How Do the Japanese Cope with Risk?

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In this paper, we examine how Japanese households cope with risk and find (1) that when they encounter unforeseen contingencies, they rely mostly on themselves but that they also rely to some extent on the market, family members, relatives, friends, and the government, (2) that they rely mostly on family members for advice and moral support but not for financial support, (3) that they cope with risk primarily by drawing down their own savings but that they also rely to some extent on insurance, financial transfers, borrowing, and reductions in consumption, and (4) that risk-coping mechanisms and advice-givers vary considerably by event.

Keywords: Risk, Risk-sharing, Risk-coping mechanisms, Household consumption and saving behavior, Dissaving, Self-insurance

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I. Introduction

People face many risks (uncertainties) everyday and must cope in one way or another with any unforeseen contingencies that arise. In this paper, we shed light on how Japanese households cope with risk using data from the "Japanese Panel Survey of Consumers (Shouhi Seikatsu ni kansuru Paneru Chousa)," which has been conducted since 1993 by the Institute for Research on Household Economics (Kakei Keizai Kenkyuusho).

There are at least three reasons for studying this topic. First, people face many risks in the real world, and thus it is important for economists to study how people cope with risk. Second, it has been alleged that Japan's decade-long recession is due in part to the stagnation of consumption and that the stagnation of consumption is due in large part to increased uncertainty about the future, and looking at how the Japanese cope with risk can shed light on whether this explanation is valid. Third, looking at how people cope with risk can tell us whether markets and government programs designed to help people cope with risk are adequate or whether they need to be beefed up.

To preview our main findings, we obtain the following four findings: First, with respect to on whom the Japanese rely when they encounter unforeseen contingencies, they rely mostly on themselves but also rely to some extent on the market, family members, relatives, friends, and the government. Second, the Japanese rely mostly on family members for advice and moral support but not for financial support. Third, with respect to risk-coping mechanisms, the Japanese cope with risk primarily by drawing down their own savings but also rely to some extent on insurance, financial transfers, borrowing, and reductions in consumption. Fourth, risk-coping mechanisms and advice-givers vary considerably by event.

This paper is organized as follows: In section II, we consider what types of risk (unforeseen contingencies) there are, what coping mechanisms are available, and on whom one can rely when unforeseen contingencies arise. In section III, we survey the previous literature; in section IV, we describe the data; in section V, we present our findings; and in section VI, we present our conclusions and discuss policy implications.

II. What Risks? What Coping Mechanisms? On Whom to Rely?

In this section, we discuss what risks (unforeseen contingencies) people face, how people cope with these risks, and on whom people rely when confronted with risks.

In this paper, we focus on risks that influence people's economic situation (their income, expenditures, assets, *etc.*), but there are a countless number of risks even if we confine ourselves to these types of risks. For example,

(1) People don't know if and when they will be laid off or fired.
(2) People don't know if and when they will become ill.
(3) People don't know if and when they will have an accident.
(4) People don't know if and when they will confront a typhoon, earthquake, volcanic eruption, flood, or other natural disaster.
(5) People don't know if and when they will become bedridden.
(6) People don't know when they will die (how long they will live).

All of these risks are accompanied by declines in income and/or increases in expenditures. For example,

(1) If one is laid off or fired, income will of course decline.
(2) If one becomes ill, medical expenditures will be incurred and (if one has to take time off from work) income will also decline.
(3) If one has an accident, medical and other expenditures will be incurred and (if one has to take time off from work) income will also decline.
(4) The same as (3).
(5) If one becomes bedridden, medical, nursing, and other expenditures will be incurred.
(6) If one lives a long time, one will incur more living expenses.

How do people cope with such risks? There are many possible coping mechanisms but they can be grouped into the following six categories:

(1) Decumulate their savings
(2) Tighten their purse strings (*i.e.*, reduce their consumption)
(3) Increase their labor supply

(4) Apply for insurance benefits
(5) Receive financial transfers (financial support)
(6) Borrow

In addition, there are many entities (individuals and institutions) on whom one can rely when risks arise, but they can be grouped into the following seven categories:

(1) Oneself
(2) One's family members, relatives, and friends
(3) One's community (neighbors)
(4) One's employer
(5) The market
(6) The government
(7) Charitable and religious organizations

Coping mechanisms (1), (2), and (3) are mechanisms that rely on oneself alone whereas coping mechanisms (4), (5), and (6) are mechanisms that rely on others (*i.e.*, on entities in categories (2) through (7)). For example, those relying on one's family members, relatives, and friends (entity (2)) can ask family members, *etc.*, for financial support pursuant to an implicit intra-family insurance contract (one example of which is Kotlikoff and Spivak's (1981) implicit intra-family annuity contract) (coping mechanism (4)), ask family members, *etc.*, for unilateral transfers (coping mechanism (5)), or borrow from family members, *etc.* (coping mechanism (6)). Similarly, those relying on the market (entity (5)) can apply for insurance benefits pursuant to an insurance contract with a private insurance company (coping mechanism (4)) or borrow from a private financial institution (coping mechanism (6)) (it is rare to receive unilateral transfers from the market). As another example, those relying on the government (entity (6)) can apply for social insurance benefits (coping mechanism (4)), apply for non-contributory social welfare benefits (coping mechanism (5)), or borrow from a public financial institution (coping mechanism (6)), and similarly for those relying on one's community, one's employer, or charitable and religious organizations. Thus, there are several ways of coping with risk, several categories of entities (people and institutions) on whom one can rely, and a large number of combinations between the two.

III. Survey of the Previous Literature

In this section, we survey the related literature.

The previous literature on the topic of this paper is surprisingly small, with the only exception being that there is a large literature on precautionary saving (saving in preparation for risk). For example, Leland (1968), Sandmo (1970), Nagatani (1972), Skinner (1988), and Carroll and Samwick (1998) analyze precautionary saving arising from income risk theoretically or using data for other countries, while Ginama (1988), Ogawa (1991), and Zhou (forthcoming) analyze the same topic using data for Japan. Kotlikoff (1989) analyzes precautionary saving for medical expenses, while Levhari and Mirman (1977) and Davies (1981) analyze precautionary saving arising from longevity risk. Horioka *et al.* (2000) decompose total household saving into saving for specific motives and find that precautionary saving accounts for 41.2% of total household saving in Japan and 27.9% of total household saving in the United States. In both countries, precautionary saving is second only to saving for retirement in terms of its quantitative importance, but it is far more important in Japan than it is in the U.S.

An excellent example of an analysis of an insurance contract between family members is Kotlikoff and Spivak's (1981) analysis of intra-family annuity contracts, while Cox (1987) is an excellent example of an analysis of intra-family financial transfers.

The previous analyses that are closest in spirit to the present analysis are Cochrane (1991), Iwata (1995), Hyougo-ken Seikatsu Bunka-bu Seikatsu Souzou-ka Shouhi Seikatsu Taisaku-shitsu (1997), Tachibanaki (2000, 2001, 2002a, 2002b), Iwamoto, Kohara, and Saito (2001a, 2001b), and Kang and Sawada (2002). Looking first at Cochrane (1991), Cochrane uses data for the U.S. to test whether the rate of change of consumption of households experiencing various unforeseen contingencies is significantly lower than that of households not experiencing any unforeseen contingencies (*i.e.*, whether American households reduce their consumption as a way of coping with unforeseen contingencies). Cochrane finds that the results differ depending on the type of contingency. For example, the rate of change of consumption of households experiencing an illness lasting 100 days or longer or involuntary unemployment is significantly lower than that of households not experiencing any unforeseen contingencies but the rate of change of consumption of households experiencing an illness of any duration, strikes, or involuntary moves is not significantly different from (or is significantly *higher* than) that of households not experiencing any unforeseen contingencies.

Iwata (1995) uses the same data source we use and examines whether the coping mechanisms of households differ depending on whether or not the contingency is anticipated and on whether or not the respondent is married. Whereas we look at unforeseen contingencies that occurred during the past year, Iwata considers all unforeseen contingencies that occurred between the time the respondent was fifteen and the time of the survey, and moreover, whereas we focus only on married respondents, Iwata focuses on the impact of whether or not the respondent is married. And whereas we take an economic approach, Iwata takes a sociological approach. Thus, Iwata's analysis and our analysis are complementary rather than duplicative.

Hyougo-ken Seikatsu Bunka-bu Seikatsu Souzou-ka Shouhi Seikatsu Taisaku-shitsu (1997) asked victims of the Great Hanshin/Awaji Earthquake of January 17, 1995, how they financed the increased expenditures necessitated by the earthquake and found that saving (saving for old age, saving for disasters, illness, and other unforeseen contingencies, and saving for housing purchases and renovations) was the most important source of funds for 47.7% of respondents, that reduced consumption was the most important source of funds for 25.0% of respondents, and that loans from banks and other financial institutions were the most important source of funds for 9.2% of respondents.[1]

Tachibanaki (2000, 2001, 2002a, 2002b) examines how individuals and society as a whole cope with marriage, divorce, unemployment, illness, bankruptcy and other risks.

Iwamoto, Kohara, and Saito (2001a, 2001b) use micro data from the Basic Survey of National Life (Kokumin Seikatsu Kiso Chousa) to analyze how Japanese households cope when a household member requires care or becomes bedridden. They find that Japanese households rely on both reductions in consumption as well as on dissaving but that reliance on the former is far greater than that on the latter. They thus conclude that the risk of

[1] I am grateful to Yasuyuki Sawada for providing me with a copy of this report.

household members requiring care and becoming bedridden was not insured against, at least until long-term care insurance was introduced in 2000.

The 1997-8 financial crisis (Asian crisis) had a profound impact on Korean households, with the poverty rate increasing from 7.5% to 23%, the unemployment rate shooting up from 2.6% to 8.7%, and real wages declining by 9% in just one year. Kang and Sawada (2002) use data from a Korean household survey to analyze how Korean households coped with this shock and find (1) that they coped primarily by reducing their consumption, especially their consumption of luxury goods, (2) that they also relied to some extent on loans, private transfers, and public transfers, and (3) that they relied hardly at all on dissaving.

For other related references, the reader is referred to the references cited in Cochrane (1991), Iwata (1995), Tachibanaki (2000, 2001, 2002a, 2002b), Iwamoto, Kohara, and Saito (2001a, 2001b), and Kang and Sawada (2002).

IV. The Data

As noted earlier, we analyze data from the "Japanese Panel Survey of Consumers (Shouhi Seikatsu ni kansuru Paneru Chousa)," which has been conducted since 1993 by the Institute for Research on Household Economics (Kakei Keizai Kenkyuusho). In this section, we describe the data we use.

This survey surveys a random sample of 1,500 single and married women from throughout Japan who were aged 24-34 in 1993 except that a supplementary sample of 500 women who were aged 24-27 in 1997 was added in 1997. Respondents are surveyed once a year in the fall, and thus nine waves of data are currently available. In our analysis, we use only the subsample of married respondents. We exclude the supplementary sample in 1997 but include it in 2001.

Fortunately, the questionnaire form for this survey includes a section on "Changes in One's Life during the Past Year" and this section asks what unforeseen events household members other than the respondent (the wife) experienced during the past year, what changes the unforeseen event brought about, and how the household coped with the event. More specifically, the following three questions are asked:

***Question* 11:** "Which of the following events did your family members experience during the past year?" (circle as many as apply)

(1) A job transfer or "tanshin funin" (living apart from one's family for job-related reasons)
(2) Unemployment or voluntary retirement
(3) Personal bankruptcy
(4) Surgery or a serious illness requiring long-term recuperation
(5) Depression or other psychological ailment or truancy
(6) A consumer problem involving loans, credit, *etc.*
(7) An accident or disaster
(8) An entrance examination or matriculation
(9) Other extraordinary event (specify)
(10) No extraordinary events

***Subquestion* 1:** What changes did the above event cause in your life (circle as many as apply)

(1) Considerable expenditures were incurred
(2) Income or assets declined
(3) Care (nursing) was a lot of work
(4) Interpersonal relations within the family deteriorated
(5) I personally became depressed
(6) I personally got divorced or separated
(7) Other (specify)
(8) No changes in particular

***Subquestion* 2:** How did you cope? (circle as many as apply)

(1) Drew down bank or postal deposits
(2) Sold assets
(3) Received financial assistance from parents or siblings
(4) Borrowed from relatives or acquaintances
(5) Borrowed from a financial institution
(6) Borrowed from a government institution
(7) Cancelled a private insurance policy
(8) Received benefits from a private insurance policy
(9) Applied for social insurance benefits (*e.g.*, workmen's accident compensation, *etc.*)
(10) Sought the advice of governmental or professional organizations

(11) Sought the assistance and/or advice of parents or siblings
(12) Sought the assistance and/or advice of friends
(13) Sought the advice of a religious leader
(14) Other (specify)
(15) Did not do anything in particular

From these questions, we can learn what unforeseen contingencies family members other than the respondent (the wife) experienced and how the household coped with these contingencies, and thus these data are well-suited to our objectives.

Moreover, the coping mechanisms listed in subquestion 2 fit nicely into our earlier taxonomies. For example, if the coping mechanisms are classified by type, (1), (2), and (7) are dissaving, (8) and (9) are insurance, (3) is financial transfers, and (4), (5), and (6) are borrowing (unfortunately, there are no choices that pertain to reductions in one's consumption and increases in one's labor supply, but the survey we used collects information on consumption and labor supply elsewhere in the survey). Moreover, if the coping mechanisms are classified by on whom one relies, (1), (2), and (7) are self-reliance, (3) and (4) are reliance on family members, relatives, and friends, (5) and (8) are reliance on the market, and (6) and (9) are reliance on the government (unfortunately, there are no choices that represent reliance on one's community, one's employer, or charitable and religious organizations).

The questions described above all pertain to events experienced by family members other than the respondent (the wife). There is also a question about events experienced by the respondent, but that question asks about coping mechanisms only in the case of accidents, disasters, and consumer problems. Since we are most interested in coping mechanisms, we had no choice but to focus only on events experienced by family members other than the respondent.

V. The Findings

In this section, we present our findings. We present our findings for all events for 1994, 1997, and 2001, and our findings broken down by event for 2001 only.

A. Events Experienced during the Previous Year

First, Table 1 shows what events family members of the respondent (the wife) experienced during the previous year. As can be seen from this table, 23.4%, 26.1%, and 32.9% of respondents reported that a family member experienced at least one event during the previous year in 1994, 1997, and 2001, respectively. Thus, this proportion has shown an upward trend over time.

"Entrance examination or matriculation" was by far the most common event in all three years, with 6.5%, 8.7%, and 14.2% of respondents having at least one family member who experienced an entrance examination and/or matriculation during the previous year in 1994, 1997, and 2001, respectively. Thus, this event has increased dramatically in importance over time, presumably because the children of respondents have attained the age at which they enter school as respondents have aged.

"Surgery or a serious illness requiring long-term recuperation" was number two in all three years (tied for second in 2001), with 5.8%, 5.0%, and 5.6% of respondents having at least one family member who experienced surgery or a serious illness during the previous year in 1994, 1997, and 2001, respectively.

"Unemployment or voluntary retirement" was in fourth place in 1994, with only 3.5% of respondents having at least one family member who experienced unemployment or voluntary retirement during the previous year, but it has increased in importance over time, with its rank rising to third place in 1997 and to second place (tie) in 2001 and with the proportion of respondents having at least one family member who experienced unemployment or voluntary retirement during the previous year rising to 4.2% in 1997 and to 5.6% in 2001. The increase in the importance of this event over time is presumably due partly to the increasing likelihood of the coresident parents or parents-in-law of the respondent reaching retirement age as the respondent ages and partly to increased layoffs caused by the recession.

"Accident or disaster" was in third place in 1994, fourth place in 1997, and fifth place in 2001, with 3.6%, 3.4%, and 2.2% of respondents having at least one family member who experienced an accident or disaster during the previous year in 1994, 1997, and 2001, respectively.

"Job transfer or 'tanshin funin'" was in fifth place in 1994 and

1997 and in fourth place in 2001, with 3.3%, 2.8%, and 3.7% of respondents having at least one family member who experienced a job transfer or "tanshin funin" during the previous year in 1994, 1997, and 2001, respectively.

The other events ("depression or other psychological ailment or truancy," "consumer problem involving loans, credit, *etc.*," and "personal bankruptcy") were unimportant in all years, with the proportion of respondents having at least one family member who experienced these events being 1.5% or less.

B. Changes in One's Life

Next, Table 2 shows what changes the events experienced by the respondent's family members during the previous year precipitated. As can be seen from this table, 54.1%, 56.9%, and 59.6% of respondents with a family member experiencing at least one event during the previous year experienced some sort of change in their lives in 1994, 1997, and 2001, respectively. If we confine ourselves to economic changes, 22.1%, 25.7%, and 29.4% of respondents with a family member experiencing at least one event during the previous year reported that substantial expenditures had been incurred and 17.3%, 15.0%, and 19.5% reported that their income and/or assets had decreased in 1994, 1997, and 2001, respectively. Thus, it can be seen that major events often precipitate economic changes and that the likelihood of major events precipitating substantial expenditures has increased over time.

C. Coping Mechanisms

Next, Tables 3A and 3B show how households coped with events experienced by family members. In Table 3A, coping mechanisms are grouped by on whom one relies, while in Table 3B, coping mechanisms are grouped by type.

As can be seen from these tables, of respondents whose family members experienced at least one event during the previous year, 53.5%, 55.5%, and 56.3% used at least one coping mechanism in 1994, 1997, and 2001, respectively. If we confine ourselves to economic coping mechanisms, "drew down bank or postal deposits" is by far the most important, with 21.3%, 31.0%, and 28.6% of respondents whose family members experienced at least one event during the previous year relying on the decumulation of bank or

postal deposits in 1994, 1997, and 2001, respectively.

"Received benefits from a private insurance policy" and "received financial assistance from parents or siblings" were second or third, with 8.0%, 7.3%, and 7.6% of respondents whose family members experienced at least one event during the previous year relying on the former and 8.0%, 5.3%, and 7.9% relying on the latter in 1994, 1997, and 2001, respectively.

"Applied for social insurance benefits" and "borrowed from a financial institution" were fourth (sixth in one case – 1997) and fifth (tied for fourth in once case – 1997), respectively, with 6.2%, 3.7%, and 6.4% of respondents whose family members experienced at least one event during the previous year relying on the former and 4.8%, 4.4%, and 5.0% relying on the latter in 1994, 1997, and 2001, respectively.

The other coping mechanisms ("cancelled a private insurance policy," "borrowed from a government institution," "borrowed from relatives or acquaintances," and "sold assets") are rarely used, with less than 4.4% of respondents whose family members experienced at least one event during the previous year relying on these coping mechanisms.

Next, if coping mechanisms are grouped by on whom respondents relied, oneself is by far the most important, with 18.6%, 26.7%, and 23.8% of cumulative responses relying on oneself in 1994, 1997, and 2001, respectively. The market was in second place, with 9.8%, 8.6%, and 9.1% of cumulative responses relying on the market in 1994, 1997, and 2001, respectively. Family members, relatives, and friends were in third place, with 6.8%, 5.0%, and 6.3% of cumulative responses relying on family members, relatives, and friends, and the government was fourth, with 6.0%, 4.8%, and 5.5% of cumulative responses relying on the government in 1994, 1997, and 2001, respectively (see Table 3A).

Furthermore, if coping mechanisms are grouped by type, dissaving is by far the most important, with 18.6%, 26.7%, and 23.8% of cumulative responses relying on dissaving in 1994, 1997, and 2001, respectively. Insurance is in second place, with 10.8%, 8.1%, and 10.1% of cumulative responses relying on insurance in 1994, 1997, and 2001, respectively. Financial transfers are in third place (fourth place in 1997), with 6.1%, 3.8%, and 5.7% of cumulative responses relying on financial transfers in 1994, 1997, and 2001, respectively. And borrowing is in fourth place (third place in 1997), with 5.7%, 6.6%, and 5.1% of cumulative responses relying on borrowing in 1994, 1997, and 2001, respectively (see Table 3B).

The survey we used in our analysis does not include "reduce one's consumption (tighten one's purse strings)" as one of the coping mechanisms, as noted earlier, but it does collect data on consumption elsewhere in the survey, and thus we can examine how consumption changed after a given event occurred. We have done just such an analysis using data from the 2001 survey. Table 5 shows the median percentage change in consumption in September 2001 relative to the same month of the previous year for respondents experiencing one or more events during the previous year, for respondents experiencing each event during the previous year, and for respondents not experiencing any events at all during the previous year.[2] One would expect respondents experiencing one or more events during the previous year to show a lower rate of change in consumption if they reduce their consumption (tighten their purse strings) as a way of coping with the event, but contrary to expectation, the median percentage change in consumption for respondents experiencing one or more events during the previous year is not only positive but also higher than that of respondents not experiencing any events at all during the previous year (1.9% *vs.* 0.3%). However, the results by event show that respondents rely on reduced consumption as a coping mechanism for a majority of events (see section V.E. below). Moreover, it could be that the consumption of respondents experiencing one or more events during the previous year increased absolutely and/or that its rate of change was higher than that of respondents not experiencing any events at all during the previous year because the event itself necessitated extra expenditures (for example, on medical care, nursing care, *etc.*). Thus, a more careful analysis that looks at how consumption expenditures *excluding those necessitated by the event itself* changed after the event occurred is needed.

D. Coping Mechanisms by Event

Next, we look at coping mechanisms by event. Tables 4A and 4B

Table 5 shows the results for the full sample (including outliers), but the results were not significantly affected even when outliers were excluded.

show data on coping mechanisms by event. In Table 4A, coping mechanisms are grouped by on whom one relies, and in Table 4B, coping mechanisms are grouped by type. In the case of respondents who circled more than one event and/or more than one coping mechanism, we were not able to discern which coping mechanism corresponds to which event, so we assumed that every coping mechanism that was circled corresponds to every event that was circled.

As can be seen from Table 4B, the tendency to rely on dissaving is strongest in the case of "personal bankruptcy" (29.4% of cumulative responses), "unemployment or voluntary retirement" (28.4% of cumulative responses), and "surgery or a serious illness requiring long-term recuperation" (27.6% of cumulative responses), "entrance examination or matriculation" (25.7% of cumulative responses), and "job transfer or 'tanshin funin'" (25.0% of cumulative responses), while this tendency is weakest in the case of "depression or other psychological ailment or truancy" (11.1% of cumulative responses), "accident or disaster" (15.6% of cumulative responses), and "consumer problem involving loans, credit, *etc.*" (16.7% of cumulative responses).

The tendency to rely on insurance is strongest in the case of "accident or disaster" (28.1% of cumulative responses) and "surgery or a serious illness requiring long-term recuperation" (19.0% of cumulative responses), while this tendency is weakest in the case of "job transfer or 'tanshin funin'" (0.0% of cumulative responses), "entrance examination or matriculation" (5.3% of cumulative responses), "consumer problem involving loans, credit, *etc.*" (5.6% of cumulative responses), and "personal bankruptcy" (5.9% of cumulative responses). Looking at the breakdown of insurance between public and private, the tendency to rely on private insurance is strongest in the case of "accident or disaster" (15.6% of cumulative responses) and "surgery or a serious illness requiring long-term recuperation" (11.4% of cumulative responses), while this tendency is weakest in the case of "job transfer or 'tanshin funin'" and "personal bankruptcy" (both 0.0% of cumulative responses). The tendency to rely on social insurance is strongest in the case of "accident or disaster" (12.5% of cumulative responses), "surgery or a serious illness requiring long-term recuperation" (7.6% of cumulative responses), and "depression or other psychological ailment or truancy" (7.4% of cumulative responses), while this

tendency is weakest in the case of "job transfer or 'tanshin funin'" and "consumer problem involving loans, credit, *etc.*" (both 0.0% of cumulative responses).

The tendency to rely on financial transfers is strongest in the case of "unemployment or voluntary retirement" (13.7% of cumulative responses) and "personal bankruptcy" (11.8% of cumulative responses), while this tendency is weakest in the case of "job transfer or 'tanshin funin'" (2.1% of cumulative responses), "depression or other psychological ailment or truancy" (3.7% of cumulative responses), and "entrance examination or matriculation" (4.1% of cumulative responses).

Finally, the tendency to rely on borrowing is strongest in the case of "consumer problem involving loans, credit, *etc.*" (22.2% of cumulative responses) and "unemployment or voluntary retirement" (9.5% of cumulative responses), while this tendency is weakest in the case of "job transfer or 'tanshin funin'" and "depression or other psychological ailment or truancy" (both 0.0% of cumulative responses).

Thus, it appears that coping mechanisms are very different depending on the event in question. The tendency to rely on insurance is greatest in the case of accidents/disasters and illness, and it appears that both private and social insurance are the most highly developed in the case of these events. By contrast, (intra-family) financial transfers are highest in the case of unemployment/voluntary retirement and personal bankruptcy, thus suggesting that family security is the most highly developed in the case of these events.

Turning to the extent to which respondents rely on reductions in consumption (tightening their purse strings) as a coping mechanism, it can be seen from Table 5 that the rate of change in consumption varies greatly from event to event. One would expect respondents experiencing one or more events during the previous year to show a lower rate of change in consumption if they reduce their consumption as a way of coping with the event, and in fact, the consumption of respondents experiencing a given event during the previous year declines absolutely for five out of the eight events listed (excluding "other") ("consumer problem involving loans, credit, *etc.*" −16.7%, "accident or disaster" −6.2%, "surgery or a serious illness requiring long-term recuperation" −1.6%, "personal bankruptcy" −1.0%, and "depression or other psychological ailment or truancy" −0.3%) and its rate of change is lower than that of respondents not experiencing any events at all during the previous year for these same five events.[3] By contrast, the consumption of respondents experiencing a given event during the previous year increases absolutely for only two out of the eight events ("job transfer or 'tanshin funin'" +9.5% and "entrance examination or matriculation" +6.0%) and its rate of change is higher than that of respondents not experiencing any events at all during the previous year for these same two events.[4] Moreover, as noted above in section V.E., it could be that the consumption of respondents experiencing one or more events during the previous year is high and/or that its rate of change is higher than that of respondents not experiencing any events at all during the previous year because the event itself necessitated extra expenditures (for example, on medical care, nursing care, *etc*.). Thus, a more careful analysis that looks at how consumption expenditures *excluding those necessitated by the event itself* changed after the event occurred is needed.

E. From Whom Advice Was Sought

Next, we would like to look at from whom respondents sought (assistance and) advice when unforeseen contingencies occurred. As can be seen from Tables 3A and 3B, one's parents and siblings were by far the most preferred advice-giver, with 16.8%, 18.4%, and 15.7% of respondents whose family members experienced at least one event during the previous year turning to parents and siblings for assistance and advice in 1994, 1997, and 2001,

[3]Those experiencing a "consumer problem involving loans, credit, *etc*." show the steepest decline in consumption, and this is not surprising because they have far less recourse to dissaving and social insurance than those experiencing other events, as discussed earlier (they presumably have less recourse to dissaving because they hold less assets than those experiencing other events). Somewhat surprisingly, however, they have more recourse to loans than those experiencing other events, again as discussed earlier.

[4]"Entrance examinations or matriculation" are the most anticipatable event among the nine events being considered, and thus it is not surprising that those experiencing this event did not need to reduce their consumption and were in fact able to *increase* it. Note, however, that it is possible that the consumption of those experiencing an entrance examination or matriculation increased because considerable education-related expenses were incurred.

respectively. Friends were in second place with 6.7%, 7.3%, and 9.0% of respondents whose family members experienced at least one event during the previous year turning to friends for assistance and advice in 1994, 1997, and 2001, respectively. Other advice-givers (governmental and professional organizations and religious leaders) were of little importance, with less than 3.5% of respondents whose family members experienced at least one event during the previous year turning to them for advice.

F. Advice-Givers by Event

Finally, we look at the results on to whom respondents turned for (assistance and) advice, broken down by event. As can be seen from Tables 4A and 4B, the propensity to seek the advice of others varies greatly by event, with this propensity being the strongest in the case of "depression or other psychological ailment or truancy" (63.0% of cumulative responses), followed by "surgery or a serious illness requiring long-term recuperation" in second place (31.4% of cumulative responses), "job transfer or 'tanshin funin'" in third place (29.2% of cumulative responses), "consumer problem involving loans, credit, *etc.*" in fourth place (27.8% of cumulative responses), "personal bankruptcy" in fifth place (23.5% of cumulative responses), "accident or disaster" in sixth place (18.8% of cumulative responses), "unemployment or voluntary retirement" in seventh place (16.8% of cumulative responses), and "entrance examination or matriculation" in eighth place (11.1% of cumulative responses).

Moreover, as can be seen from the same tables, the advice-giver also varies greatly by event. In the case of "job transfer or 'tanshin funin,'" "unemployment or voluntary retirement," "surgery or a serious illness requiring long-term recuperation," "accident or disaster," and "entrance examination or matriculation," the top advice-giver is parents and siblings, whereas in the case of "personal bankruptcy" and "depression or other psychological ailment or truancy," the top advice-giver is friends, and in the case of "consumer problem involving loans, credit, *etc.*," parents/siblings and friends are of roughly equal importance as advice-givers. Governmental and professional organizations and religious leaders are not the top advice-giver for any event.

VI. Conclusion

In this paper, we examined how the Japanese cope with risk and obtained the following findings: First, with respect to on whom the Japanese rely when they encounter unforeseen contingencies, they rely mostly on themselves but also rely to some extent on the market, family members, relatives, friends, and the government. Second, the Japanese rely mostly on family members for advice and moral support but not for financial support. Third, with respect to coping mechanisms, the Japanese cope with risk primarily by drawing down their own savings but they also rely to some extent on insurance, financial transfers, borrowing, and reductions in consumption. Fourth, coping mechanisms and advice-givers vary considerably by event.

Turning to the consistency between our findings and those of previous researchers, Cochrane (1991) finds that Americans reduce consumption in the case of long-term illnesses and involuntary unemployment whereas we find that the Japanese reduce consumption in the case of illness but not in the case of unemployment. Thus, it appears that the risk-coping mechanisms of Americans and the Japanese are partly similar and partly different.

Hyougo-ken Seikatsu Bunka-bu Seikatsu Souzou-ka Shouhi Seikatsu Taisaku-shitsu (1997) finds that earthquake victims relied mostly on dissaving and to a lesser extent on reduced consumption and borrowing, and it appears at first glance that their findings are consistent with our finding that the Japanese rely mostly on dissaving. However, our findings broken down by event show that the Japanese rely about equally on dissaving, private insurance, and social insurance in the case of accidents and disasters, and thus our findings are somewhat at variance with those of this study.

Iwamoto, Kohara, and Saito's (2001a, 2001b) finding that Japanese households rely mostly on reductions in consumption and to a lesser extent on dissaving when a family member requires care or becomes bedridden is broadly consistent but somewhat at variance with our finding that the Japanese rely mostly on dissaving and to a lesser extent on reductions in consumption in the case of illness.

According to Kang and Sawada (2002), Koreans relied mostly on reductions in consumption (especially reductions in the consumption of luxury goods) at the time of the financial crisis of 1997-8 and relied little on dissaving, and thus it appears at first glance that risk-coping mechanisms are very different in Korea and Japan. However, Kang and Sawada (2002) focus on the 1997-8 financial crisis, a macro shock of unprecedented magnitude whereas we focus primarily on smaller, more idiosyncratic shocks. Thus, the results for the two countries are not strictly comparable.

Thus, our findings are at least partly consistent with previous studies for the U.S. and Japan but not consistent with a previous study for Korea.

Turning next to directions for further research, we need to do a more rigorous analysis of the role played by reductions in consumption, increases in labor supply, *etc*. For one thing, we need to look at how consumption expenditures *excluding those necessitated by the event itself* change after an event occurs, and for another, we need to use regression techniques to control for the impact of other factors. In addition, it would be interesting to see if coping mechanisms differ between anticipated events and unanticipated events, as theory would predict. Finally, it would be interesting to analyze the role of shifts in the portfolio composition of saving as a way of coping with risk (see Elmendorf and Kimball (2000) for an analysis of the impact of labor income risk on the joint saving/portfolio-composition decision).

Turning finally to the implications of our findings, our findings have at least three implications. First, if risk sharing is complete, people should be able to smooth their consumption completely even when unforeseen contingencies arise, and thus the fact that consumption is not smoothed in the case of the majority of risks implies that risk sharing is not complete in Japan and that the consumption insurance hypothesis is not valid. Reassuringly, this finding is consistent with the findings of previous studies for Japan such as Kohara (2001), Kohara, Ohtake, and Saito (2002), and Shimizutani (2002).

Second, our finding that the Japanese cope with risk primarily by dissaving implies that they save in anticipation of unforeseen contingencies and thus that they will save more if perceived uncertainties about the future increase. This, in turn implies that the stagnation of consumption during the current recession may be due at least in part to increased uncertainties about the future.

Third, we found that Japanese households rely mostly on dissaving (self-insurance) as a risk-coping mechanism and that they do not rely very much on borrowing, insurance, *etc.*, especially in the case of risks other than accidents, disasters, and surgery/illness. Since self-insurance is inefficient, if it is the case that the Japanese rely on self-insurance because private capital and insurance markets and social insurance programs are under-developed, there is a need to beef up these markets and programs (especially insurance markets and social insurance programs targeting risks other than accidents, disasters, and surgery/illness), and doing so will increase social welfare.

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