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The causes of Japan's 'lost decade': The role of household consumption

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Abstract

In this paper, I analyze the causes of the prolonged slowdown of the Japanese economy in the 1990s and find that the stagnation of investment, especially private fixed investment, was the primary culprit. I then investigate the causes of the stagnation of household consumption during the 1990s and find that the stagnation of household disposable income, the decline in household wealth, and increased uncertainty about the future are among the contributing factors. Finally, I consider whether demand side factors or supply side factors were more important as causes of the prolonged slowdown of the Japanese economy in the 1990s and conclude that the former (especially misguided government policies) were probably more important.

JEL classification: D12; E21; E32; O47; O53

Keywords: Japan; Japanese economy; Lost decade; Stagnation; Slowdown; Recession; Deflation; Economic fluctuations; Business fluctuations; Business cycles; Growth; Economic growth; Gross domestic product; GDP; Investment; Capital formation; Household; Consumption; Household consumption; Structure of consumption; Saving; Household saving; Precautionary saving; Uncertainty; Future prospects; Demand side factors; Supply side factors

1. Introduction

Japan's economy has been stagnant more or less continuously for more than a decade (Japan's so-called ''Lost Decade''), and Japan's growth rate during this period has been the lowest among the major industrialized countries of the world. During the 1995–2002 period, for example, the annualized growth rate of Japan's real gross domestic product (GDP) averaged only 1.2 percent,

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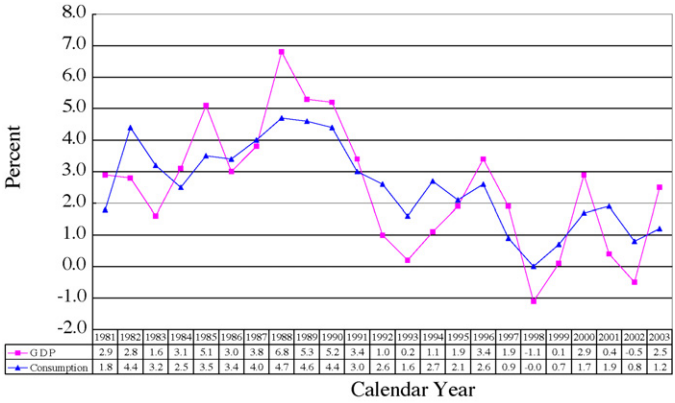

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GDP	2.9	2.8	1.6	3.1	5.1	3.0	3.8	6.8	5.3	5.2	3.4	1.0	0.2	1.1	1.9	3.4	1.9	-1.1	0.1	2.9	0.4	-0.5	2.5
Consumption	1.8	4.4	3.2	2.5	3.5	3.4	4.0	4.7	4.6	4.4	3.0	2.6	1.6	2.7	2.1	2.6	0.9	-0.0	0.7	1.7	1.9	0.8	1.2

Fig. 1. Trends over time in GDP and consumption growth. *Note*: See Table 1 for the definition of consumption. *Source*: The same as Table 1.

which is lower than all of the other G7 countries – Canada (3.4 percent), the United States (3.2 percent), the United Kingdom (2.7 percent), France (2.3 percent), Italy (1.8 percent), and Germany (1.4 percent) – as well as the Euro area average (2.2 percent) and less than half of all of the other larger OECD countries – Korea (5.3 percent), Australia (3.8 percent), Spain (3.3 percent), The Netherlands (2.9 percent), and Mexico (2.6 percent) – as well as the OECD-wide average (2.7 percent).

Fig. 1 shows trends over time in the annual growth rate of real GDP and household consumption during the 1980–2003 period and, as can be seen from this figure, GDP growth was relatively high during the 1980–1991 period (the so-called bubble period) and much lower during the 1991–2003 period (the so-called post-bubble period). This is verified by the first column of Table 1, which shows that GDP growth averaged a full 3.89 percent during the 1980–1991 period but only 1.14 percent (less than a third of the 1980–1991 level) during the 1991–2003 period.

What caused the sharp decline in GDP growth, and what caused it to persist for more than a decade? In this paper, I attempt to shed light on the causes of the prolonged slowdown of the Japanese economy in the 1990s by analyzing demand side data on the sources of growth of GDP and the sources of growth of household consumption in conjunction with similar data on the immediately preceding 1980–1991 period. By so doing, I attempt to assess whether, and to what extent, the stagnation of household consumption is responsible for the prolonged slowdown of the Japanese economy. I then speculate about the causes of the stagnation of household consumption, and after devoting the bulk of the paper to demand side factors, I turn finally to a consideration of the relative importance of demand side and supply side factors as causes of the prolonged slowdown of the Japanese economy.

This paper is organized as follows: Section 2 considers the sources of growth of GDP, Section 3 considers the sources of growth of household consumption, Section 4 considers possible causes of the stagnation of household consumption, Section 5 considers whether demand side or supply side factors contributed more to the prolonged slowdown of the Japanese economy, and Section 6 is a brief concluding section.

To preview the main findings of this paper, I find that the stagnation of investment, especially private fixed investment, was the major culprit of the prolonged slowdown of the Japanese economy in the 1990s and that the stagnation of spending on clothing and footwear, transport,

Table 1
The average annualized real growth rate and the contribution to real GDP growth of each component of GDP, 1980–2003

Component of GDP	Average annual real growth rate (percent)		Contribution to real growth rate of GDP	
	1980–1991	1991–2003	1980–1991	1991–2003
Actual final consumption of households	3.59 (3)	1.56 (3)	57.24 (1)	85.40 (1)
Government actual final consumption	3.54 (4)	3.22 (2)	5.45 (3)	18.64 (2)
Private gross domestic fixed capital formation	6.11 (2)	−0.59 (5)	34.09 (2)	−11.49 (6)
Housing	2.44	−2.48	3.54	−9.27
Plant and equipment	7.44	−0.14	30.54	−2.22
Public gross domestic fixed capital formation	0.85 (5)	−0.24 (4)	1.67 (4)	−1.26 (4)
Dwellings	−0.53	−0.89	−0.04	−0.15
Plant and equipment	−2.85	−1.06	−1.56	−1.18
General government	2.45	0.02	3.26	0.07
Changes in inventories (inventory investment)	9.56 (1)	na (6)	1.14 (5)	−4.35 (5)
Net exports of goods and services	0.78 (6)	6.39 (1)	0.42 (6)	13.07 (3)
Exports of goods and services	4.61	4.26	9.68	37.78
Imports of goods and services	5.94	3.63	9.26	24.71
Gross domestic expenditure (product)	3.89	1.14	100.00	100.00

Notes: The average annual real growth rate of component X between year tl and year $t2$ was calculated as $[(X(t2) - X(tl)) \times (\mathrm{l}/(t2 - tl)) - \mathrm{l}] \times 100$. The contribution of component X to real GDP growth was calculated as $[X(t2) - X(tl)] \times 100/[\mathrm{GDP}(t2) - \mathrm{GDP}(tl)]$. The "actual final consumption expenditure of households" is the sum of the final consumption expenditure of households and social transfers in kind received. The Japanese government switched from the fixed base year method to the chain linking method in 2004, but all data shown in this paper are based on the previous fixed base year method because data based on the chain linking method are available only since 1994 and are available only for the main aggregates. The values in parentheses to the right of each value indicate the rank of that value.
Source: Naikakufu Keizai Shakai Sougou Kenkyuusho, 2005.

and to a lesser extent, miscellaneous goods and services, education, and food and non-alcoholic beverages were the main culprits of the stagnation of household consumption. By contrast, I find that the main factors holding up GDP growth were household consumption, government consumption, and net exports and that the main factors holding up household consumption growth were spending on health, communication, and to a lesser extent, restaurants and hotels and housing-related expenditures. I also find that the stagnation of household consumption was due primarily to the stagnation of household disposable income, the decline in household wealth (which in turn was due primarily to the collapse of land and equity prices), and to a lesser extent, increased uncertainty about the future (especially about old age in general and public old-age pensions in particular), the deterioration of future prospects, etc. Finally, I consider whether demand side factors or supply side factors were more important as causes of the prolonged slowdown of the Japanese economy in the 1990s and conclude that the former (especially misguided government policies) were probably more important.

2. An analysis of the sources of GDP growth

In this section, I analyze the sources of GDP growth during the 1991–2003 period and consider the extent to which the stagnation of household consumption was responsible for the prolonged slowdown of the Japanese economy.

For the purposes of this analysis, I decompose gross domestic product (GDP) into the following six components: actual final consumption of households (hereafter referred to as ''household consumption''), government actual final consumption (''government consumption''), private gross domestic fixed capital formation (''private fixed investment''), public gross domestic fixed capital formation (''government fixed investment''), changes in inventories (''inventory investment''), and net exports of goods and services (''net exports''). Household consumption differs from the standard concept in that it includes ''social transfers in kind,'' which consist of ''social benefits in kind'' (health insurance and nursing care insurance benefits, which are used to finance the consumption of medical and nursing care services by households) and ''transfers of individual non-market goods and services'' from the government (such as subsidies for textbooks, public day care centers, etc.) and from private non-profit institutions serving households (such as subsidies for private nursery schools, art museums, zoos, etc.). Since both types of consumption are ultimately for the benefit of households, it seems preferable to include them in household consumption.[1] Conversely, government consumption differs from the standard concept in that it *excludes* social transfers in kind from the government to households.

Looking first at Fig. 1, it can be seen from this figure that the growth rate of household consumption exceeded that of GDP in eight out of the 12 years during the 1991–2003 period. This suggests that household consumption did *not* act as a drag on the economy and rather that it prevented it from stagnating further.

The first two columns of Table 1 show the average annualized real growth rate (hereafter referred to as ''growth rate'') of GDP and the various components thereof during the 1980–1991 and 1991–2003 periods. Looking first at the 1991–2003 period, the growth rate of GDP during this period was a mere 1.14 percent, whereas the growth rate of household consumption was 1.56 percent. Thus, the growth rate of household consumption was somewhat higher than that of GDP during the 1991–2003 period, which provides further corroboration that household consumption did *not* act as a drag on the economy and in fact *raised* rather than lowering the growth rate of GDP.[2] Note, however, that the growth rate of household consumption was not very high in absolute terms, that it was not nearly as high as the growth rate of certain other components of GDP such as net exports (6.39 percent) and government consumption (3.22 percent), and that it ranked only third among the six components of GDP.

What *did* act as a drag on the economy was investment – private and government fixed investment as well as inventory investment, all of which showed slower growth than GDP and in fact all of which showed *negative* growth during the 1991–2003 period: −0.24 percent in the case of government fixed investment, −0.59 percent in the case of private fixed investment, and very negative but not calculable in the case of inventory investment (because it was negative in the terminal year). A breakdown of private fixed investment shows that private housing (dwelling) investment declined especially sharply (−2.48 percent as opposed to −0.14 percent in the case of plant and equipment investment), which suggests that sluggish private housing investment might have been the primary culprit of the prolonged slowdown of the Japanese economy.

[1] ''Social benefits in kind,'' the largest component of ''social transfers in kind,'' were included in household consumption under the older 1968 System of National Accounts to which Japan adhered until 2000, and ''social transfers in kind'' are included in their entirety in ''actual'' household consumption (an alternate consumption concept) under the newer 1993 System of National Accounts to which Japan has adhered since 2000.

[2] This conclusion ignores second- and higher-order effects. For example, the stagnation of consumption might have induced firms to cut back on their investment spending. I am indebted to Keunkwan Ryu for this point.

The third and fourth columns of Table 1 show the contribution to real GDP growth of each component thereof during the 1980–1991 and 1991–2003 periods. Looking first at the 1991–2003 period, household consumption made by far the largest contribution to real GDP growth (85.40 percent). Government consumption made the second largest contribution (18.64 percent), and net exports made the third largest contribution (13.07 percent). Some have claimed that strong export growth prevented the prolonged slowdown of the Japanese economy from becoming even worse, but the contribution of net exports to real GDP growth was relatively modest and it ranked only third. The contributions of government fixed investment (−1.26 percent), inventory investment (−4.35 percent), and private fixed investment (−11.49 percent) to real GDP growth were all negative, with the contribution of private fixed investment being especially large in absolute magnitude. A breakdown of private fixed investment shows that private housing investment was responsible for 81 percent of the negative contribution of private fixed investment, suggesting again that it was the primary culprit of the prolonged slowdown of the Japanese economy.

Some of the foregoing results concerning the growth rate of each component of GDP and its contribution to real GDP growth are seemingly at odds with one other, but the differences can be explained by the share of each component in total GDP. For example, household consumption made by far the largest contribution to real GDP growth even though it ranks only third with respect to growth rates simply because it is by far the largest component of GDP with a share of more than 60 percent (see Table 2). Conversely, the contribution of net exports to real GDP growth was only third highest even though its growth rate was by far the highest of any component of GDP simply because its share of GDP is so small (3 percent or less, which puts it in fifth place among the six components of GDP).

Next, I compare the sources of growth of the Japanese economy during the 1991–2003 period to those during the immediately preceding 1980–1991 period. Looking first at the growth rates of

Table 2
The composition of GDP, 1980–2003

Component of GDP	The share of each component in real GDP (percent)		
	1980	1991	2003
Actual final consumption of households	62.91 (1)	60.97 (1)	64.08 (1)
Government actual final consumption	6.10 (4)	5.88 (4)	7.50 (3)
Private gross domestic fixed capital formation	19.31 (2)	24.38 (2)	19.81 (2)
Housing	6.08	5.21	3.36
Plant and equipment	13.24	19.17	16.44
Public gross domestic fixed capital formation	8.91 (3)	6.43 (3)	5.45 (4)
Dwellings	0.36	0.22	0.17
Plant and equipment	2.99	1.43	1.10
General government	5.57	4.78	4.18
Changes in inventories (inventory investment)	0.34 (6)	0.62 (6)	−0.02 (6)
Net exports of goods and services	2.42 (5)	1.73 (5)	3.18 (5)
Exports of goods and services	7.87	8.49	12.22
Imports of goods and services	5.45	6.76	9.04
Gross domestic expenditure (product)	100.00	100.00	100.00

Note: The figure shows the share of each component of real GDP in real GDP (in percent). Also see the notes to Table 1.
Source: The same as Table 1.

GDP and its components (compare the first and second columns of Table 1), the growth rate of GDP during the 1991–2003 period was less than a third of what it was during the 1980–1991 period (1.14 percent versus 3.89 percent). Household consumption showed the third highest growth rate of any component of GDP in both time periods, but its growth rate was much lower in absolute terms during the 1991–2003 period than it was during the 1980–1991 period (1.56 percent versus 3.59 percent). Even so, the growth rate of household consumption exceeded that of GDP during the 1991–2003 period whereas it fell slightly short of that of GDP during the 1980–1991 period.

If we compare the growth rates of the remaining components of GDP during the two time periods, the growth rate of net exports was much higher during the 1991–2003 period than it was during the 1980–1991 period, and its rank was also much higher (first versus sixth). Similarly, the growth rate of government consumption was only slightly lower during the 1991–2003 period than it was during the 1980–1991 period, and its rank was quite a bit higher (second versus fourth). By contrast, the growth rates of the investment-related components of GDP (private fixed investment, government fixed investment, and inventory investment) were all negative during the 1991–2003 period even though they were all positive and inventory investment and private fixed investment ranked first and second, respectively, during the 1980–1991 period.

Turning next to a comparison of the contribution to real GDP growth of each component of GDP during the two time periods (compare the third and fourth columns of Table 1), and looking first at household consumption, household consumption made by far the largest contribution to real GDP growth during both time periods, but its contribution was much larger during the 1991–2003 period than during the 1980–1991 period (85.40 percent versus 57.24 percent) even though its growth rate was much lower than during the 1980–91 period and even though its growth rate was so low in absolute terms because the growth rate of GDP was even lower and because its share of GDP is by far the largest of any component of GDP.

Government consumption and net exports made the second and third largest contributions to real GDP growth during the 1991–2003 period even though their contributions were only the third and sixth largest during the 1980–1991 period, and the magnitudes of their contributions were also much larger during the 1991–2003 period than during the 1980–1991 period. By contrast, private fixed investment, government fixed investment, and inventory investment (especially private fixed investment) all made negative contributions to real GDP growth during the 1991–2003 period even though their contributions were positive during the 1980–1991 period. The most striking case is that of private fixed investment, whose contribution to real GDP growth was a full 34.09 percent during the 1980–1991 period but −11.49 percent during the 1991–2003 period, a decline of 45.58 percent points! This indicates how volatile investment has been and suggests that investment (especially private fixed investment) may have been the main culprit of the slowdown of the Japanese economy after 1991.

To examine this contention more directly, I next analyze the *change* in the average annualized real growth rate of each component of GDP and the contribution of each component of GDP to the *decline* in real GDP growth between 1980–1991 and 1991–2003. Looking first at the change in growth rates (see the first column of Table 3), the growth rate of consumption declined by 2.03 percent points between 1980–1991 and 1991–2003, which is considerably less than the decline in the growth rate of GDP (2.75 percent points). This confirms my earlier contention that household consumption did *not* act as a drag on the economy.

Looking at the change in the growth rates of the other components of GDP, net exports were the only component showing an increase in its growth rate (by 5.60 percent points). The other components of GDP all showed declines in their growth rates: 0.32 percent points in the case

Table 3
The decline in the growth rate and the contribution to the decline in real GDP growth of each component of GDP, 1980–2003

Component of GDP	Change in the growth rate, 1980–1991 vs. 1991–2003 (percent)	Contribution to the decline in real GDP growth, 1980–1991 vs. 1991–2003 (percent)
Actual final consumption of households	−2.03 (4)	36.34 (2)
Government actual final consumption	−0.32 (2)	−4.33 (5)
Private gross domestic fixed capital formation	−6.70 (5)	67.91 (1)
Housing	−4.92	13.05
Plant and equipment	−7.59	54.86
Public gross domestic fixed capital formation	−1.09 (3)	3.84 (4)
Dwellings	−0.36	0.05
Plant and equipment	1.79	−1.84
General government	−2.44	5.63
Changes in inventories (inventory investment)	na (6)	5.22 (3)
Net exports of goods and services	5.60 (1)	−8.98 (6)
Exports of goods and services	−0.35	−11.18
Imports of goods and services	−0.32	−2.20
Gross domestic expenditure (product)	−2.75	100.00

Notes: The contribution of each component to the decline in real GDP growth between 1980–1991 and 1991–2003 was calculated as the ratio between the decline in the change in that component between 1980–1991 and 1991–2003 and the decline in the change in GDP between 1980–1991 and 1991–2003 (in parcent), ''na'' denotes ''not available.'' Also see the notes to Table 1. Source: The same as Table 1.

of government consumption, 1.09 percent points in the case of government fixed investment, 6.70 percent points in the case of private fixed investment, and not calculable but large in the case of inventory investment. A closer look at private fixed investment shows that the decline in the growth rate of private plant and equipment investment (−7.59 percent) was much larger in absolute magnitude than the decline in the growth rate of private housing investment (−4.92 percent), which appears to contradict my earlier contention that the decline in private housing investment was the primary cause of the slowdown of the Japanese economy in the 1990s.

Turning finally to the contribution of each component of GDP to the decline in real GDP growth between 1980–1991 and 1991–2003 (see the second column of Table 3), private fixed investment made by far the largest contribution to the decline in real GDP growth (67.91 percent), followed by household consumption in second place (36.34 percent), inventory investment in third place (5.22 percent), and government fixed investment in fourth place (3.84 percent). The contributions of the remaining components of GDP (government consumption and net exports) to the decline in real GDP growth were negative, meaning that they held up real GDP growth and prevented it from falling further. A closer look at private fixed investment shows that the contribution of private plant and equipment investment to the decline in real GDP growth (54.86 percent) was much larger than the contribution of private housing investment (13.05 percent), which casts further doubt on my earlier contention that the decline in private housing investment was the primary cause of the prolonged slowdown of the Japanese economy in the 1990s.

These results confirm that private fixed investment and, to a lesser extent, government fixed investment and inventory investment were the main culprits of the prolonged slowdown of the

Japanese economy in the 1990s, that net exports and government consumption prevented the slowdown from becoming even worse, and that household consumption was somewhere in the middle, contributing the most to real GDP growth but, at the same time, contributing substantially to the *decline* in real GDP growth.

A detailed analysis of the reasons why private fixed investment was the main culprit of the prolonged slowdown of the Japanese economy during the 1990s is beyond the scope of this paper, but previous studies have attributed it to a combination of factors including (1) the sharp curtailment of bank lending (the so-called ''credit crunch'') and the increase in systemic risk, both of which were caused by the financial crisis and the proliferation of non-performing loans, which in turn were caused by the collapse of the bubble economy of the late 1980s and the subsequent decline in asset (land and equity) prices, (2) a further curtailment of bank lending due to the untimely introduction of the Basel guidelines for capital adequacy in 1993, (3) the inadequacy of government actions aimed at resolving the financial crisis and the non-performing loan problem, (4) the inadequacy of aggregate demand due in large part to the inadequacy of monetary and fiscal stimuli, (5) increased uncertainty about future prospects for the Japanese economy as well as increased volatility, and (6) massive overinvestment in corporate plant and equipment during the bubble years (due in large part to overly expansionary monetary policy), which induced firms to sharply curtail fixed investment during the post-bubble years as a way of reducing excess capacity in the corporate sector (see Section 5 for more details).

Saito (2000) does a similar analysis for the earlier postwar period and finds that household consumption made the largest contribution to real GDP growth during the earlier postwar period as well but that its contribution (and also the contribution of government consumption) were not as large as they were after 1991. Thus, the role played by household (and government) consumption during the post-1991 period was large not only in absolute terms but also relative to the earlier postwar period.

3. An analysis of the sources of consumption growth

I turn next to an analysis of the sources of growth of household consumption. I break household consumption down into 12 components using the same classification scheme used in the National Accounts of Japan. In this section, I use the same concept of household consumption used in the previous section except that I exclude ''transfers of individual non-market goods and services'' from the government and from private non-profit institutions serving households to households because a detailed breakdown thereof by purpose is not available for all years. However, I do include ''social benefits in kind'' in household consumption and, in particular, I include them in the ''health'' component of household consumption because they consist of health insurance and nursing care insurance benefits, which are used to finance the consumption of medical and nursing care services by households.[3]

The first two columns of Table 4 show data on the average annualized real growth rate of each component of household consumption during the 1980–1991 and 1991–2003 periods, and looking first at the 1991–2003 period, ''communication'' (11.69 percent) showed by far the most rapid growth during this period (because of the rapid diffusion of cell phones), and

[3] Since ''social benefits in kind'' are available only in nominal terms, I converted them into real terms using the price deflator for the health component of household consumption.

Table 4
The average annualized real growth rate and the contribution to the real growth of household consumption of each component of household consumption, 1980–2003

Purpose of expenditure	Annual annualized real growth rate (percent)		Contribution to the real growth of household consumption (percent)	
	1980–1991	1991–2003	1980–1991	1991–2003
Food and non-alcoholic beverages	1.21 (10)	−0.02 (9)	5.83 (7)	−0.21 (9)
Alcoholic beverages and tobacco	1.06 (11)	−0.17 (10)	1.03 (11)	−0.31 (10)
Clothing and footwear	1.85 (8)	−2.73 (12)	3.98 (8)	−9.83 (12)
Housing, electricity, gas and water supply	3.76 (7)	2.19 (4)	21.15 (1)	30.11 (1)
Imputed service of owner- occupied dwellings	4.05	2.34	15.68	22.65
Furnishings, household equipment and household services	5.60 (3)	1.12 (6)	6.53 (6)	3.32 (7)
Health	3.82 (6)	3.66 (2)	10.49 (5)	26.80 (2)
Out-of-pocket	2.04	2.92	1.81	5.98
Social benefits in kind received	4.67	3.95	8.68	20.81
Transport	5.29 (5)	0.53 (8)	13.74 (3)	3.29 (8)
Communication	7.93 (1)	11.69 (1)	1.96 (10)	15.32 (4)
Recreation and culture	7.72 (2)	2.99 (3)	17.90 (2)	21.76 (3)
Education	0.99 (12)	−1.15 (11)	0.75 (12)	−1.52 (11)
Restaurants and hotels	1.78 (9)	1.88 (5)	3.25 (9)	7.36 (5)
Miscellaneous goods and services	5.60 (3)	0.66 (7)	13.38 (4)	3.90 (6)
Domestic final consumption expenditure of households	3.61	1.54	100.00	100.00

Notes: The average annual real growth rate of component X between year $t1$ and year $t2$ was calculated $[(X(t2) - X(t1)) \times (1/(t2 - t1)) - 1] \times 100$. The contribution of component X to the real growth of household consumption C was calculated as $[X(t2) - X(t1)] \times 100/[C(t2) - C(t1)]$. Household consumption is the sum of the final consumption expenditure of households plus social benefits in kind received, and the entire amount of social benefits in kind received are included in "health." The figure for total consumption in this table do not exactly match the figure for household consumption in Tables 1–3 because the figures in this table refer to "domestic final consumption expenditure of households" whereas the figures in Tables 1–3 refer to "final consumption expenditure of households," with the difference between the two being that the former exclude "direct purchases abroad by resident households" and "direct purchases in the domestic market by non-resident households" whereas the latter include both, and because the figures in Tables 1–3 include "transfers of individual non-market goods and services" from the government and from private non-profit institutions serving households whereas the figures in this table do not. The values in parentheses to the right of each value indicate the rank of that value. *Source*: The same as Table 1.

"health" (3.66 percent), "recreation and culture" (2.99 percent), "housing, electricity, gas and water supply" (2.19 percent), and "restaurants and hotels" (1.88 percent) also grew faster than overall consumption (1.54 percent), thereby boosting it. By contrast, "furnishings, household equipment and household services" (1.12 percent), "miscellaneous goods and services" (0.66 percent), "transport" (0.53 percent), "food and non-alcoholic beverages" (−0.02 percent), "alcoholic beverages and tobacco" (−0.17 percent), "education" (−1.15 percent), and "clothing and footwear" (−2.73 percent) grew less slowly than overall consumption, thereby serving as a drag thereon.

The third and fourth columns of Table 4 show the contribution of each component of household consumption to real household consumption growth during the 1980–1991 and 1991–2003 periods, respectively, and looking first at the 1991–2003 period, "housing, electricity, gas

Table 5
The composition of household consumption, 1980–2003

Purpose of expenditure	The share of each component in household consumption (percent)		
	1980	1991	2003
Food and non-alcoholic beverages	19.64 (2)	15.18 (2)	12.60 (3)
Alcoholic beverages and tobacco	3.97 (9)	3.02 (10)	2.46 (11)
Clothing and footwear	8.48 (5)	7.03 (7)	4.20 (9)
Housing, electricity, gas and water supply	20.14 (1)	20.47 (1)	22.09 (1)
Imputed service of owner-occupied dwellings	13.64	14.30	15.70
Furnishings, household equipment and household services	3.79 (10)	4.67 (9)	4.45 (8)
Health	9.80 (3)	10.02 (5)	12.84 (2)
Out-of-pocket	3.46	2.93	3.44
Social benefits in kind received	6.34	7.10	9.40
Transport	8.58 (4)	10.25 (4)	9.08 (5)
Communication	0.71 (12)	1.12 (12)	3.50 (10)
Recreation and culture	6.74 (8)	10.34 (3)	12.26 (4)
Education	3.13 (11)	2.36 (11)	1.71 (12)
Restaurants and hotels	7.24 (7)	5.95 (8)	6.19 (7)
Miscellaneous goods and services	7.78 (6)	9.59 (6)	8.63 (6)
Domestic final consumption expenditure of households	100.00	100.00	100.00

Note: See the notes to Table 4. *Source*: The same as Table 1.

and water supply'' made the largest contribution (30.11 percent) because it showed the fourth highest growth rate and because it has by far the largest share (see Table 5), while ''health'' made the second largest contribution (26.80 percent) because it showed the second highest growth rate and because it has one of the largest shares. The relatively large contribution of housing-related expenditures was due primarily to the increase in the imputed rent on owner-occupied housing (imputed services of owner-occupied dwellings). Imputed rent grew at a rate of 2.34 percent (versus 2.19 percent in the case of housing-related expenditures as a whole), its share of housing-related expenditures is about 70 percent, and its contribution to real household consumption growth was 22.65 percent (versus 30.11 percent in the case of housing-related expenditures as a whole). Imputed rent on owner-occupied housing is likely to be mismeasured because it is not a market transaction but rather is imputed using various assumptions, and I doubt that it grew as rapidly as the official figures suggest during a period when land prices were declining steadily. Thus, the fact that imputed rent on owner-occupied housing was the single largest source of growth of household consumption during the 1991–2003 period, according to the official figures, suggests that there is considerable uncertainty about exactly how much consumption grew during this period.

''Recreation and culture'' made the third largest contribution (21.76 percent) because its growth rate was the third highest and because its share is the third or fourth largest, while ''communication'' made the fourth largest contribution (15.32 percent) even though its share is one of the smallest because its growth rate was by far the highest. ''Restaurants and hotels'' made the fifth largest contribution (7.36 percent), followed by ''miscellaneous goods and services,'' ''furnishings, household equipment and household services,'' and ''transport.'' By contrast. ''food and non-alcoholic beverages,'' ''alcoholic beverages and tobacco,'' ''education,'' and

''clothing'' all made negative contributions, with the negative contribution of clothing being the largest in absolute magnitude (−9.83 percent).

Next, I compare the sources of growth of household consumption during the 1991–2003 period to those during the immediately preceding 1980–1991 period. Looking first at the growth rates of each component of household consumption in the two periods (compare the first two columns in Table 4), the growth rate of household consumption as a whole declined from 3.61 percent in 1980–1991 to 1.54 percent in 1991–2003. ''Communication'' showed the highest growth rate during both periods, but its growth rate increased sharply. ''Health'' increased from sixth to second, ''housing, electricity, gas and water supply'' from seventh to fourth, and ''restaurants and hotels'' from ninth to fifth, even though the growth rates of the first two of these components declined. By contrast, ''furnishings, household equipment and household services'' declined from third to sixth, ''miscellaneous goods and services'' from third to seventh, ''transport'' from fifth to eighth, and ''clothing and footwear'' from 8th to 12th (last place), with the growth rates of these components declining sharply. Finally, ''recreation and culture,'' ''food and non-alcoholic beverages,'' ''alcoholic beverages and tobacco,'' and ''education'' showed little change in their ranks but their growth rates declined considerably.

Looking next at the contribution of each component to the growth of real household consumption in the two periods (compare the third and fourth columns of Table 4), the contribution of ''housing, electricity, gas and water supply'' increased sharply, allowing it to maintain its number one ranking, the contribution of ''recreation and culture'' increased somewhat but its rank fell from second to third nonetheless, and the contribution of ''health'' more than doubled, allowing it to increase its rank from fifth to second. ''Communication'' and ''restaurants and hotels'' showed sharp increases in their ranks as well as their contributions, whereas ''miscellaneous goods and services,'' ''furnishings, household equipment and household services,'' ''transport,'' ''food and non-alcoholic beverages,'' and ''clothing and footwear'' showed declines in their ranks as well as their contributions. Finally, ''alcoholic beverages and tobacco'' and ''education'' showed little change in either their ranks or their contributions.

I next analyze the *change* in the average annualized real growth rate of each component of household consumption and the contribution of each component to the *decline* in the real growth of household consumption between 1980–1991 and 1991–2003. Looking first at the change in growth rates (see the first column of Table 6), the growth rate of household consumption as a whole declined by 2.06 percent points between 1980–1991 and 1991–2003, and the change in the growth rates of each component should be compared against this standard. The only components of household consumption showing increases in their growth rates between the two time periods were ''communication'' (an increase of 3.77 percent points) and ''restaurants and hotels'' (an increase of 0.10 percent points), but ''health,'' ''food and non-alcoholic beverages,'' ''alcoholic beverages and tobacco,'' and ''housing, electricity, gas and water supply'' showed smaller declines in their growth rates (in absolute magnitude) than overall consumption, thereby propping up consumption, whereas ''education,'' ''furnishings, household equipment and household services,'' ''clothing and footwear,'' ''recreation and culture,'' ''transport,'' and ''miscellaneous goods and services'' showed sharper declines in their growth rates (in absolute magnitude) than overall consumption, thereby contributing to its decline.

Turning finally to the contribution of each component to the decline in the real growth of household consumption between the two periods (see the second column of Table 6), ''transport'' contributed the most to the decline in real household consumption growth (31.18 percent), followed by ''miscellaneous goods and services,'' ''clothing and footwear,'' ''food and non-

Table 6
The decline in the growth rate and the contribution to the decline in the real growth of household consumption of each component of household consumption, 1980–1991 vs. 1991–2003

Purpose of expenditure	Change in the growth rate, 1980–1991 vs. 1991–2003 (percent)	Contribution to the decline in the real growth of household consumption, 1980–1991 vs. 1991–2003 (percent)
Food and non-alcoholic beverages	−1.23 (4)	15.91 (4)
Alcoholic beverages and tobacco	−1.23 (4)	3.25 (9)
Clothing and footwear	−4.58 (9)	27.04 (3)
Housing, electricity, gas and water supply	−1.57 (6)	6.19 (7)
Imputed service of owner-occupied dwellings	−1.71	4.04
Furnishings, household equipment and household services	−4.48 (8)	11.89 (5)
Health	−0.16 (3)	−16.74 (11)
Out-of-pocket	0.88	−5.17
Social benefits in kind received	−0.72	−11.57
Transport	−4.77 (11)	31.18 (1)
Communication	3.77 (1)	−20.32 (12)
Recreation and culture	−4.73 (10)	11.46 (6)
Education	−2.15 (7)	4.55 (8)
Restaurants and hotels	0.10 (2)	−3.61 (10)
Miscellaneous goods and services	−4.94 (12)	29.21 (2)
Domestic final consumption expenditure of households	−2.06	100.00

Notes: The contribution of each component to the decline in the real growth of household consumption between 1980–1991 and 1991–2003 was calculated as the ratio of the decline in the change in that component between 1980–1991 and 1991–2003 to the decline in the change in household consumption between 1980–1991 and 1991–2003 (in percent). Also see the notes to Table 4. *Source*: The same as Table 1.

alcoholic beverages,'' ''furnishings, household equipment and household services,'' ''recreation and culture,'' ''housing, electricity, gas and water supply,'' ''education,'' and ''alcoholic beverages and tobacco.'' ''Restaurants and hotels,'' ''health,'' and ''communication'' made negative contributions to the decline in household consumption (i.e., propped up real growth in household consumption), with the contributions of ''communication'' and ''health'' being especially large in absolute magnitude.

To sum up, the relative importance of the various components of household consumption differs depending on which criterion is used to rank them, but the components that rank relatively high with respect to virtually all criteria include ''communication'' and ''health'' and, to a lesser extent, ''restaurants and hotels'' and ''housing, electricity, gas and water supply,'' while the components that rank relatively low with respect to virtually all criteria include ''clothing and footwear,'' ''transport,'' and, to a lesser extent, ''miscellaneous goods and services,'' ''education.,'' and ''food and non-alcoholic beverages.''

With the exception of housing-related expenditures, necessities (such as ''clothing and footwear,'' and ''food and non-alcoholic beverages'') were the most stagnant and contributed the most to the stagnation of household consumption during the 1991–2003 period, whereas with the exception of ''transport'' and ''education,'' luxuries (such as ''health,'' ''recreation and culture,'' ''communication,'' and ''restaurants and hotels'') showed the strongest growth and contributed the most to holding up household consumption during this period. Thus, somewhat surprisingly, consumption patterns became more affluent during the 1991–2003 period despite the stagnation

of household income and wealth, suggesting that the prolonged slowdown of the Japanese economy was not severe enough to impoverish Japanese households. However, it could be that the increasing affluence of consumption patterns is attributable to an increase in income and wealth disparities among Japanese households, and if this explanation is the correct one, it implies that the poor became even poorer.[4]

Changes in relative prices seem to be able to explain some of the observed patterns in household consumption. For example, the average annualized inflation rates of ''communication'' and ''recreation and culture'' were negative and large in absolute magnitude (−3.78 percent and −3.39 percent, respectively), and thus, assuming that the demand for these components is relatively price-elastic, the negative inflation rates can help explain why the consumption of these components increased relatively rapidly. By contrast, the inflation rate of ''education'' was positive and large in absolute magnitude (2.34 percent), and thus, assuming that the demand for education is relatively price-elastic, the high inflation rate thereof can help explain why the consumption thereof declined absolutely.

Another possible influence on consumption patterns is demographic trends. The sharp decline in the birth rate has reduced the share of the young in the total population, and this in turn will reduce the demand for education, and conversely, sharp increases in life expectancy have increased the share of the aged in the total population, and this in turn will increase the demand for health-related expenditures.

Yet another possible influence on consumption patterns is technological change. For example, there were rapid improvements in cell phone and internet technology during the 1991–2003 period, which in turn led to sharp price declines and the introduction of new products and features like cell phones with email, internet, camera, and video capabilities. The rapid increase in communication-related expenditures is presumably due in large part to the price declines and new products and features made possible by rapid advances in cell phone and Internet technology.

4. The causes of the stagnation of household consumption

In Section 2, we found that household consumption did not cause the prolonged slowdown in the Japanese economy, but it is nonetheless true that household consumption was relative stagnant during this period. In this section, we analyze the causes of the stagnation of household consumption during the 1991–2003 period (see Bank of Japan Research Department (1998) for more details).

Economic theory predicts that household consumption will be influenced by the following factors, among others: (1) household disposable income, (2) household wealth, (3) uncertainty about the future (for example, about income, employment, retirement, public old-age pensions, etc.), and (4) future prospects (for example, about income, employment, etc.).

These factors may have contributed to the stagnation of household consumption during the 1991–2003 period if (1) household disposable income had declined or been stagnant, (2) household wealth had declined, (3) uncertainty about the future had increased, or (4) future prospects had deteriorated during this period. We look at each of these factors in turn.

[4] The data appear to show that income inequality increased in Japan during the 1990s, but Ohtake (2005) argues that the apparent trend toward greater inequality is largely a statistical artifact (except in the case of young cohorts) arising from the aging of the population and the decline in average household size.

4.1. The stagnation of household disposable income

The average annualized real growth rate of household disposable income was only 0.98 percent during the 1991–2003 period, which is far less than the average annualized real growth rate of household consumption during the same period (1.56 percent) and also far less than the average annualized real growth rate of household disposable income during the 1980–1991 period (3.32 percent).[5] This suggests that the stagnation of household disposable income was a major cause of the stagnation of household consumption and that it would have caused household consumption to be even more stagnant had it not been for other factors operating in the opposite direction.

4.2. The decline in household wealth

Household wealth (net worth) declined during the 1991–2003 period as a whole, due largely to the sharp decline in land and equity prices, and the average annualized real rate of decline of household wealth during this period was 0.39 percent.[6,7] Thus, it is quite possible that the stagnation of household consumption during this period was due at least partly to the decline in household wealth (a reverse wealth effect).

4.3. Increased uncertainty about the future

If the stagnation of household consumption were due to increased uncertainty about the future, we would expect the household saving rate to have increased, but in fact it *declined* steadily and sharply during the 1991–2003 period (except during the 1996–1998 period) – from 15.1 percent in 1991 to 6.4 percent in 2002 in the case of the unadjusted rate and from 13.3 percent in 1991 to 5.4 percent in 2002 in the case of the adjusted rate, a decrease of more than 50 percent in both cases (see Table 7)![8] This suggests that the stagnation of household consumption is *not* due to increased uncertainty about the future, except possibly during the 1996–1998 period, when the household saving rate increased from 9.9 percent to 11.1 percent in the case of the unadjusted rate and from 8.5 percent to 9.6 percent in the case of the adjusted rate.[9] It is not surprising to find that the household saving rate showed a temporary upturn during the 1996–1998 period because it is during this period that a spate of bankruptcies (most notably the bankruptcies of Yamaichi Securities and Hokkaido Takushoku Bank in November 1997) occurred in the financial sector. These bankruptcies

[5] All of these figures denote the average annualized real rate of growth of household disposable income (inclusive of social transfers in kind) deflated by the price deflator for actual household consumption (inclusive of social transfers in kind).

[6] The average annualized real rate of decline of household wealth was calculated by deflating household wealth by the price deflator for actual household consumption. Since household wealth is evaluated at the end of the each calendar year, I calculated the end-of-year price deflator by averaging the price deflators for the fourth quarter of the current year and the first quarter of the following year.

[7] Ando (2002) and Ando et al. (2003) attribute the stagnation of household wealth in large part to the low dividend–payout ratio of Japanese corporations, which is another way of saying that Japanese corporations overinvested in physical assets, at least during the bubble period. The high growth rates of private fixed investment during the 1980–1991 period in Table 1 corroborate Ando's contention.

[8] The difference between the two rates is that the latter includes "social transfers in kind" in the denominator whereas the former does not. See the second paragraph of Section 2 for a definition of "social transfers in kind".

[9] It is, of course, possible that households were not able to save more despite their desire to do so because of stagnant household income and wealth.

Table 7
Trends in the household saving rate, 1980–2003

Calendar year	Unadjusted household saving rate	Adjusted household saving rate
1980	17.3	15.4
1981	18.2	16.2
1982	16.8	14.9
1983	16.2	14.3
1984	16.1	14.3
1985	15.5	13.7
1986	14.8	13.0
1987	13.1	11.5
1988	13.5	11.9
1989	13.6	12.0
1990	13.9	12.3
1991	15.1	13.3
1992	14.2	12.5
1993	13.7	12.0
1994	12.6	11.1
1995	11.9	10.4
1996	9.9	8.5
1997	10.0	8.7
1998	11.2	9.6
1999	10.8	9.3
2000	9.6	8.2
2001	6.7	5.7
2002	7.3	6.1
2003	7.5	6.3

Notes: The household saving rate was calculated as the ratio of net household saving to the sum of net household disposable income and ''changes in pension reserves in pension funds, receivable.'' The unadjusted rate does not include ''social transfers in kind'' in the denominator, whereas the adjusted rate does. *Source*: The same as Table 1.

caused increased uncertainty not only about the health of the financial sector but also about the employment situation because the bankruptcies entailed large-scale layoffs of workers.

Additional verification of the importance of uncertainty about the future can be obtained from data on saving motives, etc., from the Public Opinion Survey on Financial Assets and Liabilities, conducted annually by the Central Council for Financial Services Information. As Table 8 shows, the proportion of respondents saving for illness and unforeseen emergencies has not shown a clear trend over time, and the proportion saving for peace of mind increased only moderately and only until 1999, which provides further corroboration that increased uncertainty about the future is not a major cause of the stagnation of household consumption. However, Table 8 also shows that the proportion of respondents saving for old age has increased sharply over time (from 50.5 percent in 1991 to 60.4 percent in 2003), and moreover, Table 9 shows that the proportion of under-60 respondents who are worried about old age has increased sharply over time, from 63.7 percent in 1992 to 87.9 percent in 2003 and that the proportion of these respondents who are worried about old age because pensions and insurance are not adequate increased from 55.5 percent to 72.2 percent over the same time period, making it the reason that increased the most in importance.[10] This

[10] This is not surprising because Japan's public pension system has been periodically reformed to keep it solvent in the face of rapid population aging—with contribution rates being increased, benefit levels being reduced, and the pensionable age being increased over time (see Horioka, 2001).

Table 8
The proportion of respondents who are saving for each motive, 1984–2005

Calendar year	Saving motive		
	Illness and other unforeseen emergencies	Peace of mind	Living expenses during old age
1984	75.0	25.7	42.1
1985	77.2	26.4	42.5
1986	75.0	25.3	42.5
1987	76.4	26.1	46.1
1988	77.1	28.0	50.2
1989	80.5	28.7	51.5
1990	74.3	25.7	52.4
1991	73.3	23.7	50.5
1992	68.3	23.0	48.2
1993	70.9	23.5	50.1
1994	69.4	24.2	51.6
1995	71.2	25.2	52.9
1996	69.7	25.9	53.9
1997	69.1	24.9	53.2
1998	73.3	24.5	55.3
1999	71.9	27.5	56.7
2000	67.5	27.1	55.9
2001	69.4	26.2	58.6
2002	69.1	26.9	56.9
2003	73.3	25.4	60.4
2004	65.9	26.0	57.4
2005	66.8	25.3	58.7

Note: The figures show the proportion of respondents saving for each motive (in percent). *Source*: Kin'yuu Kouhou Chuuou Iinkai, 2005.

suggests that increased uncertainty about old age and about old-age pensions *did* contribute toward the stagnation of household consumption.

In a related line of research, Horioka and Watanabe (1997) and Horioka et al. (2000) calculate the amount of saving for each motive and find that the retirement and precautionary motives are by far the most important motives for saving and that they are far more important in Japan than they are in the United States. Similarly, Horioka et al. (2002, 2004) find that dissaving is the most common way in which the Japanese deal with unforeseen emergencies, which corroborates the importance of the precautionary motive as a motive for saving in Japan from the other side of the ledger.

A number of studies have analyzed the importance in Japan of precautionary saving arising from various types of uncertainty. For example, Ginama (1988), Ogawa (1991), Doi (2001), and Zhou (2003) analyze the importance of precautionary saving arising from income risk. Ginama (1988), Ogawa (1991), and Zhou (2003) find that precautionary saving arising from income risk is relatively unimportant except at the time of the first oil crisis and except for the self-employed and farmers, and Doi (2003) finds that it is of some importance in the case of salaried worker households but that employment risk is not important (but see also the next subsection). Murata (2003a,b) looks at the importance of precautionary saving arising from uncertainty about overall economic conditions and from uncertainty about public old-age pensions and finds that the former is not important but that the latter is. Nakagawa (1999) analyzes the importance of different types of uncertainty on the household saving rate in Japan

Table 9
The proportion of respondents who are worried about old age, 1984–2005

Calendar year	The proportion of under-60 respondents who are worried about old age (percent)	The proportion of under-60 respondents who are worried old age because pensions and insurance are inadequate (percent)
1984	na	49.1
1985	na	60.6
1986	na	64.5
1987	na	63.5
1988	na	69.6
1989	na	71.0
1990	na	68.0
1991	na	60.8
1992	63.7	55.5
1993	62.0	59.5
1994	69.9	59.1
1995	71.6	56.9
1996	71.3	59.0
1997	78.8	63.1
1998	85.5	67.1
1999	84.1	66.9
2000	84.7	68.1
2001	84.3	66.5
2002	86.6	66.7
2003	87.9	72.2
2004	86.1	66.4
2005	84.4	68.1

Notes: The denominator in the right-hand column is the number of under-60 respondents who are worried about old age. ''na'' denotes ''not available.'' *Source*: The same as Table 8.

by age and income and finds that different types of uncertainties are important for different age and income groups: he finds that income risk is important for the low- to middle-income, that employment risk is important for the middle-aged and aged low-income, that uncertainty about public old-age pensions is important for the young, and that the risk of becoming bedridden is important for the aged. Finally, Saito and Shiratsuka (2003a,b) analyze the impact of various types of uncertainty on the household saving rate and find that uncertainty about employment and price deflation and, to a lesser extent, overall uncertainty and uncertainty about income exert upward pressure on the household saving rate.[11]

Thus, the available evidence is not always consistent, but it suggests that precautionary saving arising from income risk or employment risk has generally not been all that important nor has it increased over time but that precautionary saving arising from uncertainty about old age in general and about public old-age pensions in particular is important and has increased over time and hence that it may have contributed to the stagnation of household consumption during the 1990s.

[11] Saito and Shiratsuka (2003a,b) distinguish between precautionary saving (which depends on the magnitude of risks) and saving as a waiting option (which depends on how long it takes for uncertainties about the future to be resolved). They find that precautionary saving has been more important since the 1980s but that there is some evidence of saving as a waiting option in the 1990s.

4.4. The deterioration of future prospects

In the previous subsection, we discussed the impact of increased uncertainty concerning the future, but a closely related factor is the deterioration of future prospects. If household expectations concerning future incomes, future employment prospects, etc., deteriorate, this should cause them to reduce their current consumption. In addition to looking at the impact of income and employment uncertainty, Doi (2001, 2003) also looks at the impact of the deterioration of income and employment prospects on the household saving rate in Japan and finds that reduced employment prospects have had a positive and significant impact on Japan's household saving rate but that the impact of reduced income prospects is marginal at best. Japan's unemployment rate has increased steadily throughout the 1990s, reaching its highest level ever (5.5 percent) in August 2002 and declining only moderately thereafter. Thus, Doi's finding that reduced employment prospects have induced Japanese households to save more and consume less is not at all surprising.

4.5. Other factors

Turning finally to other factors that may have influenced the level of household consumption: (1) the profits of individual proprietors have been stagnant during the current slowdown, putting a damper on the consumption of individual proprietors and (2) deflationary expectations concerning consumer prices may have depressed household consumption because consumer prices have been falling since the mid-1990s (with the exception of 1997) and price deflation means that the longer one waits, the cheaper one can buy a given item. By contrast, (3) price deflation might actually stimulate household consumption because it increases the real value of household asset holdings; (4) near-zero (nominal) interest rates may have depressed household saving and boosted household consumption to the extent that the interest elasticity of saving is positive; (5) the rapid aging of the population may also have boosted household consumption because the elderly typically finance their living expenses in large part by decumulating their previously accumulated savings, as a result of which their propensity to consume is typically higher than that of the working-age population; (6) the introduction of a public nursing care insurance program in 2000 may have weakened the perceived need to save, thereby boosting consumption. Thus, there are factors working in both directions, and the factors that exert upward pressure on household consumption have presumably prevented the stagnation of household consumption from becoming worse than it would have been otherwise.

4.6. Summary

In sum, the evidence suggests that the stagnation of household disposable income and the decline in household wealth (the latter of which was due primarily to the collapse of land and equity prices) appear to have been the main causes of the stagnation of household consumption during the 1990s. Increased uncertainty about the future does not appear to have been a major cause of the stagnation of household consumption during the decade as a whole, but it does appear to have been of some importance during the 1996–1998 period, and increased uncertainty about old age in general and about public old-age pensions in particular may have contributed to the stagnation of household consumption during the period as a whole.

5. Demand side versus supply side factors

Thus far, I have focused on the demand side in my search for the causes of the prolonged slowdown of the Japanese economy in the 1990s, and many other authors including Bayoumi (2001), Harada and Iwata (2002), Noguchi (2002, 2004), Posen (1998) and Takemori (2002) also emphasize the importance of demand side factors. However, other authors including Hayashi (2003), Hayashi and Prescott (2002), Kawamoto (2004), Kobayashi and Inada (2005), Kobayashi and Katou (2001), Miyagawa (2003, 2004) and Ogawa (2003) emphasize the importance of supply side factors (see Miyao, 2006 for a concise and useful survey).[12]

Authors who find that demand side factors are more important as explanations of the prolonged slowdown of the Japanese economy emphasize the importance of such factors as (1) the sharp curtailment in bank lending (the so-called ''credit crunch'') and the increase in systemic risk, both of which were caused by the financial crisis and the proliferation of non-performing loans, which in turn were caused by the collapse of the bubble economy of the late 1980s and the subsequent decline in asset (land and equity) prices, (2) a further curtailment of bank lending due to the untimely introduction of the Basel guidelines for capital adequacy in 1993, (3) the inadequacy of government actions aimed at resolving the financial crisis and the non-performing loan problem, (4) inadequate monetary and fiscal stimulus leading to inadequate aggregate demand, (5) increased uncertainty about future prospects for the Japanese economy as well as increased volatility, and (6) massive overinvestment in corporate plant and equipment during the bubble years (due in large part to overly expansionary monetary policy), which induced firms to sharply curtail fixed investment during the post-bubble years as a way of reducing excess capacity in the corporate capital stock.

Turning to authors who emphasize the importance of supply side factors, Hayashi and Prescott (2002) find that the prolonged slowdown of the Japanese economy during the 1990s was due primarily to the decline in the growth rate of total factor productivity and to the reduction in working hours from 44 h per week to 40 h per week during the 1988–1993 period pursuant to the revision of the Labor Standards Law in 1988 and that it was *not* due to the breakdown of the financial system (except during the 1996–1998 period). By contrast, Kawamoto (2004) finds little or no decline in the pace of technological change during the 1990s and attributes the measured slowdown in productivity growth (and economic growth) to cyclical fluctuations in the utilization of capital and labor and in the reallocation of inputs across sectors. As another example, Kobayashi and Inada (2005) finds that the economic slowdown during the early 1990s was due to the downward rigidity of nominal wages, which increased real wages and induced companies to cut back on employment. Finally, Miyao (2006) finds that, at least since 1993, persistent negative productivity shocks have caused the GDP gap to widen and that they also had feedbacks effects on aggregate demand by causing long-term growth prospects to deteriorate.

This discussion has shown that the prolonged slowdown of the Japanese economy in the 1990s was due to both demand side and supply side factors and, moreover, that the two are often closely interrelated. Thus, there is no easy answer to the question of whether demand side factors or supply side factors were more important, but my reading of the data and of the literature convinces me that demand side factors were probably more important and that the single most important cause of the prolonged slowdown of the Japanese economy in the 1990s was the

[12] Also see the papers in Blomstrom et al. (2003), Callen and Ostry (2003), Hamada et al. (2004), Harada and Iwata (2002), Iwata and Miyagawa (2003), Mikitani and Posen (2000), and Saxonhouse and Stern (2004).

stagnation of private fixed investment, which in turn was caused by overinvestment in plant and equipment during the bubble economy of the late 1980s, the collapse of asset prices during the post-bubble period, and an inadequate policy response to these events. In particular, I feel that policy mistakes during the bubble period (e.g., overly expansionary monetary policies) as well as during the post-bubble period (e.g., overly contractionary fiscal and monetary policies and the inadequacy of government actions aimed at resolving the financial crisis and the non-performing loan problem) are largely to blame.[13]

6. Conclusion

In this paper, I analyzed the causes of the prolonged slowdown of the Japanese economy in the 1990s and found that the stagnation of investment, especially private fixed investment, was the major culprit of the prolonged slowdown and that the stagnation of spending on clothing and footwear, transport, and to a lesser extent, miscellaneous goods and services, education, and food and non-alcoholic beverages were the main culprits of the stagnation of household consumption. By contrast, I found that the main factors holding up GDP growth were household consumption, government consumption, and net exports and that the main factors holding up household consumption growth were spending on health, communication, and to a lesser extent, restaurants and hotels and housing-related expenditures. I also found that the stagnation of household consumption was due primarily to the stagnation of household disposable income, the decline in household wealth (which in turn was due primarily to the collapse of land and equity prices), and to a lesser extent, increased uncertainty about the future (especially about old age in general and public old-age pensions in particular), the deterioration of future prospects, etc. Finally, I considered whether demand side factors or supply side factors were more important as causes of the prolonged slowdown of the Japanese economy in the 1990s and concluded that the former (especially misguided government policies) were probably more important.

Turning to the policy implications of my analysis, my findings suggest that the economic policies of the Japanese government were largely misguided during the bubble period of the late 1980s as well as during the post-bubble period of the 1990s. For example, monetary policy should have been tightened sooner during the bubble period to prevent the persistence of such a pronounced bubble, and conversely, monetary policy should have been loosened sooner, more fiscal stimulus should have been provided, and the government should have acted sooner to resolve the financial crisis and the non-performing loan problem during the post-bubble period. In particular, the government should have done more to stimulate private investment in housing and plant and equipment as well as household consumption, and in my opinion, the best way of doing so would have been to introduce *temporary* and *targeted* tax breaks for housing and plant and equipment investment, household consumption, etc. There are those who oppose tax breaks of any kind because Japan already has the highest government debt-to-GDP ratio of any major industrialized nation in the world, but I feel that such temporary and targeted tax breaks should have been implemented for the following reasons: (1) the Japanese economy required further stimulus to recover more quickly, and in the absence of such stimulus, tax revenues declined even

[13] For example, as Bernanke (2000), Ito (2004), and Posen (1998) argue, the Bank of Japan discount rate should not have been cut in February 1987 and should have been raised in August 1988 when the Federal Reserve and Bundesbank raised interest rates, monetary policy should have been eased more in the early 1990s, fiscal policy should not have been tightened in April 1997, and the Japanese Government mismanaged the financial crisis of 1997–1998.

further, thereby causing the government debt to increase even further, (2) temporary and targeted tax breaks would have increased the government debt far less than more permanent and/or broad-based tax cuts, and (3) the tax breaks would have been more effective if they had been temporary because temporary tax breaks would have induced firms and consumers to accelerate their purchases of the goods and services being targeted in order to take advantage of the tax breaks before they expired. A temporary tax break for housing investment was tried and proved to be successful, suggesting that similar temporary tax breaks for investment in plant and equipment, research and development, and consumption would also have been effective.

My analysis suggests that an alternative way of stimulating household consumption would have been to reduce uncertainty about the future, especially about old age in general and about public old-age pensions in particular – for example by fundamentally reforming the public old-age pension system to make it solvent as well as equitable. In 2003, there was a sharp increase not only in the proportion of people saving for old age but also in the proportion of people who are worried about old age because of the inadequacy of pensions and insurance (see Tables 6 and 7). Thus, there was an urgent need to allay people's fears about public old-age pensions, and doing so would have conferred the added benefit of stimulating household consumption.

Turning finally to policy recommendations that target the supply side, Hayashi and Prescott's (2002) findings imply that subsidies to inefficient firms and declining industries should have been discontinued since they presumably lower the overall rate of productivity growth. Such a policy would have brought about an improvement in government finances in addition to enhancing productivity growth and hence would have killed two birds with one stone. I am thus all in favor of making use of demand side policies and supply side policies simultaneously.

Now that the Japanese economic is staging a modest recovery, there may no longer be any need for stimulative fiscal and monetary policies, but at the very least, I would strongly oppose tightening either fiscal or monetary policy until the economy has fully recovered to prevent the economy from slipping back into recession.

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