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To cite this article: Yoshihiko Kadoya, Mostafa Saidur Rahim Khan, Hikaru Oba & Jin Narumoto (2020): Factors affecting knowledge about the adult guardianship and civil trust systems: evidence from Japan, *Journal of Women & Aging*, DOI: [10.1080/08952841.2020.1727711](https://doi.org/10.1080/08952841.2020.1727711)

To link to this article: <https://doi.org/10.1080/08952841.2020.1727711>



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Published online: 11 Feb 2020.



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Factors affecting knowledge about the adult guardianship and civil trust systems: evidence from Japan

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ABSTRACT

This study examines the socio-economic factors influencing public awareness of the adult guardianship and civil trust systems in Japan. The results of this study show that financial literacy is the most influential factor affecting knowledge of the adult guardianship and civil trust systems. Gender, age, living alone, income, and assets are also found to be related to knowledge about these systems, but they are not consistent. We argue that policy makers should emphasize financial literacy and conduct targeted promotion campaigns to help those living with dementia to continue to participate in and benefit from economic activities.

KEYWORDS

Adult guardianship; civil trust systems; socio-economic factors; Japan

Introduction

In an aging country such as Japan, the shrinking economic activity of elderly persons with dementia is an important social issue. Because Japan's population is increasingly elderly, the number of people suffering from dementia is also rising. This population is less able to participate in daily economic activities. A solution is required that will allow elderly people to continue to gain benefits from economic transactions. The situation is further aggravated for people who do not have durable power of attorney over economic decisions or who have not provided complete directions about important economic decisions. The severe decrease in economic activities by elderly people with dementia significantly affects the national economy as well. Previous studies have found that more than half of older people requiring nursing care suffer from dementia (Homma, 2005) and people suffering from dementia had declining rates in activities of daily living and instrumental activities of daily living (Suh, Ju, Yeon, & Shah, 2004). These elderly people typically have difficulty withdrawing money, remembering their bank password, or paying for their purchases before leaving a store, and they often find themselves purchasing the same items repeatedly. Elderly people with dementia eventually abandon a great deal of

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their economic activities. In Japan, unfortunately, tens of millions of unused yen are often found after unmarried individuals with dementia have died. According to Kawano et al. (2010) the dementia causes economic loss from the “unnecessary” shrinking of economic activities to the individuals as well as their families. Meanwhile, the Ministry of Health, Labor and Welfare (2015) claims that, as of the year 2012, 4.62 million elderly people in Japan have dementia, and an additional 4 million suffer from mild cognitive impairment (MCI); together, they add up to more than 8 million people, more than 6% of the entire population of the nation, and the number of people afflicted with dementia is expected to increase over the next several decades. Considering the above statistics, it is essential for the Japanese government to solve the problems caused by the lessening of economic activity by elderly people with dementia.

The adult guardianship and civil trust systems can play important roles in the lives of elderly people with dementia who can no longer make economic decisions. Adult guardianship is the legal authority given to an adult guardian (sometimes called a conservator) by the court to make decisions for a person who is not capable of making decisions on their own due to mental disability, i.e., dementia. The civil trust system is an alternative to adult guardianship in Japan where account holders instruct financial institutions to take care of financial matters if they become incapable of handling financial issues. Usually, account holders confer this power to financial institutions at the time of opening the account, but in some cases a court may also instruct financial institutions to take care of financial matters for incapacitated persons. In spite of their usefulness, the use of adult guardianship and civil trust systems is very limited across the world, including in Japan. The lack of use of these systems is partly caused by the detailed legal procedures required, but mostly due to a lack of public knowledge about these systems. For example, in most of the cases in the United States, guardianship petitions are filed on an emergency basis, mostly by family members (Crosby & Nathan, 2003) or by hospitals and other service providers (Rosenberg, 2009). These findings indicate that incapacitated people did not plan for financial and property-related decisions in emergencies, and they show a lack of knowledge about the adult guardianship system. A similar situation prevails in Japan. Although the adult guardianship law was enacted in 2000, little effort has been made to publicize the law.

Previous studies have reported several important facts on the use of adult guardianship in Japan that hint at the pervasiveness of the problem and the lack of effort put forth in popularizing it as a solution. Very few people make the necessary arrangements for adult guardianship while they are still active and able; this is mainly due to lack of knowledge about the process. As a result, courts must appoint legal guardians for people suffering from dementia. Making proper arrangements beforehand reduces potential problems that could arise

due to inappropriate appointment of adult guardians. Moreover, courts find it difficult to find appropriate persons or institutions that can be appointed as legal guardians when friends and family members of the affected do not agree to take responsibility for them. Reports show that only 191,000 people have received an adult guardian as of the end of 2015. Whereas the number of people estimated to suffer from dementia in Japan was 4.62 million as of 2012. Moreover, the number of people estimated to suffer from senile dementia will be 7 million by 2025 (Japan Times, 2017; Ohgaki, 2016). Thus, the use of adult guardianship is extremely low in Japan, and there is a dire need to better publicize the system so that people in need are able to access the service. According to the law, relatives, professionals, or social organizations can perform the role of an adult guardian. However, professions, such as lawyers, social workers, or trained local citizens, perform the role of an adult guardian in almost 70% of the cases in Japan (Japan Times, 2017). By utilizing the adult guardianship and civil trust systems, elderly people with dementia can be protected from having to give up their economic activities, which can significantly lower their quality of life. It is obvious that the government needs to raise awareness of both these systems, but there has been no study that investigates how this should be done. As we already discussed, the low utilization of adult guardianship is mainly due to a lack of knowledge by the public. Therefore, it is important to study the influence of socio-economic factors on the knowledge of the adult guardianship and civil trust systems. Understanding how various socioeconomic characteristics of the elderly are related to knowledge about the adult guardianship and civil trust systems in Japan will allow us to efficiently target older groups of people for intervention and education with regard to these systems. We argue that people who are aware of the adult guardianship can appoint a legal guardian and scope of activities in advance, which significantly reduces legal procedures and the risk of a misuse of power. With this goal in mind, this paper attempts to investigate how demographic and socio-economic factors influence knowledge about the adult guardianship and civil trust systems by using data on the socio-economic well-being of the elderly population in Japan. This study contributes significantly to the existing literature. To the best of our knowledge, this is the first study to investigate socio-economic factors influencing awareness of the adult guardianship and civil trust systems in Japan. The unique dataset enables us to examine the issue using actual information on the adult guardianship and civil trust knowledge of those elderly people who could potentially suffer from dementia.

Literature review

A person needs adult guardianship when he or she is not capable of making economic, healthcare, and other important decisions on their own due to physical or mental incapacities, e.g., dementia. The adult guardianship issue

has legal as well as economic consequences. Both *ex ante* and *ex post* measures are available under the current legal system in Japan surrounding the adult guardianship issue. The civil trust system is an *ex ante* provision whereby people appoint someone to take care of property-related issues in case they become incapacitated, while the appointment of a legal guardian by the court is an *ex post* measure (Ohgaki, 2016). The primary purposes of the appointment of a legal guardian in Japan include keeping and withdrawing bank funds, receiving public nursing care insurance, personal care, disposition of real estate, and other such matters. Recent projections indicate that the number of people living with dementia could reach between 6.75 to 7.3 million in 2025, which means one in every five elderly people in Japan could become afflicted with dementia (Japan Times, 2015). In an aging society like Japan, where an increasing number of people with dementia require care, there is a need for comprehensive knowledge on adult guardianship and sufficient legal provisions so that the daily, as well as economic activities, of such people can continue without challenge. The new adult guardianship law in Japan was enacted in 2000 after considerably revising the older civil law that had guided the adult guardianship system, without any major revision, for over a century. The new adult guardianship system harmonizes the conventional idea of protection with new ideas of respect for dignity (Arai & Homma, 2005; Mizuno & Nanba, 2003).

The capacity to perform financial affairs independently is one of the critical abilities of independent adults in society. However, people with dementia lose this competency either completely or partially, making them unable to count currency, pay bills, and make investment decisions (Marson, 2001; Marson et al., 2000). These people could also face exploitation and financial fraud due to their incapacities. The adult guardianship system makes it possible for others to perform financial affairs on behalf of the incapacitated person, which can reduce financial exploitation. The issue of guardianship at the time of physical and mental incapacity can be settled in two ways. First, and ideally, people can make prior arrangements for guardians in case of any possible incapacity. Second, courts can appoint adult guardians for people who have become incapacitated but have not made the necessary guardianship arrangements beforehand. In the case of court-appointed adult guardians, family and friends are usually the most preferred choice. However, the number of willing and able family members and friends is decreasing, which necessitates the preparation of more public and professional guardians in Japan (Uekert, 2010). Although adult guardianship benefits incapacitated persons in a number of ways, the system can be problematic in some cases. A number of incidents have been reported across the world regarding the misuse of guardianship, particularly with respect to financial issues (Japan Times, 2017; Ohgaki, 2016; Uekert, 2010). As a result, persons or institutions involved in social work could play

a critical role in promoting adult guardianship in any country (Crampton, 2004; Logan, 1991). Thus, making prior arrangements for guardians, before people become unable to conduct their own financial matters, reduces the effort required by courts and social institutions to find appropriate guardians, the possibility of potential fraud, and unnecessary delays in appointing adult guardians. However, a lack of knowledge regarding the adult guardianship and civil trust systems means people are unaware of the potential hazards they could face should they become incapacitated (Japan Times, 2017).

There have been several studies on the legal procedures and protections of incapacitated elderly people, but relatively fewer studies are found on the socio-economic factors that influence the use of adult guardianship. Several studies have examined the social gradient of adult guardianship and found that significantly more guardianship orders came from low socio-economic deciles (Cripps, 2014). Yaffe et al. (2013) studied the effect of socio-economic disparities on incidents of dementia and found that the higher rates of dementia among black people compared to white people can be attributed to socio-economic status. Chen et al. (2016) reported that people suffering from dementia in rural areas are less likely to receive care compared to their urban counterparts. Rosenberg (2009) studied the relationship between the guardianship process and the gender, race, ethnicity, age, and economic status of the persons requiring adult guardianship in the United States. He found that elderly women who have fewer assets and do not own a house used adult guardianship the most. He also found that there is a strong ethnicity bias in adult guardianship. The use of adult guardianship among whites and African Americans was much higher than that of Latinos, Hispanics, Asians, and Pacific Islanders.

Previous studies have primarily focused on the socio-economic background of users of adult guardianship systems who suffer from dementia but made no arrangements regarding guardianship before becoming incapacitated. Proper knowledge about adult guardianship and civil trust systems appears to be the reason why people do not, or are reluctant to, appoint legal guardians that can handle their financial responsibilities in the event that they become incapacitated. No studies, however, have examined how socio-economic factors influence knowledge about adult guardianship and civil trust systems. In this study, we attempt to fill this gap in the literature.

Data and methodology

Data

This study uses data from the Survey on the Economic Status of the Japanese Elderly (SESJE), conducted by Hiroshima University. The SESJE undertook

this project to understand actual household behavior of the elderly people in Japan, with special emphasize on the risk of dementia. The minimum age of the elderly respondents was set to 65 (note: one respondent answered the questionnaire just before his 65th birthday) because most Japanese people retire from the active employment at this age. Moreover, previous literature that focused on elderly care and associated issues in Japan also used 65 years as a benchmark for elderly people (Kadoya, 2016). The survey was conducted through physical mail. A two-stage stratified random sampling was applied. First, the prefectures of Japan were divided into seven regional blocks: Hokkaido, Tohoku, Kanto-Koshinetsu, Hoku-riku-Tokai, Kinki, Chugoku-Shikoku, and Kyushu-Okinawa. Then, each of the seven regions were subdivided into the following five strata: government-designated major cities, cities with populations of more than 200,000, cities with populations of more than 100,000, cities with populations of less than 100,000, and towns and villages. From this dataset, 1,411 observations were collected from participants 65 years and older with no missing answers. The survey response rate was 31.7%. Since the response rate to our mail survey was 31.7%, it is likely that some older and impaired participants, who are most likely to need guardianship, were excluded from the survey. However, the descriptive statistics show that about 20% of the participants are 80 years of age or older – the age group that needs guardianship the most.

Table 1 shows the descriptive statistics of the sample. Only 26.4% (SD = 44.1%) of respondents have knowledge about adult guardianship, while an even lower percentage of respondents (mean = 14.5% and SD = 31.8%) have civil trust knowledge. However, a higher percentage of respondents (mean = 87.7% and SD = 32.9%) are found to trust others regarding monetary issues. The survey revealed important demographic and socio-economic profiles of the respondents. The sample includes 54% male and 46% female respondents. There appears to be some mismatch in the overall gender distribution of respondents and the perceived gender

Table 1. Descriptive statistics.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Adult guardianship knowledge	1411	0.264	0.441	0	1
Civil trust knowledge	1411	0.145	0.070	0	1
Gender	1411	0.544	0.498	0	1
Age	1411	73.733	6.422	65	100
Spouse	1411	0.759	0.428	0	1
Child	1411	0.917	0.276	0	1
Living alone	1411	0.130	0.336	0	1
Education	1411	14.013	2.664	10.5	21
Financial literacy	1411	0.5680	0.373	0	1
Income	1411	432.176	339.910	100	2000
Asset	1411	1989.369	2339.663	250	10,000
Home ownership	1411	0.885	0.319	0	1
Moneytrust	1411	0.877	0.329	0	1

distribution of this age cohort. Considering that this mismatch could affect the result of the study, in an unreported analysis, we observed whether this gender distribution continues for older participants. However, the number of female participants surpassed that of male participants for the relatively older cohort – those who are 87 years or older, which conforms to the perceived gender distribution. Moreover, the level of knowledge on adult guardianship and civil trust systems does not vary greatly among the different age cohorts, suggesting that the results of our study are not significantly affected by the higher male participation rate. Respondents have an average age of 73.73 years (SD = 6.42 years), education of 14.01 years (SD = 2.66 years), and a financial literacy score of 0.465 (SD = 0.318) out of 1 (indicating a below average performance), 75.9% (SD = 42.8%) of respondents have a spouse, 91.7% (SD = 27.6%) have children, 13% (SD = 33.6%) are living alone, 88.5% (SD = 31.9%) live in their own house. They have a monthly household income and balance of financial assets of JPY432,176 (SD = 339,910) and JPY1,989,369 (SD = 2,339,663), respectively.

Measurement of variables

In explaining how socio-economic factors influence knowledge of the adult guardianship and civil trust systems, we formed two regression models, where knowledge on adult guardianship and knowledge on the civil trust system are used as two different dependent variables. Table 2 shows the definition and measurement of the variables used in this study. Adult guardianship knowledge is measured by the question, “Do you know about adult the guardianship system by which support is given to people whose judgement abilities have decreased?” and civil trust knowledge is measured by the question, “Do you know about the civil trust system, which manages your money and assets on your behalf?” Participants were required to choose from the following options for both questions: “1. I understand and can explain about this system to other people,” “2. I have heard of this system, but I don’t understand it enough,” or “3. I have not heard of this system.” Participants were considered knowledgeable about adult guardianship and civil trust systems when they chose the first option. Both adult guardianship knowledge and civil trust knowledge are dummy variables that assume the value ‘1’ if respondents have adult guardianship and civil trust knowledge, and ‘0’ otherwise. Several demographic and socio-economic variables are used to find a relationship with adult guardianship and civil trust knowledge such as gender, age, spouse, living with children, living alone, education, financial literacy, assets, income, home ownership, and trusting others to with money. Measurements of gender, age, spouse, living with children, home ownership and living alone are self-explanatory; the definitions and measurements are found in Table 2. The variable “education” measures the number of years of

Table 2. Definition of the variables.

Variable	Definition
Dependent variable	
Adult guardianship knowledge	1 = I understand and can explain about adult the guardianship system to other people. 0 = otherwise
Civil trust knowledge	1 = I understand and can explain about the adult civil trust system to other people. 0 = otherwise
Independent variables	
Gender	1 = male, 0 = female
Age	Respondents who are 65 years of age or above are considered in the study.
Spouse	1 = married, 0 = otherwise
Child	1 = Living with child(ren), 0 = otherwise
Living alone	1 = Living alone, 0 = otherwise
Education	Years of education
Financial literacy	Financial literacy is measured by three questions related to basic financial calculation skills, understanding of the implication of inflation and knowledge about financial instruments. The questions asked to measure financial literacy is as follows: <ol style="list-style-type: none"> (1) Suppose you put 1 million yen into a savings account with a guaranteed interest rate of 2% per year. If no further deposits or withdrawals are made, how much would be in the account after 1 year, once the interest payment is made? (2) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account? (3) Please indicate whether you think the following statements are true or false. "Buying a single company's stock usually provides a safer return than a stock mutual fund."
Income	Household income of the respondents
Assets	Balance of financial assets (savings, stocks, bonds, insurance, etc.) of the entire household
Home ownership	1 = own, 0 = otherwise
Moneytrust	1 = I have a trusted person to which I can leave the managing of my money. 0 = otherwise

education of respondents. Financial literacy is measured by three questions related to basic financial calculation skills, understanding of the implication of inflation and knowledge about financial instruments. We followed the methodology of Lusardi and Mitchell (2007), Lusardi & Mitchell (2008) to construct financial literacy index. The first question measures the ability to understand compound interest, the second question measures the ability understand the effect of inflation, and the third question measures the understanding of risks. The questions asked to measure financial literacy is as follows:

- (1) Suppose you put 1 million yen into a savings account with a guaranteed interest rate of 2% per year. If no further deposits or

- withdrawals are made, how much would be in the account after 1 year, once the interest payment is made?
- (2) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
 - (3) Please indicate whether you think the following statements are true or false. “Buying a single company’s stock usually provides a safer return than a stock mutual fund.”

Assets and income measure the balance of financial assets (savings, stocks, bonds, insurance, etc.) of the entire household and household income of the respondents, respectively. Finally, moneytrust indicates whether respondents trust others for their money and is measured from the statement “I have a trusted person to which I can leave the managing of my money.”

Models

We used two generalized structural equation model (GSEM) in logit models to find how demographic and socio-economic conditions influence adult guardianship and civil trust knowledge. Model 1 uses adult guardianship knowledge, a dummy variable, as the dependent variable, while Model 2 uses civil trust knowledge, which is also a dummy variable, as the dependent variable. In both the models we used gender, age, spouse, children, living alone, education, financial literacy, assets, income, home ownership, and trusting others with money as explanatory variables. We used the GSEM in logit model because of its capacity to control a probable endogeneity bias in the model specification. The GSEM handles endogeneity by including common, unobserved components into the equations for many variables. The GSEM in logit regression equations are as follows:

Adult guardianship knowlegde

$$\begin{aligned}
 &(1 = \text{respondents have knowledge on adult guardianship, and } 0 \text{ otherwise}) \\
 &= \alpha + \beta_1 \textit{gender} + \beta_2 \textit{age} + \beta_3 \textit{spouse} + \beta_4 \textit{child} + \beta_5 \textit{living alone} \\
 &\quad + \beta_6 \textit{education} + \beta_7 \textit{finliteracy} + \beta_8 \textit{income} + \beta_9 \textit{assets} + \beta_{10} \textit{own housing} \\
 &\quad + \beta_{11} \textit{moneytrust}
 \end{aligned} \tag{1}$$

civil trust knowledge

$$\begin{aligned}
 &(1 = \text{respondent have knowledge on the civil trust system, and } 0 \text{ otherwise}) \\
 &= \alpha + \beta_1 \textit{gender} + \beta_2 \textit{age} + \beta_3 \textit{spouse} + \beta_4 \textit{child} + \beta_5 \textit{living alone} \\
 &\quad + \beta_6 \textit{education} + \beta_7 \textit{finliteracy} + \beta_8 \textit{income} + \beta_9 \textit{assets} + \beta_{10} \textit{own housing} \\
 &\quad + \beta_{11} \textit{moneytrust}
 \end{aligned} \tag{2}$$

Empirical results

To examine how demographic and socio-economic background are associated with knowledge of the adult guardianship and civil trust systems, we use GSEM in logit models, where knowledge about adult guardianship and the civil trust system are dependent variables, while gender, age, spouse, child, education, financial literacy, living alone, assets, income, home ownership, and trust on others regarding monetary matters are independent variables. Table 3 shows the estimation results. Results of the GSEM in logit model show that only gender, financial literacy, and income are significantly related to adult guardianship knowledge while age, financial literacy, living alone, and assets are significantly related to knowledge of the civil trust system. Among the factors, financial literacy is found to be economically and statistically significant in both models. However, demographic and socio-economic factors such as education, spouse, children, home ownership, and trust in others regarding monetary matters are not found to be related to either adult guardianship knowledge or civil trust knowledge.

The lack of knowledge on adult guardianship and the civil trust system, as we discussed in the background of the study, has been reflected in the regression results. The only factor that is found to be significantly related to both adult guardianship and civil trust system knowledge is financial literacy. In both cases, financial literacy increases knowledge on the adult guardianship and civil trust systems. We argue that the relationship is justified on the grounds that a greater knowledge on financial matters, as reflected in a higher score for financial literacy, increases peoples' understanding of how to take care of monetary affairs in case they become unable to do so. Gender is positively related to adult guardianship knowledge, but it

Table 3. Generalized structural equation model in logit: Socio-economic predictors of knowledge on adult guardianship and civil trust systems.

	Adult guardianship knowledge	Civil trust knowledge
Gender	-0.3357 (-2.52)**	0.0103 (0.06)
Age	-0.0008 (-0.08)	0.0250 (2.07)**
Spouse	-0.1051 (-0.54)	-0.1341 (-0.55)
Child	-0.2645 (-1.15)	-0.0617 (-0.22)
Living alone	0.4151 (1.74)	0.5707 (2.02)**
Education	0.0013 (0.05)	-0.0160 (-0.53)
Financial literacy	0.9185 (4.99)***	0.6576 (2.88)***
Income	0.0006 (2.83)***	0.0003 (1.44)
Assets	0.0000 (1.34)	0.0001 (2.21)**
Homeownership	-0.1348 (-0.66)	-0.2370 (-0.97)
Moneytrust	0.2431 (1.16)	0.0278 (0.11)
Constant	-1.5256 (-1.78)	-3.8755 (-3.72)***
Obs.	1411	1411
Log likelihood	-781.5974	-564.6356

Note: z statistics in parentheses. ***, and ** represent significance at the 1 percent, and 5 percent levels, respectively.

is not related to knowledge of the civil trust system. The results show that female respondents are more knowledgeable than male respondents regarding adult guardianship. The result is rational in Japanese culture, where married women usually look after monetary affairs and life expectancy is higher for females than males. Moreover, women are more likely to be involved in the long-term care of family members. Thus, it is likely that women will be more knowledgeable than men. Although the age of respondents is not related to adult guardianship knowledge, it is positively related to civil trust knowledge, indicating that older respondents are more knowledgeable. The positive relation is justified because older persons are more likely to confer the right to look after their wealth to financial institutions. Living alone is positively related to knowledge on the civil trust systems, but it is not related to knowledge on adult guardianship. The positive relationship is justified because living alone requires people to think about monetary affairs in case they become unable to take care of themselves. Income is positively related to knowledge on adult guardianship but not to knowledge on the civil trust system. The positive relationship is expected because more income requires that people make money management plans in case of inability. Assets, on the hand, are positively related to civil trust systems, which also seems rational on the same grounds as income. Although expected, the reason behind not finding significant relationships for income and assets with the knowledge on the civil trust system and adult guardianship, respectively, could be due to the fact that only a limited number of respondents are aware of these issues. Home ownership, another indicator of wealth, also does not have a relationship with knowledge on adult guardianship or civil trust systems. The results regarding these economic factors suggest that income or wealth does not make people aware of the adult guardianship or civil trust systems.

The results also highlight some important issues. For example, level of education is not found to be positively related to either knowledge on adult guardianship or the civil trust system, which was expected. However, financial literacy is significantly related to both adult guardianship and civil trust knowledge. These results indicate that education alone does not make people aware of adult guardianship or civil trust issues, but knowledge on financial matters makes people aware of these resources. We also expected that people's trust in others regarding money matters would be positively related to knowledge on adult guardianship or civil trust systems, but the results do not confirm such expectations. The results indicate that knowledge on adult guardianship and the civil trust system is not a matter of trust, rather is a matter of necessity and awareness of people. The insignificant relationship of spouse and children with knowledge on adult guardianship or the civil trust system also bears an important implication. The results suggest that

Table 4. Generalized structural equation model in logit: Socio-economic predictors of knowledge on adult guardianship and civil trust systems by age group and gender.

	Age group		Gender	
	≤ 75	>75	Male	Female
Panel A: Adult guardianship knowledge				
Gender	-0.4699 (-2.92)***	0.0685 (0.27)		
Age	0.0497 (1.91)	-0.0283 (-1.00)	0.0208 (1.45)	-0.0237 (-1.60)
Spouse	-0.2439 (-0.99)	-0.2839 (-0.84)	-0.0319 (-0.09)	-0.2068 (-0.87)
Child	-0.2088 (-0.75)	-0.5992 (-1.38)	-0.1632 (-0.48)	-0.3189 (-0.96)
Living alone	0.2396 (0.76)	0.5140 (1.37)	0.5910 (1.43)	0.3077 (1.05)
Education	0.0019 (0.06)	0.0039 (0.09)	0.0081 (0.24)	-0.0163 (-0.46)
Finliteracy	0.6683 (2.93)***	1.4736 (4.55)***	1.0730 (3.99)***	0.7548 (2.93)***
Income	0.0005 (2.16)**	0.0008 (2.22)**	0.0007 (2.51)**	0.0004 (1.56)
Assets	0.0000 (1.05)	0.0000 (0.48)	0.0001 (1.30)	0.0000 (0.39)
Home owner	-0.0241 (-0.09)	-0.4524 (-1.28)	-0.3919 (-1.27)	0.0764 (0.28)
Moneytrust	0.5254 (1.96)**	-0.4274 (-1.21)	0.2900 (1.03)	0.2294 (0.70)
Constant	-5.0651 (-2.71)***	1.3124 (0.52)	-3.7415 (-3.05)***	0.5588 (0.44)
Obs.	916	495	768	643
Log likelihood	-515.8841	-253.3360	-398.1149	-378.9108
Panel B: Civil trust knowledge				
Gender	-0.0469 (-0.22)	0.2148 (0.72)		
Age	0.0664 (1.99)**	0.0084 (0.27)	0.0312 (1.84)	0.0216 (1.21)
Spouse	-0.3032 (-0.95)	-0.1708 (-0.44)	-0.2900 (-0.74)	-0.0175 (-0.06)
Child	0.1540 (0.42)	-0.5784 (-1.25)	0.0075 (0.02)	-0.1270 (-0.30)
Living alone	0.4549 (1.17)	0.6522 (1.55)	0.8328 (1.81)	0.4070 (1.12)
Education	-0.0200 (-0.50)	-0.0040 (-0.08)	-0.0164 (-0.40)	-0.0200 (-0.43)
Finliteracy	0.5167 (1.75)	0.9533 (2.60)***	0.5509 (1.74)	0.7168 (2.16)**
Income	0.0001 (0.32)	0.0008 (2.06)**	0.0005 (1.60)	0.0001 (0.42)
Assets	0.0001 (2.15)**	0.0000 (0.70)	0.0001 (1.65)	0.0001 (1.31)
Home owner	-0.0600 (-0.18)	-0.5748 (-1.50)	0.2172 (0.54)	-0.5458 (-1.73)
Moneytrust	0.3290 (0.97)	-0.5230 (-1.39)	0.0580 (0.18)	-0.0030 (-0.01)
Constant	-6.9869 (2.90)***	-1.8550 (-0.68)	-4.7459 (-3.26)***	-3.1770 (-2.03)**
Obs.	916	495	768	643
Log likelihood	-352.3837	-205.3704	-300.9119	-261.2064

z statistics in parentheses. ***, and ** represent significance at the 1 percent, and 5 percent levels, respectively.

family or socialization do not play much role in developing knowledge about the adult guardianship or civil trust systems.

To check the consistency and robustness of the results, we ran the GSEM in logit regressions after dividing the sample on the basis of age and gender. Moreover, running regression models separately by age and gender helps to further explain significant relationships of the predictor variables related to knowledge of the adult guardianship and civil trust systems, as reported in Table 3. Table 4 reports estimation results based on age group and gender. The results show that the factors, which are significantly related to knowledge on the adult guardianship and civil trust systems do not differ much across the age groups. Among the factors, used to explain knowledge on adult guardianship, financial literacy and income are found to be statistically and economically significant factors, while age and moneytrust is found to be significant only for respondents below the age of 75 years. When the sample is divided gender-wise,

the results were also found to be consistent with the original results. Financial literacy is found to be both statistically and economically significant, while income is found to be significant for male respondents only. On the other hand, among the factors used to explain the civil trust systems, financial literacy is found to be a statistically and economically significant factor for female respondents and respondents above the age of 75. Age and assets are found to be significant for respondents below the age of 75, and income is found to be significant for respondents above the age of 75. In summary, we find that financial literacy is the most significant factor contributing positively to knowledge about the adult guardianship and civil trust systems. Other factors, such as age, gender, living alone, income, and assets are found to be significant for a particular group of respondents but are not consistent across the groups.

Conclusion

The economic activities of people with dementia have been a growing concern for aging societies because previous studies have reported economic loss at the national level due to shrinking economic activity. The adult guardianship and civil trust systems are possible solutions that are specially designed for people with dementia to help them exercise economic activities through court appointed guardians or financial institutions. However, the provisions have not had a sufficient impact among the elderly, despite government enacted laws regarding adult guardianship. Our study makes a significant contribution to the existing literature because there are no comprehensive studies examining the reasons behind the lack of awareness of the adult guardianship and civil trust systems, which can help people with dementia to continue economic activities. Moreover, a study on the aging population in Japan has profound implications for rest of the world. This is because Japan is considered to be an aging laboratory for the rest of the world due to its high percentage of people over the age of 70.

This study examines socio-economic factors influencing knowledge on the adult guardianship and civil trust systems in Japan. We used data from a nationally representative dataset from a survey of elderly households. The results of this study show that financial literacy is the most influential factor affecting knowledge about the adult guardianship and civil trust systems. Gender, age, living alone, income, and assets are also found to be related to knowledge on the adult guardianship and civil trust systems, but are not consistent.

The results of our study have important implications for both the aging and policy makers. Authorities should carefully consider how to spread awareness of adult guardianship and the civil trust system because a lack of knowledge on these issues severely hampers the economic activities of people living with dementia. The results of this study suggest that the current education system, level of socialization, or financial condition of people

have a minimal positive impact on the spread of knowledge on the adult guardianship or civil trust systems. Policy makers should emphasize financial literacy and conduct a targeted promotion effort to help people with dementia to continue to participate in and benefit from economic activities.

Our study has some limitations that should be considered while interpreting the results. First, participants in this study are not suffering from cognitive impairment or dementia of any magnitude. This was done to investigate whether people are aware of the adult guardianship and civil trust systems when they are of sound health. Thus, our study does not include any respondents suffering from mild cognitive impairment or dementia, so it does not provide evidence on whether those people had prior knowledge of the adult guardianship and civil trust systems. Second, responses to the questions measuring knowledge of adult guardianship and civil trust systems could have a social desirability bias – meaning that, out of the fear being treated as ignorant, participants are likely to say they understand the systems when they do not. We were not able to validate participants' responses to the knowledge questions due to the unavailability of follow up questions.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by JSPS KAKENHI Grant Numbers JP15KK0083, JP15K17075, 19K13684, and 19K13739; RISTEX, JST.

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