Retirement Goal Clarity, Needs Estimation, and Saving Amount: Evidence From Hong Kong, China

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This study investigated the relationship between retirement saving needs estimation and the amount of self-reported private retirement savings amassed by working-age adults in Hong Kong, China, by focusing on the mediating role of retirement saving needs estimation between retirement goal clarity and the amount of private retirement savings. Based on the data collected from a phone survey of 958 Hong Kong workers aged 25–64 years, we found that the retirement saving needs estimation was associated with the savings of individuals over 44 years old; furthermore, it mediated the association between retirement goal clarity and self-reported private retirement savings. The findings offer theoretical contributions for financial planning conceptual frameworks and provide policy implications.

Keywords: financial planning, private retirement savings, retirement goal clarity, saving needs estimation, working-age adults

Although consistent with global trends, Hong Kong's population is aging much more rapidly when compared to Western countries (Lum, 2011). According to the latest projections, Hong Kong's population structure is expected to change dramatically, with a rise in the percentage of persons aged 65 years and above from 15.4% in 2015 to 33.1% in 2064 (Census and Statistics Department, 2015). This trend may result in an increased demand for financial security among elderly individuals, which is also correlated strongly to satisfaction with retirement lifestyle (Taylor & Geldhauser, 2007; Wang & Shultz, 2010). Hong Kong differs from Western countries in that its older adults follow the tradition of receiving financial support from the next generation. However, this trend has weakened (Census and Statistics Department, 2001). The newly introduced Mandatory Provident Fund (MPF) schemes have a limited reach (Chou, Chow, & Chi, 2004); consequently, private retirement savings have increased (AXA, 2005; Census and Statistics Department, 2013; HSBC, 2006).

Studies have found associations between the size of private retirement savings and demographic variables like age (Elliott, Choi, Destin, & Kim, 2011), gender (Johannisson, 2008), marital status and number of children (Love, 2010), and opportunity variables such as entitlement to retirement saving plan (Mayer, Zick, & Marsden, 2011) and educational achievement (Scholz, Seshadri, & Khitatrakun, 2006). Recent studies have focused on why different individuals with different attributes have different saving levels. Empirical findings suggest that demographic and opportunity variables are proxy variables of social force; they identify differences between high- and low-level saving groups by the mediating effects of psychological variables, including risk tolerance (Dulebohn, 2002; Jacobs-Lawson & Hershey, 2005) and future time perspective (Burtless, 2006; Howlett, Kees, & Kemp, 2008; Van Dalen, Henkens, & Hershey, 2010). More importantly, studies have found that the proxy variables of social force may also determine retirement saving level by sequentially influencing components of a financial saving framework in the following order: retirement goal clarity, financial knowledge, planning activities, and accumulation of retirement savings (Chou et al., 2015; Stawski, Hershey, & Jacobs-Lawson, 2007).

Estimating retirement saving needs, an important step in planning activities (Basu, 2005; Bi, Finke, & Huston, 2017; Li,

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Montalto, & Geistfeld, 1996; Stawski et al., 2007; Yuh, Montalto, & Hanna, 1998), is associated with retirement saving level and has only been examined in Mayer et al.'s (2011) multivariate model. However, the sample used to run the model was limited to one university. In addition, the model failed to control several important factors that influence private savings, including retirement goal clarity (Chou et al., 2015), personal income (Chamon & Prasad, 2005), and objective financial knowledge (Banks & Oldfield, 2007; Chan & Stevens, 2008), as well as socialization factors such as social norms (Henkens, 1999), support from friends and spouse (Duflo & Saez, 2002; Van Dalen et al., 2010), parental socialization (Van Dalen et al., 2010), and childhood socialization (Bernheim, Garrett, & Maki, 2001). Although the estimation of retirement saving needs should logically follow retirement goal clarity and financial literacy in the saving–planning framework and would be key to planning activities, studies have not tested this hypothesis. Therefore, our study uses a demographically diverse sample to answer the following questions: (a) whether the estimation of retirement saving needs is positively associated with self-reported private retirement savings when including previously uncontrolled variables; and (b) whether the estimation of retirement saving needs mediates the link between retirement goal clarity and private retirement saving.

Literature Review and Hypotheses

Savings Planning Framework

The Life-Cycle Model of Consumption and Saving (Ando & Modigliani, 1963) explains why individuals activate the savings–planning framework and make intertemporal choices regarding consumption and saving (Blanchard & Fischer, 1989). The model assumes that people gain an understanding about their earnings and spending from a life-cycle perspective, such that the financial accumulation during their employable years is necessary to guarantee a normal retirement lifestyle (Hatcher, 2003). The starting point of the savings–planning framework is retirement goal clarity (Chou et al., 2015; Stawski et al., 2007), followed by financial knowledge, which is necessary for estimating retirement needs (Hershey, Jacobs-Lawson, McArdle, & Hamagami, 2007). Individuals who estimate how much they should save before retirement are defined as simple planners, whereas those who develop a retirement savings plan are defined as serious planners. When the individuals who develop a retirement savings plan follow their plan, they are considered successful planners (Lusardi & Mitchell, 2008; 2011).

Retirement Goal Clarity and Retirement Saving Needs Estimation

Clarifying retirement goals involves assessing expectations regarding one's quality of life after retirement. Two important determinants of retirement goal clarity are age (Stawski & Hershey, 2003; Stawski et al., 2007) and time perspective (Hershey et al., 2007; Mowen, 2002). Thus, it is difficult to accurately clarify retirement goals because they change with age, and—to a greater extent—with mental and physical transformation and life experience. For instance, individuals may reevaluate their life priorities as they age and may assign less importance to materialism.

Even if we ignore such limitations and consider that respondents can clearly envision their retirement life, transforming qualitative goals into quantitative monetary estimates is the next challenge (i.e., the estimation of retirement saving needs). Skinner (2007) indicated that the accurate estimation of retirement saving needs involves professional knowledge regarding economic, psychological, and health issues. To ensure that consumption patterns during retirement match one's quality of life expectations, one needs to (a) assess current nonhousing wealth (including the amounts from retirement savings plans, savings accounts, business equity, stock investments, and equity in real estate), in addition to the present value of lifetime net earnings, pension, and social security benefits; (b) assess the present value of lifelong nonhousing consumptions; and (c) calculate the difference between the two (Skinner, 2007). One common error involves underestimating the finances required for postretirement. With that said, having a decent understanding of financial concepts like discount, interest, and inflation rates, along with basic macroeconomic projections, acts as prerequisites for individual planners who want to accurately predict the present value of lifelong earnings and consumptions. In addition, unexpected circumstances can result in savings insufficiency. Granted that financially informed individuals make and follow reasonable plans for saving, investing, and consumption, they cannot predict changes in health status nor the unclear financial burden related to health problems.

Previous Research and Our Contribution

Thus, research shows that retirement goal clarity is considerably heterogeneous, typically making the process of accurately estimating retirement saving needs difficult. Models have avoided measurement errors by asking respondents to

demonstrate the extent of their retirement goal clarity (Chou et al., 2015) and the importance of estimating retirement saving needs (Mayer et al., 2011) while controlling their determinants (Chou et al., 2015; Mayer et al., 2011; Stawski et al., 2007). Variables affecting the likelihood of accurately estimating retirement saving needs were established from past research. Recent Retirement Confidence Survey (RCS) results have identified education, financial assets, household income, and entitlement to a formal retirement plan as factors (Helman, Adams, Copeland, & Van Derhei, 2014; Helman, Copeland, & VanDerhei, 2015). In addition, future orientation—a psychological attribute weighting the present and future—and risk tolerance have been associated with the likelihood of accurately estimating retirement saving needs (Hershey & Mowen, 2000; Mayer et al., 2011). Moreover, those with basic financial knowledge are more likely to perform basic retirement saving needs estimations (Lusardi & Mitchell, 2011).

Mayer et al.'s (2011) study differentiated between the estimation of retirement saving needs, general retirement planning activities, and retirement preparedness, modeling the former as an individual step in retirement planning. The study further demonstrated the positive correlation between estimating retirement saving needs and the amount of retirement savings (Helman et al., 2014, 2015), finding evidence to support the correlation when controlling demographic variables as well as other variables affecting the likelihood of performing retirement saving needs estimations. Another important contribution was the adoption of an instrument variable approach to identify a causal effect between estimating retirement saving needs and self-reported level of retirement savings. However, the study's sample was limited to the staff of a single university. Considering that Yakoboski (2006) reported that university staff are more likely to estimate retirement needs compared to other workers, the results of the model should be treated with caution. Moreover, the model failed to include important predictors of private retirement savings and retirement saving needs estimation. Therefore, we tested this model to overcome its limitations and assessed the association between the estimation of saving needs and self-reported private savings accumulation after controlling: (a) financial planning variables, including retirement goal clarity, estimation of retirement saving needs, objective financial knowledge, perceived financial knowledge, and perceived financial management capacity; (b) socialization variables, including spousal support, support from friends, social regulations, childhood socialization, and parents as role models; (c) psychological variables, including time perspective and risk tolerance; and (d) other variables including gender, age, age square, educational level, marital status, number of children, household income, personal income, and entitlement to a saving plan. In addition, our study also tested the mediation effect of estimating retirement saving needs on the association between retirement goal clarity and self-reported retirement saving level. As younger individuals are less likely to estimate retirement saving needs (Helman, Copeland, & VanDerhei, 2010) and older individuals are more likely to save (Helman et al., 2014), the model explaining the association between the estimation of retirement saving needs and self-reported saving level is likely to undergo structural changes. Thus, based on previous research, we propose three hypotheses:

H1: Retirement saving needs estimation contributes uniquely to the amount of private retirement savings.

H2: Estimating retirement saving needs mediates the effect of retirement goal clarity on private retirement savings.

H3: Factors associated with private retirement savings differ for older and younger respondents.

Method

Participants

The sample comprised a group of Cantonese-speaking Hong Kong residents aged 25–64 years. The participants were contacted via telephone through the Public Opinion Program at the University of Hong Kong to obtain study-related data. Only Cantonese-speaking working adults in Hong Kong were surveyed because our project was driven by the growing role of private retirement savings that have replaced financial contributions from children; this trend was observed only among local Cantonese-speaking residents. The lower age limit was 25 years, given that most participants would have joined the labor market by this age. Furthermore, 65 years is the normal retirement age in Hong Kong. Establishing these boundaries ensured that participants would meet the basic requirements for income availability and savings. The sample was extracted in two steps. The first step involved randomly choosing a number range

of local resident's phone numbers (individual cell phones or residential landlines) from a directory. Hong Kong numbers contain eight digits and can be differentiated between cell phone, residential phone, and work landline numbers easily by identifying the first digits. Well-trained professionals identified the final target list, with the addition or subtraction of one or two numbers from the original numbers for redialing busy or unanswered lines. Those who responded to the phone calls and matched the sample requirements were invited to participate in the survey. When households included two or more individuals who met the sample requirements, a single participant was chosen using the "nearest birthday rule"; that is, the person whose following birthday was the closest was selected. The survey was conducted by trained interviewers, professional recruiters, and outstanding supervisors to ensure control. All interviews were filmed using real-time video technology. To ensure privacy protection, all information was recorded anonymously. The sample comprised 1,376 household numbers, of which 73% were successfully contacted and interviewed. However, there were missing values in three variables: estimating retirement saving needs (n = 9), number of children (n = 9), and amount of private retirement savings (n = 29). After omitting cases with missing values, the final sample size was 958 respondents. The attrition analysis revealed that dropouts did not significantly differ from the sample in any attribute.

Measures

In the present study, private retirement savings were measured as a dependent variable, and retirement goal clarity and estimating retirement saving needs were measured as key independent variables. Objective financial knowledge, perceived financial knowledge, perceived financial management capacity, risk tolerance, future time perspective, spousal support, support from friends, social regulation, socialization as a child, parents as role models, and a series of background variables (gender, age, educational achievement, marital status, number of children, personal income, household income, and retirement plan entitlement) were simultaneously controlled.

Private Retirement Savings. Participants' private retirement savings were measured by the item "How much have you saved so far for your retirement income protection, excluding retirement income protection schemes like MPF and Occupational Retirement Scheme Ordinance (ORSO)?" The MPF is an employment-based, privately managed, defined-contribution retirement savings scheme, which started operation on December 1, 2000 (Siu, 2002), and the ORSO is the governing legislation for the regulation of voluntary occupational retirement schemes, which came into force on October 15, 1993 (Lin, 2012). Seven scales, rather than a specific dollar value, were provided as response choices, to avoid low responses resulting from perceived privacy violation and aversion to disclosure: no savings; less than HKD 100,000 (USD 1 = HKD 7.8); HKD 100,000–HKD 499,999; HKD 500,000–HKD 999,999; HKD 1,000,000–HKD 1,999,999; HKD 2,000,000–HKD 4,999,999; and HKD 5,000,000 and above. The scales were defined to reflect the variance in savings in the population.

Retirement Goal Clarity. Participants responded to three items on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree): (a) I have thought a great deal about quality of life in retirement; (b) I have set specific goals for how much I will need to save for retirement; (c) I have a clear vision of how life will be in retirement (Stawski et al., 2007). The scale of internal consistency (Cronbach's α) was 0.76. Retirement goal clarity was calculated as the unweighted sum of the scores on the three items.

Estimating Retirement Saving Needs. Participants were invited to answer whether or not they (or their spouse/partner) have tried to estimate how much money they will need to have saved by the time they retire, so as to live comfortably during retirement (EBRI, 2009).

Objective Financial Knowledge. This particular knowledge was measured by the well-known three-item measurement of financial knowledge, which consists of three multiple choice questions about compound interest, inflation, and risk diversification (Almeberg & Save-Soderbergh, 2011; Bucher-Koenen & Lusardi, 2011; Fornero & Monticone, 2011; Yu, Wu, Chan, & Chou, 2015). The scale of internal consistency (Cronbach's αalpha) was 0.26. Objective financial knowledge was calculated as the unweighted sum of the scores on the three items (correct answer 1 point and 0 point for any other choice). The final score ranged from 0 (lowest, with no correct answers) to 3 (highest, no incorrect answers).

Perceived Financial Knowledge. Participants were asked to indicate how they would assess their overall financial

knowledge on a scale from 1 to 7, where 1 means very low, and 7 means very high.

Perceived Financial Management Capacity. Participants rated the extent to which they can manage their current personal income on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree).

Risk Tolerance. Participants indicated which of the following statements comes closest to describing the amount of financial risk they are willing to assume when they save or make investments: (a) substantial financial risks expecting to earn substantial returns, coded as 3; (b) above-average financial risks expecting to earn above-average returns, coded as 2; (c) average financial risks expecting to earn average returns, coded as 1; (d) not willing to take any financial risks, coded as 0 (Mayer et al., 2011).

Future Time Perspective. Participants responded to two items on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree): (a) I look forward to life in the distant future; (b) it is important to take a long-term perspective on life. The scale of internal consistency (Cronbach's α) was 0.74. Future time perspective was calculated as the unweighted sum of the scores on the two items.

Spousal Support. This was measured using a single item. Participants were asked to what extent their spouse (or partner) believes it is important to save for retirement. Responses were calibrated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Support From Friends. This was measured using a single item. Participants were asked to what extent their friends believe it is important to save for retirement. Responses were calibrated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Social Regulation. Participants responded to two items on a 5-point Likert scale (1 = never; 5 = always): (a) How often does someone remind you to save for retirement? (b) How often does someone help you to save for your retirement? The scale of internal consistency (Cronbach's αalpha) was 0.50. Social regulation was calculated as the unweighted sum of the scores on the two items.

Socialization as a Child. This was measured using a single item. Participants were asked to what extent saving was a lesson learned as a child based on their experience. Responses were calibrated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Parents as Role Models. This was measured using a single item. Participants were asked to what extent their parents were sufficient in planning and saving for their own retirement based on the participants' experience. Responses were calibrated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Background Variables. Educational achievement was classified into nine groups and assigned values from 1 (primary school) to 9 (doctoral degree). Marital status was categorized as single, married, and others (including widowed and divorced). Six response choices were used to measure personal monthly income and household income: No income; HKD 1–HKD 9,999; HKD 10,000–HKD 14,999; HKD 15,000–HKD 19,999; HKD 20,000–HKD 39,999; and HKD 40,000 or above. Entitlement to a retirement plan was measured by the item "Are you presently entitled to any of below retirement plan(s): MPF, other provident fund, civil servant retirement schemes, no retirement plan." If at least one of the first three options were marked, the variable was coded as 1. If the last option was marked, the variable was coded as 0.

Data Analysis

Considering that the amount of private retirement savings was measured by several ordinal categories with differing intervals, ordinal logistic regression (OLR) was considered the most appropriate regression method to estimate coefficients. However, the highly significant ($p < .01$) result of the test of parallel lines indicated that the null hypothesis (location parameters are the same across response categories) was rejected; that is, the assumption of OLR was violated. Instead, a multinomial logistic regression analysis was performed to evaluate the association between key independent variables (retirement goal clarity and estimating retirement needs) and the amount of private retirement savings. Those with the savings between HKD 0 and HKD 499,999 were defined as the low-level saving group; those with the savings between HKD 500,000 and HKD 1,999,999 were defined as the medium-level saving group; and those with the savings equal to or above HKD 2,000,000 were defined as the high-level saving group. All independent variables

were regressed for the amount of private retirement saving according to two groups: those aged 44 years or below (younger group) and those aged over 44 years (older group), as individuals aged over 44 years are more likely to save (Helman et al., 2014). Age 44 is perhaps a turning point in the life cycle when most individuals are married with adult children, allowing them to prepare for their independent future. To test the mediation effect of retirement saving needs estimation for each age group, we first controlled retirement goal clarity and then controlled both retirement goal clarity and estimating retirement needs (Yao, Xiao, & Liao, 2015).

Results

Descriptive Statistics

Table 1 shows the sample's characteristics. The descriptive statistics presented use a cutoff age of 44 years. Whereas the average retirement goal clarity score was 3.26 on a scale of 3 (lowest) to 15 (highest), indicating extremely low levels of goal clarity among working-age adults in Hong Kong, the older group had a higher retirement goal clarity score than their younger counterpart. Approximately 21% of respondents in both age groups estimated their retirement saving needs, which is much lower compared to a

TABLE 1. Descriptive Statistics

	Age ≤ 44		Age > 44		*t* Test/χ^2 Test Value (*df*)
	Mean/%	*SD*	Mean/%	*SD*	
Dependent variable					
Amount of private retirement savings ranging from 0 to 6	1.30	1.61	1.60	1.83	$t(958) = -2.61^{**}$
Key independent variables					
Goal clarity ranging from 3 to 15	3.13	0.93	3.34	0.94	$t(958) = -3.37^{**}$
Estimating retirement needs (1 = yes)	20.9%		20.7%		$\chi^2(1) = .004$
Other independent variables					
Objective financial knowledge	1.92	0.84	1.75	0.85	$t(958) = 3.07^{**}$
Perceived financial knowledge	4.00	1.46	3.80	1.55	$t(958) = 2.03^{*}$
Perceived financial management capacity	3.86	0.91	3.91	0.98	$t(958) = -0.83$
Risk tolerance	1.79	0.84	1.38	0.86	$t(958) = 7.46^{**}$
Future time perspective	4.00	0.78	3.73	0.83	$t(958) = 5.32^{**}$
Spousal support	3.95	0.93	3.96	0.99	$t(958) = -0.18$
Support from friends	3.91	0.84	3.96	0.82	$t(958) = -1.05$
Social regulation	1.25	0.95	1.06	1.04	$t(958) = 2.92^{**}$
Socialization as a child	4.25	0.85	4.32	0.81	$t(958) = -1.34$
Parents as role models	3.64	1.11	3.39	1.20	$t(958) = 3.31^{**}$
Background variables					
Sex (1 = female)	57.1%		48.2%		$\chi^2(1) = 7.36^{**}$
Educational level (1–9)	5.38	2.08	3.77	2.27	$t(958) = 11.33^{**}$
Marital status (1 = married)	45.6%		84.3%		$\chi^2(1) = 160.80^{**}$
Marital status (2 = single)	77.3%		22.7%		$\chi^2(1) = 180.34^{**}$
Marital status (3 = others (divorced or widowed))	30.0%		70.0%		$\chi^2(1) = 1.52$
Number of children	0.66	0.90	1.50	0.96	$t(958) = -13.89^{**}$
Entitlement to a retirement plan	97%		93%		$\chi^2(1) = 5.79^{**}$
Personal income	4.22		4.05		$t(958) = 2.05^{*}$
Household income	5.08		4.80		$t(958) = 3.63^{**}$
Sample size	417		541		

Note. SD = standard deviation.
$^{*}p < .05$. $^{**}p < .01$.

study conducted in the United States, wherein 61% of older respondents and 31% of younger respondents reported retirement saving needs estimation (Mayer et al., 2011). This suggests a relatively lower level of concern about retirement savings among Hong Kong working adults. Additionally, whereas the older group in our sample had 23.1% more private retirement savings than their younger counterparts, the private retirement savings of older respondents in the U.S.-based study was nearly seven times higher than that of the younger respondents (Mayer et al., 2011). Furthermore, compared to the older group, the younger group in the present study had more female participants, a higher level of education, a lower marriage rate, fewer children, were more likely to be entitled to a retirement plan, and generated more personal and family income. Table 1 also shows that an age difference was found for most other variables. Specifically, younger workers performed better in the three-item financial literacy test, had the higher level of perceived financial knowledge, were more willing to take financial risks, and were more future-oriented compared to older respondents. Moreover, younger workers reported the higher level of social regulation for retirement-related saving and were more likely to view parents as their financial role models compared to older workers. Nearly all χ^2 and independent sample *t* values between groups were significant at the .01 level.

Multivariate Analysis

Table 2 shows the results of the multinomial logistic regressions for the younger group (age ≤44) for the purpose of exploring how estimating retirement saving needs affects private retirement savings amounts and the mediation effect between retirement goal clarity and private retirement savings amounts among younger respondents. Model 1 and Model 2 in Table 2 explored factors affecting the odds of being in the high- or medium-level rather than low-level retirement saving group. Model 1 did not control estimating retirement saving needs, whereas Model 2 included it as an independent variable. The two final models excluded future time perspective, as it was positively correlated with retirement goal clarity with a large effect size. The negative effect of multicollinearity resulting from the inclusion of both variables cannot be ignored. Compared to the models that only included the intercept, the significant results— $\chi^2(40, N = 417) = 162.07$, $p < .01$ for Model 1 and $\chi^2(42, N = 541) = 165.68$, $p < .01$ for Model 2—suggest that the addition of variables could significantly improve the model-data fit.

In Model 1, when retirement saving needs estimation was excluded from the model, an increase of 1 standard deviation (*SD*) in retirement goal clarity resulted in 1.29 greater odds of being in the medium-level retirement saving group rather than the low-level retirement saving group, and 1.89 greater odds of being in the high-level rather than the low-level retirement saving group. Other than retirement goal clarity, two variables represented significant parameters for comparing low- and high-level retirement saving: the odds in favor of a high level of saving rather than low level of saving increased by 1.89 times with a 1-*SD* increase in perceived financial knowledge, and nearly five times for a 1-*SD* increase in perceived financial management capacity. Moreover, a 1-*SD* increase in likelihood of modeling parents' good financial planning activities resulted in a 0.72-fold decrease in the odds of being in the medium-level rather than the low-level retirement saving group.

In Model 2, when including retirement saving needs estimation into the model, patterns of parameter significance remained similar. Retirement saving needs estimation did not appear to improve the odds of being in the medium- or high-level retirement saving groups. However, when controlling for retirement saving needs estimation (Model 2), a 1-*SD* increase in the number of children resulted in a 2.42-fold increase in the odds of being in the high-level retirement saving group than in the low-level group.

Table 3 shows the results of the multinomial logistic regression for the older group (age >44), for the purpose of exploring how estimating retirement saving needs affects private retirement savings amounts and the mediation effect between retirement goal clarity and private retirement saving levels among older respondents. Similarly, Model 3 and Model 4 in Table 3 explored factors affecting the odds of being in the high- or medium-level rather than low-level retirement saving group. Model 3 did not control estimating retirement saving needs, whereas Model 4 included it as an independent variable. Compared to the model including only the intercept, both models that excluded future time perspective as a control variable, where $\chi^2(40, N = 417) = 229.02$, $p < .01$ for Model 3 and $\chi^2(42, N = 541) = 237.98$, $p < .01$ for Model 4, indicate that the addition of variables could significantly improve the model-data fit.

In Model 3, when retirement saving needs estimation was not controlled, a 1-*SD* increase in retirement goal clarity

TABLE 2. Multinominal Regressions of Private Retirement Savings of Hong Kong Working Adults (Age ≤ 44)

	Model 1			Model 2		
	Low Level vs.	**Coefficient**	***OR***	**Low Level vs.**	**Coefficient**	***OR***
Key independent variables						
Retirement goal clarity	Medium level	0.25**	1.29	Medium level	0.26**	1.3
	High level	0.64**	1.89	High level	0.58**	1.78
Estimating retirement saving needs	Medium level			Medium level	0.20	1.22
(0 = not, reference group: 1)	High level			High level	−1.14	0.32
Other independent variables						
Objective financial knowledge	Medium level	0.18	1.19	Medium level	0.19	1.21
	High level	−0.12	0.89	High level	−0.19	0.82
Perceived financial knowledge	Medium level	0.23	1.26	Medium level	0.23	1.26
	High level	0.64*	1.89	High level	0.60*	1.83
Perceived financial management capacity	Medium level	0.29	1.31	Medium level	0.28	1.32
	High level	1.58*	4.86	High level	1.63**	5.08
Risk tolerance	Medium level	0.33	1.38	Medium level	0.37	1.45
	High level	−0.59	0.55	High level	−0.88	0.42
Spousal support	Medium level	0.68	1.97	Medium level	0.67	1.96
	High level	−0.42	0.66	High level	−0.36	0.70
Support from friends	Medium level	−0.20	0.82	Medium level	−0.22	0.81
	High level	−0.54	0.58	High level	−0.51	0.60
Social regulation	Medium level	0.09	1.1	Medium level	0.10	1.10
	High level	0.06	1.07	High level	0.01	1.01
Socialization as a child	Medium level	0.29	1.33	Medium level	0.28	1.33
	High level	1.19	3.29	High level	1.16	3.19
Parents as role models	Medium level	−0.33*	0.72	Medium level	0.34*	0.71
	High level	−0.31	0.71	High level	−0.31	0.74
Background variables						
Sex (0 = male, reference group: 1)	Medium level	0.37	1.44	Medium level	0.40	1.49
	High level	0.36	1.43	High level	0.23	1.26
Age	Medium level	0.78	2.19	Medium level	0.77	2.17
	High level	1.65	5.21	High level	1.40	4.04
Age^2	Medium level	−0.01	0.99	Medium level	−0.01	0.99
	High level	−0.02	0.98	High level	−0.02	0.98
Educational level	Medium level	0.01	1.01	Medium level	0.02	1.02
	High level	0.12	1.13	High level	0.10	1.11
Marital status	Medium level	1.75	5.74	Medium level	1.72	5.58
(0 = not married, reference group: 1)	High level	1.97	7.18	High level	2.15	8.60
Marital status	Medium level	1.73	5.66	Medium level	1.77	5.84
(0 = not single, reference group: 1)	High level	1.58	4.83	High level	1.46	4.31
Number of children	Medium level	−0.27	0.77	Medium level	−0.31	0.73
	High level	0.7	2.02	High level	0.88*	2.42
Household income	Medium level	0.35	1.42	Medium level	0.35	1.42
	High level	0.22	1.25	High level	0.30	1.34

(Continued)

TABLE 2. Multinominal Regressions of Private Retirement Savings of Hong Kong Working Adults (Age ≤ 44) *(Continued)*

	Model 1			Model 2		
	Low Level vs.	**Coefficient**	***OR***	**Low Level vs.**	**Coefficient**	***OR***
Personal income	Medium level	0.15	1.16	Medium level	0.15	1.16
	High level	0.51	1.67	High level	0.52	1.68
Entitlement to a retirement plan	Medium level	−0.67	0.51	Medium level	−0.68	0.51
(0 = not, reference group: 1)	High level	−20.1	0.00	High level	−19.83	0.00
Nagelkerke R^2	0.49			0.5		

Note. *OR = odds ratio*.
* p < .05.; ** p < .01.

level resulted in a 1.34-fold increase in the odds of being in the medium-level rather than the low-level retirement saving group, and a 1.41-fold increase in the odds of being in the high-level rather than the low-level retirement saving group. In addition, a 1-*SD* increase in perceived financial knowledge and educational level reflected a 1.66- and a 1.34-fold increase in the odds of being in the high-level rather than the low-level retirement saving group, respectively. Furthermore, the odds of being in the medium-level rather than the low-level retirement saving group increased by 1.17, 1.19, and 1.46 times with a 1-*SD* increase in social regulation, education level, and household income, respectively. The results show that being unmarried (single, divorced, or widowed), compared to being married, was associated with a nearly four- and six-fold increase in the odds of being in the medium- or high-level groups, respectively.

In Model 4, when including retirement saving needs estimation as a control variable, the effect size of parameters for retirement goal clarity decreased; furthermore, when not performing retirement saving needs estimation, the odds of being in the high-level saving group rather than the low-level group decreased by 0.27. Other than retirement goal clarity and retirement saving needs estimation, the effect of the other parameters in Model 4 did not change significantly, compared to those in Model 3.

Discussion

Consistent with Stawski et al.'s (2007) empirical study conducted in the United States, retirement goal clarity was found to be an important part of retirement saving activities and has influenced how younger and older Hong Kong working adults generate these retirement savings. Partially consistent with the findings of Mayer et al., 2011 in the United States, retirement saving needs estimation may increase the probability of generating a high level of savings, but only for individuals aged over 44 years. Compared with older adults, younger adults may have higher levels of daily consumption that restrict their capacity to save despite having estimated their retirement saving needs. In addition, younger adults may believe that saving for retirement is a less urgent need when they receive satisfactory income through the labor market. They may even postpone saving behavior, even if they know how much should be saved upon retirement. The decrease in the parameters' effect sizes with regard to retirement goal clarity among older respondents implies that retirement saving needs estimation is likely to mediate the association between retirement goal clarity and the generation of private retirement savings.

For younger adults, perceived financial knowledge and perceived financial management capabilities had a positive effect on the amount of private retirement savings; this is consistent with Stawski et al.'s (2007) finding that financial planning activities affect savings contributions. It is also consistent with Serido, Shim, and Tang's (2013) study conducted in the United States, which found subjective—rather than objective—financial knowledge to be more strongly associated with a higher tendency to perform healthy financial behaviors, of which the saving behavior is an important aspect. Unexpectedly, this study found that younger adults whose parents engaged in better retirement planning were less likely to save. The negative relationship between parents as role models and private retirement savings can be explained by Kim and Chatterjee (2013) argument that parents' high level of financial ownership for successful financial planning may decrease the next generation's motivation

TABLE 3. Multinominal Regressions of Private Retirement Savings of Hong Kong Working Adults (Age >44)

	Model 3			Model 4		
	Low Level vs.	**Coefficient**	***OR***	**Low Level vs.**	**Coefficient**	**OR**
Key independent variables						
Retirement goal clarity	Medium level	0.29**	1.34	Medium level	0.28**	1.32
	High level	0.36**	1.41	High level	0.28**	1.32
Estimating retirement saving needs	Medium level			Medium level	−0.40	0.63
(0 = not, reference group: 1)	High level			High level	−1.31**	0.27
Other independent variables						
Objective financial knowledge	Medium level	−0.05	0.96	Medium level	−0.06	0.94
	High level	−0.05	0.95	High level	−0.14	0.87
Perceived financial knowledge	Medium level	0.05	1.16	Medium level	0.14	1.16
	High level	0.51**	1.66	High level	0.49**	1.64
Perceived financial management capacity	Medium level	0.20	1.22	Medium level	0.20	1.22
	High level	0.47	1.60	High level	0.58	1.78
Risk tolerance	Medium level	0.03	1.03	Medium level	0.01	1.01
	High level	−0.15	0.86	High level	−0.24	0.79
Spousal support	Medium level	−0.11	0.89	Medium level	−0.11	0.90
	High level	0.20	1.22	High level	0.25	1.28
Support from friends	Medium level	−0.05	0.95	Medium level	−0.08	0.92
	High level	0.25	1.29	High level	0.16	1.17
Social regulation	Medium level	0.16*	1.17	Medium level	0.16*	1.17
	High level	−.0.04	0.96	High level	−0.05	0.95
Socialization as a child	Medium level	−0.08	0.93	Medium level	−0.06	0.94
	High level	−0.41	0.66	High level	−0.39	0.68
Parents as role models	Medium level	−0.01	0.99	Medium level	−0.01	0.99
	High level	−0.41	0.66	High level	0.26	1.30
Background variables						
Sex (0 = male, reference group: 1)	Medium level	−0.18	0.83	Medium level	−0.23	0.79
	High level	−0.32	0.73	High level	−0.69	0.50
Age	Medium level	−0.67	0.51	Medium level	−0.69	0.50
	High level	0.44	1.56	High level	0.31	1.36
Age^2	Medium level	0.01	1.01	Medium level	0.01	1.01
	High level	−0.01	0.99	High level	−0.01	0.99
Educational level	Medium level	0.18*	1.19	Medium level	0.17*	1.18
	High level	0.31**	1.34	High level	0.29**	1.34
Marital status	Medium level	1.32*	3.72	Medium level	1.31*	3.69
(0 = not married, reference group: 1)	High level	1.94*	6.94	High level	1.99*	6.94
Marital status	Medium level	0.89	2.44	Medium level	0.90	2.46
(0 = not single, reference group: 1)	High level	1.46	4.30	High level	1.44	4.20
Number of children	Medium level	0.04	1.04	Medium level	0.05	0.05
	High level	−0.15	0.86	High level	−0.13	0.88

(Continued)

TABLE 3. Multinominal Regressions of Private Retirement Savings of Hong Kong Working Adults (Age >44) *(Continued)*

	Model 3			Model 4		
	Low Level vs.	**Coefficient**	***OR***	**Low Level vs.**	**Coefficient**	**OR**
Household income	Medium level	0.38*	1.46	Medium level	0.38*	1.47
	High level	0.70	2.00	High level	0.73	2.06
Personal income	Medium level	−0.18	0.84	Medium level	−0.19	0.83
	High level	0.43	1.52	High level	0.69	0.48
Entitlement to a retirement plan	Medium level	−1.56	0.21	Medium level	−1.61	0.20
(0 = not, reference group: 1)	High level	−0.52	0.59	High level	−0.59	0.56
Nagelkerke R^2	0.47			0.48		

Note. *OR = odds ratio*.
* p < .05.; ** p < .01.

to save and plan. Unsurprisingly, younger adults with more children were significantly more likely to save, as financial resources would need to be carefully invested for their children's future.

Among older adults, a high level of perceived financial knowledge increased the probability of having a high level of retirement savings. Additionally, social regulation had a positive effect on the amount of private savings only for older adults. This implies that older adults need to be motivated or reminded to save, plan, and execute saving plans by significant others and experts. On the other hand, younger adults have access to similar assistance through new media and social applications. Consistent with Mayer et al. (2011) findings, educational achievement was found to be positively associated with the amount of private retirement savings. Individuals with higher levels of education may better understand the life cycle consumption model and recognize the importance of saving for retirement. They may also place more value on the quality of life in retirement and thus may be motived to save in order to achieve their retirement goals. Considering that educational level is a significant determinant of savings among older adults, we can interpret this as a delayed effect, influenced by life experience. Similar to Mayer et al. (2011) results, married respondents were less likely to generate private savings for retirement. This may be explained by the higher expenditure rates associated with marriage in both the United States and Hong Kong: for example, greater household demands and having children limit individuals' ability to save as they age. As expected, basic economic capacities such as household income influence the amount of private retirement savings.

Overall, the difference found in retirement goal clarity, estimating retirement saving needs, and their effects on saving outcome between younger and older respondents may result from age effects. In comparison, the difference in background variables, other variables, and their influential power may be due to generation effects. Younger generations depend on perceived financial knowledge and management capacity, parental socialization, and demand associated with children to perform saving behavior. In contrast, older generations conduct saving behavior based on perceived financial knowledge, social regulation, demands associated with marriage, and economic capacity.

In general, the present findings support the three hypotheses. Although our study has made significant theoretical contributions, some limitations cannot be ignored. Self-reports may not yield accurate results: we asked respondents to report on whether they estimated their retirement saving needs rather than exploring whether their estimations were accurate. Thus, our study could only answer whether a "sense of estimation," rather than accurate assessment, could motivate saving behavior that would lead to achieving retirement goals. Future studies can use more precise measures to better determine the influence of estimation. We also did not obtain information, noting the timeframe that these estimations were performed. For example, older adults may have estimated their retirement needs when they were young; this may limit the interpretation of results and the potential reliability to influence policy decisions. Thus, future studies should restrict the estimating retirement saving needs to a specific period. Furthermore, many associations within the models are not significant, which is

likely due to limited sample size, and the limited number of respondents in each level of private savings. Future studies should consider recruiting more participants. Finally, the nature of cross-section data does not permit one to determine cause–effect relationships; future research could consider obtaining longitude data and adopting structural equation modeling to better explore the process of generating private retirement savings.

Policy Implications

Hong Kong—like many areas in Asia—is aging rapidly as it continues to develop a safeguarding system for retirement. Whereas it takes an average of 72 years for populations of older adults in France, Germany, Sweden, and the United Kingdom to double from 7% to 14%, it takes only an average of 23 years for Asian countries, including China, the Republic of Korea, Indonesia, Malaysia, Philippines, Singapore, and Thailand to double (Lum, 2011). Most Asian countries have urgent needs to deal with rapidly aging populations. Traditionally, older people in Hong Kong have depended on their adult children for financial support. This support has declined because traditional filial piety has weakened, and the average family size has decreased because of the extremely low birth rate over recent decades. In response to these demographic and social changes, the Hong Kong government has gradually reformed its retirement protection policies since early 2000 by introducing a privately funded, government mandated retirement saving system. It has also tried to encourage the working-age population to save more for retirement. In general, however, very little is known about the factors affecting private retirement saving behavior in Hong Kong and in Chinese societies. Therefore, we examined the effect of several factors on individuals' private retirement savings.

The results indicate markedly the importance of clarifying retirement goals and estimating retirement needs to improve the size of private retirement savings. At the policy level, it is important to motivate local residents to clarify retirement goals by guiding them to plan for the future. The Hong Kong society is presently debating whether to introduce a national pension scheme or to continue revising the current MPF to protect the retirement income of local residents. Government decisions must be made expeditiously to ensure that working adults create stable expectations regarding their future financial situations, especially after retirement. This will allow them to consider the quality of retired life they would like to enjoy. At the community level, residents should be educated about the importance of retirement goal clarity by inviting guest speakers to share their successful and unsuccessful retirement experiences in relation to retirement goal clarity. Residents can then be encouraged to perform retirement saving needs estimations. However, considering that estimating retirement needs is difficult and requires extensive financial knowledge, the government needs to collaborate with business banks and financial institutions to fund online financial calculators and provide more financial counseling services in their branches (Lown & Ju, 2000; Rhine & Toussaint-Comeau, 2002; Sullivan, 1995).

For individuals aged exactly 44 years or younger, increasing perceived financial management capacity may improve the level of private retirement savings. Thus, perceived financial management capacity can be improved by increasing confidence through experience in managing finances. Workshops and counseling services should be introduced at the community level to emphasize losses associated with failure to perform active financial management. More people from diverse economic backgrounds should be encouraged to participate, especially those without prior experience in actively managing personal assets. Encouraging financial practices positively influences financial confidence and perceived financial knowledge, as evidenced by the present study, which found that financial knowledge extensively impacted the private retirement savings among both younger and older adults. For younger adults, directly providing objective financial knowledge through formal financial education at the school levels appears to be a good strategy, as its early introduction is recommended (OECD, 2005).

For older adults, policies should provide more access to financial services (e.g., shuttle bus service) and the augmentation of knowledge from actual financial experience, especially for the high-risk groups: married individuals and those with lower levels of education. Moreover, considering that social regulation affects older adults' retirement savings, communities should organize face-to-face consultation, adopt strategies to remind older adults to save, and teach them how to develop and execute saving plans.

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