter half of the year, however, supply-and-demand balance improved with the gradual recovery of domestic demand, while other factors for falling prices emerged, including cost reduction due to the decline in imported raw material prices induced by the yen appreciation and the improvement of productivity through corporate self-help efforts, and widespread price competition between imports and domestic goods.

⁷ The estimation was made according to OLS (estimation period: April-June 1983-October-December 2000) with the following formula: $\ln(\text{WPI excluding oil and coal}) = (\text{constant term}) + (\text{the break-even point ratio}) + (\text{diffusion index on supply and demand of goods}) + \ln(\text{import price index}) + (\text{share of imports in aggregate domestic supply})$. In calculating the break-even sales, fixed cost was regarded as (personnel expenses + depreciation expenses + paid interest) - (received interest + other non-operating profits), and variable cost as all costs other than fixed cost. The diffusion index on the supply and demand of goods of the BOJ Tankan, which was adopted as a surrogate variable for the supply-and-demand gap, has shown a trend relatively similar to that of the supply-and-demand gap estimated by the Cabinet Office in "Current Condition of the Japanese Economy 2000," etc.

Figure 2-6. Year-on-Year Change in WPI (Machines and Appliances) by Component



Note: Cost factor and demand factor are estimated with OLS, using the break-even point ratio and diffusion index for the supply and demand of products respectively.

Sources: Bank of Japan, "Wholesale Price Index" and "Nationwide Tankan;" Ministry of Economy, Trade and Industry, "Aggregate Industrial Supply Table;" Ministry of Finance, "Quarterly Report of Statistical Survey of Incorporated Enterprises."

Factors such as the improvement of production technologies in Asian countries, increase in overseas direct investment and development imports, and the decline in yen-based import prices underlie the increased penetration of imports into the domestic market in recent years. In particular, yen-based import prices dropped substantially in 1999 and 2000. In order to understand the background of this trend, Figure 2-7 breaks down the import price index for two representative products into several factors.⁸

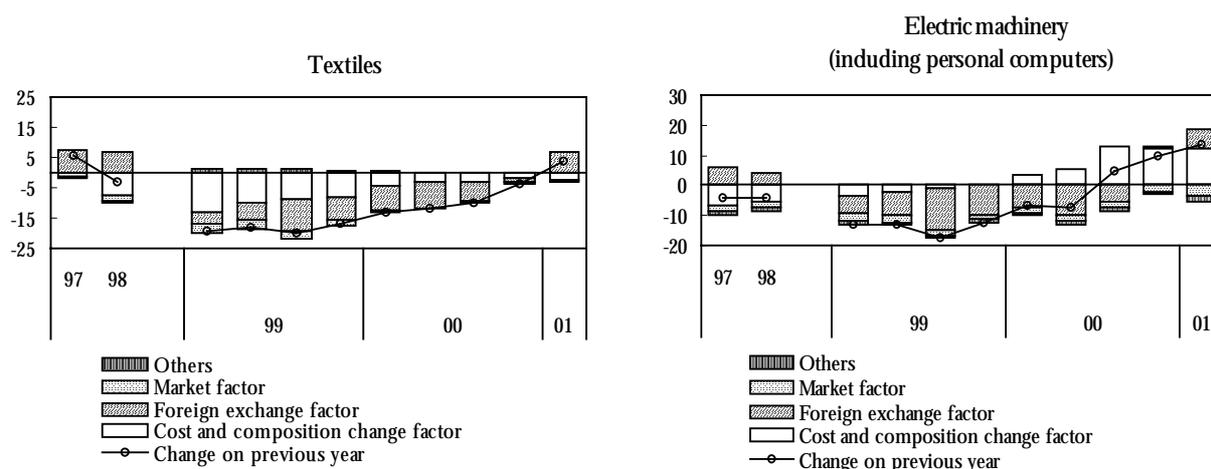
⁸ With M(F): price index calculated from trade statistics (Fisher' formula, on a yen basis), M(L): price index calculated from trade statistics (Laspeyres formula (constant volume in base period), on a yen basis), M(P): price index calculated from trade statistics (Paasche formula (constant volume in comparison period), on a yen basis), B(L): Bank of Japan import price index (Laspeyres formula, on a yen basis), and Bf(L): BOJ import price index (Laspeyres formula, on a contract currency basis), the following relationship holds:

$$M(F) = (M(L) \times M(P)) / B(L) \times (M(P) / M(L)) \times B(L) / Bf(L) \times Bf(L)$$

$$= (\text{higher value added or cost reduction for the same product}) \times (\text{sophistication of product composition}) \times (\text{foreign exchange factor}) \times (\text{market factor}).$$

With reference to the Cabinet Office, "FY 2000 Annual Economic Report," etc., a qualitative change in the same product is construed here as "the ratio of BOJ price to unit price on a customs clearance basis considering product quality," sophistication of product composition as "the ratio of volume in the base period to volume in the comparison period when prices are treated as constant," foreign exchange fluctuation as "the ratio of yen-based price to contract currency-based price," and market price fluctuation as "contract currency-based price (international price)." The "cost and composition change" factor in the graph is the sum of higher values added for the same product and sophistication of product composition.

Figure 2-7. Import Price Index (Trend of year-on-year change by component)



Note: Change on previous year is for prices calculated with the Fisher formula from Ministry of Finance, "Foreign Trade Statistics" (1995 as base year). "Cost and composition change factor" represents the total of the ratio of the prices calculated with the Laspeyres formula (constant volume in base period) from the Foreign Trade Statistics to BOJ's (yen-based) import price index (change in quality, etc. for the same product) on the one hand, and the ratio of the price calculated with the Paache formula (constant volume in comparison period) from the Foreign Trade Statistics to the Laspeyres formula price (change in product composition) on the other. The calculation of "Foreign exchange factor" and "Market factor" is based on the ratio of the yen-based prices to contract currency-based prices of BOJ's import price index and the contract currency-based growth of BOJ's import price index respectively.

Sources: Ministry of Finance, "Foreign Trade Statistics;" Bank of Japan, "Wholesale Price Index."

Import prices for textiles continued to stay below the level of the previous year from 1998 to 2000. Major factors behind the decline include not only the yen appreciation but also the reduction of production cost for textile products in Asia and other countries. The cost competitiveness of foreign products has also increased because the operation of Japanese textile manufacturers in China, etc. has improved local production technologies. This trend, which emerged clearly in 1999, has been continuing but its contribution to the price decline has reduced of late, partly due to the yen depreciation.

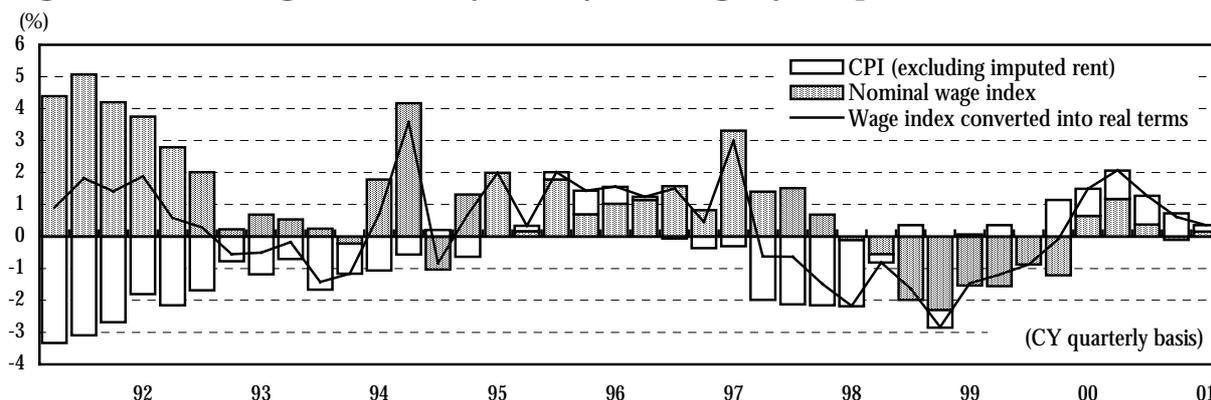
As in the case of textiles, import prices for electric machinery including personal computers fell from 1999 to July-September 2000, influenced by the yen appreciation. At the same time, the performance and functions of imports have been upgraded, particularly since January-March 2000. This attests to the increase in the value added to overseas products due mainly to the transfer of production facilities overseas for audio-visual equipment, etc. as well as to increased production of semiconductors and other electronic devices in Asian countries including Taiwan and South Korea.

Thus, the factors behind the decline in import prices that continued to 2000 vary considerably among individual products.

5. Loan Repayment Burden Restricting Consumption Despite Stable Real Income

The impact of falling prices on consumption is perceived as "cheaper goods and services." Figure 2-8 shows the year-on-year change in real wage as purchasing power in relation to the total cost of living. Inflation, once common during the post-war expansion, largely offset the increase in nominal wage until early 1994, but its impact has waned since around 1995 as prices stabilized. On the other hand, nominal income has been improving recently, as mentioned in Chapter 1, following declines on the previous year in 1998 and 1999. It is clear that the decline in consumer prices, which has become significant since 1999, has contributed to raise real income often more than the increase in nominal terms.

Figure 2-8. Real Wages (Trend of year-on-year change by component)



Note: Conversion into real terms was made with the quarterly data on nominal wage index and CPI (excluding imputed rent) calculated from monthly data.

Sources: Ministry of Health, Labor and Welfare, "Monthly Labor Survey" (business establishments employing 5 or more workers); Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Consumer Price Indexes Monthly."

Consumers appear to welcome the decline in prices. The consumer confidence indicator on price inflation in the Survey on Consumption Trends (Figure 2-9) has moved almost in reverse to the year-on-year change in consumer prices, showing that the benefit of falling prices is being felt by consumers, even though the price movement has been relatively small, around zero. Of course, consumers may consider the price deflation as a sign of future economic downturn, however, direct effect of deflation on consumers are considered as the positive factors mentioned above.⁹

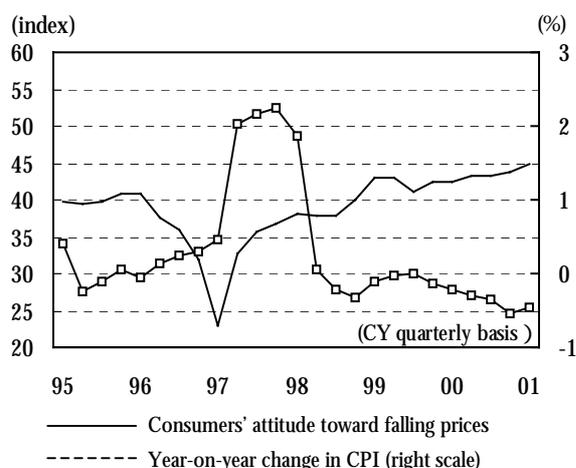
In contrast, the sluggish growth of nominal consumption has been reported on the supply side as a slow sales growth. Figure 2-10 shows the changes of volume and unit price in the 1990s for clothing, which is generally thought to have experienced a substantial decline in prices. For each year, the annual growth of volumes and unit prices for the 29 product items covered by the Family Income and Expenditure Survey (all households with two or more members excluding agricultural, forestry and fishery households) is averaged by the expenditure shares in the previous year.¹⁰ The 45-degree line running from upper left to lower right indicates the combination of volumes and unit prices that results in the same purchase value as in the previous year. The area to the upper right of the 45-degree line means that the purchase value exceeds the level of a year ago, while the area to the lower left of the line means that the value is lower. Unit prices declined in seven years in the 1990s, and volumes also decreased in seven years. Consequently, purchase value dropped, from the previous year in every year except 1991 and, in particular, the purchase value declined whenever unit prices fell. It can therefore be concluded that the significant drop in prices in the 1990s was not compensated by a corresponding increase in sales volume.¹¹

⁹ In the questionnaire, price reduction is placed in line with other positive factors, and is treated as such in calculating the composite index.

¹⁰ Unit purchase prices are calculated here according to the classification in the Family Income and Expenditure Survey, and no qualitative considerations are adopted such as brand designation in the case of price indices.

¹¹ In the 10-year period between 1981 and 1990, unit prices rose in all years while purchase value increased in every year except 1981 and 1984.

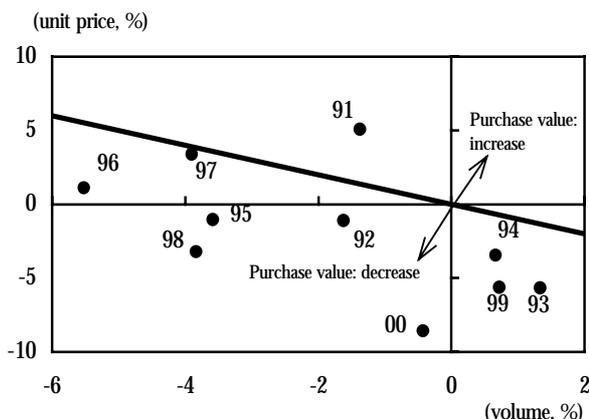
Figure 2-9. Consumers' Attitude toward Falling Prices



Note: Consumers' attitude toward falling prices represents the seasonally adjusted ratio (diffusion index) of people who perceive that prices are falling.

Sources: Cabinet Office, "Survey on Consumption Trends;" Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Consumer Price Index."

Figure 2-10. Change in Unit Purchase Price and Purchase Volume of Clothing on Previous Year



Note: Average of year-on-year change in unit price and volume weighted by purchase value in the previous year for the 29 clothing items for which purchase values and purchase volumes are available.

Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Annual Report of Family Income and Expenditure Survey."

Although the weak consumption is confirmed, the Family Income and Expenditure Survey also shows a constant decline in the share of "clothing and footwear" in total expenditure from 7.3% in 1991 to 5.1% in 2000, while the shares of "transport and communications," "culture and entertainment," etc. increased. In light of such changes in consumption pattern, consumers are not necessarily cutting back in spending to the detriment of their own utility. To argue the impact of deflation on the level of overall consumption, we should examine additional elements other than the income compensation; future economic conditions or the impact of debts contracted in the past.

The impact of falling prices on savings in a broad sense or on future purchasing power includes the erosion of savings, i.e. the reduction of interest income and pension benefits by lowered interest rates. As households invest half of their savings in real assets including land and housing, any decline in asset prices brings a corresponding loss to them. On the liability side, although the household sector as a whole has more savings than liabilities, the real interest burden on housing and other loans may be heavier than initially expected, because interest rates on most of such loans are fixed in nominal terms.

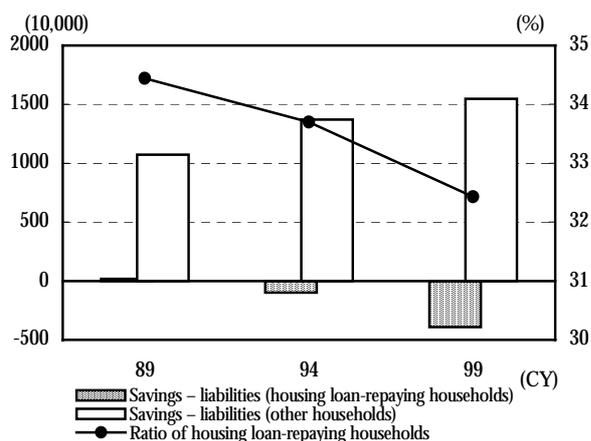
Based on the National Survey of Family Income and Expenditure, Figure 2-11 shows the share of households that are repaying housing loans in all households with two or more members and outstanding of their savings and liabilities. Although the share has lowered slightly, loan-repaying households still account for about one third of all households. Net savings stood at ¥170,000 in 1989 for loan-repaying households but turned negative in 1994, whereas they have been positive and increasing in the household sector as a whole. Net liabilities for loan-repaying households amounted to ¥3.93 million in 1999. This will be explained by multiple factors: housing purchases with loans may have increased, or existing loan-repayment households may

have fallen behind schedule. In any case, it is clear that the gap in net savings has widened between loan-repaying households and other households.

As shown in Figure 2-12, the share of loan repayment in disposable income in loan-repaying households rose in the 1990s, reaching almost 20% in 2000.¹² The impact of such increase in loan repayment burden on consumption can be observed from the year-on-year change in consumption expenditure shown in the same figure. Although the consumption of loan-repaying households fluctuates more, possibly due to smaller number of samples, consumption expenditure in those households has decreased from the previous year for four consecutive years since 1997. The decrement, which is larger than for other households, reflects the slump of consumption in loan-repaying households.

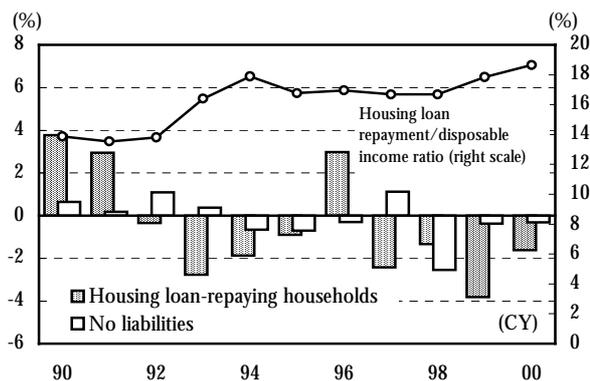
That is, loan-repaying households have become increasingly unwilling to consume. As mentioned earlier, however, households with positive net savings cannot avoid the erosion of real and financial assets, either. Although falling prices have a positive function of directly raising the purchasing power of the household sector, they work negatively in terms of stock. As will be discussed later, the negative impact of falling prices will be amplified, if they are identified with the slowing of economic growth, and eventually with the downward revision of, and uncertainties about, future income.

Figure 2-11. Ratio of Housing Loan-repaying Households and Net Liabilities



Note: Total represents workers' households with two or more members.
 Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "National Survey on Consumption."

Figure 2-12. Year-on-Year Change in Consumption Expenditure of Housing Loan-repaying Households



Note: Total represents workers' households with two or more members.

Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Annual Report of Family Income and Expenditure Survey."

That is, loan-repaying households have become increasingly unwilling to consume. As mentioned earlier, however, households with positive net savings cannot avoid the erosion of real and financial assets, either. Although falling prices have a positive function of directly raising the purchasing power of the household sector, they work negatively in terms of stock. As will be discussed later, the negative impact of falling prices will be amplified, if they are identified with the

¹² Of course, the share of housing cost in consumption expenditure (average for 2000) is smaller (1.6%) in loan-repaying households than in other households (5.5%). Although imputed rent is not included here, the size is not comparable to the burden of loan repayment.

slowing of economic growth, and eventually with the downward revision of, and uncertainties about, future income.

6. Corporate Profits Secured by Reduced Personal Cost Despite Downtrend in Sales Prices

Falling prices have various direct and indirect impacts on corporate profits through the change in relative price as well as the change in sales volume. Falling prices are generally considered as a negative factor for corporate profits, but empirical studies are required to identify the magnitude and timing of such impacts.

Trends in output and input prices, shown in Figure 2-13, indicate that input prices declined substantially until around 1998, largely improving the profit environment (terms of Output/Input price index). Since 1999, however, input prices have recovered slightly, and output prices have stabilized, possibly resulting in a slight erosion of corporate profits.

The most notable effect of falling prices is the increase in real wage due to the rigidity of nominal labor cost. Setting aside any other costs required for improving productivity (equipment-related cost, education/training cost, etc.) however, the growth of personnel cost should be absorbable if it stays lower than the increase in labor productivity. Figure 2-14 compares the trend of real wage cost per employee and that of labor productivity. Although the real wage based on output prices has increased constantly, its growth has been slower than the increase in productivity since 1999.

In light of the above observations, Figure 2-15 shows the change in the ratio of ordinary profit to sales for large-sized manufacturers by component based on the Statistical Survey of Incorporated Enterprises to identify the impact of price fluctuations.¹³ The ratio of ordinary profit to sales since 1999 has improved due to an increase in labor productivity that substantially exceeded the growth of real wage, which continued to make a negative contribution due to the decline in output prices. Although the increase in sales volume thanks to economic recovery was the major factor behind the improvement of productivity, personnel cutbacks have also made an unprecedented contribution.

¹³ The concept of the factor resolution is as follows.

Taking as variable costs all costs other than the typical fixed costs of personnel expenses, depreciation expenses and interest paid including amortization of bond premia, the year-on-year change in the ratio of ordinary profit to sales is resolved into the year-on-year change in marginal profit ratio (=1 - the ratio of variable costs to sales) and the year on year change in the ratio of fixed costs to sales. The former (Factor A) reflects the change in relative price between output and input and the change in basic input unit (volumes of raw materials, fuels, etc. required for producing one unit of product), among others.

The year-on-year change in the ratio of fixed costs to sales is resolved into the real wage effect (Factor B), which indicates the direct impact of the change in output prices on per capita personnel expenses, the effect of changing labor productivity and the effect of changing depreciation and interest cost (Factor E). The effect of labor productivity is further resolved into the effect of changing sales volume (Factor C) and the effect of changing work force (Factor D).

The factor resolution is expressed as $(S=O \times p, OP=MP - (PE+F), PE=L \times w)$, where

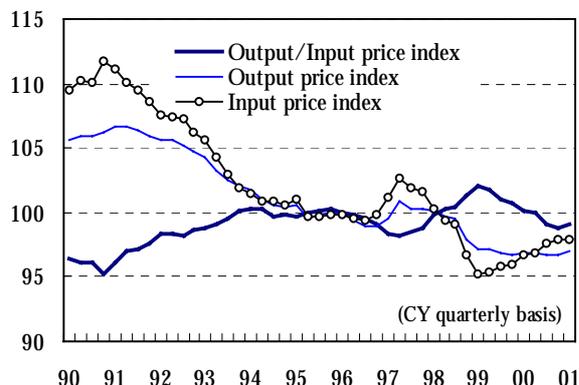
S: sales, MP: marginal profit, PE: personnel expenses, F: depreciation expenses + interest paid including amortization of bond premia, OP: ordinary profit, O: sales volume, p: sales price, L: work force, and, w: per capita personnel expenses.

$$(OP/S) = \frac{(MP/S)}{\text{(Factor A)}} + \frac{(PE_0/S)(p/p_0 - w/w_0)}{\text{(Factor B)}} + \frac{(PE_0/S)(O/O_0)}{\text{(Factor C)}} - \frac{(PE_0/S)(L/L_0)}{\text{(Factor D)}} - \frac{(F/S)}{\text{(Factor E)}}$$

The suffix of a small 0 indicates previous year's value. indicates change on the previous year.

O/O_0 and w/w_0 were calculated from $(S/S_0 - p/p_0)$ and $(PE/PE_0 - L/L_0)$ respectively. Manufacturing output price index was used for p/p_0 .

Figure 2-13. Trends in Input and Output Prices in Manufacturing Sector (1995=100)



Source: Bank of Japan, "Price Indexes Monthly."

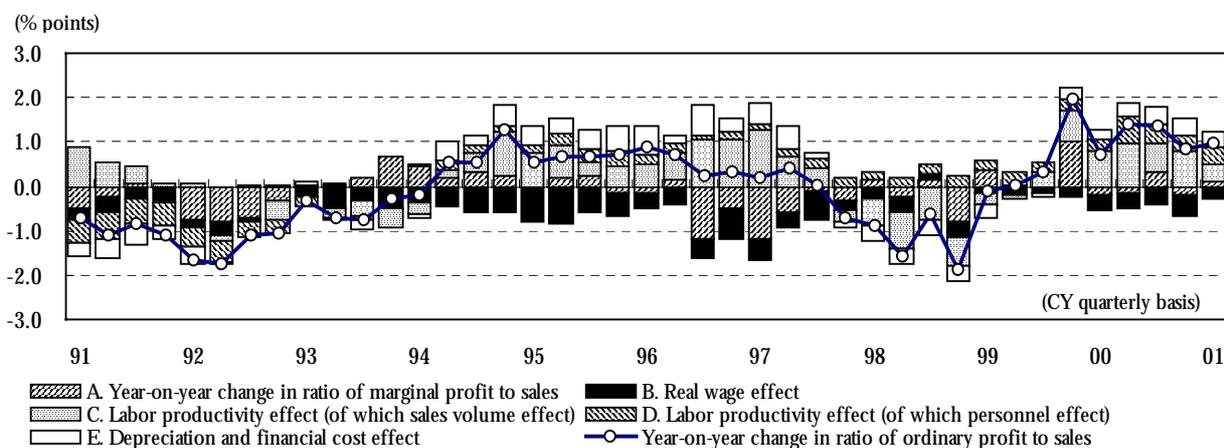
Figure 2-14. Trends in Real Wage Cost and Labor Productivity in Manufacturing Sector (seasonally adjusted, 1995=100)



Note: Real wage cost index = nominal wage index/output price index (after adjustment for consumption tax). Labor productivity index = manufacturing production index/number of workers.

Sources: Bank of Japan, "Price Indexes Monthly;" Ministry of Health, Labor and Welfare, "Monthly Labor Survey;" Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Labor Force Survey;" Ministry of Economy, Trade and Industry, "Industrial Index."

Figure 2-15. Ratio of Ordinary Profit to Sales of Major Manufacturers (Trend of year-on-year change by component)



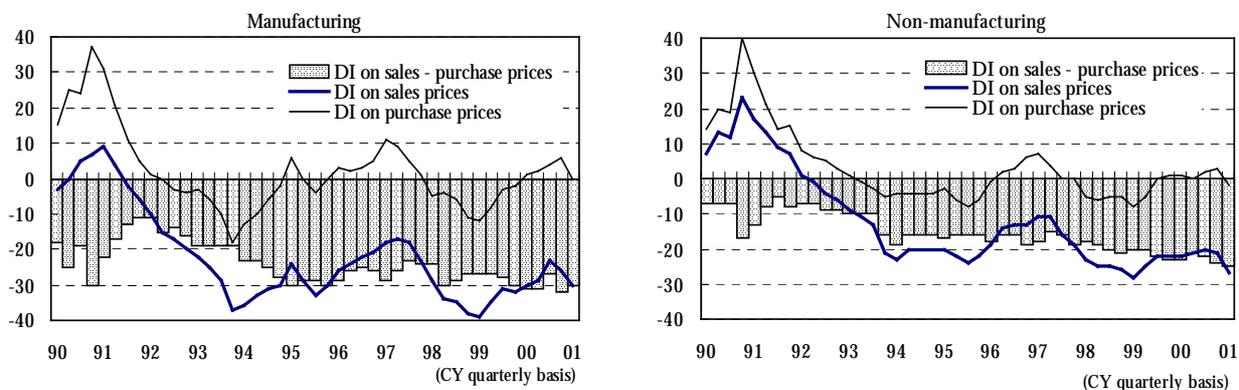
A indicates the change in relative price between output and input.
B indicates the direct impact of changing output prices on personnel cost.

Note: Marginal profit = ordinary profit + (personnel cost + depreciation + interest paid including amortization of bond premia).
Sources: Ministry of Finance, "Quarterly Report of Statistical Survey of Incorporated Enterprises;" Bank of Japan "Price Indexes Monthly."

Typically, it is difficult to measure the impact of falling prices on profits in the non-manufacturing sector. Taking the diffusion index on prices as an indicator of actual output and input prices, however, the relative decline in sales prices as compared with purchase prices has

become sharper in non-manufacturing than in manufacturing, implying a harsh profit environment for non-manufacturers (Figure 2-16).

Figure 2-16. Trend of Diffusion Index on Sales Prices and Purchase Prices by Industrial Sector (All sizes of corporations)



Source: Bank of Japan, "Tankan."

7. Real Interest Rates Remain High, Corporate Debt Repayment Burden Still Growing

The interest costs considered by firms in making decisions on plant and equipment investment are real interest rates, i.e. nominal interest rates adjusted for price fluctuations (and accompanying changes in the value of money) expected in the future. Since nominal interest rates cannot be lower than zero (the constraint of non-negativity), real interest rates will remain high when expected price inflation is negative, possibly curbing plant and equipment investment. This is considered as one of the costs of deflation.

The expected price inflation for manufacturers, which was estimated with the Carlson-Perkin method¹⁴ using the diffusion index on sales prices (prospect for the next three months) of BOJ's Tankan and actual output price inflation data, was found to be negative for a long period of time since around 1992 (Figure 2-17). Thus, businesses expected a sales price decline of 1.5% in the first half of 1999, and were still anticipating a drop of over 1% in the most recent period. On the other hand, interest rates on new loans for firms have almost bottomed out, as short-term interest rates have reached for zero bounds. According to an estimate using the expected price inflation, real interest rates have remained at around 3% (Figure 2-18). This level is not low in light of the potential growth rate of the Japanese economy,¹⁵ which is considered to be just below 2% or around 1%.

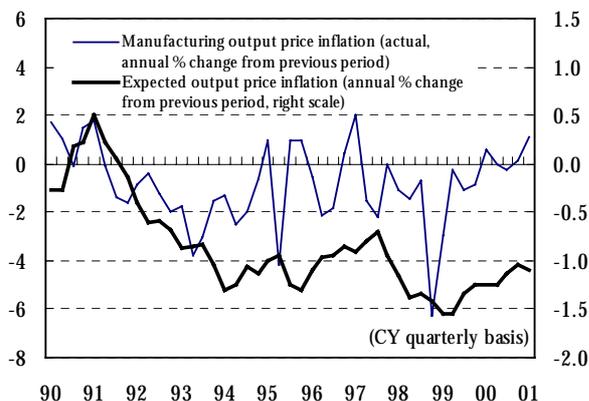
The increase in real repayment burden for existing debts is another cost of deflation related to corporate finance. Of course, an economically rational firm should account for price fluctuations expected at the time of contracting debts in the form of real interest rates. However,

¹⁴ The Carlson-Perkin method is a technique that estimates the average and standard deviation of the forecast values of the population regarding a variable, from survey data on the future direction of the variable, such as BOJ's Tankan. Various calculation methods exist according to the supposition concerning the distribution of the population and the formation of expectation. The formula adopted here is based on Nakayama and Oshima (1999), "Infure Kitai no Keisei ni tsuite (On the Formation of Expected Inflation)," *Working Paper 99-7*, BOJ Research and Statistics Bureau.

¹⁵ No definite estimates exist for the potential growth rate, as different models and suppositions lead to different results. In BOJ Research and Statistics Bureau (2000), "Waga Kuni no Bukka Doko - 90-nendai no Keiken wo Chushin ni (Trends in Prices in Japan: With Focus on the 1990s)," *Bank of Japan Research Monthly*, October 2000, the potential growth rate was estimated to be just under 2% when using a traditional approach, and about 1% when considering the operating rate in the non-manufacturing sector, etc.

any unexpected price fluctuation is recognized as an additional debt burden.¹⁶ The impact is more serious on firms with heavier debt burden in relation to their profitability, which is the source of money for debt repayment.

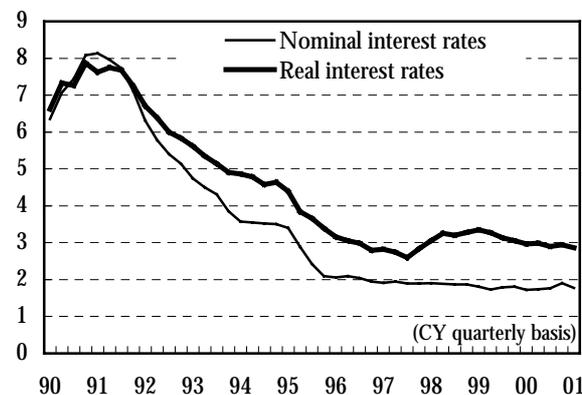
Figure 2-17. Measurement of Expected Output Price Inflation Based on Forecast of Diffusion Index on Manufacturing Sales Prices for Next Period



Notes: 1. Adjusted for consumption tax change.
2. Measurement is based on the Carlson-Perkin method.

Sources: Bank of Japan, "Tankan" and "Price Indexes Monthly."

Figure 2-18. Trends in Real Interest Rates Based on Expected Output Price Inflation



Note: 1. Nominal interest rates represent the average contracted interest rates on new loans and discounts of domestically licensed banks (total)
2. Real interest rates were calculated from the expected output price inflation in Figure 2-17.

Sources: Bank of Japan, "Financial and Economic Statistics Monthly," etc.

According to the Statistical Survey of Incorporated Enterprises, corporate debt redemption years (the weight of debt burden in relation to the flow of money for repayment) have tended to increase since around 1990 for both manufacturers and non-manufacturers. The period was particularly long in fiscal 1998 and 1999, primarily due to the recognition of extraordinary losses¹⁷ (Figure 2-19). By industry and by corporate size, the impact of increased real debt burden due to deflation seems to be particularly severe for construction, wholesale/retail, real estate and small-sized firms with longer redemption periods (Figure 2-20).

¹⁶ If the expectation on price inflation is uniform, the unexpected change only represents a redistribution of income from debtors to creditors from the viewpoint of the economy as a whole. Nonetheless, a downward pressure on the economy is supposed to arise from the difference in the propensity to spend between debtors and creditors (higher for the former).

¹⁷ The period was longest since fiscal 1980 after adjustment for the impact of the introduction of tax effect accounting (for all firms in all industries).

Figure 2-19. Trends in Corporate Debt Redemption Years

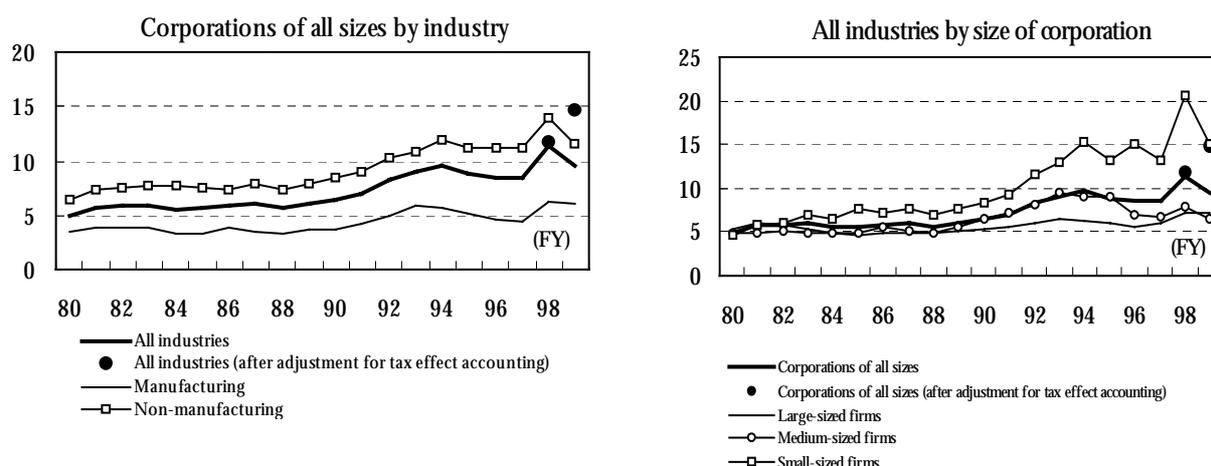


Figure 2-20. Trends in Corporate Debt Redemption Years

Manufacturing average	6.0	Non-manufacturing average	11.6	Average for all industries and corporations of all sizes	9.6
Foods	5.1	Construction	23.4	Ditto (after adjustment for tax effect)	14.7
Chemicals	3.3	Wholesale/retail	17.5	Large-sized firms	7.2
Iron & steel	10.2	Real estate	44.3	Medium-sized firms	6.5
General machinery	10.4	Transport & telecommunications	6.7	Small-sized firms	15.0
Electric machinery	4.2	Electricity	8.1		
Transport equipment	4.7	Services	6.1		

(For Figures 2-19 - 2-20)

Note: Debt redemption years = (corporate bonds + long-term loans)/(gains or losses after tax – dividends & bonuses + depreciation). As gains or losses after tax have been inflated since fiscal 1998 due to the introduction of financial instrument accounting, estimates based on the conventional method are presented for all industries and corporations of all sizes, for which relevant data are available.

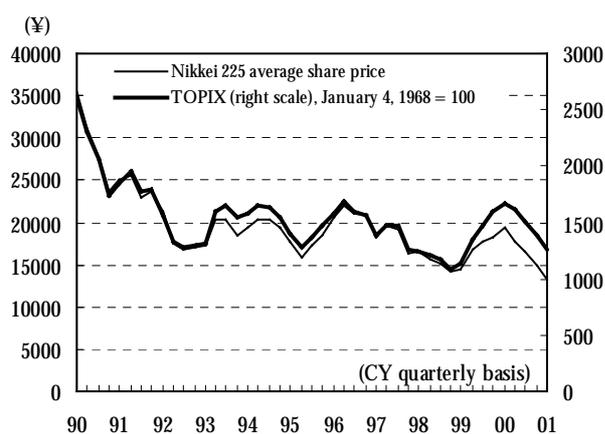
Source: Ministry of Finance, "Quarterly Report of Statistical Survey of Incorporated Enterprises."

8. Financial Assets Increasing in Parallel with Liabilities while Real Assets Decrease

In addition to falling prices, the decline in asset values also has a considerable impact on the economy. The drop in share and land prices since the collapse of the bubble economy in particular not only acted as a negative wealth effect that curbed consumption but also seems to have suppressed corporate plant and equipment investment by reducing collateral values. This section reviews the trend of assets prices until recently and the resultant change in, and impact on, asset values.

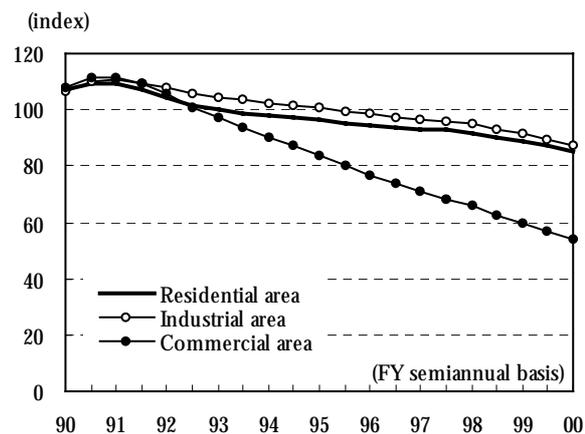
Share prices dropped to the lowest level since the collapse of the bubble economy in fiscal 1998, recovered temporarily in fiscal 2000, but fell again in fiscal 2000 (Figure 2-21). Subsequently, they recovered slightly in March 2001, only to resume the previous level in May. Land prices declined gradually after peaking in the first half of fiscal 1991, and continued to fall in the late 1990s, albeit at a slower pace (Figure 2-22). They are still falling as a whole, despite signs of bottoming out.

Figure 2-21. Trends in Share Price Indices



Note: Data for Tokyo Stock Exchange 1st Section.
Sources: "TSE Monthly" and "Nihon Keizai Shimbun."

Figure 2-22. Trends in Land Prices



Note: Indexed on the end of fiscal 1989 = 100.
Source: Japan Real Estate Institute, "Urban Land Price Index."

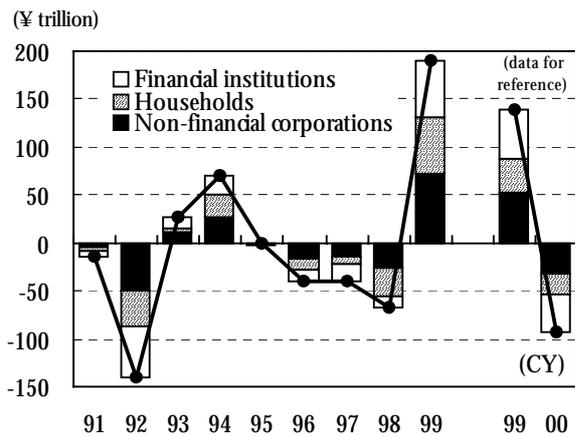
Reflecting such trends in asset prices, stocks continued to bring capital gains until 1998. However, most of the huge capital gains generated in 1999 were lost in 2000, seriously affecting financial institutions and incorporated enterprises in particular (Figure 2-23). Meanwhile, land continued to generate capital losses (Figure 2-24). This trend apparently continued into 2000 and onward. Capital losses, though not always on the financial statement explicitly, are at least recognized as unrealized losses. The consequent reduction in the value of shares held is considered to restrict consumption in the household sector and investment in the corporate sector.

Thus, share prices have experienced ups and downs, usually in parallel with the economic cycle. Although the wide fluctuation of share prices is still a disturbing factor for the economy, share prices themselves are now unlikely to become the center of economic fluctuation as their level has already consolidated significantly. In contrast, the sustained decline in land prices continues to exert downward pressure on the economy. It is not easy to estimate the reasonable market value of land. Considering the fact that land prices continue to fall, however, values are probably higher than the present discount value of available profits.

The burden of repaying housing loans in the household sector and bank loans in the corporate sector puts pressure on cash income, as it does not fall in proportion to the decline in asset values and prices. Although nominal interest rates remain low, real interest rates have not fallen substantially due to deflation (see Section 6 and Figure 2-18).

As regards the trend of asset values nationwide, financial assets have been growing year after year, but most of the growth is accompanied by a matching increase in liabilities (Figure 2-25). Although the greater presence of financial markets has a considerable impact, it has not led to any substantial increase in the wealth of the economy as a whole. The net assets of a country are the sum of real assets and external net assets, which are net financial assets (financial assets minus financial liabilities). Of the two components, external net assets increased in the 1990s thanks to the growth of the current account surplus, but have decreased to some ¥85 trillion. Net assets as a whole decreased by ¥564 trillion from the end of 1990 to the end of 1999, reflecting the decline in real assets due to falling land prices (Figure 2-26).

Figure 2-23. Capital Gains or Losses on Stock



Note: 1. Based on 93 SNA, and covers revaluation accounts in the adjustment accounts.
 2. Data for reference are developed according to the adjustment table of Bank of Japan, "Money Flow Accounts," and covers listed and over-the-counter shares only. (Annual Report on National Accounts also includes the market values of privately-owned company shares.)

Source: Cabinet Office, "Annual Report on National Accounts."

Figure 2-24. Capital Losses on Land

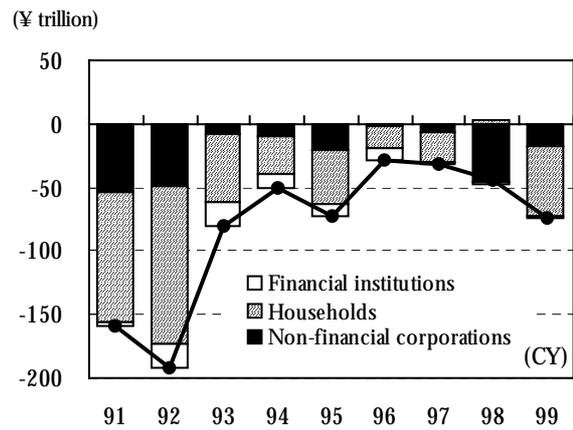
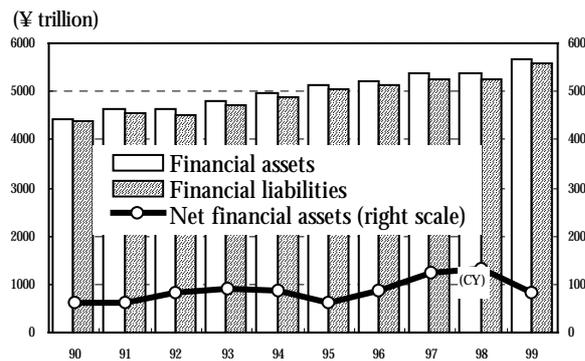
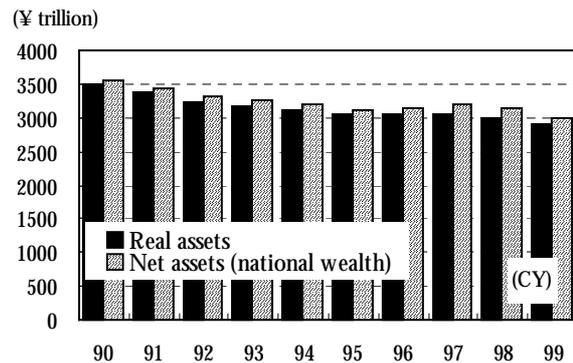


Figure 2-25. Trends in Financial Assets and Liabilities



Note: Based on 93 SNA.
 Source: Cabinet Office, "Annual Report on National Accounts."

Figure 2-26. Trends in Real Assets and National Wealth

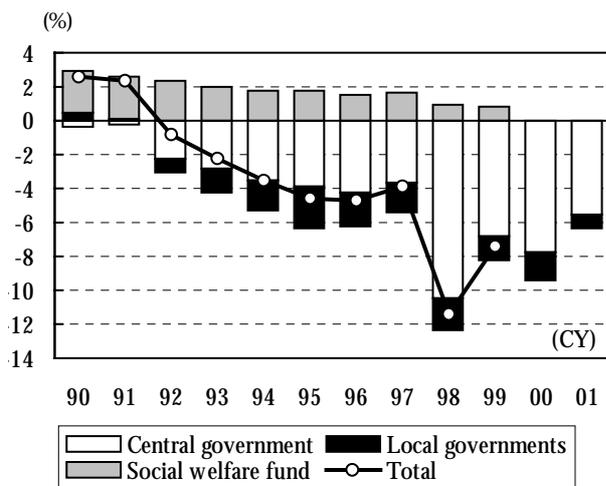


9. Increased Government Debt Burden and Mounting Concerns about the Future

With the implementation of successive economic stimulus measures, the budget deficits of the central and local governments piled up throughout the 1990s. The budget balance of the general government sector (as a percentage of GDP) went into the red in fiscal 1992 mainly due to the growing deficit of the central government. The balance worsened each year until fiscal 1996, when it dropped to -4.7% . After a slight recovery to -3.8% in fiscal 1997, it dropped further to -7.4% in fiscal 1998 (-6.3% for fiscal 1998 excluding the part of National Rail's long term debts and accumulated debts for national forests and fields transferred to the general account). The budget deficit seems to have increased even further in fiscal 2000 (Figure 2-27).

Following the trend of budget deficit, the sum of the outstanding long-term debts of the central and local governments increased rapidly in the 1990s. It exceeded the level of GDP in the late 1990s and is now slated to reach $\text{¥}666$ trillion at the end of fiscal 2001, which is equivalent to 128.5% of GDP. The debt burden is growing heavier as budget deficits continue (Figure 2-28).

Figure 2-27. Budget Balance of General Government (As % of GDP)



Note: Data for fiscal 2000 and 2001 are forecasts, except that no data are available for social welfare fund.
Sources: Cabinet Office, "Annual Report on National Accounts;" Ministry of Finance data.

Figure 2-28. Long-term Debts of Central and Local Governments

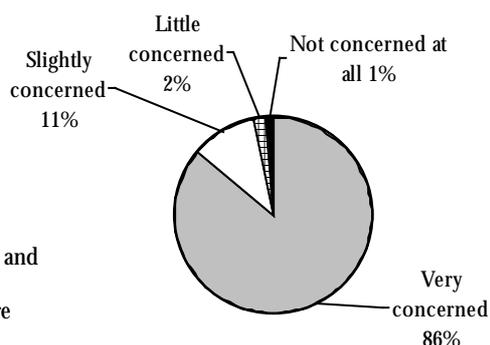
	(¥ trillion)			
	End FY 1990	End FY 1995	End FY 2000	End FY 2001
Total for central and local governments	266	410	642	666
As % of GDP	60.6%	83.7%	125.0%	128.5%

Note: After supplementary budget for FY 2000. Draft budget for FY 2001.
Source: Ministry of Finance Data.

As regards public finance, the Fiscal System Council conducted an "Opinion Poll on Public Finance" from late March to April 2001. Asked if they are concerned about the future based on the current state of public finance, 86% of the respondents answered that they were very concerned, and 11% somewhat concerned. Thus, 97% of the respondents were concerned about the future (Figure 2-29).

Judging from various questionnaire surveys, concerns about public finance, pension plans and provisions for post-retirement increased in the late 1990s, when it became apparent that prices were steadily declining (deflation). Thus, deflation may have had a non-negligible impact on consumer confidence.

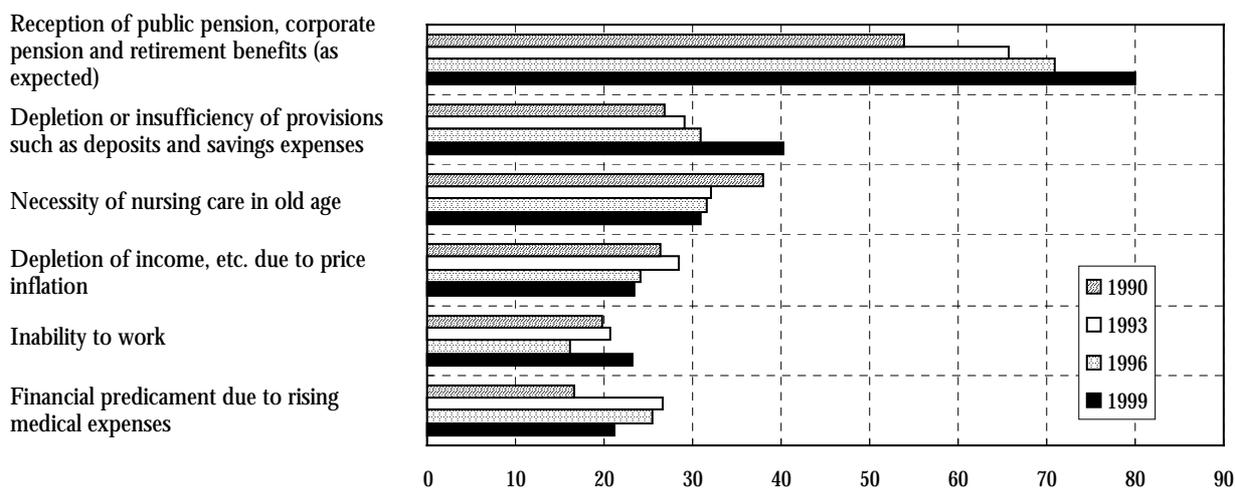
Figure 2-29. Concerns about Future Public Finance



Note: Survey conducted between March 27 and April 17 with 1,230 respondents.
Source: Fiscal System Council, "Questionnaire Result of Opinion Poll on Public Finance."

Figure 2-30 shows the result of an opinion poll on life after retirement conducted by the Ministry of Posts and Telecommunications (the current Ministry of Public Management, Home Affairs, Posts and Telecommunications), which covers households including at least two spouses and headed by those aged between 30 and 50 (4,800 households). The survey indicates that the respondents were most concerned about receiving public pension benefits after retirement as of 1999 (survey conducted in January 2000). The fact that the percentage of this response increased substantially from the same survey conducted in 1990 shows that fears about pension plans are growing.

Figure 2-30. Contents of Concerns about Post-retirement (Multiple answers)



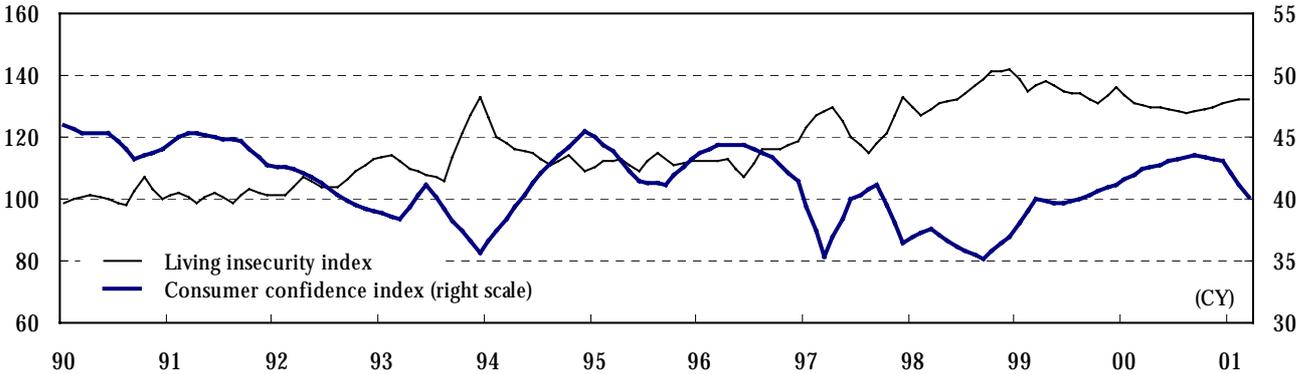
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "FY 1999 Market Survey on Personal Pensions." (%)

Figure 2-31 shows the Consumer Confidence Index (CCI) of the Cabinet Office as well as the Consumers' Sentiment Index (CSI) of the Japan Research Institute, which indicates the overall condition of consumer confidence. The CCI¹⁸ improved until September 2000 but fell since December to the level of the previous economic trough as "willingness to buy durable goods" deteriorated mainly due to the Recycling Law, which took effect in March 2001. On the other hand, the CSI¹⁹ is an indicator based on an opinion poll concerning the living standard in the coming year. It should be noted first that the future outlook deteriorated almost constantly throughout the 1990s. After peaking in 1998 with successive bankruptcies of financial institutions, the index improved slightly in the economic recovery since 1999. However, it has been deteriorating again since late 2000 in parallel with the consumer confidence index. Thus, the rising concerns about post-retirement life, along with uncertainties about public finance, pension plans, income and employment conditions have had a considerable impact on consumer confidence.

¹⁸ The CCI is derived from five surveys; overall livelihood, income growth, price, employment and willingness to buy durable goods. For each survey item, a consumer confidence indicator is developed as the weighted average of points assigned to individual answers according to their impact on consumption for the next six months. Thus, +1 point is given to the answer "will improve," +0.75 to "will slightly improve," +0.5 to "will not change," +0.25 to "will deteriorate slightly" and 0 to "will deteriorate." The CCI is the simple average of the five indicators. The index may vary from 0 to 100. See Figure 1-15 for recent results of each survey component.

¹⁹ 2, 1, -1 and -2 points are given to the answers "will deteriorate," "will deteriorate slightly," "will improve slightly" and "will improve" respectively. Add unity to this weighted average and multiply by a hundred. The index may vary from -100 to 300. The larger the value, the lower the expected living standard in the coming year.

Figure 2-31. Trends in Indices on Future Concerns and Consumption Environment



Sources: Cabinet Office, "Consumer Confidence Survey;" Japan Research Institute, "Consumer Centiment Indiex."

(as of June 25, 2001)

[by Economic Research Group (e-mail: report@dbj.go.jp)]

List of Back Numbers (Including JDB Research Report)

- No. 19 Recent Trends in the Japanese Economy: The Japanese Economy under Deflation (This Issue)
- No. 18 Introduction of a Home Appliance Recycling System: Effects & Prospects: Progress towards Utilisation of Recycling Infrastructure, June 2001
- No. 17 Survey on Planned Capital Spending for Fiscal Years 2000 and 2001, June 2001
- No. 16 Revitalization of Middle-aged and Elderly Workers in Japan's Labor Markets: Requiring the Expansion of the Vocational Training Functions, March 2001
- No. 15 Risk-Averting Portfolio Trends of Japanese Households, March 2001
- No. 14 Consumption Demand Trends and the Structure of Supply: Focus on Retail Industry Supply Behavior, March 2001
- No. 13 Recent Trends in the Japanese Economy: Weakness of Current Economic Recovery and Its Background, March 2001
- No.12 Empirical Reassessment of Japanese Corporate Investment Behavior: Features and Changes since the 1980s, based on Micro-level Panel Data (This issue)
- No.11 Survey on Planned Capital Spending for Fiscal Year 1999, 2000 and 2001, October 2000
- No.10 Job Creation and Job Destruction in Japan, 1978-1998: An Empirical Analysis Based on Enterprise Data, September 2000
- No.9 Recent Trends in the Japanese Economy: Information Technology and the Economy, September 2000
- No.8 Trend of International Reorganization Affecting the Japanese Automobile and Auto Parts Industries, June 2000
- No.7 Survey on Planned Capital Spending for Fiscal Years 1999 and 2000, June 2000
- No.6 Current Status and Future Perspective of the Japanese Remediation Industry: Technology and Market for Underground Remediation, May 2000
- No.5 Recent Trends in the Japanese Economy: The 1990s in Retrospect, March 2000
- No.4 Destabilized Consumption and the Post-bubble Consumer Environment, February 2000
- No.3 The Slump in Plant and Equipment Investment in the 1990s: Focusing on Lowered Expectations, the Debt Burden and Other Structural Factors, January 2000
- No.2 Survey on Planned Capital Spending for Fiscal Years 1998, 1999 and 2000, November 1999
- No.1 Corporate Strategies in Japan's Semiconductor Industry: Implications of Development in Other Asian Countries, November 1999

JDB Research Report

- No.96 Recent Trends in the Japanese Economy: Focused on Fixed Investment and Capital Stock, August 1999
- No.95 Efforts to Protect the Natural Environment in the United States and Germany: Environmental Mitigation and Biotope Conservation, July 1999
- No.94 Survey on Planned Capital Spending for Fiscal Years 1998 and 1999, June 1999
- No.93 Towards the realization of 'environmental partnership': A survey of Japan's environmental NPO sector through comparison with Germany, June 1999
- No.92 The Impact of Demographic Changes on Consumption and Savings, March 1999
- No.91 Recent Research and Development Trends in Japanese Enterprises: Technology Fusion, March 1999

- No.90 Recent Trends in the Japanese Economy: Prolonged Balance Sheet Adjustment, January 1999
- No.89 Impact of Asset Price Fluctuations on Household and Corporate Behavior: A Comparison between Japan and the U.S., December 1998
- No.88 Survey on Planned Capital Spending for Fiscal Years 1997, 1998, and 1999, December 1998
- No.87 Foreign Exchange Rate Fluctuations and Changes in the Input-Output Structure, November 1998
- No.86 Structural Changes in Unemployment of Japan: An Approach from Labor Flow, November 1998
- No.85 Recent Trends in the Japanese Economy: Characteristics of the Current Recession, August 1998
- No.84 R&D Stock and Trade Structure in Japan, August 1998
- No.83 Survey on Planned Capital Spending for Fiscal Years 1997 and 1998, August 1998
- No.82 The Significance, Potential, and Problems of DNA Analysis Research: Establishing Public Acceptance is Essential, May 1998
- No.81 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1996, 1997 and 1998 Conducted in August 1997, March 1998
- No.80 Recent Trends in the Japanese Economy: Growth Base of the Japanese Economy, January 1998
- No.79 Information Appliances: The Strength of Japanese Companies and Tasks for the Future, January 1998
- No.78 Challenges and Outlook for the Japanese Machinery Industries: Impact of ISO14000 Series and Environmental Cost, January 1998
- No.77 Current Conditions and Issues of Computerization in the Health Care Industry : For the Construction of a Health Care Information Network, January 1998
- No.76 Household Consumption and Saving in Japan, December 1997
- No.75 The Direction of Japanese Distribution System Reforms: Strengthening the Infrastructure to Support Diverse Consumer Choices, November 1997
- No.74 Foreign Direct Investments by Japanese Manufacturing Industries and Their Effects on International Trade, October 1997
- No.73 The Impact of the Changing Trade Structure on the Japanese Economy: With Special Focus on the Effects on Productivity and Employment, October 1997
- No.72 An Analysis of Foreign Direct Investment and Foreign Affiliates in Japan, August 1997
- No.71 Recent Trends in the Japanese Economy: Stock Replacement and New Demand as Aspects of Economic Recovery, August 1997
- No. 70 Corporate Fundraising : An International Comparison, June 1997
- No. 69 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1996 and 1997 Conducted in February 1997, May 1997
- No. 68 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1996 and 1997 Conducted in August 1996, August 1997
- No. 67 An International Comparison of Corporate Investment Behavior: Empirical Analysis Using Firm Data from Japan, France and the US, April 1997
- No. 66 Housing in the National Capital: Analysis of the Market for Housing using Micro Data, March 1997
- No. 65 The Environment for Locating Business Operations in Major East Asian Cities, January 1997
- No. 64 Direction of Reconstruction of Business Strategy in the Chemical Industry, January 1997
- No. 63 Reflection on Discussions Concerning Regulation of the Electric Power Industry: Deregulation of the Electric Power Industry in Japan and Implication of Experiences in the United States, December 1996

- No. 62 Current Status and Future Perspective of the Japanese Semiconductor Industry, November 1996
- No. 61 A Breakthrough for the Japanese Software Industry?: Responsiveness to Users' Needs is the key, October 1996
- No. 60 Recent Trends in the Japanese Economy Focusing on the Characteristics and Sustainability of the Current Economic Recovery, September 1996
- No. 59 Analysis of the Primary Causes and Economic Effects of Information: Related investment in the United States and Trends in Japan, August 1996
- No. 58 Selected Summaries of Research Reports: Published in FY 1995, June 1996
- No. 57 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1995 and 1996 Conducted in February 1996, May 1996
- No. 56 Recent Trends in the Japanese Economy, May 1996
- No. 55 Issues Concerning the Competitiveness of the Japanese Steel Industry, February 1996
- No. 54 Changes in the Financial Environment and the Real Economy, January 1996
- No. 53 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1994, 1995 and 1996 Conducted in August 1995, October 1995
- No. 52 Current Economic Trends: Focusing on the Appreciation of the Yen and its Effects, October 1995
- No. 51 Problems Concerning the International Competitiveness of the Petrochemical Industry, October 1995
- No. 50 An Economic Approach to International Competitiveness, October 1995
- No. 49 Selected Summaries of Research Reports Published in FY 1994, July 1995
- No. 48 Strategies for Improving the Efficiency of the Japanese Physical Distribution System: Part2, July 1995
- No. 47 Issues on International Competitive Strength of the Auto Industry, June 1995
- No. 46 Problems Concerning the International Competitiveness of the Electronics and Electric Machinery Industry, June 1995
- No. 45 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1994 and 1995 Conducted in March 1995, June 1995
- No. 44 Strategies for Improving the Efficiency of the Japanese Physical Distribution System, March 1995
- No. 43 Capital Spending Recovery Scenario Cycle and Structure, August 1994
- No. 42 Progress of International Joint Development between Industrialized Countries on the Private Level, May 1994
- No. 41 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1993, 1994 and 1995 Conducted in August 1994 , November 1994
- No. 40 Selected Summaries of Research Reports Published in FY 1993, June 1994
- No. 39 Recent Trends in Japan's Foreign Accounts, April 1994
- No. 38 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1993 and 1994 Conducted in March 1994, April 1994
- No. 37 Economic Zones and East Asia Prospect for Economic Activity Oriented Market Integration, December 1993
- No. 36 Japanese Corporate Responses to Global Environmental Issues, December 1993
- No. 35 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1992, 1993 and 1994 Conducted in August 1993, September 1993

- No. 34 Structure of Profit to Capital in the Manufacturing Industry, September 1993
- No. 33 Comparison of the Japanese and The U.S. Labor Markets, October 1992
- No. 32 The Relative Competitiveness of U.S., German, and Japanese Manufacturing, March 1993
- No. 31 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1992 and 1993 Conducted in March 1993, April 1993
- No. 30 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1991, 1992 and 1993 Conducted in August 1992, December 1992
- No. 29 Flow of Funds in the 80s and Future Corporate Finance in Japan, November 1992
- No. 28 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1991 and 1992 Conducted in February 1992, April 1992
- No. 27 An Analysis of Foreign Direct Investment in Japan, March 1992
- No. 26 Projection of Japan's Trade Surplus in 1995: Analysis of Japan's Trade Structure in the 80s, February 1992
- No. 25 Intra-Industry Trade and Dynamic Development of The World Economy, November 1991
- No. 24 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1990, 1991 and 1992 Conducted in August 1991, September 1991
- No. 23 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1990 and 1991 Conducted in February 1991, March 1991
- No. 22 Trends of the Petrochemical Industry and its Marketplace in East Asia, March 1991
- No. 21 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1989, 1990 and 1991 Conducted in August 1990, September 1990
- No. 20 Deepening Economic Linkages in The Pacific Basin Region: Trade, Foreign Direct Investment and Technology, September 1990
- No. 19 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1989 and 1990 Conducted in February 1990, March 1990
- No. 18 Petrochemicals In Japan, The US, and Korea an Assessment of Economic Efficiency, February 1990
- No. 17 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1988, 1989 and 1990 Conducted in August 1989, October 1989
- No. 16 Impact of the EC Unification on Japan's Automobile and Electronics Industries, August 1989
- No. 15 Industrial and Trade Structures and the International Competitiveness of Asia's Newly Industrializing Economies, August 1989
- No. 14 The Japan Development Bank Reports on Capital Investment Spending: Survey for Fiscal Years 1988 and 1989 Conducted in February 1989, March 1989
- No. 13 The Japan Development Bank Reports on Capital Spending: Survey for Fiscal Years 1987, 1988 and 1989 Conducted in August 1988, September 1988
- No. 12 Growing Foreign Investors' Activities and the Future of Internationalization, September 1988
- No. 11 Futures Tasks and Prospects for the Japanese Machine-Tool Industry, July 1988
- No. 10 International Division of Labor in the Machine Industries Among Japan, Asia's NICs and ASEAN Countries, June 1988
- No. 9 Trends of the Petrochemical Industry and its Marketplace in East Asia around Japan, May 1988
- No. 8 The International Competitiveness of Japan and U.S. in High Technology Industries, April 1988
- No. 7 The Japan Development Bank Reports on Private Fixed Investment in Japan, March 1988

- No. 6 Economic Projections of the Japan's Economy to the Year 2000, February 1988
- No. 5 The Japan Development Bank Reports on Private Fixed Investment in Japan, September 1987
- No. 4 Current Trends in the Japanese Auto Parts Industry in Overseas Production, July 1987
- No. 3 Current Moves for Foreign Direct Investment into Japan, May 1987
- No. 2 Overseas Direct Investments by Japanese Corporations, May 1987
- No. 1 Current U.S. Consumption Trends, May 1987