

RELATIONSHIP BETWEEN FEMALE ILLNESS AND SAVINGS: EVIDENCE FROM JAPANESE WOMEN

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ABSTRACT

Unexpected life events, such as the onset of illness, can alter our ability to follow the life cycle model of personal financial planning, yet there are limited studies at a micro-level examining such impacts among households in Japan. We assessed the association between the onset of illness and the presence and amount of financial savings among married and single middle-aged women, using the Japanese Panel Survey of Consumers (2005-2009) and Analysis of Covariance (ANCOVA). Compared to married women (n=27), single women (n=16) spent more on life insurance premiums following an illness than the year before. Unlike married women, none of the single women had savings or investments prior to the onset of illness, not to mention following such events. In conclusion, middle-aged single women, a growing population in modern Japan, are further disadvantaged following the onset of illness than their married counterparts.

JEL: D140, J120

KEYWORDS: Health, Investments, Japan, Life Insurance, Marital Status, Savings, Women

INTRODUCTION

In many industrialized nations, more individuals are delaying marriage, and more remain single than in earlier generations. In Japan, the average age for a first marriage among women steadily increased between 1975, when the average age was 24.7 years old, and 2009, when it was 28.6 years old (Ministry of Health, Labour and Welfare, 2010). Consequently, being single at 30 and over is more common now than in earlier years. Marriage can provide a number of benefits ranging from having a family to financial security. Our paper examines the extent to which marriage provides a financial buffer when unpleasant and unexpected events occur in women's lives. We explored how unpleasant and unexpected health events may be associated with the rate and the amount of savings relative to income among single and married women in Japan. Saving is an inter-temporal choice between current and future consumptions and "is largely cued by different institutional and mental frames" (Akerlof & Shiller, 2009, p. 123). We hypothesized that unexpected health events, such as illness and depression, would cause reframing that initiates changes in savings behaviors and that changes would be different for women with different financial, social, and human capital. For instance, in the U.S., the economic consequence of divorce on women varies with variations in individual socio-demographic backgrounds (Mauldin, 1990).

There are a limited number of studies about savings in Japan at the micro level. One study confirmed that motivations to save vary according to the age of the householders and that the life cycle model applies to Japan (Horioka & Watanabe, 1997). In an earlier study, the total number of unexpected life events experienced in recent years did not explain the variations in current household savings among married Japanese women (Mimura, 2014). While different types of events may have different directions and magnitudes of impact on savings, in this paper, we examined how unwelcome, unexpected health events affect women's immediate *future* savings. Specifically, we asked the following questions: What is the impact of illness and depression on financial savings among women in Japan? More specifically, how does

the onset of illness relate to the presence of and amount of financial savings? How does the impact of unexpected life events on financial savings affect married and single women's households differently? Policy implications include the importance of a social security system that covers the entire society. Following the literature review on individual and family financial preparedness and the impact of unexpected events on individual and family financial preparedness, this article discusses the study's data and methodology, results, and concluding comments.

LITERATURE REVIEW

After summarizing the trends in household savings over the past two decades to describe individual and family financial preparedness in Japan, the following literature review provides an overview of studies that examined the impact of unexpected life events on financial preparedness primarily in Japan, including the association between financial preparedness and marital status among women. Brief descriptions of the theoretical framework and the hypotheses for the current study conclude this section.

During the economic recession of the 1990's, the Japanese national household savings rate sporadically increased in some years due to uncertainties regarding future income, after a constant decline for a few decades (Okada & Kamata, 2004). Among younger households, the increase in financial reserves was indeed due to future uncertainties (Murata, 2003). At the same time, there were still some households with no savings or investments for the future (Institute for Research on Household Economics, 2003). In 2009, about a quarter of the households in Japan had no savings. Ages of the householders and household income are two of the determinants of household savings. About 29% of households headed by individuals in their twenties had no savings, and about 20% of households headed by those in their sixties had no savings. The lower the income group, the more likely it was to have no savings. Among households with incomes below ¥3,000,000 (equivalent to US \$29,283 in the U.S. when \$1=¥102.45, the exchange rate of March 19, 2014), 34.5% had no savings, while among those with incomes over ¥12,000,000 (equivalent to US \$117,130), only 5% had no savings (Bank of Japan, 2012). Studies point to the aging of the population as the cause of the decline in the household savings rate (Koga, 2006; Nakata, 2009; Shindo, 2006). Delaying marriage and an increase in one-person households can further challenge some women to maintain financial stability. Given the U.S.'s experiences in the expansions of earning gaps among male workers (Haider, 2001), increased Americanization of the Japanese labor market gives less guarantee that life earning patterns will continue to ensure that younger generations of workers will experience increases in earnings as did their older counterparts (Suzuki, Ito, Ishida, Nihei, & Maruyama, 2010).

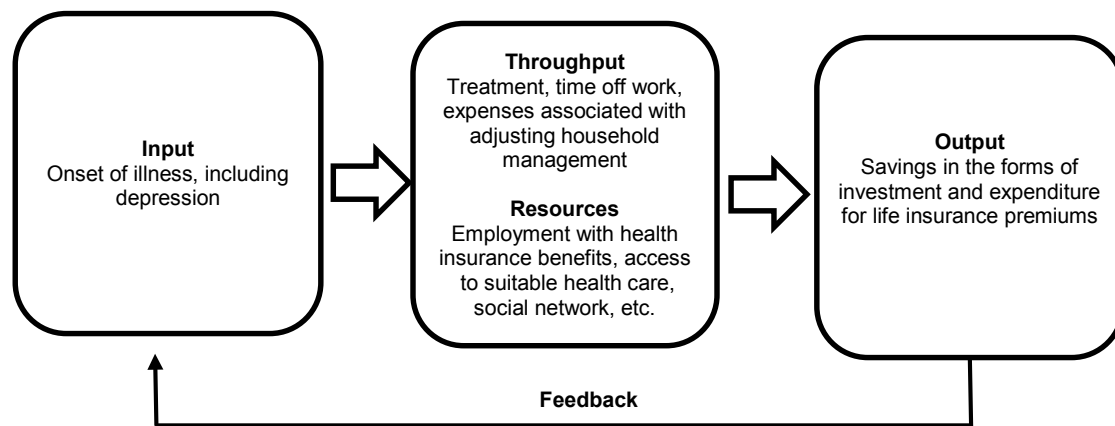
Unexpected events may hit households in a nation or region all at once or individually. Some are unique to regions, such as natural disasters. Natural disasters motivate households to save more (Skidmore, 2001). Other events are unique to individuals and families, such as the onset of illness, job loss, and marital disruptions. Job loss is one such example that affects household finances. In a study utilizing the Japanese Panel Survey of Consumers (1995-2004), the job loss of husbands was associated with increased earning among wives, both through labor force participation and increased hours at work (Kohara, 2010). While the job loss of self and spouse has strong implications on household financial preparedness, it is outside the scope of the current study. One of the motivations to save is to prepare for unexpected events such as the onset of illnesses. Precaution, or preparing for unexpected events, such as illness, job loss, accidents, and longevity, is one of the major motivations to save among Japanese households (Horioka & Watanabe, 1997). For self-employed farm households in Japan, the motivation to save for farm investments was greater than that to save for unexpected events such as illness (Kamo & Fujita, 2002), and the motivation to save for possible illness was far greater than for households that rely on salaried income (Zhou, 2003).

Generally, onsets of illness have negative impacts on household finances. One of the reasons is because such onsets and experiences correlate with other socio-demographic factors that disadvantage financial wellbeing (Kessler & Bromet, 2013). Indeed, illness and disabilities negatively affect earnings. An added

complication is that the presence of illness and marital disruption are associated with the presence of depressive symptoms among men in Japan (Ogami, Muto, Haruyama, & Yoshikawa, 2013).

In addition to financial preparedness prior to the event's occurrence, socio-economic environments may explain the *degree* of economic impact for individuals and households. Presently, for women, being married has generally provided financial advantage over being single (Suzuki et al., 2010). Perhaps, because of such disadvantage, single women who have no immediate plans to marry showed more willingness to save more for precautionary and retirement purposes (Kureishi & Wakabayashi, 2013). In conclusion, onsets of illness have negative impacts on household finances, and so, individuals and households prepare for such unexpected unwelcomed events, and the negative impacts are greater among women at social and economic disadvantage, including being single.

Figure 1: Conceptual Model of the Impact of Illness on Savings



This figure shows the conceptual model of the impact of illness on individual and family savings, based on the Family Resource Management Model (Deacon & Firebaugh, 1988). Input, such as the onset of illness, places a demand on families. Individuals and families respond to such input in the throughput process, employing available resources. The output we observe is the financial savings upon recovery. The output informs future input through feedback, such as for individual families and for natural aggregate savings.

The theoretical framework of this study comes from the family resource management model (Deacon & Firebaugh, 1988), shown in Figure 1. Unexpected life events, such as the onset of illness including depression, are *demands*, which are one type of external *input*. They affect the *throughput*, the process that occurs within individuals and families that is often unobservable. *Resources*, which are also part of the throughput, are measured by some of the control variables. The *input* goes through the *throughput*, resulting in observable *output*. The *output* in this study is the observable savings. *Feedback* may be the aggregate household savings statistics that mass media delivers, which informs individual perceptions about where the country and its households stand in terms of financial preparation for the future. We hypothesized that the onset of illness, including depression, among women significantly lowers financial savings as such events may limit earnings and deplete savings. The negative impact is greater among households with less financial and social resources. The relative magnitude of negative financial consequences of unexpected life events are greater for women from less advantageous economic backgrounds than those from more advantageous economic backgrounds, such as being single versus married; thus, such events magnify inequality.

DATA AND METHODOLOGY

Data and Sample

The data came from the Japanese Panel Survey of Consumers (JPSC), provided by the Institute for Research on Household Economics in Tokyo, Japan. Survey respondents are women, and those in the study sample were between the ages of 30 and 50 for the questionnaire collected in 2009. The latest year of the survey available to the public in 2013 was 2009.

Single and married women who experienced an illness or depression were included in the study. While keeping track of other events would further enhance our understanding of life events and savings dynamics, it is beyond the scope of the current exploratory study. Data from five years of surveys, 2005 through 2009, provided three consecutive years of data for the survey respondents who experienced an illness or depression in a year between 2006 and 2008, but not for two or more consecutive years. In other words, for the purpose of this paper, we excluded women whose records indicated they were still experiencing an illness or depression in the second year. Some women experienced more than one event during the observation period. Such cases, although removed from the sample for the present study, are certainly worthy of consideration for further analysis on the consequences of subsequent unpleasant, unexpected life events on savings. The year prior (t-1) provided the baseline financial information, the middle year (t) provided the life event information, the year after (t+1) provided the response variable for the financial information, and all three years were examined for marital status. We focused on the changes in amount of savings associated with the experience of illnesses, instead of both illnesses and changes in marital status. Therefore, only the observations with consistent marital status during the three observation years (t-1, t, t+1) were included in this study (n=43, n=27 married, n=16 non-married).

Analytical Approach

To show descriptive statistics of the data, we employ Chi-square tests and t-tests. We then utilized mixed models to assess the impact of illness and depression on the savings behaviors of women in Japan through ANCOVA. The model for determining the impact on household income for individual i was

$$HouseholdIncome_i = \beta_0 + \beta_1 PreviousIncome_i + \beta_2 Married_i + \beta_3 (Married_i \times PreviousIncome_i)$$

where *Household Income* refers to the household income the year after the event, *Previous Income* refers to household income the year prior to the event, and *Married* refers to an indicator variable that is 1 if the individual is married and 0 otherwise. A similar model substituted life insurance premium payments before and after the event for household income. Because none of the non-married women had financial savings or investments before or after the event, for these two measurements, we assessed the odds of having savings or investments with logistic regression.

$$\ln\left(\frac{P(Savings)}{1 - P(Savings)}\right) = \beta_0 + \beta_1 PreviousSavings_i$$

where $P(Savings)$ refers to the probability of having savings the year after the event, and *Previous Savings* is an indicator variable that is a 1 if the individual had savings in the previous year and 0 otherwise.

Variables

There were two sets of main response variables of interest. The first was the values of household income, savings, investments, and expenditures for life insurance policies the year following the illness or

depression. The second was the presence of household savings and investments. Unlike income and expenditures for life insurance, these did not allow us to compare between married and single women. This is because none of the single women had any savings, and therefore, the probability would have been zero. For this reason, we assessed the presence of savings and investments separately without a comparison between the marital status groups.

The main explanatory variable for the value after the event model was the value of the financial preparedness the year before the event experience. We assessed marital status and the interaction between the value of financial preparedness and marital status, although the latter was eliminated from the presented results when insignificant. The model assessed the magnitude and direction of the overall association between health related events and savings and investments; however, the results do not show the magnitudes of all potential positive and negative impacts. Unpleasant, unexpected life events can have both impacts. The positive impact is making individuals realize the importance of savings, thereby enhancing their motivation to save. The negative impact is that it is impossible to save due to either reduced income or increased expenditure associated with the events, thus decreasing the likelihood and the amount of savings. Finally, we expect that unpleasant, unexpected life events may reduce household income. Therefore, in addition to financial preparedness, we examined income changes, as well. Finally, while control variables, such as life satisfaction (Mimura, 2014) and socioeconomic characteristics of the respondents and households may explain the variations in the changes in financial preparedness upon experiencing illness and depression, due to the small sample size, the current study did not incorporate these other possible explanatory variables.

RESULTS

In this section, after presenting the sample based on descriptive statistics, the model results that explain the changes in household financial preparedness following an illness or depression are described. When comparing the amount of household income, savings, investments, and payment for life insurance policies in the year following illness or depression through bivariate t-tests, none of these was different from the amount from the year prior to the event experience. In other words, the mean amount of each among 43 households was not different after experiencing the event. In terms of differences between married and non-married women included in this study, shown in Table 1, a few differences are noteworthy. First, while the household income between the two types of households was not different prior to the event experience, it was significantly lower among non-married women's households than among married women's households after the event.

None of the 16 non-married women's households had financial savings before or after the event, nor did they have financial investments. Finally, while the amount of life insurance policy payments prior to the event experience was higher among married women's households than among non-married women's households, the difference was not statistically significant following the event.

Table 2 shows the number of married and single women in the sample that held each of the three types of financial preparation, savings, investments, and life-insurance premium payments, before and after experiencing significant illness or depression. It shows a lack of savings and investments among single women, a loss in investments for one married woman, a loss in life-insurance premium payments for one single woman, and finally, an addition of life-insurance premium payments for three single women, all following an event.

Table 1: Descriptive Statistics of Financial Preparedness among Married and Single Women Who Experienced Significant Illness or Depression

Variable	Married				Single			
	Mean (Standard Deviation)	Minimum	Maximum	Column %	Mean (Standard Deviation)	Minimum	Maximum	Column %
Income before (in 1,000 yen)	1401.0 (764.7)	314.0	3084.0		1223.9 (1118.9)	236.0	4232.0	
Income after (in 1,000 yen)**	1444.4 (970.0)	120.0	4189.0		870.3 (448.2)	336.0	2026.0	
Had savings before***				85.19%				0.0%
Had savings after***				77.78%				0.0%
Had investment before				14.81%				0.0%
Had investment after				11.1%				0.0%
Life insurance payment before (in 1,000 yen)***	57.6 (96.2)	0	500.0		4.8 (7.0)	0	24.0	
Life insurance payment after (in 1,000 yen)	76.2 (266.2)	0	1400.0		8.25 (10.67)	0	39.0	
N	16				27			

This table describes financial preparedness, measured through income, savings, investment, and life insurance premium payment, among married and single women in Japan who experienced illness or depression. The figures for “before” are from the year prior to the illness experience, and those for “after” are from the year after such an experience. Means, standard deviation, minimum, and maximum are in ¥1,000. T-tests compared the mean differences between married and single women. These t-tests utilized the Satterthwaite method that assumes unequal variances between two groups. Chi-square tests assessed the dependency between each of the four “had ... before/after” and marital status. ***<0.01, **<0.05, *<0.10

Table 2: the Number of Married and Single Women Who Maintained Financial Preparedness before and after the Significant Illness or Depression

		Married				Single		
			No	After		No	After	
				Yes	Yes		Yes	
Savings	Before	No	2	2	16	0		
		Yes	4	19	0	0		
Investment	Before	No	23	0	16	0		
		Yes	1	3***	0	0		
Life Insurance	Before	No	0	1	4	3		
		Yes	2	24	1	8**		

This table describes the frequency distribution of women who held each of the three types of financial preparedness the year prior to and following the significant illness or depression. These figures are the number of observations in each category. For each of the financial preparation items and marital status, the upper left (No-No) and lower right (Yes-Yes) indicate no changes in the status, while the upper right (No-Yes) and lower left (Yes-No) indicate changes in the status. Chi-square tests assessed the dependency each of the four “had ... before/after” separately based on marital status. Due to the small cell size, the Chi-square tests may not be valid. ***<0.01, **<0.05, *<0.10

Model Results

Table 3 shows the estimated changes in household financial preparedness following illness or depression among married and non-married women’s households using ANCOVA. Income, savings, investments, and life insurance policy payments were higher when their values were higher the year before the event experience. At a lower income level, the difference in the household income level the year after was not significantly different between married and non-married women’s households. The gap in the income levels of married and non-married women’s households was greater at higher income levels. Due to the

confounding of having savings and investments and marital status, the models for these two did not include marital status. The amount of savings prior to experiencing illness or depression had a positive association with the amount of savings following such events.

Similarly, the amount of investment assets prior to experiencing illness or depression had a positive association with the amount of investments following such events. The coefficients of less than one in both estimates suggest a possible negative impact of the event on the amount of savings and investments. Estimated life insurance premium payments the year after the event experience were higher when the amount paid the year before the event experience was higher, and it was higher among non-married women’s households than among married women’s households.

Table 3: Estimated Changes in the Household Savings Following Significant Illness among Married and Single Women through ANCOVA

Effect	Income	Savings	Investments	Life Insurance Premium Payment
Intercept	380.98	251.43***	-1.72	-71.66***
Value the year before experiencing the illness	0.76***	0.54***	0.86***	2.58***
Married (vs. single)	178.54			67.64***
Value the year before*single	-0.52**			
-2 Log Likelihood	662.62***	624.3***	415.9***	491.91***
N	43	43	43	43

*This table shows the estimated changes in the household savings following significant illness or depression among married and single women in Japan through ANCOVA. For each model, the response variables, the values the year after, and the value of the year before are in 1,000 Japanese yen. ***<0.01, **<0.05, *<0.10*

None of the non-married women included in the study had savings or investments both before and after the event experience. Further, only a handful of the married women had investments. Table 3 shows the results of logistic regression models for savings and investments. The odds of having had savings following an illness or depression were over 42.75, as much when the households had savings the year before as when they had no savings. The investment model did not have a significant variable. We presume that the sample size was too small to assess a robust model.

Table 4: Odds Ratios of Having Had Financial Savings Following Illness among Married and Single Women

Effect	Savings	Investments
Intercept	4.75***	3.00
Have had the year before	42.75***	17,273,774.77
N	43	43

*This table shows the odds ratios of having had financial savings following illness, including depression, among married and single women in Japan, based on two logistic regression models. For each model, the predictor variable was having had the respective financial savings the year before the illness or depression. We eliminated the predictor variable marital status from both models because no single woman in our sample had savings or investments. ***<0.01*

CONCLUDING COMMENTS

The goal of this paper was to assess the association between the onset of illness among middle-aged women in Japan and the extent to which it negatively affects the presence and amount of financial savings in their households. In particular, we compared the difference in the impact of the illness between married and single women. The data for the study came from the Japanese Panel Survey of Consumers (2005-2009). The methodological approach utilized was Analysis of Covariance (ANCOVA), where the model compared individual household observations from the year after the onset of illness to that from the year prior to the onset of illness. In summary, the amounts of household income, savings, investments, and life insurance policy payments from the year prior to an onset of illness or depression among women had positive associations with the amount of each held by their households the year following such events.

Further, non-married women with higher incomes experienced disproportionate declines in their household incomes following the event compared to married women, reflecting a marriage safety net by having husbands as primary or co-breadwinners. Non-married women who experienced significant illness or depression during the observation period had another disadvantage of not having savings or investments, while a majority of married women's households had savings, and some of them had investments. The relative magnitude of negative financial consequences of unexpected life events are greater for women from less advantageous economic backgrounds than those from more advantageous economic backgrounds, such as being married versus single; thus, such events magnify inequality. An increase in savings often follows an increase in investment (Shinha, 2002). These single female households may be at least two dimensions, savings and investments, behind their married household counterparts. Non-married women who experienced significant illness or depression were less likely to have had financial reserves to cope with lost incomes or added expenses due to such events. Finally, while non-married women's households spent less for life insurance policy premiums the year prior to an illness or depression than married women's households, the year after, their expenditures were not different from each other.

This study has a few limitations. First, the number of survey participants who experienced significant illness or depression who we could incorporate for this study was limited to a small number. The small sample size limited our ability to assess the association between various socio-economic characteristics, such as age, household structure beside marital status, and educational attainment, and the changes in financial preparedness among women in Japan. Second, women in the age range included in this study were limited to between 30 and 50 years of age as of 2009. The generalizability of the findings to younger and older women is limited. In particular, at an older age, men and women may be more vulnerable to illnesses, and the duration to recover financially through earned income may be more limited. Finally, we do not know if the changes in financial preparedness are indeed due to the onset of significant illness or depression of the women who responded to the survey.

A few directions future studies may take include an extension of the observation period. The five-year observation period for the present paper did not yield a large enough sample size for a robust analysis. Examining the impact of long-term illness, rather than the onset of illness, on the household finances will make a meaningful contribution to the literature. Finally, with a larger sample size, examining the nature of the relationship between these women and their extended family members and close friends will advance our understanding of the significance of a social network that may not reflect the financial aspect of the data. The findings suggest a significant disadvantage and decline in financial preparedness among single women who initially had less than married women. The findings have implications for professionals who serve middle-aged single women. Financial education, planning, and adjustments in plans and lifestyles are important before, during, and after experiencing unexpected, unpleasant significant illnesses or depression. Because the probability of having savings and their values are higher among individuals and families in higher social strata than those in lower social strata, the impact of the current, enduring recession on widening intra-national economic inequalities in Japan is of great concern.

REFERENCES

Akerlof, G. A. & Shiller, R. J. (2009). *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism*, Princeton, NJ: Princeton University Press.

Bank of Japan (2012). *Kakei no kinnyuu shisan to shuruibetsu kouseihi no henka, Kurashi to Kinyuu Nandemo Deta [Changes in savings and financial assets. All what you want to know about life and finances data]*. Tokyo, Japan. Available from <http://www.shiruporuto.jp/finance/tokei/stat/stat002.html>

Deacon, R.E. & Firebaugh, F.M. (1988). *Family resource management: Principles and applications*. (2nd ed.). Needham Heights, MA: Allyn and Bacon.

Haider, S.J. (2001). Earnings instability and earnings inequality of males in the United States: 1967-1991. *Journal of Labor Economics*, 19(4), 799-836.

Horioka, C. Y., & Watanabe, W. (1997). Why do people save? A micro-analysis of motives for household saving in Japan. *The Economic Journal*, 107(442), 537-552.

Institute for Research on Household Economics (Eds.). (2003). Kakei, shigoto, kurashi to josei no genzai: Shouhi seikatsuni kansuru panel chousa (dai 10 nenndo). [*Current Status of Family Finances, Work, Life, and Women: Japanese Panel Survey of Consumers (The 10th Year)*], Author: Tokyo, Japan.

Kamo, Y., & Fujita, A. (2002). Characteristics of household savings of farmers compared with that of workers: An econometric study. *Research Journal of Living Science*, 48(2), 98-106.

Kessler, R. C., & Bromet, E. J. (2013). The epidemiology of depression across cultures. *Annual Review of Public Health*, 34, 119-138.

Koga, M. (2006). The decline of Japan's saving rate and demographic effects. *The Japanese Economic Review*, 57(2), 312-321.

Kohara, M. (2010). The response of Japanese wives' labor supply to husbands' job loss. *Journal of Population Economics*, 23(4), 1133-1149. doi: 10.1007/s00148-009-0247-6

Kureishi, W., & Wakabayashi, M. (2013). What motivates single women to save? The case of Japan. *Review of Economics of the Household*, 11(4), 681-704. doi: DOI 10.1007/s11150-013-9191-z

Mauldin, T. A. (1990). Women who remain above the poverty level in divorce: Implications for family policy. *Family Relations*, 39(2), 141-146.

Mimura, Y. (2014). The relationship between life satisfaction among wives and financial preparedness of households in Japan. *Journal of Family and Economic Issues*, (Published online), 1-10. doi: 10.1007/s10834-014-9390-7

Ministry of Health, Labour and Welfare. (2010). *Summary of "Statistical Data on Births": A special report on demography [Heisei 22 nendo "shusse ni kansuru toukei" no gaikyou. Jinkou doutai toukei tokushu houkoku]*. Tokyo, Japan. Available from <http://www.mhlw.go.jp/toukei/saikin/hw/jinkou/tokusyuu/syussyo06/syussyo1.html>

Murata, K. (2003). Micro-data ni yoru kakei koudou bunseki: Shourai fuan to yobiteki chochiku. [Analysis of family financial behavior using micro-data: future uncertainty and reserve savings.] *Kinyuu Kenkyuu [Finance Research, Bank of Japan Institute of Finances]*, 22(3), 23-58.

Nakata, K. (2009). The long-term trend and outlook of Japan's household savings rate. *Kikan Seisaku Keiei Kenkyuu [Quarterly Policy and Management Research]*, 1, 114-121.

Ogami, A., Muto, T., Haruyama, Y., & Yoshikawa, T. (2013). Non-work-related personal events contribute to depressive symptoms in Japanese discretionary workers. *The Tohoku Journal of Experimental Medicine*, 230(4), 255-263.

Okada, T., & Kamata, K. (2004). Teiseichou kitai to shouhisha koudou: Zeldes-Carroll riron ni yoru wagakuni shouhi chochiku koudou no bunseki [*Low growth anticipation and consumer behavior:*

Analysis of consumption and savings behaviors in our country based on the Zeldes-Carroll theory]. Bank of Japan Working Paper Series, 04-J-2. Tokyo, Japan.

Shindo, S. (2006). Chochikuritsu teika no haikai: Nenrei shotokubetsu kaisou no bunseki kara [Background of lowering savings rate: An analysis based on age and income]. *Economic Review*, 10(2), 48-61.

Sinha, D (2002). Saving-investment relationships for Japan and other Asian countries, *Japan and the World Economy*, 14, 1-23.

Skidmore, M. (2001). Risk, natural disasters, and household savings in a life cycle model. *Japan and the World Economy*, 13(1), 15-34.

Suzuki, M., Ito, M., Ishida, M., Nihei, N., & Maruyama, M. (2010). Individualizing Japan: searching for its origin in first modernity. *The British Journal of Sociology*, 61(3), 513-538. doi: DOI: 10.1111/j.1468-4446.2010.01324.x

Zhou, Y. (2003). Precautionary saving and earnings uncertainty in Japan: A household-level analysis. *Journal of the Japanese and International Economies*, 17(2), 192-212.

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