

A Comparison of Saving Motives of Urban Chinese and American Workers

Jing J. Xiao

University of Rhode Island

Jessie X. Fan

University of Utah

This article compares saving motives of urban Chinese and American workers. A framework based on Maslow's human needs theory with the consideration of economic and cultural factors was used to develop hypotheses. The results of logistic regressions and simulations suggest that Chinese are more likely than Americans to report four out of six saving motives: saving for daily expenses, emergencies, children, and investment, whereas Americans are more likely to report saving for major purchases and retirement. Differences in cultures and in economic development stages were investigated as causes for such differences in saving motives. The findings have implications for public policies and cross-cultural communications.

Understanding saving motives is beneficial for family and consumer economists to help families build and sustain their economic security. In this study, we explore similarities and differences in saving motives reported by urban Chinese and American workers. The findings of this cross-cultural research can enrich the literature by testing the human needs theory using data from two countries. The findings can also provide insights for policy makers in the two countries when they make policies for the economic well-being of families. In addition, the United States is becoming a more "colorful" country. Research in cultural diversity is becoming more in demand. Family professionals are interested in knowing more about different cultures of ethnic minority groups in the United States. Asian Americans are the fastest growing population in the United States in recent years. Among them, Chinese Americans are the largest group. Whereas Chinese

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Americans are different from Chinese living in China, they do share the same cultural heritage and thus exhibit some similarities in their economic behavior. The findings of this research may help non-Chinese American family professionals better understand Chinese Americans' behavior and better serve their economic needs.

In this study, we use 1998 data from the United States and China to explore similarities and differences in saving motives between Chinese and American workers. Specific research questions in this study are (a) Are there differences between Chinese and American workers in saving motives? and (b) If differences exist, what are the potential explanations and implications? Literature related to saving motives, cultural comparisons of saving behavior, and Chinese consumer behavior is reviewed in the first section, followed by a discussion of the conceptual framework and hypotheses in the second section. Methods, findings and discussions, and conclusions and implications are presented in sections three, four, and five, respectively.

LITERATURE REVIEW

Saving Motives

Keynes (1936) proposed eight saving motives: the precautionary ("to build up a reserve against unforeseen contingencies"), life cycle ("to provide for an anticipated future relationship between the income and the needs of the individual"), intertemporal substitution ("to enjoy interest and appreciation"), improvement ("to enjoy a gradually increasing expenditure"), independence ("to enjoy a sense of independence and the power to do things, though without a clear idea or definite intention of specific action"), enterprise ("to secure a *masse de manoeuvre* to carry out speculative or business projects"), bequest ("to bequeath a fortune"), and avarice ("to satisfy pure miserliness, i.e., unreasonable but insistent inhibitions against acts of expenditure as such") (pp. 107-108). Several of these motives were developed into formal economic models (see Browning & Lusardi, 1996, for a comprehensive survey on household saving models). The most influential saving model is the life cycle model (Ando & Modigliani, 1963). This model states that current consumption spending depends on current wealth and lifetime income so that consumers borrow and save to smooth out their consumption throughout their

life cycle. This model thus implies a saving motive for retirement. This model was further revised to include intergenerational transfer motive (saving for children) (Barro, 1978; Kurz, 1984) and precautionary motive (saving for emergencies) (Carroll, 1997). Empirical studies using U.S. data were conducted to investigate saving behavior associated with saving motives for emergencies and retirement (for examples, see Johnson & Widdows, 1985; Yuh, Montalto, & Hanna, 1998). Using U.S. macrodata, Feldstein (1974, 1996) found that social security reduces private savings, indicating that social institutions affect private saving motives. Many economists have noted the limitations of the life cycle model. For example, Wolff (1981) divided families into three classes: the capitalist, the primary working class, and the secondary work force. He found that only the primary working class takes the form of life cycle wealth. Katona (1960, 1980) stressed the importance of psychological aspects of people's economic behavior and empirically studied saving motives and behavior using survey methods, which were earlier versions of the Survey of Consumer Finances. His study showed that people's new saving motives emerge when the old saving need is met and the income is positively related to the number of saving motives (Katona, 1960). Shefrin and Thaler (1988) developed a behavioral life cycle (BLC) theory by incorporating new knowledge from cognitive psychology to the traditional life cycle model. They claimed that their model is a more general saving model and the traditional life cycle model is a special case of the BLC. According to the BLC model, people have different mental accounts, and their saving propensities to these accounts are different. This implies that people may have multiple saving motives at the same time. This theory has been used to study household financial needs (Xiao & Anderson, 1997).

Using a conceptual framework based on Maslow's (1954) human needs theory, Xiao and Noring (1994) examined the relationship between perceived saving motives and household financial characteristics using data from the 1986 Survey of Consumer Finances. They hypothesized that perceived saving motives reflect the hierarchical financial needs of these families. Thus, families at different economic levels may have different major motives for saving. They found that as families have more financial resources, their perceived saving motives expand from "daily expenses" to "emergencies" to "retirement, children, and growth," suggesting that daily expenses is at the bottom of the financial needs hierarchy. However, they did not explore

the possible hierarchical associations among levels of needs expressed as saving for retirement, children, and growth. In addition, the authors called for caution in interpreting their results, as a multivariate approach was not employed in that study.

Saving motives may be consistent with people's saving behavior. In a study on retirement savings, Xiao (1997b) found that the perceived retirement saving motive is positively associated with contributions to a 401(k) plan, a popular retirement savings plan used by American workers.

Cultural Differences in Consumption and Saving Behavior

Using the 1980 and 1990 Censuses of Population and Housing in the United States, Carroll, Rhee, and Rhee (1999) examined whether cultural origins of immigrants affect saving behavior. They found that the saving patterns of immigrants are significantly different across countries of origin. Specifically, they found that all immigrants have a saving rate that is about 2% to 24% higher than that of native-born Americans, with immigrants from China having an average saving rate that is about 11% higher than that of native-born Americans, holding age, education, occupation, and duration of stay constant. In addition, they found that for Chinese immigrants, the longer the duration of stay, the higher the saving rate. However, they also noted that saving patterns of immigrants do not match up with aggregate saving rates in their countries of origin. For example, immigrants from countries with high saving rates, such as Japan, Korea, and Taiwan, have saving rates that are lower than those of immigrants from Greece, Italy, and Portugal. They attributed this phenomenon to possible sample selection bias effects, in that those who immigrate and those who stay in their native countries may have very different ties to their original cultures.

Studies on ethnic differences in consumption patterns also shed some light on cultural differences in saving motives. Using 1980-1992 U.S. Consumer Expenditure Survey data, Fan (1997) found that Asian Americans are more likely to spend money on food away from home, shelter, and education while spending less money on food at home, household equipment and operations, fuel and utilities, entertainment, alcohol, and tobacco products, compared to otherwise similar Caucasian Americans. Higher expenditures on education may imply earlier motives of saving for children. That Asian cultures place a

strong emphasis on education and children can be linked back to the Confucian value, which emphasizes interdependence of family members and a respect for education (Barringer, Gardner, & Levin, 1993). In addition, higher expenditures on housing may imply motives of saving for major purchases, which is supported by Fost's 1990 finding that jewelry and real estate are popular investments among Asian Americans.

Differences in saving motives between Chinese and Americans were found in a comparative study of college students. Using data collected from college students in Shanghai and Guangzhou in China and Minnesota in the United States, Fan, Xiao, and Xu (1998) compared attitudes regarding a series of economic issues. Several questions were related to saving habits and saving motives. American students were more likely to report saving for specific purposes, such as "to buy durable goods," whereas Chinese students were more likely to report saving for abstract goals, such as "for better things in the future." The researchers attributed the differences to different economic situations of students in these two countries. Unlike American students, at the survey time, Chinese university students seldom worked for pay, as tuition and board were free to them. Also, durable goods such as cars were beyond the purchasing power of Chinese university students. This study may be the most direct investigation of comparing saving motives between Chinese and Americans to date. However, it used data from a student population, and the saving motive questions were not extensive.

Doyle (1999) developed a cultural typology based on the rich literature in history, religion, philosophy, psychology, sociology, and other fields related to financial behavior. According to his theory, Europeans are acquisitive people, and their typical financial behavior is taking. Asians are analytic people, and their typical financial behavior is saving. This theory implies that, in general, Chinese are more thrifty than Americans. Thus, Chinese may be more likely to report having saving motives than Americans, given other socioeconomic factors.

Consumers in the Chinese Economy

Compared to the relatively stable economy in the United States, the Chinese economy is in a more dynamic and transitional stage. China started its economic reform in 1978. One of the major goals of the

reform was to transfer state-owned enterprises to other forms of ownership, such as joint, foreign, and private ownership (Xiao, Xu, & Peng, 1999). Because the majority of enterprises were state-owned, this reform affected the lives of many workers in China. As a result of the reform, Chinese workers began to be concerned about their retirement security, because the new system no longer takes full care of retirees until their deaths (World Bank, 1997). Another impact of the enterprise ownership reform on the workers is housing. For most workers, housing was once almost exclusively owned and rationed by the state-owned enterprises they worked for. The workers paid nominal rents for their apartments. Since the reform, workers have been encouraged to purchase their own apartment or house. Because the mortgage system is still primitive in China, most Chinese consumers save for many years to pay cash for an apartment or a house.

The economic reform also changed Chinese consumers in many other aspects. Before the reform, government-set consumer prices were stable with almost zero inflation. As a result of price rationing, consumer goods in the market were almost always in short supply. Since the reform, household income has increased rapidly and consumer markets have prospered. The economic development raised Chinese consumers' consumption expectations (Xiao, 1997a). Big-ticket consumer goods (e.g., color TV sets, refrigerators, washing machines, vacations, and cars) markets are emerging and prospering. Because the use of credit is still quite limited among Chinese consumers, private savings are still the major vehicle for most Chinese consumers who want to purchase such big-ticket items ("Playing the Credit Card," 1999). In cases of emergencies, Chinese consumers typically rely on either their savings or money borrowed from their relatives or friends.

The existing literature suggests that household saving motives are hierarchical, and cultural differences exist between Chinese and Americans in their consumption and saving behavior. However, no study to date has directly compared saving motives between Chinese and American workers. This study attempts to fill this gap. We first develop hypotheses based on a conceptual framework that incorporates economic and cultural considerations into Maslow's (1954) human needs theory. Then we conduct bivariate and multivariate analyses using data collected from China and the United States. Finally, a discussion regarding the supports or rejections of our hypotheses is provided. Implications of the findings for public policies and cross-cultural communications are also discussed.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

In economic literature, the saving motive is typically embedded in the utility function-based models, such as the life cycle, intergenerational transfer, or precautionary saving models. Often, each saving model implies one saving motive. In this study, we adopt a different approach. First, we use a psychological theory as a base to develop the conceptual framework. Second, under the assumption that consumers have multiple saving motives, we adopt a framework to address the relationship of these saving motives. The multiple saving motives are implied by the BLC model, an economic model integrating advances in cognitive psychology (Shefrin & Thaler, 1988). Third, we incorporate findings of previous studies on cultural differences in developing our hypotheses.

Our conceptual framework is developed based on Maslow's (1954) human needs theory, taking into consideration cultural, economic, and social differences between the two countries under comparison. Maslow's human needs theory states that human needs are hierarchical, and people will generate higher levels of needs when lower levels of needs are met. Human needs have multiple facets, and one of the facets is financial needs. Xiao and Noring (1994) proposed six saving motives that imply family financial needs. These saving motives are saving for daily expenses, purchases, emergencies, retirement, children, and growth. They classified saving motives for daily expenses, purchases, and emergencies as lower level needs, and saving motives for retirement, children, and growth as higher level needs. They assumed that these needs have similar features of human needs described by Maslow, implying that family financial needs are motivated by family financial resources. When families have low levels of financial resources, they seek to meet lower level needs such as survival and security. When family financial resources increase and lower level needs are met, families will generate higher level needs.

A similar relationship between income and the expenditures of a particular class of goods has been discussed by some economists, such as Lancaster (1966, 1991). Lancaster (1991) suggested that consumers' preferences for characteristics of a particular class of goods would change as their financial resources increased. For example, assume that food has two characteristics, calories and flavor. A low-income consumer may consider only calories when purchasing food. However, when income increases, the consumer may consider both calories and flavor. As income continues to increase, the consumer

may be concerned only with flavor and may not care about calories or may even consider them a negative characteristic. If financial products have different characteristics, consumers may prefer different characteristics of the products based on their financial resources. Such differences in preferences may be demonstrated by their different saving motives. If a hierarchical relationship between characteristics of financial products and levels of financial resources exists, a similar hierarchical relationship between saving motives and financial resources should also exist.

Therefore, in this study, we assume a hierarchical relationship between financial resources and saving motives. Given that on average, Chinese have less financial resources than Americans, if the needs structure is similar for Chinese as for Americans, we can expect that Chinese are more likely to save for lower level needs such as daily expenses, major purchases, and emergencies, and less likely to save for higher level needs, such as retirement and investment.

Economic, social, and cultural differences between the two countries may change the dynamics of the relationship between financial resources and saving motives. First, needs that are considered higher level needs in the United States may be considered as lower level needs in China, or vice versa. For example, because of the dominance of Confucian culture and the current one-child-per-family policy in China, Chinese may view investment in children as a lower level need than do Americans. Second, macroeconomic studies have found evidence that Chinese, as an aggregate, have a higher saving rate compared to Americans, implying that the Chinese are more thrift oriented compared to the Americans (Carroll et al., 1999; Doyle, 1999). Such a difference may affect motivations for saving. Based on the conceptual framework and taking cultural differences into consideration, we propose the following hypotheses.

Hypothesis 1: Chinese are more likely than Americans to save for daily expenses, holding demographic factors and relative income within each country constant.

Saving for daily expenses is considered the lowest level of needs, compared to other saving motives. Xiao and Noring (1994) found that lower income U.S. consumers are more likely to report this saving motive, compared to their higher income counterparts. Because Chinese consumers have lower levels of real income compared to American

consumers, it is expected that Chinese are more likely than Americans to report this saving motive. Also, in current China, many state-run enterprises have been transformed into other forms of ownership that offer less secure employment. Many workers have been forced into early retirement with very limited retirement income and thus strive to meet daily needs (Xiao et al., 1999).

Hypothesis 2: Chinese are more likely than Americans to save for major purchases, holding demographic factors and relative income within each country constant.

Because the consumer credit system is still underdeveloped in China, most Chinese need to save enough cash to purchase big-ticket items such as refrigerators, color TV sets, washing machines, and other household appliances. In addition, whereas private purchasing of apartments and houses is becoming more common in China, a United States-type mortgage system is just in its inception stage. Thus, if an ordinary Chinese family wants to purchase a house, private savings and borrowing from private sources are still the only options. This leads to our hypothesis that Chinese are more likely than Americans to save for major purchases. This saving motive is further supported by past findings that Asian Americans are likely to use housing as a form of investment and spend more money on housing than Caucasian Americans (Fan, 1997), as many Asian Americans share the same cultural heritage as the Chinese.

Hypothesis 3: Chinese are more likely than Americans to save for emergencies, holding demographic factors and relative income within each country constant.

The concept of saving for emergencies is shared by both cultures in that both Chinese and Americans have the same saying: "saving for raining days." Saving for emergencies is found to be a lower level need in the United States (Xiao & Noring, 1994). Given that the real income level is lower in China than in the United States, it is expected that Chinese are more likely to have this saving motive. In addition, given the rapid changes in the economic and social environment in China, it is likely that Chinese may perceive more future uncertainty than Americans. Such perception of high future uncertainty can further motivate savings for emergencies for the Chinese.

Hypothesis 4: Chinese are less likely than Americans to save for retirement, holding demographic factors and relative income within each country constant.

Saving for retirement is found to be a higher level need in Xiao and Noring's 1994 study. Thus, it is expected that Chinese, with lower incomes than Americans on average, are less likely to save for this motive. This hypothesis is further supported because of economic, social, and cultural differences between the two countries. For many years, in the state-run enterprises in which most Chinese urban workers worked, postretirement needs of workers were taken care of by the government-run pension system. Retirement income security has become an issue since the reform transformed most state-run enterprises to other forms of ownership. Chinese workers have just started to realize their own responsibilities for their retirement savings (Xiao et al., 1999). In the United States, however, the retirement security system is moving to a direction that requires more individual responsibilities, which is a controversial issue in recent years. Two major trends triggered this debate. First, with baby boomers reaching their retirement age, it is projected that year 2032 is the first year that the U.S. social security trust fund assets do not allow full payment of benefits (Sherman, 1998). Second, in private industries, defined contribution retirement plans have been substituted for defined benefit pensions, thus requiring workers to assume more responsibilities for their future retirement income. Because of major financial educational campaigns sponsored by several federal agencies, major corporations, and non-profit organizations, and because of heavy media coverage on these topics, it is expected that many American workers are aware of this situation and are thus more likely than Chinese to report a retirement saving motive.

Hypothesis 5: There is no difference between Chinese and Americans in terms of the saving motive for children.

According to the conceptual framework, saving for children represents a higher level of need and Americans are expected to be more likely to report this motive. However, cultural factors may balance out economic factors. Given the dominance of Confucian culture in China, high values are placed on educational attainment and family kinship. According to Confucius, one of the three most important filial pieties is to have children (*bu xiao you san, wu hou wei da*). Empirical

findings that Asian Americans spend relatively more money on education further support this notion (Fan, 1997). In addition, China has enforced a one-child-per-family policy since the late 1970s. The only child born under this policy is thus particularly precious. Given these two opposing factors, it is difficult to formulate a directional hypothesis. Thus, a null hypothesis is proposed.

Hypothesis 6: Americans are more likely to have a saving motive for investment than Chinese, holding demographic factors and relative income within each country constant.

Saving for investment is a high-level need (Xiao & Noring, 1994). Thus, Americans should be more likely to report this saving motive. Furthermore, the average American has more exposure to the idea of investment than the average Chinese because investment, especially stock market investment, is relatively new in China. There are also more options of investments in the United States compared to China. Thus, we expect that Americans are more likely than Chinese to report a saving motive for investment.

METHODS

Data

The Chinese data were collected in 1998 from workers in Guangzhou, a major city and capital of the Province Guangdong in Southern China. A quota matrix of gender, age, and enterprise ownership was developed for this survey. Enterprises were classified into five categories: (a) state owned; (b) collectively owned enterprises that include various forms of public trading enterprises and traditional collectively owned enterprises; (c) foreign-owned enterprises that are invested in by foreign capital, especially capital from developed countries and regions such as the United States, Japan, Hong Kong, and Taiwan; (d) joint ventures that are invested in by both Chinese and foreign capital; and (e) privately owned enterprises owned by one or more private Chinese citizens. Based on this quota matrix, trained research assistants collected information from workers with specific characteristics. Five hundred completed questionnaires were collected for this research. Among the 500 workers who participated in the survey, 50% were from each of the two gender groups, 20% from each of the five

age groups (29 years or younger, 30 to 39, 40 to 49, 50 to 59, and 60 years or older), and 20% from each of the five types of enterprises. More details of this data set can be found in Xiao et al. (1999). For this study, we selected only people age 65 or younger. In addition, we excluded observations that had missing values in the variables needed in the multivariate analyses. Thus, the final sample size used in this study was 483.

Table 1 provides a comparison between our sample and Chinese national statistics. Compared with national statistics, the Guangzhou data oversampled workers from foreign-owned, jointly owned, and privately owned enterprises and undersampled workers from state-owned enterprises. In addition, workers in the Guangzhou sample were more likely to be married and less likely to be single females. This sample also had higher educational levels than the national average. Furthermore, more workers had a household size of 4 or 5 people compared to the national average, mostly due to live-in aging parents. We could not find nationally comparable data for age and household income. However, people in Guangdong province, of which Guangzhou is its capital, had higher per capita income than the national average during the sampling period. In 1998, the per capita income in Guangdong was 8,840 yuan, compared to the national average of 5,426 yuan (China Statistical Information Network, 1999, Table 10-11). Also, relatively more young (aged 0 to 14) people lived in Guangdong compared to the national average. The children dependence ratio (number of people aged 0 to 14 to number of people aged 15 to 64) in Guangdong was 45%, compared to the national average of 35% (Chinese Statistical Information Network, 1999, Table 4-7).

The American data were collected in 1998 by the National Opinion Research Center at the University of Chicago and sponsored by the U. S. Federal Reserve Board. This data set was one of the triennial Surveys of Consumer Finances (Kennickell, Starr-McCluer, & Surette, 2000). The original data set had 4,309 observations. To make the sample comparable with the Chinese data, we selected only full-time workers who were 65 or younger and were not in the farming, forestry, or fishing industries at the survey time. The final sample size used in this study was 2,671.

For the purpose of comparing Chinese and American saving motives, the data sets used in this study have both advantages and limitations. The two data sets include variables that are directly comparable, as the Chinese questionnaire had questions regarding saving attitude

TABLE 1: Comparing the Guangzhou Sample With the National Sample in China (in percentages)

	<i>Guangzhou Sample^a</i>	<i>National Sample^b</i>
Enterprise type		
State owned	22	57
Collective owned	19	17
Foreign, joint, and private owned	59	26
Marital status and gender		
Married	83	74
Single male	10	14
Single female	7	12
Education		
Illiterate or primary school	5	46
Junior high school	17	39
Senior high school	22	12
Technical school or college	56	3
Household size		
1 person	3	6
2 people	7	15
3 people	32	30
4 or 5 people	48	39
6 or more people	10	10

a. Authors' calculations based on our Guangzhou data.

b. Authors' calculations based on 1999 data from China Statistical Information Network (1999), in which percentages for enterprise type were from Table 13-2, marital status and gender from Table 4-10, education from Table 5-26, and household size from Table 4-11.

and behavior similar to those in the U.S. Survey of Consumer Finances. The two surveys also collected data at about the same time. However, the Chinese data were obtained using a quota sampling approach in one Chinese city, whereas the U.S. data were collected using a random sampling approach nationwide. Nevertheless, because of the uniqueness of this topic, these are the best data we can obtain at this time. We consider this to be an exploratory study and hope it will lay a foundation for future research that uses more comparable data.

Variables

The dependent variables were saving motives, which were measured as categorical variables. Saving motives included saving for (a) daily expenses, (b) major purchases (housing, vacations, wedding,

etc.), (c) emergencies, (d) retirement, (e) children's education, and (f) investment/interest earning. These saving motives variables are similar to those used in Xiao and Noring (1994).¹ Multimotives were reported by respondents in both countries. Most Americans reported two saving motives, whereas most Chinese reported more than two saving motives. For example, 49% of Americans and 39% of Chinese reported one saving motive, 49% of Americans and 44% of Chinese reported two saving motives, 13% of Chinese and no Americans reported three to six saving motives, and 2% of Americans and 4% of Chinese reported no saving motive. As saving motives are likely to be positively related to actual saving behavior, this result implies that Chinese are more likely to save in general than Americans, consistent with macroeconomic findings that China has a higher saving rate than the United States. In this study, we focused on country differences in each of the reported saving motives.

The demographic variables included gender, age, marital status, education, relative income, occupation, household size, presence of children, and home ownership status. The descriptive statistics of these variables are presented in Table 2. Compared to Americans, the Chinese in the sample were more likely to be married, had a lower educational level, and had a larger household size. The income variable was coded as a categorical variable indicating income percentiles, because only bracket monthly income information was collected in the Chinese data.² This income measure can be considered a measure of relative income within each country. Using currency exchange rate for conversion, American families had higher incomes than Chinese families. For example, at the cutoff line of the bottom 30% of the income distribution, Chinese families had 2,500 yuan a month, which equals about \$3,750 a year ($2500 \times 12 / 8$), whereas Americans in the same income category had an average annual income of \$32,000.

Analyses

Chi-square tests were first conducted to test if there are associations between saving motive variables and the country variable. Logistic regressions were then performed to verify if the differences still exist when demographic variables are controlled. The logistic regression model is commonly used in social sciences when the dependent variable is categorical. To understand not only the

TABLE 2: Descriptive Statistics of the Samples (Chinese *N* = 483, American *N* = 2,671)

	<i>Chinese</i> (%)	<i>American</i> (%)	<i>Total</i> (%)	χ^2	p
Gender and marital status				33.67	<.0001
Married	83	71	73		
Single male	10	14	13		
Single female	7	16	15		
Age				31.39	<.0001
35 years or younger	21	16	16		
36-45	33	41	40		
46-55	25	29	28		
56-65	22	14	16		
Education				241.69	<.0001
Grade 1-6	5	1	2		
Grade 7-9	17	2	5		
Grade 10-12	22	27	26		
Occupational school/ some college	20	19	19		
College	36	50	48		
Household size				238.51	<.0001
1 person	2	16	14		
2 people	7	30	26		
3 people	32	19	21		
4 or 5 people	49	30	33		
6 or more people	10	4	5		
Presence of children	77	55	59	75.77	<.0001
Professional occupations	54	74	71	76.28	<.0001
Home owner	48	70	67	95.02	<.0001
Income rank ^a					
Bottom 30%	<2.5k yuan	<\$32k			
Lower middle 25%	2.5k-3.5k yuan	\$32k-\$63k			
Upper middle 20%	3.5k-4.5k yuan	\$63k-\$130k			
Top 25%	>4.5k yuan	>\$130k			

a. For the Chinese sample, income was measured as monthly income in Chinese yuan. For the American sample, income was measured as annual income in U.S. dollars. The exchange rate of Chinese yuan for U.S. dollars was about 8 to 1 in 1998, the year both surveys were conducted. See Note 2 for an explanation of how the categories were constructed.

differences between the two countries but also the dynamic relationship between saving motives and demographic variables within each country, two sets of logistic regressions were conducted, one with only the Chinese sample and the other with both samples. For the model with both Chinese and American samples, American households were used as the reference group, with a country dummy and interaction terms between the country dummy and all other demographic variables entered into the model. The full-interaction model was used to capture not only the intercept differences but also possible slope differences between these two groups of households.

To formally test whether the country difference is statistically significant after controlling for the demographic variables and relative income within each country, log-likelihood ratio tests were performed (Maddala, 1992). The six log-likelihood ratio tests are large sample test statistics to test the joint hypothesis that there is no difference between the Chinese and Americans in each of the six saving motives. The test statistic is as follows:

$$\text{Log-Likelihood Ratio} = (-2\log L_R) - (-2\log L_U),$$

where L_R is the maximum value of the likelihood function of the restricted model without the country dummy and any interaction terms between the country dummy and other independent variables, and L_U is the maximum value of the likelihood function of the unrestricted model with the country dummy and interaction terms. The log-likelihood ratio test follows a χ^2 distribution with degree of freedom equal to the number of restrictions.

Finally, simulations were conducted to predict the probabilities of having each of the six saving motives for the sample, holding everything else equal (the same simulation procedure was used in Fan, 1997, and Fan & Lewis, 1999). In the simulations, the Chinese households in the sample were treated as if they were American households, and their probabilities of having each of these six saving motives were predicted using the logistic regression results. These predicted probabilities were then compared with the actual probabilities of having different saving motives for the Chinese sample. The comparison was done on the same group of people (in our case, the Chinese sample) with whom different nationalities were attached for the purpose of simulation. Note that the simulation can also be conducted using the American sample instead.

TABLE 3: Saving Motives by Country

<i>Saving Motive</i>	<i>Chinese (%)</i>	<i>American (%)</i>	χ^2
Daily expenses	23	3	321.04***
Major purchases	25	27	1.63
Emergencies	36	28	12.45***
Retirement	29	55	109.64***
Children	43	20	118.43***
Investment	20	16	5.15**

NOTE: The above percentages do not add up to 100% because multiple responses were allowed.

** $p < .05$. *** $p < .01$.

FINDINGS AND DISCUSSIONS

Table 3 presents the results from chi-square tests. Chi-square test results indicate that for saving motives variables, five out of the six categories are significantly different between consumers in the two countries. Compared to their American counterparts, Chinese are more likely to report having saving motives for daily expenses, emergencies, children, and investment while less likely to report having saving motives for retirement. The difference in saving for major purchases is statistically insignificant.

Tables 4 through 6 present results from logistic regressions in which saving motive variables were the dependent variables and demographic variables the independent variables.³ Two sets of logistic regression results are reported, one with the Chinese sample only, the other with the full sample and with interactions between the country variable and other demographic variables added as independent variables. The log-likelihood ratio test results and simulation results are reported in Tables 7 and 8, respectively. Below, we report the multivariate analyses findings by categories of saving motives.

Saving for Daily Expenses

The hypothesis that Chinese are more likely to save for daily expenses compared to Americans is supported. Twenty-four percent of Chinese in the sample reported having a saving motive for daily expenses. The simulation results show that if these Chinese were Americans, only 3% of them would have reported this saving motive (Table 8).

(text continues on p. 486)

TABLE 4: Logistic Regressions on Saving for Daily Expenses and Major Purchases

Variable	Daily Expenses				Major Purchases			
	Chinese Sample		Both Samples		Chinese Sample		Both Samples	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Intercept	-2.51***		-4.28***		0.72		-0.26	
Single male head	0.10	1.11	0.39	1.47	-0.25	0.78	-0.11	0.89
Single female head	0.21	1.23	0.86**	2.37	-0.31	0.73	0.05	1.05
Age	0.02	1.02	0.00	1.00	-0.02*	0.98	-0.03***	0.97
Grade 1-6	-0.38	0.69	1.11	3.03	-0.23	0.79	-0.15	0.86
Grade 7-9	-0.57	0.56	-0.14	0.87	-0.25	0.78	0.14	1.15
Grade 10-12	-0.26	0.77	0.38	1.47	0.41	1.50	-0.02	0.98
Some college	-0.11	0.89	0.10	1.11	-0.17	0.85	-0.04	0.97
Bottom 30% income	0.74**	2.09	0.99*	2.68	-0.90***	0.41	0.32*	1.38
Lower middle 25% income	0.34	1.40	-0.09	0.91	-0.83**	0.44	0.27*	1.31
Upper middle 20% income	0.04	1.04	0.03	1.03	-0.37	0.69	0.43***	1.53
Household size	0.16	1.18	0.07	1.07	0.05	1.05	0.12**	1.12
Presence of dependent children	-0.65	0.52	-0.27	0.77	-0.18	0.84	0.16	1.18
Professional occupation	0.41	1.51	-0.36	0.70	-0.25	0.78	0.16	1.18
Home owner	0.06	1.07	-0.26	0.77	-0.68***	0.51	-0.35***	0.71
Chinese			1.78	5.91			0.98	2.66
Single Male × Chinese			-0.28	0.75			-0.14	0.87
Single Female × Chinese			-0.66	0.52			-0.36	0.70
Age × Chinese			0.01	1.01			0.01	1.01
Grade 1-6 × Chinese			-1.49	0.23			-0.09	0.92
Grade 7-9 × Chinese			-0.43	0.65			-0.40	0.67
Grade 10-12 × Chinese			-0.65	0.52			0.43	1.54

Some College × Chinese	−0.22	0.81	−0.13	0.88
Bottom 30% × Chinese	−0.25	0.78	−1.22***	0.30
Lower Middle 20% × Chinese	0.43	1.54	−1.10***	0.33
Upper Middle 25% × Chinese	0.01	1.01	−0.79**	0.45
Household Size × Chinese	0.10	1.10	−0.07	0.94
Presence of Children × Chinese	−0.38	0.68	−0.34	0.71
Professional Occupation × Chinese	0.77*	2.16	−0.42	0.66
Home Owner × Chinese	0.32	1.38	−0.33	0.72
Max-rescaled R ²	0.05	0.25	0.08	0.08

NOTE: The reference categories are married, college, and top 25% income. For the models using both samples, Americans is used as the reference category in addition to the above categories and their interaction terms.

* $p < .10$. ** $p < .05$. *** $p < .01$.

TABLE 5: Logistic Regressions on Saving for Emergencies and Retirement

Variable	Emergencies				Retirement			
	Chinese Sample		Both Samples		Chinese Sample		Both Samples	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Intercept	-0.28		-0.78**		-1.51**		-0.61**	
Single male head	-0.64	0.53	0.09	1.09	-0.38	0.68	-0.03	0.97
Single female head	-0.42	0.66	0.20	1.22	0.07	1.07	-0.04	0.96
Age	-0.01	0.99	0.00	1.00	0.00	1.00	0.02***	1.02
Grade 1-6	0.41	1.50	0.63	1.88	0.37	1.44	-1.83***	0.16
Grade 7-9	0.49	1.63	-0.09	0.91	-0.03	0.98	-0.71**	0.49
Grade 10-12	0.08	1.08	-0.08	0.92	-0.21	0.81	-0.49***	0.61
Some college	0.28	1.32	0.06	1.06	-0.34	0.72	-0.15	0.86
Bottom 30% income	0.33	1.40	-0.16	0.86	0.69**	1.99	-0.50**	0.61
Lower middle 25% income	0.10	1.10	0.11	1.11	0.68**	1.97	0.06	1.06
Upper middle 20% income	0.13	1.14	-0.18	0.84	0.67*	1.95	0.59***	1.81
Household size	-0.18*	0.84	-0.06	0.94	0.01	1.01	-0.04	0.96
Presence of dependent children	0.54	1.72	0.01	1.01	0.15	1.16	-0.29**	0.75
Professional occupation	0.06	1.06	0.08	1.08	0.04	1.04	-0.08	0.92
Home owner	0.05	1.05	-0.10	0.90	-0.12	0.89	0.79***	2.21
Chinese			0.50	1.64			-0.90	0.41
Single Male × Chinese			-0.73	0.48			-0.35	0.70
Single Female × Chinese			-0.62	0.54			0.11	1.12
Age × Chinese			-0.01	0.99			-0.02	0.98
Grade 1-6 × Chinese			-0.23	0.80			2.20**	9.02
Grade 7-9 × Chinese			0.58	1.79			0.69	1.99
Grade 10-12 × Chinese			0.16	1.17			0.28	1.33

Some College × Chinese	0.22	1.25	−0.19	0.83
Bottom 30% × Chinese	0.49	1.63	1.18***	3.27
Lower Middle 20% × Chinese	−0.01	0.99	0.62*	1.85
Upper Middle 25% × Chinese	0.30	1.35	0.07	1.08
Household Size × Chinese	−0.12	0.89	0.06	1.06
Presence of Children × Chinese	0.53	1.70	0.44	1.55
Professional Occupation × Chinese	−0.02	0.99	0.12	1.13
Home Owner × Chinese	0.15	1.17	−0.91***	0.40
Max-rescaled R ²	0.04	0.02	0.04	0.20

NOTE: The reference categories are married, college, and top 25% income. For the models using both samples, Americans is used as the reference category in addition to the above categories and their interaction terms.

* $p < .10$. ** $p < .05$. *** $p < .01$.

TABLE 6: Logistic Regressions on Saving for Children and Investment

Variable	Children				Investment			
	Chinese Sample		Both Samples		Chinese Sample		Both Samples	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Intercept	0.13		-0.17		-2.62***		-0.73*	
Single male head	-0.50	0.61	-0.50**	0.61	0.92	2.50	0.02	1.03
Single female head	-0.87*	0.42	-0.69***	0.50	0.05	1.05	0.32*	1.38
Age	0.01	1.01	-0.04***	0.96	0.01	1.01	0.00	1.00
Grade 1-6	-0.70	0.50	0.61	1.84	-0.48	0.62	0.21	1.24
Grade 7-9	-0.01	0.99	0.13	1.13	-0.49	0.61	-0.93*	0.40
Grade 10-12	0.09	1.09	-0.31**	0.73	-0.35	0.70	-0.18	0.84
Some college	-0.09	0.91	-0.21	0.81	-0.31	0.74	-0.21	0.81
Bottom 30% income	-0.33	0.72	-0.09	0.91	-0.24	0.79	-0.46**	0.63
Lower middle 25% income	-0.11	0.90	-0.35**	0.71	0.15	1.16	-0.47***	0.63
Upper middle 20% income	-0.66**	0.52	-0.35**	0.70	-0.12	0.89	-0.56***	0.57
Household size	-0.03	0.97	0.01	1.01	0.07	1.07	0.02	1.02
Presence of dependent children	-0.15	0.86	1.34***	3.83	0.64	1.90	-0.33**	0.72
Professional occupation	-0.42*	0.66	0.16	1.17	-0.13	0.88	-0.30**	0.74
Home owner	-0.05	0.95	-0.04	0.96	0.17	1.18	-0.19	0.83
Chinese			0.30	1.35			-1.90*	0.15
Single Male $\times$ Chinese			0.00	1.00			0.89	2.44
Single Female $\times$ Chinese			-0.18	0.84			-0.27	0.76
Age $\times$ Chinese			0.05***	1.06			0.02	1.02
Grade 1-6 $\times$ Chinese			-1.31**	0.27			-0.69	0.50
Grade 7-9 $\times$ Chinese			-0.13	0.87			0.43	1.54
Grade 10-12 $\times$ Chinese			0.40	1.49			-0.18	0.84

Some College × Chinese	0.13	1.13	−0.09	0.91
Bottom 30% × Chinese	−0.23	0.79	0.22	1.25
Lower Middle 20% × Chinese	0.24	1.27	0.61	1.85
Upper Middle 25% × Chinese	−0.31	0.74	0.44	1.55
Household Size × Chinese	−0.04	0.96	0.05	1.05
Presence of Children × Chinese	−1.49***	0.23	0.97*	2.64
Professional Occupation × Chinese	−0.58**	0.56	0.17	1.19
Home Owner × Chinese	−0.01	0.99	0.36	1.43
Max-rescaled R ²	0.05	0.18	0.03	0.03

NOTE: The reference categories are married, college, and top 25% income. For the models using both samples, Americans is used as the reference category in addition to the above categories and their interaction terms.

* $p < .10$. ** $p < .05$. *** $p < .01$.

TABLE 7: Log-Likelihood Ratio Test Results

<i>Dependent Variable</i>	<i>-2 Log L for the Restricted Model</i>	<i>-2 Log L for the Unrestricted Model</i>	<i>Test Score</i>
Saving for daily expenses	1308.346	1096.154	212.192***
Saving for major purchases	3536.552	3509.363	27.18900**
Saving for emergencies	3782.19	3754.869	27.32099**
Saving for retirement	3963.001	3844.71	118.291***
Saving for children	3129.911	3019.08	110.831***
Saving for investment	2766.002	2743.665	22.337*
Total sample size	3154	3154	
Degree of freedom			15

* $p < .10$. ** $p < .05$. *** $p < .01$.

TABLE 8: Comparison of Saving Motives of Chinese and Americans: Simulation Results

<i>Saving Motive</i>	<i>Chinese Actual (%)</i>	<i>Chinese Simulated as Americans (%)</i>
Daily expenses	23	3
Major purchases	25	31
Emergencies	36	27
Retirement	29	45
Children	43	24
Investment	20	15

NOTE: The numbers in this table can be interpreted as follows: 23% of the Chinese in the sample reported having a saving motive for daily expenses. If these Chinese were Americans with the same set of characteristics, only 3% of them would have reported having a saving motive for daily expenses.

The results in Table 4 also show that in both countries, consumers who are at the bottom 30% of the income distribution are more likely to report a saving motive for daily expenses compared to those at the top 25% of the income distribution, whereas consumers in the middle 45% are not different from those at the top 25%. The odds of reporting a saving motive for daily expenses are 109% and 168% higher for Chinese and American consumers, respectively, at the bottom 30% of the income distribution compared with those at the top 25% of the income distribution. For the U.S. sample, the odds of reporting a saving motive for daily expenses are 137% higher for single female-headed

households compared to married households, other things being equal.

Saving for Major Purchases

Holding other things equal, Chinese households are less likely to report a saving motive for major purchases compared to American households. Twenty five percent of the Chinese in the sample reported having a saving motive for major purchases. The simulation results (Table 8) show that if these Chinese were Americans, 31% of them would have reported this saving motive. The log-likelihood ratio test shows that such difference is statistically significant. This result rejects Hypothesis 2.

Table 4 shows that the relationships between income and having a saving motive for major purchases in the two countries are opposite. For Chinese consumers, the higher the income, the more likely they are to report a saving motive for major purchases. Specifically, compared to Chinese consumers at the top 25% of the income distribution, the odds of reporting a saving motive for major purchases are 54% to 59% lower for consumers at the bottom 55% of the income distribution. For American consumers, the odds of having a saving motive for major purchases are 31% to 53% higher for consumers at the bottom 75% of the income distribution, compared to consumers at the top 25% of the income distribution, other things being equal. This difference may be explained by the different economic development stages of the two countries. Whereas saving for major purchases is a higher level need for Chinese consumers, it seems to be a lower level need for the American consumers.

Age, household size, and home ownership are also found to affect a consumer's probability of having a saving motive for major purchases. In both countries, the older a consumer, the less likely he or she is to report a saving motive for major purchases. For Americans, the odds of having a saving motive for major purchases increase about 12% per unit of increase in household size. Household size does not have an impact on the odds of having this saving motive for the Chinese sample. For both countries, home owners are less likely to report a saving motive for major purchases than renters. The odds of having a saving motive for major purchases are 49% and 29% lower for home owners than for renters, for Chinese and Americans, respectively.

Saving for Emergencies

Supporting Hypothesis 3, Chinese were found to be more likely to report having a saving motive for emergencies compared to Americans, other things being equal. Thirty-six percent of the Chinese in the sample reported having a saving motive for emergencies. The simulations show that if these Chinese households were Americans, only 27% would have reported saving for emergencies (Table 8).

Table 5 shows that for the U.S. sample, none of the demographic variables are significant in predicting a consumer's probability of having a saving motive for emergencies. For the Chinese sample, the larger the household size, the less likely a respondent is to report a saving motive for emergencies. In both countries, relative income does not affect the probability of saving for emergencies. This result is not consistent with Xiao and Noring's (1994) finding that consumers in the middle income group are more likely to save for emergencies than are other consumers.

Saving for Retirement

Supporting Hypothesis 4, Chinese consumers were found to be less likely to report saving for retirement compared to otherwise similar Americans. Thirty percent of the Chinese in the sample reported having a saving motive for retirement. The simulation results show that if these Chinese were Americans, 45% of them would have reported wanting to save for retirement (Table 8).

Table 5 shows that for Americans, the probability of having a saving motive for retirement has a nonmonotonic relationship with income, with consumers at the bottom 30% of the income distribution least likely, and consumers in the upper middle 20% most likely to report saving for retirement, compared to consumers in the top 25% income group. There is no statistically significant difference between the lower middle 25% income group and the top 25% income group. The finding, however, does not necessarily mean that these two groups have the same reasons behind their saving motives. Whereas the lower middle 25% may have lower levels of saving needs to satisfy, the top 25% may instead have even higher levels of saving needs, such as investment.

For Chinese, the odds of having a saving motive for retirement for those at the lower 75% of the income distribution are about twice the odds for those at the top 25% of the income distribution. Further

investigations of the data show that this may be caused by enterprise-type differences. Workers who have lower incomes usually work for privately and collectively owned enterprises. They worry more about their retirement future than do workers in other types of enterprises (Xiao et al., 1999).

Age, education, presence of dependent children, and home ownership showed effects on the probability of reporting saving motives for retirement in the American sample but not in the Chinese sample. For Americans, the older a consumer, the more likely he or she is to report a saving motive for retirement. American consumers with less than high school education were found to be less likely to report a saving motive for retirement compared to consumers with college education. The odds of having a saving motive for retirement for households with children are 25% lower than those without children, other things being equal. In addition, the odds of having a saving motive for retirement are 121% higher for home owners compared to renters, other things being equal.

Saving for Children

Rejecting Hypothesis 5, Chinese consumers were found to be more likely to report saving for children than their American counterparts, holding other things equal. Forty-two percent of the Chinese sample reported having such a saving motive. The simulation results show that if these Chinese households were American, only 24% of them would have reported saving for children (Table 8). This result implies that the cultural factor outweighs the economic factor.

For Americans, the odds of having a saving motive for children for those at the middle 45% of the income distribution are 29% to 30% lower than those at the top 25% of the income distribution. For Chinese, the odds of having a saving motive for children for consumers at the upper middle 20% of the income distribution are 48% lower than those at the top 25% of the income distribution, other things being equal.

Several demographic variables affected the probability of the saving motive for children. For Chinese, single female household heads and/or consumers in professional occupations are less likely to report this motive. For Americans, consumers who are single household heads, have an education of 10 to 12 years, and/or are younger are less likely, whereas consumers with dependent children are more likely to report this motive.

Saving for Investment

Rejecting Hypothesis 6, Chinese were found to be more likely to report a saving motive for investment than otherwise similar Americans. Twenty percent of the Chinese reported having a saving motive for investment. The simulation results show that if these Chinese households were Americans, only 15% of them would have reported this saving motive (Table 8).

None of the independent variables included in this study is statistically significant in affecting a Chinese consumer's probability to report a saving motive for investment. For Americans, the odds of having a saving motive for investment are about 67% higher for consumers at the top 25% of the income distribution compared to consumers in the lower 75% of the income distribution, other things being equal. Also, the presence of children and having a professional occupation decrease the probability of having a saving motive for investment.

The result regarding investment motive is not totally surprising, given our casual observation of how popular stock market investment is in China. One possible explanation is that stock market investment is quite a novelty in China. Another possible reason is the particular survey location. Guangzhou is a city close to Hong Kong and is in the Open Economic Development Zone that enjoys particularly liberal economic regulations by the central government. Thus, it is possible that people in Guangzhou are more familiar with stock markets than people in most other Chinese cities and in rural areas of China.

Discussion

In summary, our empirical analyses lead to the support of three out of the six hypotheses. We hypothesized that Chinese consumers are more likely to report a saving motive for major purchases compared to Americans. Our data analyses show the opposite. Saving for major purchases seems to be a higher level need for Chinese consumers, whereas for American consumers, it seems to be a lower level need. It is also possible that saving for major purchases may have different meanings for Chinese and Americans. Chinese may refer to major household electronics, such as TV sets, washing machines, and so on, as major purchases, whereas Americans may consider housing and vacations as major purchases. We also hypothesized that Chinese consumers are less likely to report a saving motive for investment

compared to Americans. Our data analysis again found the opposite. Location of the Chinese survey and the novelty of stock market investment are suspected as the causes for this finding. If national representative data in China were available, we speculate that this hypothesis would be supported. Because economic factors and cultural factors have opposing effects on saving motives for children, we did not hypothesize a direction for country differences in this regard. Our result indicates that Chinese are more likely than Americans to have a saving motive for children, which implies that the cultural factor outweighs the economic factor.

The findings generally support Xiao and Noring's (1994) classification of saving motives for Americans, with the exception of the classification of saving for emergencies. In Xiao and Noring, the emergency motive is placed in the second layer of the three-level need hierarchy. Therefore, the expected finding should show that households with lower levels of income would be more likely than higher income households to report this motive. Our findings, however, show that income level does not have an impact on an American household's probability of reporting a saving motive for emergencies. Note that there are several differences in sample selection and data analysis techniques between the two studies. The Xiao and Noring study used data collected in 1986, but this study uses data collected in 1998. The income groupings and analysis approaches are also different in the two studies. Further research is needed to confirm or disconfirm this finding.

Our findings also suggest that the hierarchical classifications of saving motives for the American consumers are not totally applicable to the Chinese consumers in our sample. Whereas saving for daily expenses is found to be a lower level need for both countries, for the Chinese sample, saving for major purchases and children are the only higher level needs. Two motives, emergencies and investment, are not associated with levels of income for the Chinese sample. Furthermore, retirement is found to be negatively associated with relative income for the Chinese sample. As discussed earlier, in current China, many state-run enterprises are transferring to private or collective ownership. The traditional retirement benefits system is in the process of reform with a high level of uncertainty (Xiao et al., 1999). For many workers, including the respondents in this survey, saving for retirement may have the same connotation as saving for daily expenses after retirement.

There are limitations of the modeling of the saving motives. For some saving motives, such as saving for emergencies, the models do not fit well and few variables are statistically significant, despite extensive model diagnostic efforts. Future research is needed to explore other possible determinants of these saving motives with data containing more variables. In this study, we assume that all saving motives have the same set of independent variables. Future research may explore different sets of independent variables for different saving motives.

CONCLUSIONS AND IMPLICATIONS

In this study, we compared Chinese and American workers regarding their reported saving motives. With data and modeling limitations in mind, we conclude that Chinese are more likely to report saving for daily expenses, emergencies, children, and investment, whereas Americans are more likely to report saving for major purchases and retirement, holding consumer characteristics and relative income rankings within each country constant.

This is the first study to directly compare saving motives of workers in two countries that are very different in their economic development stages, social systems, and cultural values. The findings show that theories of hierarchical saving motives may need to be expanded to be applicable to countries at different economic development stages and with different cultures.

This study also has public policy implications. For example, in the United States, one of the most important public policy issues is to encourage people to save for their retirement. The findings in this study show that the target population for retirement saving education should be consumers who are at the lower end of the income distribution, as most consumers at the higher end of the income distribution are already aware of this need. In China, the major policy concern is to encourage people to spend more and save less. The findings in this study can help Chinese policy makers better understand why Chinese people save and can help develop strategies to encourage them to spend. For example, lower income consumers in China are more likely to report saving for retirement. If the government can provide a more secure retirement benefit system, low-income Chinese consumers may worry less about their future consumption and spend more for current consumption.

Findings of this study are also beneficial for professionals to better understand their clients who have Chinese heritages and/or have newly immigrated to the United States from China. Professionals working with families in financial counseling and planning may better understand the financial needs and behavior of their Chinese American clients in helping them with financial matters. The findings can also be incorporated in classroom teaching of consumer economics and personal finance by adding a dimension of cultural diversity.

This study focuses on only the saving motives of Chinese and American workers. Future research should explore the relationship between saving motives and actual saving behavior, because reported motives and behaviors may or may not be consistent. It is also of interest for researchers and policy makers if any behavioral similarities and differences of saving are found in different cultures. In addition, it would be fruitful to develop a more general framework using knowledge bases of economics and psychology to guide cross-cultural research in financial behavior.

NOTES

1. The data they used were from the 1986 Survey of Consumer Finances. The original question was an open-ended question: "What were the household's most important reasons for saving?" The researchers from the Federal Reserve Board coded the responses into 35 categories. Xiao and Noring (1994) recoded these categories to 6 categories, which were the same as the categories used in this study. These recoded categories were similar to saving motives proposed by Keynes (1936), such as saving for major purchases (the improvement motive), emergencies (the precautionary motive), retirement (the life cycle motive), children (the bequest motive), and growth (the intertemporal substitution, independence, and enterprise motive). No category corresponded to Keynes's avarice motive as no respondents chose that motive. The "saving for daily expenses" category was not mentioned by Keynes.

2. The income information was collected in the Chinese questionnaire with a nine-bracket question. The brackets ranged from under 500 yuan to 6,500 yuan or more. Because some of those brackets had very few observations, we combined several to form four roughly evenly distributed categories. This procedure resulted in the income categories used in this study.

3. The logit model assumes a nonlinear relationship between the probability and the explanatory variables; thus, the change in the probability for a one-unit increase in an independent variable varies according to where you start. The interpretations become simpler if we think in terms of odds rather than probabilities. Odds are defined as $P/(1-P)$, where P = the probability of having a certain saving motive. The ratio of the odds of reporting a certain saving motive for Chinese and the odds of reporting a certain saving motive for Americans is called an odds ratio. In logistic models, $\text{odds ratio} = \exp(\beta)$,

where "beta" is a logistic regression coefficient. Thus, odds ratios do not change with the value of the independent variables. If the coefficient for Chinese (with Americans as the reference groups) for a certain saving motive is 0.5, then the odds ratio for the variable Chinese is $\exp(0.5) = 1.65$. That means that the odds of having this particular saving motive for Chinese are 1.65 times the odds for Americans, or the odds of having this motive are 65% higher for Chinese than for Americans. If, on the other hand, the coefficient is -0.5 , then the odds ratio is $\exp(-0.5) = 0.61$. That means the odds of having this motive for Chinese are only 61% of the odds for Americans. Another way to interpret this is to invert the odds ratio and say that the odds of Americans' having this saving motive are 1.64 ($1/0.61$) times the odds of Chinese, or 64% higher than the Chinese. For a clear explanation of interpretations of logistic results, see Allison (1999). For an example of an article using logistic regression models published in this journal, see Abdel-Ghany & Wang (2001).

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