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Abstract

Prior research on the saving behavior of Chinese consumers gave indirect evidence of various saving motives. In contrast, this study examined saving motives directly reported by consumers in a national survey in China. Findings indicated that the three most commonly reported motives were saving for emergency, children's education, and retirement. Mediation analysis results suggested that saving motives reported by Chinese survey participants had clear life cycle patterns.

Keywords: China, mediation analysis, saving motive, saving rate

Introduction

A noteworthy aspect of China's economy is its high consumer saving rate. Household-level data show the average urban household saving rate in China rose from 14.8% in 1990 to 22.4% in 2008 (Chamon and Prasad 2010). After adjusting for differences in calculating household saving rates between the United States and China, Qin and Ren (2008) found the average Chinese household saving rate between 1992 and 2004 was 22.9%, more than four times the 5.4% average American household saving rate during the same period. At a macro level, high savings rates provide the financial capital needed to build infrastructure and can improve broad financial and social stability. At a micro level, savings may mean survival rather than disaster for many families (Whitaker et al. 2013). However, exceptionally high saving rates also suggest that household consumption may be limited, which would hinder expansion of domestic demand, in turn negatively affecting economic growth and consumer welfare.

The recent history of economic reform in China started in 1978. Since then, China has experienced sustained economic growth (Chamon and Prasad 2010). However, the economic growth came with other changes to the life of Chinese households. For example, due to the pension reform, the once guaranteed lifetime employment and, therefore, income became uncertain (Chamon and Prasad 2010; Meng 2003). Moreover, because of the reforms and market conditions, the costs of health care, housing and educational shifted from state-owned enterprises to households and rose rapidly (Chamon and Prasad 2010; Qin 2003). Persistence of high saving rates in light of the economic growth has generated interest of researchers and policy-makers in the saving behavior of Chinese consumers. Much of this work has focused on macro level factors as potential explanations of the high rate of saving. For example, researchers have pointed to the rapid development of China’s financial sector as that provides options for savings

(Kraay 2000) and the positive income growth rate that could provide a surplus to save (Horioka and Wan 2007). To date, however, little is known about the personal motives that underlie household saving behavior.

Previous research on saving behavior of Chinese households provides indirect evidence of several saving motives, such as a desire to smooth the level of consumption over the life-cycle (e.g., saving in mid-life to fund retirement; Modigliani and Cao 2004), a precautionary motive (e.g., saving for emergencies; Chamon and Prasad 2010; Qin 2003), or a competitive motive (e.g., saving for children's wedding; Wei and Zhang 2011). However, direct research on saving motives is limited.

"To be motivated means *to be moved* to do something." (Ryan and Deci 2000, p. 54). One is only considered to be motivated when s/he is energized toward an end. In modern economic theory, saving is defined as the residual of income from current consumption. Thus, a theory of saving is technically a theory of consumption (see Attanasio and Weber 2010 for a recent review). Taking this perspective, the main motive behind an individual's behavior is the maximization of his/her utility from consumption. However, Katona (1960) argued that saving is "not merely a consequence of not spending but rather the result of substantial pressures directed toward achieving highly valued goals of life," (p.101) which implies that individuals have motives to save for goals other than current consumption (for example consumption in retirement and inheritance to children).

Financial goals can be considered an "end" and motivations to save in order to reach that "end" are saving motives. For this reason, saving motives influence saving behaviors (Wärneryd 1999). Thus, investigation of savings motives, which are largely internal and unobserved, can advance understanding of the potential or probable drivers of observed saving behavior. This

knowledge can inform research efforts or government policies to encourage Chinese consumers to pursue socially desirable goals such as achieving a financially secure retirement or funding children's education. For example, if the high savings rate is a response to financial uncertainty in the wake of economic reform, saving rates may moderate or decline if sustained market stability or social programs improve ability to predict future economic needs and resources. If saving motives reflect typical individual and family life-cycle needs across time, Chinese saving behavior would be linked to demographics, especially age.

In many ways, age is a "marker" for a lot of other things such as life cycle stage, the standard set of demands/resources within the context of the times and culture, location on "timeline" for achievement of various goals. Certain situations and seasons of life engender certain saving needs and patterns, presence and age of dependent children and the need to fund retirement. Saving motives can also be shaped by the social environment. What people do or are motivated to do reflect societal norms and expectations from peers, which are related to where they are in their life cycle and the cultures surrounding them. In Xiao and Fan (2002) and Yao et al. (2011), age was significantly related to saving motives such as education and retirement. These two studies, however, did not investigate whether people of different ages were more or less likely to have different demographic and economic characteristics. This study contributes to the literature by focusing on examination of how age, both directly and indirectly via mediators, affect Chinese households' saving motives.

As the life expectancy increases and the size of the elderly population increases as a percentage of the total population (Abdel-Ghany 2008), China has turned into an old-age society. Is Chinese saving behavior dominated by one motive or influenced by several motives? How does age affect saving motives of Chinese households? The purpose of this study is to answer

these questions. Findings from this inquiry can direct future research on saving motives and their effect on saving behaviors as well as policy directives. A unique feature of this study is a mediation analysis of first-person report of savings motives.

Literature Review

There have been relatively few studies on factors associated with saving motives. In existing research, household demographics, economic characteristics, and expectations, together with culture and economic environments, were found to significantly affect household saving motives.

Demographic Characteristics

Saving motives were found to differ within household life-cycle stages (Xiao and Noring 1994; Wärneryd 1999). Previous research found that age was significantly related to saving motives such as retirement (Xiao and Fan 2002; Xiao and Noring 1994) and purchasing a house (Alessie et al. 1997). Xiao and Fan (2002) found that older individuals were less likely to save for major purchases but more likely to save for retirement. Evidence from Haron et al. (2013) suggested that older people were more likely to save for social needs.

Prior research found that factors positively related to reporting a retirement motive included education (Xiao and Fan 2002; Xiao and Noring 1994), being a male, and being married (Xiao and Noring 1994). The odds of saving for children's education was found to be higher for those with fewer children (Yilmazer 2008), those with a higher education, and those who were Asian or Hispanic (Lee et al. 1997). The findings of Xiao and Fan (2002) indicated that American households were more likely than Chinese households to report major purchases as a saving motive when household size increased.

Economic Factors

Household saving motives varied by income (DeVaney et al. 2007; Haron et al. 2013). Katona (1975) stated that "the worse the current situation, the greater looms the need to maintain reserves for future emergency," (p. 233) suggesting that a having a relatively lower financial status can induce household motivation to save for emergencies. This proposition was confirmed by later research. Xiao and Noring (1994) found that middle income households were more likely to save for emergencies, whereas high income households were more likely to save for retirement.

Browning and Lusardi (1996) stated that wealthy households had different saving motives from less wealthy households. Xiao and Noring (1994) concluded that households holding the lowest 25% net worth were more likely to save for daily expenses and purchase motives. Those with the middle 50% net worth were found to be more likely to save for an emergency motive, and those with the highest 25% net worth were more likely to save for retirement.

Home ownership was found to affect saving motives. Homeowners were more likely to save for retirement (Xiao and Noring 1994). Employment status was also found to affect saving motives. Self-employed individuals were more likely to save for daily expenses, and homeowners were more likely to save for retirement and children (Xiao and Fan 2002; Xiao and Noring 1994).

Culture, Uncertainty, and Economic Conditions

Saving motives in China may be different from western countries such as the United States. Cultural variations may be a factor of such differences. For example, the "cushion hypothesis" (Hsee and Weber 1999) stated that in the socially-collectivist culture in China, the close social network serves as a "cushion" that would support its members in case they "fell." In contrast, the culture in the United States was individualistic.

Empirical studies documented differences in saving motives between Chinese and western consumers. For example, Chinese students were more likely than American students to report saving for abstract goals (Fan et al. 1998). Chinese most frequently reported saving for supporting children as a motive, whereas saving for retirement was the most frequently reported motive for American workers (Xiao and Fan 2002). Based on both aggregate and household-level data and on the imbalance in the ratio of men to women in China, Wei and Zhang (2011) argued that the primary saving motive for Chinese was competitive, in which parents of sons competed to save for sons' marriages in hopes of securing a high quality bride. A comparison analysis conducted by Yao et al. (2011) suggested that Chinese households were more likely than American households to have precautionary and education saving motives, and lower income Chinese households were more likely to be motivated to save for retirement.

Modigliani and Cao (2004) argued that China's high household savings was related to the increase in its economic growth generated by recent economic reforms and the one-child policy. These events contributed to an increase in the employment rate and changes in the old-age support system. Following this argument, China's high household savings rate would not be related to culture. In a similar vein, Chamon and Prasad (2010) suggested that the increase in the household expenditure burden for health, education, and housing due to economic reform encouraged saving for these expenses, emphasizing a precautionary motive.

Contributions of This Study

Previous research on saving motives uncovered substantial heterogeneity of saving motives. Demographic characteristics, financial resources, culture, uncertainty, and economic conditions were all found to be significant factors in reasons to save. Therefore, to understand the high savings rate in China, it was important to examine the heterogeneity of saving motives.

Households at different life-cycle stages might have different saving needs and, therefore, might have different saving motives. Previous research that examined saving motives of Chinese households reported the main effects of demographic and economic characteristics on saving motives (e.g., DeVaney et al. 2007; Xiao and Fan 2002; Xiao and Noring 1994; Yilmazer 2008). However, those research studies did not consider that people of different ages may be more or less likely to have different demographic and economic characteristics. For example, younger people might be more likely to have dependent children and older people might be more likely to be retired. The current study was conducted to address this limitation and examine how age, both directly and indirectly via mediators, affected Chinese households' saving motives. First-person report of savings motives from a nationally representative data was another contribution of this study.

Conceptual Framework and Hypotheses

The Life-Cycle Hypothesis proposes that households estimate their ability to consume over their lifetime and smooth the level of consumption over their lifetime (Ando and Modigliani 1963). This hypothesis implies the purpose for which one saves is tied to an age-related event such as saving to fund retirement. Barro (1974) and Kurz (1984) proposed the inter-generational transfer model, which implies another age-related motive: to save for a bequest. Other researchers have incorporated uncertainty in the analysis of household saving and proposed precautionary saving as a saving motive (Babiarz and Robb 2013; Carroll 1997; Hubbard et al. 1995; Kimball 1990; Lusardi 1988; Skinner 1988).

Over their lifespan, consumers strive to smooth consumption and save for various goals. Saving motives are also closely related to life cycle stages. Some motives relate to certain stages more than others. Consequently, given a certain level of economic resources, we would expect

consumer saving motives to be related to age and family composition since these two variables are most relevant to life cycle stages (Attanasio and Weber 2010). Consider a lifespan simplified to three main stages: a young adult launching a career with increasing income, a middle-aged adult at mid-career with stable income and an older adult who is retired with a fixed income. Clearly, the saving motives for these three types of consumers should be different, as their needs and aspirations at their life-cycle stage would influence their reasons to save.

Young consumers are at the start of their career and in a transition period to adulthood, in which they have a relatively greater need for current consumption. Specifically, they need to save to achieve short term goals related to current consumption such as a home, a car, and other durables. Saving for emergency should be important for all age groups. According to consumer economists (e.g., DeVaney et al. 2007; Xiao and Noring 1994), the emergency saving motive is at a lower level of the hierarchy and is usually being reached before saving for other goals. Younger consumers may be more likely to save for emergencies since it should be the first goal to accomplish before moving on to other saving motives. Many young Chinese face a peer pressure that they need to possess a home and a car to be competitive in the marriage market (Wei and Zhang 2012). For this reason, young consumers in China may be more likely to save for a home and major durables such as a car. Based on the discussion above, we propose the following hypotheses:

H1: Young consumers are the most likely among all age groups to save for (H1a) emergency, (H1b) purchasing a home and (H1c) a car and other durables.

Middle-aged consumers are more likely than their younger counterparts to have acquired a home and cars and consequently transfer their attention to longer term saving goals, such as retirement (Xiao and Noring 1994). Saving for retirement has recently become more important

for the Chinese because working environments in China have transitioned to requiring workers to take more responsibility for meeting their retirement needs (Meng 2003). Evidence shows that middle-aged consumers are more likely than older consumers to save for retirements (Yao et al. 2011). Therefore, we propose the following hypothesis:

H2: Middle-aged consumers are the most likely among all age groups to save for retirement.

In China, the official normal retirement ages are 60 for males, 55 for females (50 for female blue-collar workers) (Frazier 2013). Compared with younger consumers, older consumers (61 and above) are more likely to be retired and more likely to be concerned about how to preserve their wealth for a financially secure retirement life. As compared with younger respondents, they should be more likely to save for wealth preservation. Older consumers may be less likely to save for children's education since their children are likely to be older and have completed their education. Based on the above discussion, we propose following hypotheses:

H3: Older consumers are the most likely among all age groups to save for wealth preservation.

H4: Older consumers are the least likely among all age groups to save for children's education.

Methods

Data

Sponsored by the Citi Foundation, the China Center for Financial Research at Tsinghua University designed and conducted the first Survey of Chinese Consumer Finance and Investor Education (SCCFIE) in 2008. Questions in the SCCFIE survey were similar to the Survey of Consumer Finances in the United States. Because of some cultural difference, questions in the SCCFIE survey were modified based on Chinese culture. One example of such modification

was that the majority of information was collected in the form of categorical variables because Chinese people were generally very careful in providing information about themselves to someone they did not know (Liao et al. 2010).

During the data collection process, the population was stratified into three administrative divisions: (a) municipalities directly under the Central Government (first level), (b) cities at the sub-provincial level (second level), and (c) cities at the prefecture level (third level). Fifteen cities located in East, Middle, West and Northeast China were selected to represent urban areas in China. Among these cities, two were from the first level, five were from the second level, and eight were from the third level.

Based on the population distribution in each district in these cities, households were randomly selected from each district. Face-to-face interviews were conducted with a total of 2,095 urban households. The survey collected information on household demographic and economic characteristics as well as motives and attitudes toward savings. The respondent in each household was the person most knowledgeable about the household finances and who made the household financial decisions.

Missing values were not a serious issue in this study. Only 16 households had missing values in the variables used in the analyses. Households that did not provide information for the variables used in the analyses were excluded from this study. As a result, the total sample size was 2,079.

Dependent Variables: Saving Motives

In the survey, respondents were asked to select up to three saving motives from the following list: (a) precautionary (including emergency and medical expenses), (b) retirement, (c) children's education, (d) home (purchase and decoration), (e) wealth preservation and interest income, (f)

vehicle and other durable goods, and (g) other (unspecified). Respondents were not asked to rank the motives. The dependent variables in this study were dichotomous variables that suggested whether the respondent indicated a certain saving motive. Because "other" motives were unspecified, this category of motives was excluded from this study.

Independent Variable and Mediators

Based on the literature review, demographic variables such as age, education, household type (gender and marital status) and presence of related children affected saving motives. Economic factors such as employment status, homeownership, income and wealth were found to have influenced saving motives. Uncertainty and economic conditions also contributed to household saving motives. Households who were concerned about their future medical cost, did not have health insurance, and was uncertain about their future income should be more likely to be saving for emergencies than households who were not as concerned. In a similar vein, those who perceived retirement inadequacy should be more likely to save for retirement than those who believed they were prepared for retirement.

The independent variable used in the multivariate analysis was age of the respondent (25 or younger [reference], 25-34, 35-40, 41-50, 51-60, and 61+). The correlation between age and each of the following variables (concern about future medical cost, perceived retirement adequacy, presence of related children, household type, income and net worth) was statistically significant. These variables served as the mediators in the statistical analysis. Other variables (education, employment status, homeownership, income uncertainty, and health insurance coverage) were included in the analysis as control variables.

The degree of concern about future medical costs had three categories: not concerned (reference), concerned, and very concerned. Respondents were asked to specify whether they

had an employer-sponsored pension and/or an individual retirement account. Those with a pension were also asked to estimate whether the pension would be sufficient to support their retirement needs. Based on the responses of their financial respondent, households were categorized into three groups: have an adequate amount of pension (reference), have an inadequate pension but have individual retirement accounts, and do not have a pension or an individual retirement account.

Demographic variables included household type (married couples [reference], unmarried males, and unmarried females), and presence of related children (1=yes; 0=no [reference]). Financial variables included respondent employment status (salary earner [reference], self-employed, and not working), household annual income, and household net worth. Income and net worth were divided into quartiles with the lowest quartile being the reference group in the multivariate analysis. The amount ranges for the four income quartiles were: (a) 1,200 to 30,000 *yuan*, (b) 30,000 to 40,000 *yuan*, (c) 40,000 to 70,000 *yuan*, and (d) 70,000 to 1,500,000 *yuan*. The amount ranges for the four net worth quartiles were: (a) -90,000 to 155,000 *yuan*, (b) 155,000 to 365,000 *yuan*, (c) 365,000 to 520,000 *yuan*, and (d) 520,000 to 9,028,000 *yuan*. At the time of the survey interview, the exchange rate was about 6.83 Chinese *yuan* to1 U.S. dollar.

Other control variables included education, employment status, homeownership, income uncertainty, and health insurance coverage. Education had four categories: less than a high school diploma (reference), high school diploma or GED, some college or bachelor's degree and graduate or professional degree. Employment status included three groups: salary earner (reference), self-employed and not working. Homeownership and health insurance coverage were dichotomous variables (1=yes; 0=no [reference]). Income uncertainty included three categories (expecting <50% normal income [reference], expecting 50 to 79% normal income,

and expecting 80% normal income or more).

Method of Analysis

Univariate analyses were conducted to identify the percentage distribution of households that selected each of the saving motives. Cross-tabulations of the saving motives by household characteristics were performed to examine the percentage distribution of each of the six saving motives for different households. Chi-square tests were used to examine the significance of associations between saving motives and household characteristics.

The main objective of this study was to disentangle the age effect on saving motives of Chinese households. Mediation analysis was used to assess a causal relationship. To determine that the causal relationship of age on saving motives was not spurious, the relationship should be ideally maintained when all extraneous variables were held constant. This would be very hard to do in social science research, where observational data have often been used. The difficulty also came from the limitation of existing data, which did not include all variables and those variables included contained missing values.

Although there has been no consensus on the necessary and sufficient conditions for inferring causality, based on the work by Popper (1959), three conditions for inferring causality have been generally accepted: (a) the independent variable precedes the dependent variable; (b) the independent variable and the dependent variable are related; and (c) no confounding factors explain the causal relationship of the independent variable on the dependent variable (e.g., one variable causes both the independent variable and the dependent variable). Unlike longitudinal and experimental data, cross-sectional data do not include time precedence, which makes it difficult (although not impossible) to confirm a causal relationship. The cross-tabulations of the saving motives by age showed that age and saving motives were related. The conceptual

framework in this study indicated this relationship from the Life Cycle Hypothesis perspective. The relationship between age and saving motives was proposed to be causal. Because age follows a natural pattern and cannot be caused by either the mediators or the dependent variables, there should be no reverse causation or confounding effect, assuming the sample selection was free of bias.

It was likely that other demographic and economic characteristics modified the relation of age to saving motives so that such relation differed at different values of each of these factors and, therefore, took away the predictive power of age on saving motives. For example, a certain age group may be more or less likely to have related children at home or to have certain economic resources and concerns. The purpose of this study is to examine age differences in saving motives. In this study, there were multiple dependent variables and, for each variable, there were multiple mediators and other control variables. The mediation analysis for each dependent variable used information from the following three regression equations:

$$Y = i_1 + cX + e_1 \qquad (1)$$

$$Y = i_2 + c'X + \sum_{j=1}^{n}(b_j M_j) + \sum_{k=1}^{m}(d_k Z_k) + e_2 \qquad (2)$$

$$M_j = i_{3j} + a_j X + \sum_{k=1}^{m}(d_k Z_k) + e_3 \qquad (3)$$

where Y, a certain saving motive; X, age; M_j, mediators; Z_k, other control variables.

Mediation was composed of two parts: the relation of X to M_j (a_j) and the relation of M_j to Y (b_j). The total effect of X on Y (c) was the direct effect (c') plus the indirect effect ($\sum a_j * b_j$). According to Baron and Kenny (1986), a variable functions as a mediator when a) c is significant; b) a_j is significant; and c) b_j is significant. If c' became insignificant, the effect of X on Y would be completely mediated by mediators. If c' remained significant, the effect of X on Y would be partially mediated by mediators.

In this study, the dependent variables were saving motives, which were all dichotomous. Logistic regressions were used to estimate the coefficients of the variables in the three regressions. The equivalency discussed above ($c=c'+\sum a_j*b_j$) does not hold for categorical models such as logistic regression because the error variance in logistic regressions is fixed. It was not until 2012 when Iacobucci (2012) addressed this important topic of the most accurate mediation analysis when mediators and dependent variables are categorical. In this study, regression coefficients were standardized prior to estimating mediation, following the solution proposed by (Iacobucci 2012).

To summarize, a mediation analysis was conducted to test whether age elicited the probability of respondents to report certain saving motives indirectly through other factors. Since all variables were categorical and several mediation effects were tested, a mediation analysis on categorical variables (Iacobucci 2012) was conducted to investigate the direct and indirect effect of age on the odds of reporting certain saving motives in multiple mediator models (Preacher and Hayes 2008). The relationship between age and each saving motive was tested for statistical significance as the first step in investigating the existence of the overall effect that may be mediated by other factors. Next, the relationship between age and other factors was tested for statistical significance to identify factors that potentially mediated the effect of age on saving motives. As the next step, multiple mediators were introduced to and controlled for in the multivariate model (Preacher and Hayes 2008). Finally, standardized *z*-tests (Iacobucci 2012) were conducted to indicate whether a mediation effect existed.

Results

Sample Description

The three most frequently reported saving motives by Chinese respondents are saving for emergency (precautionary) (63.8%), children's education (60.0%), and retirement (54.4%) (Table 1). Approximately one-third (33.4%) of the respondents reported a motive to preserve wealth, 28.5% of the respondents reported a home purchase and decoration saving motive, and 18.4% reported a motive to save for auto and major durables.

[Insert Table 1 about here]

Table 2 presented sample characteristics and Chi-square test results between saving motives and potentially associated factors. The majority (72.7%) of the respondents were between 25 and 50 years of age. Only 4.0% were older than 60. Most respondents did not go to college (18.6% had a less than high school education and 43.8% completed high school). Only 1.9% had a graduate degree. An overwhelming majority (77.2%) of the respondents were married. The percentage of unmarried males and unmarried females were about the same (11.1% and 11.7%, respectively). About three-fifths (59.4%) of the respondents had dependent children. Most respondents worked for others (58.4%). The majority of the respondents reported an average level of concern about future medical costs (53.3%) and felt that their retirement income from pensions was inadequate (68.9%).

[Insert Table 2 about here]

Saving Motives by Sample Characteristics

The precautionary saving motive appeared to be the most popular motive for all age groups. More than two-thirds (67.2 to 74.0%) of respondents who were older than 40 reported this saving motive. Among the youngest respondents, more than 56.8% did so. For respondents older than 40, the next most reported saving motive was retirement, followed by wealth preservation; whereas younger respondents favored children's education (80.4% for the 35-40 age group and 64.6% for the 25-34 age group). Children's education was the first saving priority (80.2%) for those with dependent children. The next most reported saving motives for these parents were precautionary (61.2%) and retirement (54.3%).

The percentage of respondents who reported home as a saving motive generally decreased with age, with the percentage ranging from 43.2% for the youngest age group (<25) to 8.4% for the oldest group (>60). The same was true for the auto and major durables. The majority of respondents aged 35 or older reported retirement as a saving motive. Surprisingly, 56.6% of the oldest respondents also reported such a saving motive. As expected, older respondents appeared most likely to report a motive to save for emergencies (73.5%). In contrast, they were the least likely among all age groups to report saving for children's education, home, and auto and major durables. An overwhelming majority (80.2%) of those who had dependent children in the household reported to save for children's education.

Mediation Analysis Results

Table 3 shows the direct and indirect effects of age on respondents' odds of reporting each saving motive. The effect of control variables were not shown in the table since the focus of this paper was on the direct and indirect effect of age on saving motives. After finding significant indirect effects, there remained significant direct effects of age on four out of six saving motives. Therefore, the mediators partially mediated the effect of age on the following motives: children's

education, retirement, home, and auto and major durables. However, there was no longer a significant direct effect of age on the precautionary saving motive and the wealth preservation saving motive. In other words, the mediators perfectly mediated the effect of age on these two saving motives.

[Insert Table 3 about here]

Precautionary saving motive. Independent of their age differences in all mediators, the odds of those in older age groups reporting a precautionary saving motive were as large as the reference group (younger than 25). This result was inconsistent with Hypothesis 1a. However, age difference in respondents affected their odds of reporting a precautionary saving motive through the age differences in some mediators. The total effect of age on a saving motive is equal to $e^{(c'+\sum a_j * b_j)}$. In the model where the precautionary saving motive was the dependent variable, because the direct effect was not significantly different from zero, the total effect is equal to the indirect effect. For example, the 25-34 age group was 2.3 times as likely (intermediate result, not shown in Table 3) as the reference group to have related children at home and, because of this difference, respondents in this age group were 80.7% as likely (Table 3) to have a precautionary saving motive as the reference age group. The 25-34 age group was 1.8 times as likely as the reference age group to be in the highest income quartile, which made this group 63.3% as likely as the reference group to report a precautionary saving motive. Because the 25-34 age group was also 3.3 times as likely as the reference age group to be in the highest net worth quartile, they were found to be 1.7 times as likely as the reference group to report a precautionary saving motive.

Home purchase and decoration saving motive. Partially consistent with Hypothesis 1b, the youngest age group (<25) were the most likely to report a home purchase and decoration saving motive, compared with two older groups (41-50 and >60). Respondents in the 41-50 age group were 55.5% as likely and respondents in the oldest age group were 21.8% as likely as the <25 age group to report a home purchase and decoration saving motive (Table 3). The age difference in respondents affected their odds of reporting this saving motive through the age differences in some mediators. Because the 41-50 age group was 27.8% as likely as the reference group to perceive an inadequate retirement and not have a plan to save for retirement, respondents in this age group were 1.6 times as likely (Table 3) to report a home purchase and decoration saving motive as the reference age group. The 41-50 age group was 3.3 times as likely as the reference group to have related children at home and, because of this difference, respondents in this age group were 73.9% as likely (Table 3) to report a home purchase and decoration saving motive as the reference age group. The 41-50 age group was 0.7% as likely as the reference group to be an unmarried female and, because of this difference, respondents in this age group were 14.5% as likely (Table 3) to report a home purchase and decoration saving motive as the reference age group.

Automobile and major durables saving motive. Partially consistent with Hypothesis 1c, the youngest age group (<25) were the most likely to report a car and other durables saving motive, except for the 25-34 age group. Respondents in the 35-40 age group were 59.3% as likely and respondents in the 41-50 age group were 51.8% as likely as the youngest age group to report a car and other durables saving motive (Table 3). Older age groups were a lot less likely (21.2% and 8.3% as likely for the oldest two age groups) than the <25 age group to save for a car and other durables. The age difference in respondents affected their odds of reporting this saving

motive through the age differences in some mediators. For example, because the 35-40 age group was 2.1 times as likely as the reference group to be very concerned about their future medical costs, respondents in this age group were 54.8% as likely (Table 3) to report a car and other durables saving motive as the reference age group. Because the 35-40 age group was 11.9 times as likely as the reference group to have related children at home, respondents in this age group were 46.1% as likely (Table 3) to report a car and other durables saving motive as the reference age group. The 35-40 age group was also 3.4 times as likely as the reference group to be in the highest net worth quartile; because of this difference, these respondents were 1.8 times as likely (Table 3) to report a car and other durables saving motive as the reference age group.

Retirement saving motive. Consistent with Hypothesis 2, middle-aged respondents were the most likely among all age groups to save for retirement. The 41-50 and the 51-60 groups were 2.3 times and 2.7 times, respectively, as the <25 reference age group to report a retirement saving motive (Table 3). The age difference in respondents affected their odds of reporting this saving motive through the age differences in some mediators. For example, the 51-60 age group was 2.1 times as likely as the reference group to be very concerned about their future medical costs; because of this difference, respondents in this age group were 1.7 times as likely (Table 3) to report a retirement saving motive as the reference age group. Because the 51-60 age group was 21.4% as likely as the reference group to perceive an inadequate retirement and not have a plan to save for retirement, these respondents were 1.7 times as likely (Table 3) to report a retirement saving motive as the reference age group.

Wealth preservation saving motive. After finding significant indirect effects, there was no longer a significant direct effect of age on the wealth preservation saving motive (Table 3). This result was inconsistent with Hypothesis 3. The effect of age was completely mediated by other

factors. The >60 age group was 18.7% as likely as the <25 age group to perceive an inadequate retirement and not have a plan to save for retirement; as a result, respondents in the oldest age group were 2.0 times as likely (Table 3) to report a wealth preservation saving motive as the youngest age group. Because the >60 age group was also 45.9% as likely as the <25 age group to have related children at home, they were found to be 1.4 times as likely at the <25 age group to report a wealth preservation saving motive (Table 3).

Education saving motive. Consistent with Hypothesis 4, >60 age group was the least likely to report an education saving motive (odds ratio=0.355). The age difference between this group and the reference group also affected their odds of reporting an education saving motive through their age differences in presence of children, household type, and income. Because the >60 age group was 45.9% as likely as the <25 age group to have related children at home, they were found to be 23.6% as likely as the <25 age group to save for children's education (Table 3). The oldest respondents were also less likely as the youngest respondents to be unmarried males (2.1% as likely) and unmarried females (1.7% as likely). As a result, these respondents were 11.4 times and 23.4 times, respectively, as the youngest respondents to save for children's education.

Discussion and Implications

Discussion

This study examines self-reported saving motives of urban Chinese consumers, using data from a national survey conducted in China in 2008. The three most frequently reported saving motives are saving for emergency, children's education, and retirement. This investigation of savings motives, which are largely internal and unobserved, contributes to the advancement of understanding of the probable drivers of the observed high saving rate in China.

Mediation analysis results supports the hypotheses that 1) middle-aged consumers are the most likely among all age groups to save for retirement, and 2) older consumers are the least likely to save for children's education among all age groups. Results from the mediation analysis also partially supports the hypotheses that 1) young consumers are the most likely among all age groups to save for purchasing a home, and 2) young consumers are the most likely among all age groups to save for purchasing a car and other durables. Saving motives are found to track traditional life-cycle stages in a modern economy in a hierarchical fashion. Acquisitions of the youth (home, auto and major durable goods) provide a foundation for the aged and older consumers no longer seek what the young seek.

Mediation analysis results indicate that age indirectly affects the precautionary saving motive through concerns about future medical costs, perceived retirement adequacy, presence of related children, income, and net worth. Presence of related children, household type, and net worth mediate the effect of age on saving for children's education. Factors that mediate the age effect on the retirement saving motive include concerns about future medical costs, perceived retirement adequacy, and net worth. Age indirectly affects the wealth preservation motive through perceived retirement adequacy, presence of related children, and net worth. Age also indirectly affects the motive to save for purchasing a home through perceived retirement adequacy, presence of related children, household type, and net worth. Concerns about future medical costs and net worth mediate the effect of age on saving for purchasing a car.

Implications for Future Research

The main purpose of this research was to advance our understanding of saving motives of Chinese consumers based on previous research (Yao et al. 2011; Xiao and Fan 2002). This paper employs Chinese national survey data to investigate the effect of age and other factors on the

first-person report of urban household saving motives. Findings from this study extend our understanding of urban Chinese household saving motives and form a basis for further study of this population. Results from this study show that saving motives reflect typical individual and family life-cycle needs. Chinese saving behavior should be related to demographics and the size of age groups. As China develops into an old-age society, emergencies and retirement would be the main drivers to save. Researchers interested in expanding knowledge on saving motives can conduct cross-cultural studies to investigate whether distinct and important cultural differences affect the age differences on saving motives between those with and without Chinese heritage.

The "cushion hypothesis" (Hsee and Weber 1999) works in the socially-collectivist culture in China when members of the close social network are not only willing to but also able to serves as a "cushion" in case other members "fell". Results from this study show that the most frequently reported saving motive for all age groups is for emergencies. Rapid social-economic changes in China, especially during the past decade, may have increased concerns about future financial stability for most consumers and, therefore, may have financially disabled them to serve as a "cushion" for others. The one-child policy implemented since 1980s may have led to a culture shift. The view as being a financial cushion or relying on one may have changed. Researchers interested in expanding knowledge on saving motives can further investigate whether the rapid changes in recent Chinese economy has caused a cultural shift to a certain extent and how this shift has influenced consumer saving motives.

Future research should continue to investigate the saving motives and saving behavior of Chinese consumers. It would be useful to control for regional and ethnical variables. However, available data do not include such information. Although most Chinese citizens live in rural areas, information regarding Chinese rural households is not included in the data. It would be

helpful to collect data on rural households in future studies to investigate the similarities and differences between rural and urban Chinese households, which may provide further implications to researchers and Chinese policymakers.

Implications for Policymakers

In the last four decades, the Chinese government has enforced a series of economic policies to transform the planned economy into a market economy. Job security has been decreased thereafter. The current flexible system of income distribution and employment structure has been widely accepted. The state no longer guarantees a job for college graduates and market competition has increased significantly. As a result, individual income has increased and the level of living has been improved. At the same time, however, uncertainty regarding future income and expenses has also increased. Health care and education expenses that used to be taken care of by the government or employers have now become partial responsibilities of consumers.

If saving motives do influence saving behaviors (Wärneryd 1999), factors that affect saving motives are important to explore. Two-thirds (66.6%) of the total population has concerns about future medical costs. The proportion reporting retirement inadequacy accounts for 68.9% of the population. Mediation analysis results show that these factors significantly affect all saving motives except for children's education. For example, young respondents are less likely than middle-aged respondents to perceive an inadequate retirement and, as a result, they are also less likely to save for emergencies. Middle-aged respondents are more likely than young respondents to report concerns about future medical costs and, as a result, they are also more likely to save for emergencies and retirement. Concerns about future medical costs and perceived retirement

adequacy are two important factors for policymakers who have an intention to reduce the high saving rate in China.

If the high savings rate in China is a response to financial uncertainty in the wake of economic reform, saving rates may decline if sustained market stability or social programs improve ability to predict future economic needs and resources. Results from this study show that concerns about future medical costs and perceived retirement adequacy influence the precautionary and retirement saving motives, which are the most reported by older consumers. As the proportion of older consumers increase in China, policies should be made to enhance sustained market stability and/or improve social programs in order to improve ability to predict future economic needs and resources and, consequently, help moderate or reduce the high consumer saving rate in the current economy.

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Table 1
Percentage Indicating Each of the Saving Motives

Saving Motive	Number of Households	Percent
Precautionary	1,336	63.8%
Education	1,258	60.0%
Retirement	1,139	54.4%
Wealth preservation	699	33.4%
Home purchase and decoration	597	28.5%
Auto and major durables	386	18.4%
Other	42	2.0%

Note. N = 2,079. Multiple responses are allowed for saving motive questions.

Table 2

Sample Characteristics and Percent Distribution of Households Selecting Each Motive (numbers in percentage)

Sample Characteristics	Total Households	Precautionary	Education	Retirement	Wealth Preservation	Home	Auto & Major Durables
Age							
< 25	12.8***	56.8*	41.0***	42.5***	39.1*	43.2***	29.0***
25-34	30.2***	61.7	64.6**	43.1***	37.3*	33.5***	24.9***
35-40	20.1***	60.5	80.4***	58.9*	27.0**	26.1*	16.5
41-50	22.4***	67.2*	65.2**	65.2***	30.9	21.2***	13.7**
51-60	10.5***	74.0***	33.8***	68.5***	34.3	23.3	6.9***
> 60	4.0***	73.5*	22.9***	56.6	28.9	8.4***	2.4***
Education							
Less than High School	18.6***	67.7	53.5**	51.9	30.5	20.4***	9.3***
High school	43.8***	65.2	64.4***	59.8***	31.9	27.0	17.0
Bachelor or Some College	35.7***	60.5*	58.1	49.7**	36.4*	33.6***	24.5***
Graduate Degree	1.9***	57.5	57.5	40.0	40.0	42.5*	25.0
Household Type							
Unmarried Male	11.1***	60.0	40.0***	44.8**	41.3**	40.4***	29.1***
Unmarried Female	11.7***	62.3	35.7***	46.3**	38.9	42.2***	26.6***
Married Couples	77.2***	64.6	66.5***	57.0***	31.4***	24.6***	15.6***
Presence of Related Children							
Yes	59.4***	61.2**	80.2***	54.3	28.8***	25.4***	16.9*
No	40.6***	67.7**	30.5***	54.4	40.1***	32.9***	20.6*
Employment Status							
Salary Earner	58.4***	64.1	59.8	54.0	34.6	31.4***	19.4
Self-employed	25.9***	58.2**	67.1***	53.9	33.8	26.4	19.0
Not Working	15.7***	72.2***	48.9***	56.3	28.1*	20.8***	14.1*
Homeownership							
Yes	85.0***	58.5*	60.6	56.2***	33.8	25.7***	18.8
No	15.0***	64.8*	56.9	44.1***	31.2	43.4***	16.1
Income							
Lowest Quartile	22.5***	69.4**	52.1***	49.8*	31.2	22.2***	11.8***
Second Quartile	31.1***	65.3	62.9	57.6*	34.1	29.1	15.8*
Third Quartile	26.5***	63.8	66.2***	52.9	32.6	32.2*	22.9**
Highest Quartile	20.0***	55.2***	56.1	56.4	35.9	29.4	24.1***

Net Worth							
Lowest Quartile	25.2***	61.5	59.2	45.4***	29.4*	30.7	15.1*
Second Quartile	29.4***	64.2	61.2	57.8*	31.6	29.5	16.4
Third Quartile	24.3***	64.4	64.2*	57.4	37.6*	27.1	19.4
Highest Quartile	21.1***	65.6	54.4*	56.7	35.8	25.7	24.2***
Concerned about Future Medical Cost							
Not Concerned	33.5***	56.2***	59.5	51.7	37.1*	28.9	43.9***
Concerned	53.3**	65.6	62.0	53.4	32.9	30.2	49.1
Very Concerned	13.3***	76.1***	53.3*	64.9***	26.1**	20.3***	7.1***
Perceived Retirement Adequacy							
Adequate	31.1***	63.2	58.3	56.7	37.4**	31.7*	17.8
Inadequate with Plans	40.2***	62.6	57.4	58.6**	35.9*	28.4	19.5
Inadequate without Plans	28.7***	66.3	65.4**	45.8***	25.5***	25.0*	17.6
Health Insurance Coverage							
Yes	89.2***	57.1*	59.3	55.2*	34.3*	28.9	19.6***
No	10.8***	64.6*	66.1	47.3*	25.9*	23.2	8.5***
Income Uncertainty							
<50% normal income	26.0***	58.4**	63.1	52.1	26.4***	36.7***	21.7*
50-79% normal income	34.1***	60.9*	64.0**	55.5	33.5	26.3	20.3
≥80% normal income	40.0***	69.8***	54.6***	54.9	38.0***	24.6**	14.5***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note. Sample size = 2,079

Table 3

Mediation of the Effect of Age on Each Saving Motive through Other Factors (numbers in odds ratio)

Age	Mediators	Precautionary	Education	Retirement	Wealth Preservation	Home	Auto & Major Durables
				Direct Effect			
Age (reference category: <25)							
25-34		1.356	1.610 *	0.934	0.915	0.851	0.868
35-40		1.246	1.695 *	1.854 **	0.653	0.739	0.593 *
41-50		1.443	1.093	2.336 ***	0.688	0.555 *	0.518 *
51-60		1.633	0.559 *	2.706 ***	0.668	0.625	0.212 ***
>60		1.445	0.355 **	1.859 *	0.526	0.218 ***	0.083 ***
				Indirect Effect			
Age 25-34	**Concerned about Future Medical Cost (reference category: Not Concerned)**						
	Concerned	1.014	0.998	0.999	0.997	1.006	0.988
	Very Concerned	1.064	0.973	1.039	0.972	0.985	0.936
	Perceived Retirement Adequacy (reference category: Adequate)						
	Inadequate with Plans	0.968	1.097	0.940	1.010	1.074	0.988
	Inadequate without Plans	0.829	0.951	1.257 *	1.373 *	1.293 *	0.882
	Presence of Related Children	0.807 *	4.684 ***	0.937	0.686 **	0.804 *	0.771 *
	Household Type (reference category: Married Couple)						
	Unmarried Male	0.862	6.563 **	1.034	0.663	0.469	0.705
	Unmarried Female	0.702	16.448 ***	0.996	0.711	0.257 *	0.655
	Income (reference category: Lowest Quartile)						
	Second Quartile	0.944	1.088	1.072	1.008	1.069	1.023
	Third Quartile	0.969	1.056	1.011	0.980	1.036	1.037
	Highest Quartile	0.633 *	1.081	1.212	0.927	1.153	1.126
	Net Worth (reference category: Lowest Quartile)						
	Second Quartile	1.021	1.060	1.377 *	1.059	1.421	1.064
	Third Quartile	1.124	0.992	1.170	1.364 *	1.171	1.114

	Highest Quartile	1.695	*	0.561	*	1.294		1.385		1.063		1.803	*
Age 35-40	**Concerned about Future Medical Cost (reference category: Not Concerned)**												
	Concerned	1.169		0.978		0.991		0.963		1.076		0.873	
	Very Concerned	1.751	*	0.780		1.416		0.773		0.871		0.548	*
	Perceived Retirement Adequacy (reference category: Adequate)												
	Inadequate with Plans	0.952		1.152		0.910		1.015		1.115		0.982	
	Inadequate without Plans	0.844		0.955		1.204		1.243		1.217		0.893	
	Presence of Related Children	0.527	*	9.088	***	0.825		0.326	***	0.522	*	0.461	*
	Household Type (reference category: Married Couple)												
	Unmarried Male	0.775		25.497	**	1.059		0.492		0.272		0.548	
	Unmarried Female	0.567		88.676	***	0.994		0.578		0.192		0.508	
	Income (reference category: Lowest Quartile)												
	Second Quartile	0.928		1.115		1.093		1.011		1.090		1.030	
	Third Quartile	0.874		1.266		1.047		0.917		1.166		1.169	
	Highest Quartile	0.594	*	1.092		1.244		0.918		1.176		1.145	
	Net Worth (reference category: Lowest Quartile)												
	Second Quartile	1.011		1.030		1.276	*	1.030		1.195		1.032	
	Third Quartile	1.453	*	0.990		1.210		1.516	*	1.511	*	1.140	
	Highest Quartile	1.975	*	0.581	*	1.305		1.400		1.065		1.823	*
Age 41-50	**Concerned about Future Medical Cost (reference category: Not Concerned)**												
	Concerned	1.280	*	0.965		0.986		0.942		1.123		0.806	*
	Very Concerned	2.018	*	0.732		1.546	*	0.725		0.841		0.470	*
	Perceived Retirement Adequacy (reference category: Adequate)												
	Inadequate with Plans	0.935		1.212		0.880		1.021		1.159		0.976	
	Inadequate without Plans	0.667	*	0.897		1.554	*	1.679	*	1.596	*	0.764	
	Presence of Related Children	0.743	*	8.453	***	0.914		0.594	***	0.739	*	0.698	*
	Household Type (reference category: Married Couple)												
	Unmarried Male	0.764		30.527	**	1.063		0.473		0.253		0.530	
	Unmarried Female	0.616		45.964	***	0.995		0.627		0.145	*	0.561	
	Income (reference category: Lowest Quartile)												
	Second Quartile	0.986		1.021		1.018		1.002		1.017		1.006	

	Third Quartile	1.042		0.931		0.986		1.027		0.954		0.954		
	Highest Quartile	0.802		1.038		1.097		0.964		1.071		1.059		
	Net Worth (reference category: Lowest Quartile)													
	Second Quartile	1.011		1.030		1.377	*	1.030		1.196		1.032		
	Third Quartile	1.132		0.991		1.181		1.517	*	1.182		1.121		
	Highest Quartile	1.657		0.605	*	1.280		1.366		1.061		1.677	*	
Age 51-60	**Concerned about Future Medical Cost (reference category: Not Concerned)**													
	Concerned	1.055		0.992		0.997		0.987		1.026		0.954		
	Very Concerned	2.047	*	0.780		1.714	*	0.774		0.871		0.429	*	
	Perceived Retirement Adequacy (reference category: Adequate)													
	Inadequate with Plans	0.907		1.325		0.829		1.031		1.242		0.965		
	Inadequate without Plans	0.615	*	0.877		1.700	*	1.867	*	1.755	*	0.723		
	Presence of Related Children	1.199		0.272	**	1.056		1.374	*	1.202		1.245		
	Household Type (reference category: Married Couple)													
	Unmarried Male	0.728		56.568	**	1.075		0.414		0.197		0.473		
	Unmarried Female	0.622		42.292	***	0.995		0.633		0.152	*	0.568		
	Income (reference category: Lowest Quartile)													
	Second Quartile	0.958		1.065		1.053		1.006		1.051		1.017		
	Third Quartile	1.030		0.949		0.990		1.019		0.967		0.966		
	Highest Quartile	0.687		1.066		1.171		0.940		1.124		1.102		
	Net Worth (reference category: Lowest Quartile)													
	Second Quartile	1.039		1.110		1.775	*	1.109		1.877	*	1.118		
	Third Quartile	1.706	*	0.979		1.490		1.975	*	1.493		1.315		
	Highest Quartile	2.531	*	0.397	*	1.574		1.773		1.114		2.348	*	
Age >60	**Concerned about Future Medical Cost (reference category: Not Concerned)**													
	Concerned	0.804		1.032		1.012		1.055		0.902		1.210		
	Very Concerned	2.004	**	0.811		1.669	*	0.806		0.890		0.403	*	
	Perceived Retirement Adequacy (reference category: Adequate)													
	Inadequate with Plans	0.905		1.330		0.827		1.031		1.246		0.965		
	Inadequate without Plans	0.589	*	0.867		1.782	*	1.973	*	1.845	*	0.403	*	
	Presence of Related Children	1.223		0.236	*	1.063		1.423	*	1.227		1.276		

Household Type (reference category: Married Couple)							
Unmarried Male	0.826	11.389	**	1.044	0.587	0.376	0.637
Unmarried Female	0.671	23.358	***	0.996	0.681	0.314	0.621
Income (reference category: Lowest Quartile)							
Second Quartile	1.217	0.751		0.790	0.972	0.798	0.925
Third Quartile	1.408	0.550		0.890	1.248	0.677	0.673
Highest Quartile	1.352	0.950		0.881	1.051	0.910	0.925
Net Worth (reference category: Lowest Quartile)							
Second Quartile	1.008	1.023		1.134	1.023	1.148	1.025
Third Quartile	1.069	0.995		1.094	1.138	1.094	1.064
Highest Quartile	1.056	0.947		1.027	1.034	1.006	1.043

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Note. Sample size = 2,079