

## Household Saving Motives: A Cross-Country Comparison

**Postprint.**

**For published article see:**

**Yao, R., Wang, F., Weagley, R. O., & Liao, L. (2011). Household saving motives: Comparing American and Chinese consumers. *Family and Consumer Sciences Research Journal*, 40(1), 28-44.**

### **Abstract**

Using the 2008 Survey of Chinese Consumer Finance and Investor Education and the 2007 Survey of Consumer Finances, this study compared saving motives between Chinese and American urban households. Results showed that, compared with their American counterparts, Chinese households were more likely to report precautionary and education saving motives; and Chinese households with lower incomes were more likely to report a retirement saving motive. Chinese households' stronger motivation to save serves as an explanation of the greater saving rates in China, compared to the United States. The results have implications for policy makers, financial professionals and consumer finance researchers.

*Keywords:* China, relative income, saving motive, savings rate

## **Introduction**

The importance of savings as a means to provide household financial security has been widely recognized by researchers and practitioners (Rha, Montalto, & Hanna, 2006). There are many motivations to save. Precautionary savings provides households with an emergency cushion in case of a sudden loss of income or an unexpected spike in expenditures. Retirement savings enable households to maintain a relative stable lifetime level of living during retirement. It is also likely that households refrain from current consumption to save for a house down payment, or for children's education. Savings is one of the critical tools that households utilize to achieve financial goals and to improve financial well-being. Aggregate household savings can also affect the macroeconomic performance of a country. However, saving practices vary dramatically among households both within a country and, especially, across countries.

Differences in household saving behaviors between Chinese and American households are indicated by the variations in saving rates of China and United States. According to the National Bureau of Statistics of China (1999-2008), the Chinese household saving rate, measured by the ratio of household savings over household disposal income, has been greater than 25% since the early 1990s. Conversely, using a comparable measure of household saving rate, the Bureau of Economic Analysis (2011) reported that the American household saving rate has been lower than 10% since 1988 as well as, at times, negative.

This difference in savings rates between the two countries may be the result of differences in saving motives. The theory of reasoned action postulates that intention affects behavior (Fishbein & Ajzen, 1975). Saving motives, as one form of intention, have been found to affect saving behaviors (Warneryd, 1999). Compared with people without saving motives, those

with saving motives would be more likely to undertake the related saving behavior (e.g. Huston & Chang, 1997).

Examination of data from one single country, especially cross-sectional data, provides very limited insight into the effects of policy variations or differences in financial industries, because no alternative exists to provide a comparison or contrast (Borsch-Supan & Lusardi, 2003). Despite the importance of cross-country studies, this type of research on saving motives is rare. Existing studies have used regional data that were not representative of a country (e.g. Xiao & Fan, 2002). This study is the first to use two national datasets to compare the differences in household saving motives between Chinese and Americans. Maslow's (1954) hierarchy of needs is used as a conceptual framework. Studying the differences in household saving motives between Chinese and Americans can help explain variation in saving rates across these two countries. Insights gained from the study can help policy makers, financial professionals and researchers improve household financial well-being.

## **Literature Review**

### **Saving Motives of Households in Different Countries**

Previous literature found that household saving motives vary from country to country, implying that culture, as well as the economic environment, influence household saving motives. Bucks, Kennickell, Mach, and Moore (2009) studied the frequency of self-reported saving motives using the 1998 - 2007 Survey of Consumer Finances data. The two most frequently reported saving motives were saving for retirement and precautionary saving motives. Saving for education was the third most reported motive in all survey years except in 2007, when the frequency of the motive to save for purchases exceeded that of the motive to save for education.

Alessie, Lusardi and Aldershof (1997) analyzed the 1987-1989 Socio Economic Panel data in Holland. Their findings showed a hierarchy of saving motives. In order from the most to the least likely, households reported precautionary motives, followed by motives of purchasing a house, purchasing a car, and retirement savings. Johnson (1999) examined saving motives of new Canadians of Asiatic origins. The three most frequently reported saving motives were, in order, precautionary motive, children's education, and purchasing a house. Harris, Loundes, and Webster (2002) studied the determinants of saving motives for Australian families and found the three most frequently reported saving motives were saving for retirement, holidays and rainy days, followed by purchasing a house, paying off debts, education, purchasing durable goods and to leave a bequest.

Very few studies have compared cross-county differences in saving motives. Fan, Xiao, and Xu (1998) examined the differences in saving motives between Chinese and American college students. Data were collected from college students in Shanghai and Guangzhou in China and Minnesota in the United States. Findings indicated that Chinese students were more likely to report abstract saving motives (e.g. "for better things in the future"), whereas American students were more likely to report concrete saving motives (e.g. saving for purchasing durable goods). Using data from the 1998 SCF and data collected in Guangzhou, China, Xiao and Fan (2002) explored differences in six saving motives between Chinese and Americans urban workers. The most frequently reported motive for Chinese workers was saving for children, whereas retirement was the most frequently reported motive for American workers. The variations in saving motives were attributed to differences in culture and economic development.

According to the classification of Chinese culture by Fan (2000), thrift and being conservative are two core values of the Chinese population. These two values would contribute

to positive attitudes toward saving. In addition, Chinese are likely to be more future oriented and, therefore, more likely than Americans to report saving for retirement as a savings motive (Fan, 2000).

### **Factors that Affect Household Saving Motives**

Browning and Lusardi (1996) recognized a substantial heterogeneity in saving motives. The authors stated that it was impossible for all saving behaviors of all members of a population at a given time to be explained by one single saving motive. This comment implies that individuals with different characteristics have different saving motives. However, there have been relatively few studies on the effect of household characteristics on saving motives. Using the 1986 SCF data, Xiao and Noring (1994) investigated the effect of household characteristics on perceived saving motives. Income and wealth were found to influence household saving motives.

Xiao and Fan (2002) and DeVaney, Anong, and Whirl (2007) also found that household saving motives varied by income. Xiao and Fan (2002) investigated saving motives of urban Chinese and American workers. Results of logistic analysis showed that income had an effect on saving motives reported by both Chinese and Americans. Compared with the top quartile income group, both Chinese and American households in the bottom 30%, as defined by income, were more likely to report saving for daily expenses. The association between income and saving for major purchases in China and in the United States was inconclusive, which could be evidence that the level of saving for major purchases when considered in a hierarchical order differed between Chinese and Americans. For Chinese households, income had a positive effect on reporting saving for major purchases. For American households, income was negatively related to saving for major purchases. They also found that income had a negative influence on Chinese

households' retirement saving motive, and a positive influence on saving for children. Compared to American households from the top income quartile, those from the other three groups were less likely to report saving for investment. DeVaney et al. (2007) used data from the 2001 SCF to analyze the likelihood of movement along the hierarchy of saving motives, and factors that determined the movement. Results of continuation ratio analysis showed that household income was positively related to the movement from both no savings level and saving for luxuries to higher level motives.

In addition, life-cycle stages, age, gender, education, and homeownership were also found to affect household saving motives (Alessie et al., 1997; DeVaney et al., 2007; Horioka & Watanabe, 1997; Lee, Hanna, & Siregar, 1997; Warneryd, 1999; Xiao & Fan, 2002; Xiao & Noring, 1994). Using data from the Socio-Economic Panel (SEP) in the period 1987-89, Alessie et al. (1997) examined household wealth and income in the Netherlands. They found that age had an influence on household saving motives. As compared with households with the head at an age above 40, those under 40 years old were more likely to perceive purchasing a house as a saving motive. Using Chinese and American data in 1998, Xiao and Fan (2002) found that age had a negative effect on both Chinese and Americans households reporting saving for major purchases. In addition, they concluded that age was positively related to reporting a retirement motive for American workers. DeVaney et al. (2007) found age to have a negative effect on the progress from no savings, to basic needs and security levels, and to higher level motives, whereas age had a positive effect on the movement from saving for societal and saving for luxuries to higher level motives. Using data from the 1983–1986 SCF, Yilmazer (2008) studied the effect of children's college expenses on household savings. Cross-tabulation was conducted to study the relationship between household saving motives and the number of children. She found that the number of

children was negatively related to the percentage of households perceiving children's education as the most important reason for saving. Chamon, Liu and Prasad (2010) examined income uncertainty and household savings. Their results suggested that younger households are more likely to be motivated to save for emergencies and by the time they reach mid-forties, the retirement saving motive is stronger.

Female heads tended to save for daily expenses, and male heads were more likely to save for retirement, children, and growth (Xiao & Noring, 1994). However, no multivariate analysis was conducted to confirm this chi-square result in Xiao and Noring (1994). Households with a male head were more likely to progress from saving for safety to motives higher in the hierarchy, but they were less likely to move up from saving for security and for luxuries to other higher level motives (DeVaney et al., 2007). Using the 1992 SCF data, Lee et al. (1997) studied the determinants of perceiving children's education as a saving motive. The findings showed that, when compared to White, non-Hispanic parents, Asian and Hispanic parents were more willing to save for children's education.

The Chi-square tests of Xiao and Noring (1994) demonstrated that those with higher levels of educational attainment were more likely to save for purchases, retirement, children, and asset growth. Lee et al. (1997) employed logistic analysis to indicate that greater educational levels increased the likelihood for parents to save for children's college. Xiao and Fan (2002) found that, when compared to American workers with less than a high school education, those with a college education were more likely to save for retirement. The continuation ratio analysis of DeVaney et al. (2007) found that education was positively related to the progress from the levels of no savings to higher level motivations and from safety to higher level motivations as well.

Xiao and Noring (1994) concluded that saving for retirement and children were more likely to be reported by home owners, and saving for purchases was more likely to be reported by non-homeowners, since they might plan for purchasing a house. Logistic analysis of Xiao and Fan (2002) showed that the likelihood of home owners perceiving a retirement motive was higher for home owners than renters among American households.

### **Economic Reforms in China**

Economic reforms substantially increased household income in urban China (Kraay, 2000), but, at the same time, dramatically increased the uncertainty of household income and consumption (Meng, 2003). In the pre-reform era, each urban worker was guaranteed employment for their entire lifetime (Meng, 2000). However, since the mid-1990s, a growing concern in China is its urban unemployment, which increased from 8.5% in 1995 to 17.3% in 1999 (Meng, 2003). Chamon et al. (2010) and Kraay (2000) suggested that income uncertainty due to possible unemployment should have a positive effect on precautionary saving motives and the examining household level data would be informative in this regard.

In addition, during the reform period, the burden of health care, pensions, and education, which were previously provided by state-owned enterprises, have been gradually shifting to households (Chamon & Prasad, 2010). These changes may have contributed to the strong household precautionary saving motive and motives to save for education and retirement. Chamon and Prasad (2010) found that health and education expenditures accounted for 2% of household consumption expenditures in 1995; however, by 2005, this percentage increased seven times to 14%. Before the pension reform that took place in late 1990s, urban workers received employer-provided pensions with a replacement ratio between 75% and 80% of the average wage (Sin, 2005). After reform, new retirees receive a social pension that consists of one-fifth of



the average local wages, as well as their balance in individual retirement accounts and a transition pension. The new replacement ratio (initial pension amount to local average economy wage) is about 60% (Sin, 2005).

### **Conceptual Framework and Hypotheses**

In his theory of human motivation, Maslow (1954) proposed a hierarchy of five levels of needs and the hierarchical structure is determined by the gratification of needs. Higher levels of needs will emerge as the lower levels of needs are satisfied. Financial needs are one facet of human needs (Xiao & Fan, 2002) and can be reflected by saving motives. Therefore, saving motives demonstrate a similar hierarchical structure as human needs, implying that the movement of household saving motives along the hierarchy is influenced by family financial resources (Xiao & Fan, 2002). Therefore, financial resources and the utility received from satisfying financial needs affect households' perception of saving motives. Unsatisfied needs motivate households to mobilize financial resources to satisfy their needs.

Previous literature found that household saving motives vary from country to country (Alessie et al., 1997; Harris et al., 2002; Johnson, 1999; Fan et al., 1998; Xiao & Fan, 2002), which implies that differences in cultures, as well as differences in economic conditions may affect household saving motives. Wei and Zhang (2009) claimed that the sex ratio imbalance in China contributed to stronger saving motives for parents with a son to prepare for the son's wedding. This provides evidence that culture plays a role in saving motives. Traditionally, Chinese parents favor a son over a daughter. However, to prepare for the wedding and provide for housing is the responsibility of the family with a son. The preference for sons has resulted in

a sex ratio imbalance in China and the competitive wedding market increases the saving motive of families with sons (Wei & Zhang, 2009).

Thrift and being conservative are two core values of the Chinese population, resulting in their future orientation (Fan, 2000). Therefore, Chinese households are more likely to be motivated to save than American households. These values are buttressed by Confucian values stressing the importance of education for achieving personal and social order. In an effort to limit its population growth, China announced their one-child policy in early 1979 (Bongaarts & Greenhalgh, 1985). Substantially influenced by Confucian values and the one-child policy, Chinese parents are willing to sacrifice their consumption to provide for their children's educational expenses. Chinese households may be more likely than Americans to have an education saving motive.

The Chinese credit market is underdeveloped and the returns on financial assets are low (Chamon & Prasad, 2010). Lacking alternatives to their personal savings to meet financial needs, Chinese households may be more motivated to save than American households. Changes in the economic environment may affect household saving motives. The economic reforms in China increased the unemployment rate and, thus, the income uncertainty and have transferred the burden of education from the state and employers to individual households. These changes may have led to a stronger need for Chinese households to save for both emergencies and education, when compared to American households, who did not experience such substantial changes in the financial environment. Chinese economic reforms also transferred the burden of pensions from employers to employees. American households have experienced a similar shift of responsibility in retirement preparation, as many employers have continued to transition from defined benefit plans to defined contribution plans, such as 401(k)s. In addition, the Social Security Board of

Trustees in the United States projects that by the year 2036, the combined assets of the Trust Funds will be exhausted (Social Security Board of Trustees, 2011). The conclusion is that the Chinese and Americans have a stronger need to save for retirement than before. The difference in motivation to save for retirement between households in these two countries is difficult to access. Differences in the cultural and economic environments between the two countries are expected to contribute to differences in household saving motives. Due to the differentiation of the cultural and economic environment between China and the United States, it is likely that the effect of relative financial resources on household savings and saving motives are likely to be different between the two countries.

Based on the above expectations and the literature that empirically verified the effect of demographic characteristics on saving motives, a conceptual model (Figure 1) is developed. The likelihood of reporting each saving motive depends on satisfaction of financial needs, relative financial resources, the cultural and economic environment, the interaction effect between financial resources and the cultural and economic environment, and demographic characteristics. Based on the conceptual framework and the above expectations, three hypotheses that are germane to the focus of this study were developed. Controlling for satisfaction of financial needs, financial resources, and demographic characteristics, it is hypothesized that:

**H 1:** Chinese are more likely than Americans to report a precautionary saving motive.

**H 2:** Chinese are more likely than Americans to report an education saving motive.

**H 3:** Chinese and Americans are not equally likely to report a retirement saving motive.

[Insert Figure 1 About Here]

## **Methodology**

### **Data and Sample**

The data for the American sample were from the 2007 Survey of Consumer Finances (SCF), which is a triennially survey sponsored by the Federal Reserve Board. The SCF provide detailed information on household balance sheet items as well as their demographic information and attitudes and expectations regarding investments and the economic environment. The SCF employs a multiple imputation method to impute missing values. This method produces five complete data sets, which are also called “implicates”.

The data for the Chinese sample were from the 2008 Survey of Chinese Consumer Finance and Investor Education (SCCFIE). Sponsored by the Citi Foundation, the SCCFIE is an annual, national survey conducted by the China Center for Financial Research at Tsinghua University in China. This survey provides detailed information on household demographics, financial planning practices and attitudes, balance sheet items, savings practices and attitudes, household income and expenses, debt behavior and attitudes, retirement and insurance, and estate planning. In the 2008 SCCFIE survey, households were randomly selected from each of the 15 cities located in East, Middle, West and Northeast China. Face-to-face interviews were conducted with a total of 2,095 households (see Liao, Huang, & Yao, 2010 for more details about the survey and the data).

Since only households from urban cities were sampled in the 2008 SCCFIE survey, households with members in the farming, forestry, or fishing industries were excluded from the American sample to make it more comparable with the Chinese sample. Cases missing relevant data in the 2008 SCCFIE survey were excluded from the analysis. As a result, there were 2,066 households in the Chinese sample and 4,366 households in the American sample. Ideally, before

households with missing values are excluded from the study, the characteristics of those who did not provide all information and those who did should be compared to identify the possible systematic bias between these households. However, due to the small proportion (1.4%) of cases excluded, results should not be substantially biased. Therefore, such comparison was not performed.

### **Dependent Variables**

Both the Chinese and American surveys asked a question to collect information about household saving motives. The three dependent variables in this study were precautionary saving motive (Precautionary), educational saving motive (Education) and retirement saving motive (Retirement).

### **Independent Variables**

The independent variables used in the multivariate analysis include country of origin, financial resources, satisfaction of financial needs, and demographic characteristic variables. In the 2008 SCCFIE, information at the individual level was collected from the financial respondent (assumed to be the head) of the household. In the 2007 SCF, information at the individual level (head of the household) is from the male in a mixed-sex couple and the older individual in a same-sex couple.

American households were the reference group. Chinese household annual income was calculated by their reported monthly after-tax income (in Chinese *yuan*) in 2008 multiplied by 12. For the American sample, household annual income was the reported before-tax income in 2006. Net worth was calculated by subtracting household total debts from total assets. Since all asset variables were collected as categorical variables in the 2008 SCCFIE data, each household was assigned the median value of the category to which it belonged. The amount of total assets

was then imputed by adding up values of all asset categories. Net worth was also grouped into four quartiles. For each sample, both income and net worth were grouped into four categories representing the quartiles of the distribution of income and net worth for that sample, with the first quartile being the lowest and the fourth quartile being the highest income or wealth group.

The 2008 SCCFIE question about the household head's expectation about income uncertainty asked "What percentage of your household annual income is guaranteed and stable?" The 2007 SCF collected information on both total household income in 2006 and income in a normal year. Income in a normal year was divided by income in 2006 to construct the income uncertainty variable for the American sample. Four dichotomous income uncertainty variables were created: less than 30%, 30-40%, 50-80%, and 80% or higher (reference group). The adequacy of emergency fund level was calculated by dividing household liquid assets by monthly income (after-tax for the Chinese sample and before-tax for the American sample). If the ratio of liquid asset over monthly income was three or higher, the variable was coded as 1 (having an adequate level of emergency fund); otherwise, the variable was coded as 0. Health insurance coverage, home ownership and perception of retirement adequacy were categorical variables (1=yes; 0=no). The question regarding health insurance coverage in the 2008 SCCFIE asked "Please select the status of your family members' health insurance: 1) everyone is covered; 2) some are covered and some are not; 3) no one is covered." In the 2007 SCF, questions regarding health insurance coverage are much more detailed. In order to match the definition of coverage in the 2008 SCCFIE, the health insurance coverage variable is coded as 1 if anyone in the household is covered by some type of government (Medicare, Medicaid, etc.) or private health insurance (employer or union plans, Medigap, etc.). In the 2008 SCCFIE, the household head was asked whether they believed the job pensions would be adequate to meet their need

after retirement. However, in the 2007 SCF, the question required one choice from five levels of adequacy (from totally inadequate to very satisfactory) of income receiving or expecting to receive from Social Security and job pensions. In order to match the definition for the Chinese sample, self-perceived retirement adequacy was coded as 1 for the American sample if the answer was “enough to maintain living standard” or better. The two measures of self-perceived retirement adequacy are compatible since job pensions in China include contributions from the government, the employer, and the employee (Liao et al., 2010).

Demographic variables included age, gender, marital status, presence of related children, education achievement and employment status. Age was a continuous variable in the SCF data but a categorical variable in the SCCFIE data. Therefore, age of the household head in this study was measured with six dichotomous variables as measured in the SCCFIE data: less than 25 years old, 25 to 34, 35 to 40, 41 to 50, 51 to 60, and older than 60 (reference group). Being a female, being married and the presence of related children were categorical variables (1=yes; 0=no). Highest educational level of the household head included less than high school, high school diploma, some college or bachelor’s degree, and graduate school (reference group). Employment status included working for someone else (employee, reference group), self-employed, and retired or not currently working. Six interaction terms (country variable  $\times$  financial resource variable) were included to account for the interaction effect of country with the financial resource variables.

### **Method of Analysis**

A cross-tabulation of three saving motives (precautionary motive, education motive, and retirement motive) by country was conducted to examine the percent distribution of saving motives between Chinese and American. A *t*-test was employed to test the hypothesis for each

motive without controlling for other variables. A Chi-square test was performed to examine the significance of the difference in household characteristics between the two countries. A logistic regression was also conducted to examine the relationship between reporting a particular saving motive and the set of explanatory variables. The most distinguished characteristic of a logistic regression model is that the dependent variable is categorical, most often dichotomous.

The 2007 SCF data have five imputates due to the imputation of missing data. This study pooled all five imputates of the 2007 SCF data and combined them with the 2008 SCCFIE data. The descriptive analyses were weighted using the recommended sampling weights to produce point estimates for the entire population. The weight used for the 2007 SCF was the recommended weight (X42001) (see Kennickell & Woodburn, 1999 for a detailed discussion of the weights), scaled to the actual sample size. The weight used for the 2008 SCCFIE was the reciprocal of the sample selection probability (see Liao et al., 2010 for a detailed description of such probability). The logistic regression analyses were not weighted. The repeated-imputation inference technique was employed in the logistic analyses in order to obtain the coefficients, standard deviations, and log odds that are more accurate than would be obtained by using just one imPLICATE (see Montalto & Sung, 1996 for details about this technique).

## **Results and Discussion**

### **Characteristics of Sample Households**

A total of 2,066 Chinese households and 4,366 American households were included in the analysis (Table 1). Most Chinese household heads were age 40 or younger (69.5%), female (52.6%), and married (72.3%). However, most American household heads were over age 40 (67.2%) and male (72.1%). More Chinese households had related children (59.1%) than



American households (43.9%). American household heads had a higher education level (median=bachelor's degree or some college) than Chinese household heads (median=high school diploma).

[Insert Table 1 About Here]

The majority of household heads from both countries were working for others (59.3% of Chinese household heads and 59.9% of American household heads); while more Chinese household heads (26.2%) were self-employed than American household heads (10.2%) and more American household heads (29.9%) were not currently working than Chinese household heads (14.6%). An over-whelming majority of American household heads (94.6%) perceived a relatively stable normal income (received 80% or more of their normal income during the past year); while this percentage was only 33.7% for Chinese household heads.

Compared with American households, more Chinese households had an adequate level of emergency fund (73.8% vs. 21.9%) and a home (85.4% vs. 68.6%). However, more American household heads (51.9%) reported that they were adequately prepared for retirement than Chinese household heads (30.1%). Median Chinese household income and net worth was 69,878 *yuan* (about \$10,224) and 539,026 *yuan* (about \$78,867), respectively. Median American household income was \$82,295 and their median net worth was \$557,441.

### **Bivariate Results**

The one-tail *t*-test results in Table 1 show that the Chinese were more likely than Americans to report all three saving motives (the precautionary motive, the education motive, and the retirement motive) without controlling for other factors.

It is worth noticing that the most frequently reported saving motives were different across countries, which is consistent with previous literature. The precautionary saving motive, the

education saving motive, and the retirement saving motive were the order of frequency of response for the savings motives of the Chinese, whereas, for Americans, the order was as follows: retirement saving motive, precautionary saving motive, and education saving motive. This result indicates that the relative importance of saving motives varies by country, and may also reflect differences in households' current financial needs, resources and opportunities.

### **Multivariate Results**

As compared with Americans, Chinese were significantly more likely to report a precautionary saving motive (Table 2). Income and net worth had conflicting effects on reporting the precautionary saving motive for Chinese households. Given that the precautionary saving motive is a lower level motive, it was expected that income and net worth would have negative effects on reporting this motive. However, the results for the Chinese sample showed that compared with household heads in the highest income quartile, those in the first, second, and third quartiles were found to be more likely to report the three saving motives. Therefore, income was negatively associated with the likelihood of reporting the precautionary saving motive, which can be explained by the theory of human motivation (Maslow, 1954). However, this negative relationship only existed in the Chinese sample.

In contrast, Chinese with a greater net worth were more likely to report a precautionary saving motive than those with lesser wealth. It is likely that wealthy Chinese demand a much greater level of emergency funds to help maintain their level of living after a decline in income. A precautionary saving motive reflects people's perception of future uncertainty, implying that wealthy Chinese appeared be more motivated to save for emergencies, as a result of greater uncertainty or a perceived need for liquidity.

[Insert Table 2 About Here]

The second hypothesis of this study was that Chinese are more likely than Americans to report an education saving motive. Results from the logistic regression supported this hypothesis (Table 2). For those in the third income quartile, Chinese were 328.5% (odds ratio = 2.521 for being a Chinese and 1.764 for being a Chinese and in the third income quartile) more likely than (or 428.5% as likely as) Americans to report saving for education. As compared with Americans in the second and third net worth quartile groups, the Chinese were more likely to report an education saving motive. For those who did not belong to the above categories, Chinese households were 152.1% more likely than American households to report an education saving motive.

The third hypothesis in this study states that some differences exist between Chinese and Americans in terms of the retirement saving motive. The results partially supported this hypothesis. For the first and second household income groups, Chinese were more likely than Americans to report having a retirement saving motive (Table 2). For those in the first income quartile, Chinese were 176.1% (odds ratio = 2.761 for being a Chinese and in the first income quartile and the effect of being Chinese regardless of income is statistically insignificant) more likely to report saving for retirement as compared with Americans in the lowest income quartile. For those in the second income quartile, Chinese were 107.9% more likely to report saving for retirement as Americans in the same quartile. For households who were not included in the above groups, there was no difference in reporting the retirement saving motive between Chinese and Americans, or between households in the third and fourth income quartiles, regardless of citizenship.

The effects of income and net worth on the likelihood of reporting a retirement saving motive were different across countries (Table 2). In the Chinese sample, as compared with those

in the fourth income quartile, households in the first income quartile were 176.1% more likely, and those in the second quartile were 107.9% more likely to report the retirement saving motive. In the American sample, as compared with those in the fourth income quartile, households in the first income quartile were 71.8% (China=0; China x income quartiles=0; and odds ratio=0.282 for the first income quartile) less likely, and those in the second quartile were 56.2% less likely to report a retirement saving motive. Also in the American sample, households in the first net worth quartile were 36.6% (China=0; China x net worth quartiles=0; and odds ratio=0.634 for the first net worth quartile) less likely to report saving for retirement than those in the fourth quartile. For both Chinese and Americans, given that income and net worth increased the likelihood of reporting the retirement saving motive, saving for retirement was a higher level motive.

### **Conclusions and Implications**

This study compares differences in reporting particular saving motives between Chinese and Americans and investigates factors that affect Chinese and American household saving motives. The two datasets used in this study are from the 2008 Survey of Chinese Consumer Finance and Investor Education and the 2007 Survey of Consumer Finances in the United States. As compared with American households, Chinese households were more likely to report all three saving motives (the precautionary motive, the education motive, and the retirement motive), except that there are no differences in reporting the retirement motive for households in the third and fourth income quartiles.

As compared with Americans, Chinese were significantly more likely to have the precautionary saving motive. Since the economic reforms in 1978, Chinese households have

been exposed to higher future income, as well as greater uncertainty in those incomes and their expenditures. The state no longer guarantees lifetime employment and the government ceased assigning jobs for college graduates. In the United States, unemployment insurance and various welfare programs provide a relatively sound social safety net, whereas in China, there are no such social insurance or social-welfare programs. As a result, Chinese households resort to family support or previous savings in the case of a sudden loss of income. Therefore, Chinese households are more strongly motivated to save for future emergencies.

It is likely that Chinese households hold educational savings as a high financial need. Influenced by Confucianism, Chinese households value children's education, and are willing to save for their education. Also, following Chinese economic reforms, education costs have been shifted to Chinese households. Consequently, Chinese households have recently been given additional reason to have saving for education as an important saving motive.

The difference between Chinese and Americans in terms of the retirement saving motive was not strong. The percentages of households reporting a motive to save for retirement (51.0% for the Chinese sample and 44.5% for the American sample) indicate that both Chinese and American households should be motivated to save for retirement. Economic reforms in China have significantly changed the retirement plan system. There is no sound social security system in China. Employees started to share the responsibility of saving for their retirement. In the United States, the future of Social Security remains uncertain and employers who used to sponsor defined benefit pension plans have started to offer defined contribution plans instead. Facing a higher longevity risk and more responsibilities for their financial well-being during retirement, households in both countries should motivate themselves to save for retirement.

Since saving motives affect saving behaviors (Warneryd, 1999), the stronger motivation to save for Chinese than for Americans serves as a plausible explanation for the greater rate of saving in China than in the United States. When investigating the differences in saving rates between countries, psychological variables, such as saving motives, as well as socio-economic variables and other characteristics should be considered and analyzed together.

Results of this study have valuable implications for policy makers, financial professionals and consumer finance researchers. Policies can influence saving motives (Elmendorf & Kimball, 2000), as evidenced by the effect of the tax deductibility on retirement savings in the United States. After economic reforms, the burden of children's education in China has been shifted to households. Under the influence of the traditional Chinese value system, children are parents' support in old age. Furthermore, the underdevelopment of the credit market in China and limited investment choices make it even more reasonable for Chinese households to save a large proportion of their income to support their children's education as an investment in their own retirement. Providing investment vehicles targeted at children's education (for example, products similar to the 529 college savings) and stabilizing the costs of education, while reforming the health care and retirement systems in China, may encourage current household consumption and reduce the household savings rate so that the expansion of domestic demand is able to maintain economic growth. Again, understanding the motivation of households is key to effective policy creation.

There are considerable differences in policy concerns between China and the United States. Currently in China, households are being encouraged to save less and spend more. Between 1996 and 2000, saving interest rates were reduced seven times to discourage household savings, but saving rates still increased during the 1996-2000 period (Zhou, 2000). The results of

this study provide insights into for the reasons why Chinese households save. The underdevelopment of the credit market and the low returns on financial assets, as well as the strong precautionary saving motive, contribute to the high household savings rate in China (Chamon & Prasad, 2010). The Chinese government can encourage the development of financial markets in China by directing policies to extend credit availability to more individuals and to grant credit based on households' ability to repay. Of course, given the American experience, they must regulate financial markets so that accurate information is adequately and efficiently disclosed and that investing does not remain mysterious and complicated to the average individual and household.

In the United States, policy makers are concerned about the low rate of household savings and have encouraged households to save more by establishing various retirement saving programs through tax incentives. The results in this study indicate that the likelihood of having retirement saving motives varies by income, net worth, emergency fund adequacy, home ownership, age, education, and employment status. As compared with those with greater incomes, Americans with lower incomes are less likely to report a retirement saving motive. Personal savings is a component of retirement wealth. It seems reasonable to conclude that it is important for low-income households to have a retirement saving motive. These households, however, do not usually have any excess income to save for retirement but are, instead, struggling to meet lower level needs such as feeding their children and taking care of their health. Access to child nutrition programs at the local, state, and federal level should be extended to all qualified children. Policy makers in the United States need to continue to explore appropriate means to promote stronger motivations to save. More tax incentives can be provided

to low-income individuals and their employers to encourage pension participation and to increase the amount of savings for participants.

The findings of this study provide implications for financial professionals. China is transitioning to a market economy. Its credit market is still underdeveloped and their choices of investments are limited. Financial institutions should develop more financial products that meet various household savings needs so that alternative ways to save for financial goals exist. For example, products similar to the 529 college savings plans would help households save for their children's education. Currently, financial planning and advising is at its beginning stage in China (Hu, 2011). Understanding saving motives and factors that influence such motives can help financial planners and advisors better understand households' current financial situation and diagnose financial problems that may exist. By helping clients develop appropriate saving motives, planners and advisors can motivate clients to engage in necessary financial behaviors to improve their financial well-being.

It is possible that those who are risk tolerant are more willing to pursue a job with high income uncertainty, and at the same time, their tolerance for risks leads them to be less likely to report a precautionary saving motive (Browning & Lusardi, 1996). Unfortunately, risk tolerance was not collected in the SCCFIE survey, which is a limitation of this study. Further research could investigate whether this self selection affects the precautionary saving motive. The China Center for Financial Research at Tsinghua University should consider collecting information on risk tolerance in their future waves of data collection.

Due to data limitations, an estimate of asset valuation had to be used. Since asset data were collected as categorical data in the SCCFIE survey, median values were used to obtain a net worth estimate for Chinese households. It would be best to have actual values. Another limitation



of the study is the differences in the definition of household income, which is after-tax in the SCCFIE data and before-tax in the SCF data. This difference also affected the definition of emergency fund adequacy since monthly income enters into the emergency fund ratio formula as the denominator. The differences in variable definitions may have affected the results. In order to better compare the financial wellbeing of Chinese and American households, it is important that the China Center for Financial Research at Tsinghua University consider collecting data on actual values on assets and liabilities and data that are compatible with the SCF data (e.g. household before-tax income from all sources).

The differences between the SCCFIE data and the SCF data also made it difficult to make an exact distinction between rural and urban residents. Information regarding Chinese rural households was not collected in the SCCFIE survey. In an effort to make the American sample more comparable with the Chinese sample, households with members in the farming, forestry, or fishing industries were excluded from the American sample. The China Center for Financial Research at Tsinghua University should consider collecting data on rural households in future waves of data collection, to fully represent the Chinese population.

Although limitations exist in the SCCFIE data, they are currently the most comprehensive national survey of household finances in China. This study is the first to provide a comparison of the household saving motives of households in the United States and in the China that is transitioning to a market economy. Public policies can influence saving motives. Such comparisons help researchers and policy makers learn from observing and exploiting differences. Future research should continue to investigate other differences between consumer finances in the two countries.

## Reference

- Alessie, R., Lusardi, A., & Aldershof, T. (1997). Income and wealth over the life cycle: Evidence from panel data. *Review of Income and Wealth*, 43(1), 1-32.
- Bongaarts, J., & Greenhalgh, S. (1985). An alternative to the one-child policy in China. *Population and Development Review*, 11(4), 585-617.
- Borsch-Supan, A., & Lusardi, A. (2003). Saving: A cross-national perspective. In A. Borsch-Supan (Ed.), *Life cycle savings and public policy* (pp. 1-31). San Diego: Academic Press.
- Browning, M., & Lusardi, A. (1996). Household saving: Micro theories and micro facts. *Journal of Economic Literature*, 34, 1797-1855.
- Bucks, B. K., Kennickell, A. B., Mach, T. L., & Moore, K. B. (2009). Changes in U.S. family finances from 2004 to 2007: Evidence from the Survey of Consumer Finances. *Federal Reserve Bulletin*, February, A1-A56.
- Bureau of Economic Analysis. (2011). Consumer spending rises 0.1% in December. Retrieved from <http://www.bea.gov/newsreleases/national/pi/pihighlights.pdf>
- Chamon, M. D., & Prasad, E. S. (2010). Why are savings rates of urban households in China rising? *American Economic Journal: Macroeconomics*, American Economic Association, 2(1), 93-130.
- Chamon, M., Liu, K. & Prasad, E. S. (2010). Income uncertainty and household savings in China. NBER Working Paper No. 16565.
- DeVaney, S. A., Anong, S. T., & Whirl, S. E. (2007). Household savings motives. *The Journal of Consumer Affairs*, 41, 174-186.
- Elmendorf, D. W., & Kimball, M. S. (2000). Taxation of labor income and the demand for risky assets. *International Economic Review*, 41(3), 801-832.
- Fan, Y. (2000). A classification of Chinese culture. *Cross Cultural Management: An International Journal*, 7(2), 3-10.
- Fan, J. X., Xiao, J. J., & Xu, Y. (1998). Student attitudes toward free markets: China and the United States compared. In J. Zhang & X. Li (Eds.), *Social transition in China* (pp. 189-212). Lanham, MD: University Press of America.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

- Harris, M. N., Loundes, J., & Webster, E. (2002). Determinants of household saving in Australia. *Economic Record*, 78(241), 207–223.
- Horioka, C. Y., & Watanabe, W. (1997). Why do people save? A micro-analysis of motives for household saving in Japan. *Economic Journal*, 107(442), 537-552.
- Hu, J. (2011). *Third-party financial planning: How far away is it from us?* [Wuhan TV] Retrieved from [http://www.whtv.com.cn/whtv\\_dslm/whtv\\_dslm\\_whtv1/whtv2011\\_whtv1\\_lm\\_lcsj/201105/t20110523\\_165063.shtml](http://www.whtv.com.cn/whtv_dslm/whtv_dslm_whtv1/whtv2011_whtv1_lm_lcsj/201105/t20110523_165063.shtml)
- Huston, S. J., & Chang, Y. R. (1997, 8(1)). Adequate emergency fund holdings and household type. *Financial Counseling and Planning*, 8(1), 37-46.
- Johnson. (1999). Saving practices of new Canadians from Vietnam and Laos. *Journal of Consumer Affairs*, 33(1), 48-75.
- Kennickell, A. B., & Woodburn, L. R. (1999). Consistent weight design for the 1989, 1992, and 1995 SCFs and the distribution of wealth. *Review of Income and Wealth*, 45, 193–215.
- Kraay, A. (2000). Household saving in China. *World Bank Economic Review*, 14(3), 545-570.
- Lee, S., Hanna, S., & Siregar, M. (1997). Children's college as a saving goal. *Financial Counseling and Planning*, 8(1), 33-36.
- Liao, L., Huang, N. & Yao, R. (2010). Family finances in urban China: Evidence from a national survey. *Journal of Family and Economic Issues*, 31, 259-279.
- Maslow, A. H. (1954). *Motivation and personality*. New York: Harper and Brothers.
- Meng, X. (2000). *Labor market reform in China*. Cambridge: Cambridge Univ. Press.
- Meng, X. (2003). Unemployment, consumption smoothing, and precautionary saving in urban China. *Journal of Comparative Economics*, 31, 465-485.
- Montalto, C. P., & Sung, J. (1996). Multiple imputation in the 1992 Survey of Consumer Finances. *Financial Counseling and Planning*, 7(1), 133-146.
- National Bureau of Statistics of China. (1999-2008). *China statistical yearbook*. China Statistics Press: Beijing.
- Rha, J.-Y., Montalto, C. P., & Hanna, S. D. (2006). The effect of self-control mechanisms on household saving behavior. *Financial Counseling and Planning*, 17(2), 3-16.
- Sin, Y. (2005). *Pension liabilities and reform options for old age insurance*. World Bank Working Paper No. 2005-1.

- Social Security Board of Trustees. (2011). Projected trust fund exhaustion one year sooner. Retrieved from <http://www.ssa.gov/pressoffice/pr/trustee11-pr.htm>
- Warneryd, K. E. (1999). *The psychology of saving: A study of economic psychology*. Cheltenham: Edward Elgar Publishing.
- Wei, S., & Zhang, X. (2009). *The competitive saving motive: Evidence from rising sex ratios and savings rates in China*. NBER Working Paper No. 15093.
- Xiao, J. J., & Fan, J. X. (2002). A comparison of saving motives of urban Chinese and American workers. *Family and Consumer Sciences Research Journal*, 30(4), 463-495.
- Xiao, J. J., & Noring, F. (1994). Perceived saving motives and hierarchical financial needs. *Financial Counseling and Planning*, 5, 25-44.
- Yilmazer, T. (2008). Saving for children's college education: An empirical analysis of the trade-off between the quality and quantity of children. *Journal of Family and Economic Issues*, 29, 307-324.
- Zhou, X. (2000). Adjusting household saving motives and stimulating household expenditure. *Inquiry Into Economic Issues*, 1, 96-97.

Table 1

*Characteristics of Sample Households by Country (N=6,432)*

	Chinese n=2,066	American n=4,366	
Reported Saving Motive			<i>t</i> -test
Precautionary motive	59.8%	35.0%	***
Education motive	58.5%	18.8%	***
Retirement motive	51.0%	44.5%	***
Other Characteristics			$\chi^2$ test
Age			
Less than 25	15.7%	5.3%	***
25-34	33.8%	16.3%	***
35-40	20.0%	11.1%	***
41-50	18.4%	21.6%	**
51-60	8.0%	18.4%	***
Above 60	4.1%	27.2%	***
Female	52.6%	27.9%	***
Married	72.3%	58.5%	***
Presence of related children	59.1%	43.9%	***
Education			
Less than high school	16.9%	13.3%	***
High school	38.7%	32.8%	***
Bachelor or some college	42.0%	42.3%	
Graduate degree	2.5%	11.7%	***
Employment status			
Employee	59.3%	59.9%	
Self-employed	26.2%	10.2%	***
Not working	14.6%	29.9%	***
Income uncertainty			
Less than 30% normal income	7.9%	0.4%	***
30%-49% normal income	21.7%	1.1%	***
50%-79% normal income	36.7%	3.8%	***
80% or above	33.7%	94.6%	***
Adequate emergency fund	73.8%	21.9%	***
Home ownership	85.4%	68.6%	***
Self-perceived retirement adequacy	30.1%	51.9%	***
Health insurance coverage	89.9%	91.6%	*
Median income	69,878 yuan 539,026	82,295 USD	***
Median net worth	yuan	557,441 USD	***

Note. Respondents are allowed to report more than one saving motive.

p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table 2

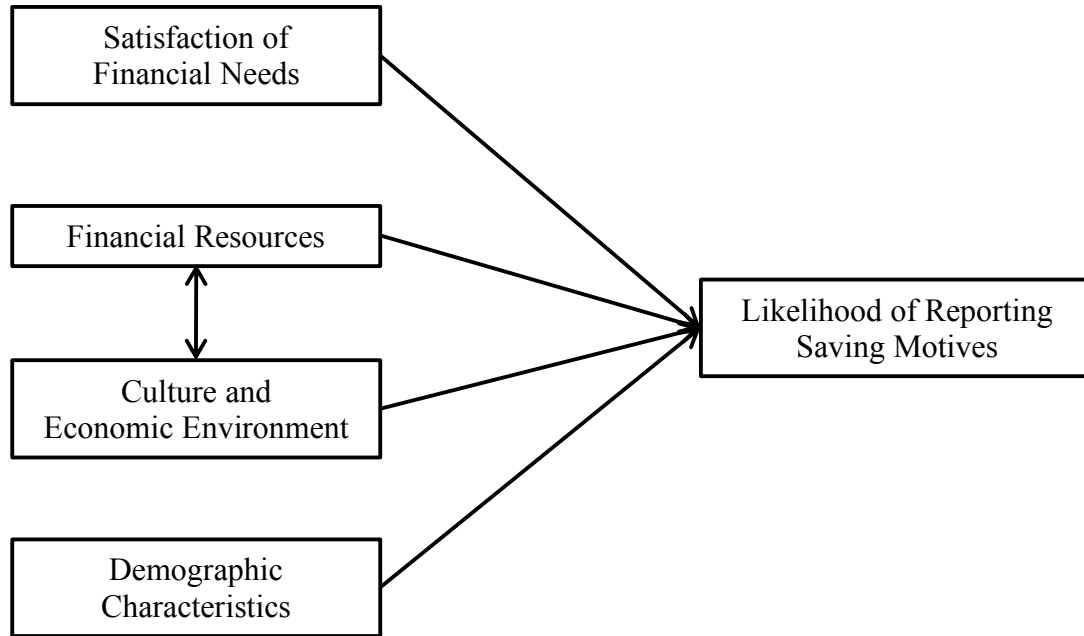
*Logistic Analysis of the Likelihood of Reporting a Particular Saving Motive (N=6,432)*

Parameter	Precautionary		Education		Retirement		Odds Ratio
	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio	
Intercept	0.9686 ***	-	-3.2819 ***	-	0.0069	-	
China	1.2537 ***	3.503	0.9245 ***	2.521	0.2517	-	0.778
Income (reference: fourth quartile)							
First quartile	0.0219	1.022	-0.1587	0.853	1.2642 ***	-	0.282
Second quartile	0.0833	1.087	-0.2385	0.788	0.8250 ***	-	0.438
Third quartile	0.1598	1.173	-0.1136	0.893	0.2301 *	-	0.794
Net worth (reference: fourth quartile)							
First quartile	0.1260	1.134	0.0562	1.058	0.4561 **	-	0.634
Second quartile	0.1578	1.171	-0.1215	0.886	0.1476	-	0.863
Third quartile	0.0014	1.001	-0.2280	0.796	0.1360	-	1.146
Income uncertainty (reference: 80% or above)							
Less than 30% normal income	0.0030	0.997	0.3217	1.379	0.0184	-	0.982
30%-49% normal income	0.3664 **	0.693	0.1954	1.216	0.0169	-	0.983
50%-79% normal income	0.1725	0.842	0.1481	1.160	0.0955	-	1.100
Adequate emergency fund	0.0245	1.025	0.1294	1.138	0.1313	-	1.140
Home ownership	0.2230 *	1.250	-0.0572	0.944	0.2486 **	-	1.282
Self-perceived retirement adequacy	0.0023	0.998	0.0753	1.078	0.0835	-	0.920
Health insurance coverage	0.0122	1.012	-0.1512	0.860	0.0101	-	1.010
Age (reference: above 60)							
Less than 25	0.0596	0.942	1.0517 ***	2.863	0.1025	-	0.903
25-34	0.1585	1.172	1.3166 ***	3.731	0.1531	-	0.858
35-40	0.0347	1.035	1.3624 ***	3.906	0.5380 ***	-	1.713
41-50	0.0844	1.088	0.9833 ***	2.673	0.6991 ***	-	2.012
51-60	0.0506	1.052	0.2663	1.305	0.9579 ***	-	2.606
Female	0.0162	1.016	0.0514	1.053	0.1837 *	-	1.202
Married	0.0731	1.076	0.4988 ***	1.647	0.1280	-	1.137

Presence of related children	-							
	0.1271	*	0.881	1.8914	***	6.629	0.1123	0.894
Education (reference: graduate degree)	-							
Less than high school	0.0700		0.932	-0.3452	*	0.708	0.2788	*
High school	0.0738		0.929	-0.3113	*	0.733	0.0510	
Bachelor or some college	-							
	0.0015		0.999	-0.1847		0.831	0.0118	0.988
Employment status (reference: salary earner)	-							
Self-employed	0.0232		0.977	-0.0351		0.966	0.2698	***
Not working	0.1914	*	1.211	0.0740		1.077	0.5278	***
China × first income quartile	0.8167	***	2.263	0.0159		1.016	1.0154	***
China × second income quartile	0.5336	**	1.705	0.3435		1.410	0.7321	***
China × third income quartile	0.2797		1.323	0.5675	**	1.764	0.0121	1.012
China × first net worth quartile	-							
	0.5994	**	0.549	0.3261		1.386	0.3848	1.469
China × second net worth quartile	-							
	0.6595	***	0.517	0.7701	**	2.160	0.3082	1.361
China × third net worth quartile	-							
	0.2081		0.812	0.6226	**	1.864	0.0319	0.969
Concordance	65.3			85.2			71.7	
Chi-sq test of likelihood ratio	2861.6	***		12434.0	***		4962.7	***

\* p< 0.05, \*\* p< 0.01, \*\*\* p< 0.001

Analysis of the 2008 Survey of Chinese Consumer Finance and Investor Education and the 2007 Survey of Consumer Finances; Multivariate analyses are unweighted, using RII technique.



*Figure 1.* Conceptual Framework