

Draft Final Report

**How to Increase the Demand for Annuities in
Hong Kong: A study of Middle-Aged Adults**

如何增加香港中年人對年金的需求

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Some Abbreviations Used in the Report

CSPF	Civil Service Provident Fund
CSSA	Comprehensive Social Security Assistance
MPF	Mandatory Provident Fund
MPFA	Mandatory Provident Fund Schemes Authority
OALA	Old Age Living Allowance
OAA	Old Age Allowance
ORSO	Occupational Retirement Schemes Ordinance

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Abstract

Annuities are financial products that consumers purchase with a lump sum of money; they then receive a steady flow of monthly income from the annuity until they die. If they do not have an annuity, retirees confront two competing risks as they allocate their accumulated assets in the Mandatory Provident Fund (MPF) scheme or manage their private retirement savings. On the one hand, if retirees spend their retirement savings too rapidly they may exhaust their financial resources before they die and then have to rely entirely on welfare benefits or other sources of income. On the other hand, if they spend conservatively there is the chance of their dying with ample assets that they could have spent to enhance their standard of living in their retirement years (although their inheritors may receive the remaining assets as bequests). Annuities solve the problem posed by these two competing risks, so that retirees spend neither too much nor too little. As a result, according to simple theoretical models, the majority of risk-averse retirees – especially those who do not have a bequest motive – should annuitize all of their MPF assets. However, as in other countries, the rate of participation in annuity schemes is extremely low in Hong Kong. As the MPF scheme (a defined-contribution scheme) is becoming more and more mature, it is very important to identify the reasons underlying this phenomenon and to encourage more retirees to consider the option of buying an annuity. In this study, we conducted a discrete choice experiment with 500 middle-aged (aged 40–64 years) MPF scheme members and a survey of 1,067 middle-aged (aged 40–64 years) MPF scheme members. In the choice experiment, we found that the most popular annuity was one with a fixed annual income, without intra-year bonus payments, with a 10-year guarantee period, and from an A-rated provider. In the consumer study, approximately one-third of the respondents “purchased” the optimal annuity mentioned above rather than continuing to manage their assets themselves. Moreover, we found that understanding annuities is the most important predictor of choosing to buy an annuity. Surprisingly, bequest motives and higher financial literacy lead to lower demand for annuities. In light of the findings, we recommend that the Government, or a statutory body, launch a Public Annuity Voluntary Scheme that offers an annuity with a 10-year guarantee period; and intensive public education of the annuity needs to be delivered to middle-aged adults who will retire in the coming 10 years, in order to increase retirees’ acceptance of annuities.

摘要

年金是一種為金融合約，其中購買者付出一定數額的金錢以換取持續到他們終老的每月收入。假如沒有年金，當退休人士使用在強積金中積累的資產時，他們面臨兩個風險。一方面，如果他們過度消費，他們可能會在終老前耗盡積蓄，繼而要依賴綜援或其他收入來源。另一方面，如果他們在消費上太保守，他們可能會在終老時剩下大量資產，而不能有效地使用資產以提高其生活水平。年金便可以減低這兩個風險。因此，如果退休人士如沒有留下遺產的打算，他們理應把全部強積金資產年金化。然而，與其他國家相似，年金的參與率在香港極低。當強積金計劃越趨成熟，探討年金的低參與率現象和鼓勵更多的退休人士購買年金是十分重要的。在這項研究，我們選取了 500 名中年(年齡由四十至六十四歲)就職人士進行一個選擇實驗，從而找出最可取的年金產品。然後我們會向 1,067 名中年(年齡由四十至六十四歲)就職人士進行消費者問卷調查，目的是找出哪些消費者特徵顯著與最可取的年金產品的需求相關。在選擇實驗中，我們發現最受歡迎年金計劃為固定年金收入、無年內一次性花紅、有 10 年保證期及由 A 評級金融機構提供。而在消費者調查中，我們發現約三分之一受訪者願意購買上述最佳年金計劃，而不繼續自我管理資產。此外，對年金的認識為選擇年金的重要預測指標，出人意料地若打算留下遺產及理財知識較高，對年金的需求則較低。根據研究結果，我們建議政府或法定機構應推出公共年金自願計劃並設 10 年保證期，並就未來 10 年退休的中年人士，加強他們對年金的認識，以提高退休人士對年金的接受程度。

Chapter 1. Introduction

- 1.1. It is not surprising to discover that, in the literature on retirement income protection, the asset accumulation stage (during which retirement-savings decisions are made) has been investigated extensively,^{1,2} because it is crucial that workers start and continue to save for their retirement during their 30 years of working prior to retirement. Recently, however, economists, public policy experts, and those in the financial services industry have started to focus their attention on the decumulation stage following retirement; that is, on how to optimally spend down accumulated savings. One of the reasons for this trend is the commonness of the defined-contribution retirement protection schemes, such as individual-account retirement saving schemes, through which retirees receive their retirement savings in a lump sum upon retirement. The size of the decumulation problem is great, with only approximately US\$66.2 billion (HK\$516 billion) invested in retirement saving schemes – such as the Mandatory Provident Fund (MPF) – up to March 2014;³ and the problem will continue to grow in the coming decade, as the MPF will not mature until 2025 (25 years after its implementation in 2000).
- 1.2. In the financial services industry, decumulation products (such as life annuities) have been developed to solve the problem for retirees that is described below. An annuity is a financial product that consumers purchase with a lump sum of money; they then receive from it a steady flow of monthly income until they die. If they do not have an annuity, retirees confront two competing risks as they allocate their accumulated assets in the Mandatory Provident Fund (MPF) scheme or manage their private retirement savings. On the one hand, if retirees spend their retirement savings too rapidly, they may exhaust their financial resources before they die and then have to rely entirely on welfare benefits or other sources of income. On the other hand, if they spend conservatively there is the chance of their dying with ample assets that they could have spent to enhance their standard of living in their retirement years (although their inheritors may receive the remaining assets as bequests). Annuities solve the problem posed by these two competing risks, so that retirees spend neither too much nor too little. As a result, according to simple theoretical models, the majority of risk-averse retirees – especially those who do not have a bequest motive – should annuitize all of their MPF assets. In addition, older persons also face substantial uncertainty about their life

¹ Dilip Soman and Amar Cheema, "Earmarking and Partitioning: Increasing Saving by Low-Income Households," *Journal of Marketing Research* 48, no. SPL (2011).

² Hal E. Hershfield et al., "Increasing Saving Behavior through Age-Progressed Renderings of the Future Self," *ibid.*

³ MPFA, "Providing Better Investment Solutions for Mpf Members: Consultation Paper," (Hong Kong: MPFA, 2014).

- expectancy when they make this financial decision; this is one of the important factors determining the optimal choice in the decumulation process.⁴ _
- 1.3. Life annuities solve the consumption problem in retirement by protecting individuals from the risk of using up all of their assets before they die. Put in its simplest form, a retiree exchanges a lump sum (of his/her savings) for a guaranteed flow of monthly payments until he/she dies. Moreover, actuarially fair annuities have higher investment returns than other equally risky assets even though with an annuity there will be a residual asset value at the time of death. As a result, according to simple theoretical models' predictions, the majority of risk-averse retirees should annuitize all of their MPF assets if they do not have a bequest motive.
- 1.4. However, the rate of participation in annuity schemes is extremely low in Hong Kong and in other countries. Specifically, regarding defined-benefit pension plans in the US, only 25% to 50% of retirees there choose an annuity as the payout option despite the fact that an annuity is the default choice and opting out demands time-consuming administrative procedures.^{5,6,7,8} Furthermore, only about 10% of the retirees who participate in defined-contribution savings plans annuitize their accumulated assets in their individual account.⁹ _
- 1.5. In Hong Kong, only 11,321 new individual annuities were purchased in 2012, but in the same year over one million (1,069,548) new individual life insurance policies were purchased. This reluctance to annuitize is known as the "annuitization puzzle"¹⁰ because the advantage of annuities is the protection they provide against outliving one's savings.^{11,12} As Hong

⁴ John W. Payne et al., "Life Expectancy as a Constructed Belief: Evidence of a Live-to or Die-by Framing Effect," *Journal of Risk and Uncertainty* 46, no. 1 (2013).

⁵ Gary R. Mottola and Stephen P. Utkus, "Lump Sum or Annuity? An Analysis of Choice in Db Pension Payouts," *Vanguard Center for Retirement Research* 30, no. 89 (2007).

⁶ Shlomo Benartzi, Alessandro Previtro, and Richard H. Thaler, "Annuitization Puzzles," *The Journal of Economic Perspectives* 25, no. 4 (2011).

⁷ Alessandro Previtro, "Driving by Looking in the Rearview Mirror: Stock Returns and Annuitization and Older Ages," *Manuscript, University of Western Ontario* (2012).

⁸ Sudipto Banerjee, "Annuity and Lump-Sum Decisions in Defined Benefit Plans: The Role of Plan Rules," *EBRI Issue Brief*, no. 381 (2013).

⁹ Richard W. Johnson, Leonard E. Burman, and Deborah I. Kobes, *Annuitized Wealth at Older Ages: Evidence from the Health and Retirement Study* (Washington D.C.: Urban Institute, 2004).

¹⁰ Franco Modigliani, "Life Cycle, Individual Thrift, and the Wealth of Nations," *The American Economic Review* 76, no. 3 (1986).

¹¹ Menahem E. Yaari, "Uncertain Lifetime, Life Insurance, and the Theory of the Consumer," *The Review of Economic Studies* 32, no. 2 (1965).

¹² Thomas Davidoff, Jeffrey R. Brown, and Peter A. Diamond, "Annuities and Individual Welfare,"

Kong's MPF defined-contribution retirement protection scheme becomes more and more mature, it becomes very important to identify the reasons underlying this phenomenon, so that more retirees can be encouraged to opt for an annuity. **The overall objective of this study was to identify the best design for annuities, by means of a discrete choice experiment (DCE); and to examine the demand for such an annuity or annuities, as well as to identify factors associated with the demand for it/them, by means of a consumer survey of middle-aged adults (i.e., the potential consumers of annuities) in Hong Kong who are MPF scheme members.**

Retirement Income Protection System in Hong Kong

- 1.6. Due to both longer life expectancy and a low fertility rate, Hong Kong is a rapidly aging society. According to the latest projection, Hong Kong's population of elderly people will more than double between 2014 and 2064, rising from 107 million to 258 million over this period.¹³ As in other aging societies, in Hong Kong providing retirement security is one of the major challenges facing policymakers. According to the multi-pillar model proposed by the World Bank,¹⁴ in Hong Kong retirement income protection currently rests on four pillars: publicly-funded social security schemes, the privately-managed mandatory occupational pension scheme, voluntary savings, and public services together with family support.
- 1.7. The first (non-contributory) pillar in Hong Kong consists of three programs¹⁵ that cover approximately 70% of the elderly persons in Hong Kong: the Old Age Comprehensive Social Security Assistance (Old Age CSSA) scheme, which covers 13% of them; the Old Age Living Allowance (OALA), which covers 37% of them; and the Old Age Allowance (OAA), which covers 19% of them. All three schemes are non-contributory, being financed from tax revenues; and only the OAA is not a means-tested benefit.¹⁶ Depending on the health and needs of the elderly recipients, the monthly benefits received by them range from US\$470.1 (HK\$3,667) to US\$1,341.3 (HK\$10,462); the average amount is US\$711.3 (HK\$5,548). The limits on assets and annual income that are used in determining

American Economic Review 95, no. 5 (2005).

¹³ Census and Statistics Department, "Hong Kong Population Projections 2015-2064," ed. Census and Statistics Department (Hong Kong 2015).

¹⁴ Robert Holzmann, *Old-Age Income Support in the 21st Century: An International Perspective on Pension Systems and Reform* (Washington DC: World Bank Publications, 2005).

¹⁵ K. L. Chou, I. Chi, and N. W. S. Chow, "Sources of Income and Depression in Elderly Hong Kong Chinese: Mediating and Moderating Effects of Social Support and Financial Strain," *Aging & Mental Health* 8, no. 3 (2004).

¹⁶ Commission on Poverty, "Retirement Protection Forging Ahead: Consultation Document," (Hong Kong: Commission on Poverty, 2015).

eligibility for the means-tested benefit are, for a single person, US\$551.3 (HK\$43,500) and US\$410.3 (HK\$3,200), respectively. The administrative procedure for granting the CSSA is strict, and the application and means tests are conducted on a household basis.

- 1.8. The second of the public programs is the OALA; it was launched in 2013 and is designed for elderly people (aged 65 and above) who need financial assistance but are not eligible for the CSSA because of its means-test criteria. The monthly benefit from the means-tested OALA was US\$306.4 (HK\$2,390) in 2015; the disqualifying asset and income limits in the OALA means tests are much higher than the corresponding limits in the CSSA means tests, being US\$26,923.1 (HK\$210,000) and US\$941.0 (HK\$7,340), respectively, for a single person. Compared with the CSSA, the OALA's criteria are much less strict; for example, financial support from family members is not regarded as income in the OALA means tests. Older persons who are aged 70 and above are eligible to apply for the OAA, which is universal in nature; the monthly benefit is US\$158.3 (HK\$1,235).
- 1.9. The second pillar, namely the Mandatory Provident Fund (MPF) scheme – a privately-managed mandatory occupational pension scheme – was first implemented in 2000. The scheme is for mandatory savings in individual accounts; it is contribution-defined, privately managed, and employment based. Before 2000, about 30% of the workforce was covered by either the Occupational Retirement Scheme Ordinance (ORSO) schemes provided by individual employers or by the pension scheme for civil servants, the Civil Service Pension Scheme;¹⁷ these individuals were exempted from the MPF scheme. Although these two schemes are now fading out, they still belong to the second pillar of retirement income protection in Hong Kong. The MPF and ORSO schemes are settled in a lump sum; but in the pension scheme for civil servants the settlement can be a mix of a lump sum payment and an annuity arrangement. Far more employees participate in the MPF than in the two other schemes – the MPF covers all employees and self-employed individuals aged over 18 – and they all contribute 5% of their salary to their own individual account; an individual's employer (if he/she is not self-employed) contributes the same amount. There are minimum (US\$910.3 = HK\$7,100) and maximum (US\$3,846.2 = HK\$30,000) income thresholds in this scheme; and if an individual's income is below the minimum level, only the employer makes the contribution to the scheme. In the third quarter of 2015, 73% of the 3.46 million working population were covered by the MPF scheme.¹⁸ As at the end of October 2015, MPF assets had reached US\$76.2 billion (HK\$594.2 billion), of which approximately US\$15.8 billion (HK\$123 billion) were investment returns.¹⁶

¹⁷ Alan Siu, "Hong Kong's Mandatory Provident Fund," *Cato J.* 22 (2002).

¹⁸ MPFA, "Mandatory Provident Fund Schemes Statistics Digest December 2015," (Hong Kong: MPFA, 2016).

- 1.10. Thus, the MPF scheme is designed to be not only the principal vehicle for securing retirement income protection for all workers but also a means of reducing the future burden on the Government's welfare budget, especially as regards those who are capable of saving for their retirement. It is projected that the accrued funds in the MPF scheme will become the largest asset of Hong Kong workers, instead of their family homes; this will occur in the coming 25 years, because the scheme will take 40 years to fully mature. In other words, the role of the MPF in Hong Kong's retirement-income protection system will become more and more important in the coming three decades.
- 1.11. The third pillar of retirement income protection in Hong Kong consists of both private savings and financial support from adult children.¹⁵ As in other Chinese societies, in Hong Kong filial support arising from the traditional value of filial piety is still a social norm.^{19,20,21} Almost 60% (58.4%) of the current cohort of elderly people receive financial support from their adult children, the median annual income from this source being HK\$19,188.²² The total annual amount of financial support given by adult children to their elderly parents is approximately HK\$23.2 billion. However, it is expected that this will decline substantially in the next three decades,; a decrease in the proportion of older adults co-residing with their adult children; a reduction in the number of adult children, as a result of the low fertility rate; and a weakening of intergenerational family obligations.^{23,24,25,26}
- 1.12. Due to the anticipated decline in the financial support given by adult children to future cohorts of elderly people, more and more workers are saving money specifically for their retirement income protection. In Hong Kong, slightly over 70% (71.1%) of persons aged between 35 and 64 have prepared for their retirement financially, and the most common way of preparing is by accumulating private savings (55.5%).²⁷ Our previous

¹⁹ S.T. Cheng and A.C. Chan, "Filial Piety and Psychological Well-Being in Well Older Chinese," *Journal of Gerontology: Psychological Sciences* 61B (2006).

²⁰ W.K. Lee and H. Kwok, "Differences in Expectations and Patterns of Informal Support for Older Persons in Hong Kong: Modification to Filial Piety," *Ageing International: Behavioral Science* 30 (2005).

²¹ H.J. Zhan, "Willingness and Expectations: Intergenerational Differences in Attitudes toward Filial Responsibility in China," *Marriage & Family Review* 36 (2004).

²² Census and Statistics Department, "General Household Survey: Special Topics Report No. 27," ed. General Household Survey Section (Hong Kong 2001).

²³ K.L. Chou, "Number of Children and Upstream Intergenerational Financial Transfers: Evidence from Hong Kong," *The Journals of Gerontology: Social Sciences* 65(B), no. 2 (2010).

²⁴ J. Knodel et al., "Intergenerational Exchanges in Vietnam: Family Size, Sex Composition, and the Location of Children," *Population Studies* 54 (2000).

²⁵ J.R. Logan and F.Q. Bian, "Parents' Needs, Family Structure, and Regular Intergenerational Financial Exchange in Chinese Cities," *Sociological Forum* 18 (2003).

²⁶ Z. Zimmer and J. Kwong, "Family Size and Support of Older Adults in Urban and Rural China: Current Effects and Future Implications," *Demography* 40 (2003).

²⁷ AXA, "Axa Retirement Scope: Retirement, a New Life after Work? Results for Hong Kong, with

study also revealed that slightly over two-thirds of workers aged between 30 and 59 prepare for their retirement with savings.²⁸ In a survey of Hong Kong adults aged between 25 and 64 that was conducted in 2012, it was estimated that the total amount of their private retirement savings was approximately US\$50.8 billion.²⁹ The savings in the MPF and private retirement savings are projected to increase substantially in the coming decades, and measures are needed to facilitate the decumulation of these savings after retirement, while reducing both the threat that increasing longevity will pose to retirees' income security and the risks associated with investments. As mentioned earlier, although a financial product that converts their savings into a continuous and stable flow of income after retirement (as an annuity does) is a feasible solution, in Hong Kong the percentage of people who purchase annuities is extremely low. Therefore, it is important to examine why this is the case and seek ways to resolve the problem.

Product Characteristics

- 1.13. Extensive overseas studies have been conducted to explain the annuitization puzzle, and the barriers that prevent consumers from purchasing annuities may be classified into two broad categories: consumers' characteristics and the characteristics of the product(s). Many individuals are reluctant to buy annuities due to factors related to the annuity product itself. These factors include loss of control of the consumption pattern in retirement, losing money to annuity providers, and mistrust of insurance companies.³⁰ These barriers could be removed by introducing a number of desirable product characteristics into annuities.
- 1.14. First, life annuities generally do not provide flexibility and a sense of control over the payment amounts; and the purchasing power of money invested in an annuity will be eroded due to inflation if the payment amounts are fixed. Consequently, the annual income from some annuities increases to compensate for inflation. A recent study has shown that a desire for "flexibility in the timing of my spending" is one of the major factors in annuitization decisions.³¹ Consumers also prefer flat or rising payment paths to declining income paths³¹ even though this is not consistent with the finding that actual household expenditure reduces by 2% annually during retirement.³² On the other hand, for settlement of their social

International Comparison," in *Axa* (Hong Kong: 2005).

²⁸ HSBC, "The Study on Retirement Issues in Hong Kong," in *Hsbc* (Hong Kong: 2006).

²⁹ Kee-Lee Chou et al., "Perceived Retirement Savings Adequacy in Hong Kong: An Interdisciplinary Financial Planning Model," *Ageing and Society* 35, no. 08 (2015).

³⁰ M. Iwry and J. A. Turner, "Automatic Annuitization: New Behavioral Strategies for Expanding Lifetime Income in 401 (K) S. Retirement Security Project," *Brookings Institution*, no. 2009-2 (2009).

³¹ John Beshears et al., "What Makes Annuitization More Appealing?," *Journal of public economics* 116 (2014).

³² Michael D. Hurd and Susann Rohwedder, "Economic Preparation for Retirement," in *Investigations in*

- security claims in the United States many retirees prefer a lump-sum payment to inflation-protection annuity-like payments over time.³³ To increase their sense of control of payment schedules, the majority of consumers (60%) prefer an annuity that pays an annual bonus (in a month of their choosing) to a traditional, uniform monthly-payout schedule;³¹ this attribute expands annuitants' control over the payout schedule and satisfies their desire for higher flexibility in the timing of their spending.
- 1.15. Second, many consumers lack confidence in annuities because they might lose money to the insurance companies that provide them, this being especially true of individuals with a perceived short life expectancy as short life expectancy decreases the value of an annuity.³⁴ To address this disadvantage, insurance companies have developed an option for annuities (called period-certain guarantee) in order to increase the attractiveness of the product. Period-certain options guarantee payments for a certain period of time (e.g., 10 years); if the annuitant dies within this period, the remaining payments are given to designated family members. After the specified period of time, the annuity becomes a standard simple annuity. However, an annuity with a period-certain guarantee is inconsistent with the goal of having an annuity as an insurance policy for a long life. Therefore, the popularity of this annuity option suggests that consumers may be attracted to it for psychological reasons, such as aversion to loss.³⁵
- 1.16. Thirdly, consumers also face the risk of insurance company insolvency.³⁰ Even a small perceived default risk may have a substantial impact on the annuitization of retirement savings.³⁶ In fact, consumers do worry about whether the company will be able to pay them in the future³¹ when they are deciding whether they should buy an annuity. The financial strength of an insurance company could be a proxy measure of trust concerns, because consumers are more likely to buy products from a highly rated company.³⁷ It has been found that consumer choices are affected by brand names, company ratings, and perceived fairness.^{37,38,39} Therefore, the ratings of

the Economics of Aging, ed. D.A. Wise (National Bureau of Economic Research, 2011).

³³ Jeffrey R. Brown, "Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning," in *NBER Working Paper No. 13537* (Cambridge, MA: National Bureau of Economic Research, 2007).

³⁴ Sven Sinclair and Kent Andrew Smetters, *Health Shocks and the Demand for Annuities* (Congressional Budget Office, 2004).

³⁵ Suzanne B. Shu, Robert Zeithammer, and J. Payne, "Consumer Preferences for Annuities: Beyond Npv," in *Working paper World Bank (2011), Annuities and other retirement products: Designing the retirement* (2013).

³⁶ David F. Babbel and Craig B. Merrill, "Rational Decumulation," in *Wharton Financial Institutions Paper No. 06-14* (Philadelphia, PA: The Wharton Financial Institutions Center, 2006).

³⁷ David A. Seligman and Barry Schwartz, "Domain Specificity of Fairness Judgments in Economic Transactions," *Journal of Economic Psychology* 18, no. 6 (1997).

³⁸ Daniel Kahneman, Jack L. Knetsch, and Richard Thaler, "Fairness as a Constraint on Profit Seeking: Entitlements in the Market," *The American economic review* 76, no. 4 (1986).

insurance companies may also affect the demand for annuities. In light of the findings of previous studies, the first objective of the current study is to design the most popular annuity in terms of four attributes: increasing annual payments; an annual bonus paid in a month the consumer chooses; a period-certain guarantee; and the ranking of annuity providers by middle-aged Hong Kong adults, who are MPF members, in the Discrete Choice Experiment.

Consumers' Characteristics

1.17. Besides the product characteristics, a number of consumers' characteristics have been found to be associated with the demand for annuities. First of all, obviously, retirees are not able to buy an annuity if they do not have sufficient funds to do so. Therefore, not surprisingly, financial wealth is positively associated with annuity market participation,⁴⁰ and a low rate of retirement saving is related to a lower demand for annuitization.⁴¹ Moreover, because annuitized assets cannot be bequeathed, individuals with bequest motives are less likely to purchase annuities than are those without them.^{40,42,43,44} Furthermore, anticipated healthcare or long-term care expenses^{43,45,46} may also be associated with a low annuitization rate. This concern is particularly significant for those with poor health, because the likelihood of incurring high levels of medical expenditure or experiencing institutionalization reduces preferences for illiquid annuities as compared with liquid assets.⁴⁷ Even though bundled contracts of annuity and long-term care or healthcare services have been developed to address concerns regarding emergency need for cash, the demand is still low.⁴⁸ In Chinese societies, elderly persons may commonly also want to keep some money for their funeral arrangements. The second objective of this study is to examine the associations between the demand

³⁹ Al Roth, "Repugnance as a Constraint on Markets," *Journal of Economic Perspectives* 21, no. 3 (2007).

⁴⁰ Joachim Inkmann, Paula Lopes, and Alexander Michaelides, "How Deep Is the Annuity Market Participation Puzzle?," *Review of Financial Studies* 24, no. 1 (2011).

⁴¹ Diane Oakley and Kelly Kenneally, "Pensions and Retirement Security 2013: A Roadmap for Policy Makers," (Washington DC: National Institute on Retirement Security, 2013).

⁴² Jeffrey R. Brown, "Private Pensions, Mortality Risk, and the Decision to Annuitize," *Journal of public Economics* 82, no. 1 (2001).

⁴³ John Ameriks et al., "The Joy of Giving or Assisted Living? Using Strategic Surveys to Separate Public Care Aversion from Bequest Motives," *The Journal of Finance* 66, no. 2 (2011).

⁴⁴ Lee M. Lockwood, "Bequest Motives and the Annuity Puzzle," *Review of economic dynamics* 15, no. 2 (2012).

⁴⁵ Gaobo Pang and Mark Warshawsky, "Optimizing the Equity-Bond-Annuity Portfolio in Retirement: The Impact of Uncertain Health Expenses," *Insurance: Mathematics and Economics* 46, no. 1 (2010).

⁴⁶ James Poterba, Steven Venti, and David Wise, "The Composition and Drawdown of Wealth in Retirement," *The Journal of Economic Perspectives* 25, no. 4 (2011).

⁴⁷ Cassio Turra and Olivia S. Mitchell, "The Impact of Health Status and out-of-Pocket Medical Expenditures on Annuity Valuation," in *Recalibrating Retirement Spending and Saving*, ed. J. I Ameriks and Olivia S. Mitchell (Oxford University Press, 2008).

⁴⁸ David C. Webb, "Asymmetric Information, Long-Term Care Insurance, and Annuities: The Case for Bundled Contracts," *Journal of Risk and Insurance* 76, no. 1 (2009).

- for annuities in middle-aged Hong Kong adults who are MPF members and their current amount of accumulated assets and retirement savings, bequest motives, anticipated expenditure on healthcare, long-term care and funeral arrangements, purchases of healthcare and long-term care insurance, and poor health (including the number of medical conditions).
- 1.18. The existing or expected retirement-income protection arrangements might crowd out the demand for annuitization. Middle-aged adults, especially those with low incomes, may expect that they will receive means-tested or universal government welfare in their old age.^{49,50} In Hong Kong's current situation, elderly people can apply for old age CSSA, the OALA, and the OAA (as mentioned above). Anticipated financial support from adult children may also crowd out the demand for annuities, as financial support from adult children is still a major source of income for the current cohort of elderly adults.²³ The third objective of the proposed study is to evaluate whether this crowding out effect of other sources of income for retirees (including expected tax-funded government welfare benefits and anticipated financial support from adult children) on the demand for annuities exists among middle-aged Hong Kong MPF members.
- 1.19. Many individuals are reluctant to buy annuities because of psychological factors. These factors include risk or loss aversion, financial knowledge, understanding of annuities, involvement in the stock market, and life expectancy.³⁰ Risk and loss aversion have been found to be associated with a low tendency to buy annuities.⁵¹ Financial literacy – an understanding of annuities in particular – is also associated with the decision to buy an annuity.^{30,52,53,54,55} Stock market participants are twice as likely to purchase annuities, compared to stock market non-participants.⁴⁰ Lastly, consumers may lack confidence in annuities because they might lose money to insurance companies; this is especially true of those with a perceived short life expectancy, as a short life expectancy decreases the value of an annuity.³⁴ Therefore, it is expected that perceived life expectancy is related to the demand for annuities. The fourth objective of the proposed study is to examine whether loss and risk aversion, financial literacy, understanding of annuities, participation in the

⁴⁹ Svetlana Pashchenko, "Accounting for Non-Annuityization," in *Federal Reserve Bank of Chicago Working Paper WP-2010-03* (2010).

⁵⁰ Butler M, Peijnenburg K, Staubli S. How much do means-tested benefits reduce the demand for annuities? CESifo Working Paper 34932011.

⁵¹ John Chalmers and Jonathan Reuter, "How Do Retirees Value Life Annuities? Evidence from Public Employees," *Review of Financial Studies* 25, no. 8 (2012).

⁵² John G. Lynch Jr, "Introduction to the Journal of Marketing Research Special Interdisciplinary Issue on Consumer Financial Decision Making," *Journal of Marketing Research* 48, no. SPL (2011).

⁵³ Ellen Peters et al., "Numeracy and Decision Making," *Psychological science* 17, no. 5 (2006).

⁵⁴ Shane Frederick, "Cognitive Reflection and Decision Making," *The Journal of Economic Perspectives* 19, no. 4 (2005).

⁵⁵ Liat Hadar, Sanjay Sood, and Craig R. Fox, "Subjective Knowledge in Consumer Financial Decisions," *Journal of Marketing Research* 50, no. 3 (2013).

stock market, and anticipated life expectancy are associated with the demand for annuities among middle-aged Hong Kong MPF members.

- 1.20. Inconsistent findings have been reported regarding the demographic correlates of annuitization. Single older Americans are more likely to plan to annuitize defined-contribution plan assets; but research has found no association of this intention with age, gender, education level, or having children.⁴² On the other hand, married Americans and those without children are more likely to buy annuities.³¹ We measured and controlled for a number of sociodemographic and economic variables – including age, gender, marital status, level of education, number of children, personal income, and household income – in this current piece of research.

Chapter 2. Objectives of the Study

- 2.1 The overall objective of this study was to identify the major impediments to annuitization among middle-aged adults (the potential consumers of annuities) in Hong Kong, so that we can propose ways to increase the acceptance of life annuities by middle-aged Hong Kong adults.
- 2.2 The specific objectives of the study are the following:
- 2.3 To evaluate the contribution of three annuity options (increasing annual payments, an annual bonus paid in a month the consumer chooses, and period-certain guarantees) – and the ranking of annuity providers – to the demand for annuities in middle-aged Hong Kong adults by means of a discrete choice experiment (DCE);
- 2.4 To examine whether the low level of current and anticipated accumulated wealth and the expected uses of accumulated wealth after retirement (on bequests, healthcare and long-term care expenditure, expenses related to poor health, and funeral arrangements) are barriers that contribute to the low utilization of annuities by middle-aged Hong Kong adults;
- 2.5 To evaluate whether there is a crowding out effect of other sources of income for retirees (expected tax-funded government welfare benefits, anticipated financial support from defined-benefit retirement income protection schemes, and support from adult children) on the purchase of annuities by middle-aged Hong Kong adults; and
- 2.6 To examine whether loss and risk aversion, financial literacy, participation in the stock market, and anticipated life expectancy are variables associated with the demand for annuities.

Chapter 3. Scope of the Study

- 3.1 Task 1. A DCE was conducted to evaluate the relative importance of four attributes of annuity products.^{56,57}
- 3.2 Task 2. The most attractive annuity was designed after taking into account the findings obtained in the DCE (in the first part of the study); then a cross-sectional consumer survey was undertaken to examine the demand for this “optimal” annuity and to identify the consumer characteristics associated with this demand.

⁵⁶ Jordan J. Louviere, Terry N. Flynn, and Richard T. Carson, "Discrete Choice Experiments Are Not Conjoint Analysis," *Journal of Choice Modelling* 3, no. 3 (2010).

⁵⁷ David A. Hensher, John M. Rose, and William H. Greene, *Applied Choice Analysis: A Primer* (Cambridge University Press, 2005).

Chapter 4. Discrete Choice Experiment – Methodology

Sampling for the DCE

- 4.1 A household survey was conducted to collect the data for the DCE; the inclusion criteria were (1) being between 40 and 64 years of age; (2) working full-time; and (3) participating in the MPF. The choice of the lower bound of the age range was based on previous studies in which the correlates of the demand for annuities were examined,^{31,35} the upper bound of the age range was used because of the MPF regulation that members can receive their MPF benefit when they become 65 years old. Random sampling was employed, and the sample frame was provided by Hong Kong's Department of Census and Statistics (based on the frame of quarters maintained by the Department of Census and Statistics, consisting of the Register of Quarters and the Register of Segments). This is the most up-to-date, most complete, and most reliable sampling frame available in Hong Kong. A two-stage stratified sample design was used, with the records in the frame of quarters first stratified by geographical area and types of quarters. In the first stage, we conducted a random sampling of quarters in which at least one target respondent was living. In the second stage, one member of each participating household – he/she being a person who was between 40 and 64 years old, working, and participating in the MPF scheme – was invited for an interview (by the most recent birthday method). There were 1,047 eligible sampled addresses, and 631 respondents were successfully interviewed (a response rate of 60.0%). The survey was conducted between March 2015 and May 2015; the interviews were conducted face-to-face.

Data Collection for the DCE

- 4.2 We presented the respondents with short descriptions of the annuity attributes examined (increasing annual income, bonus payments, period-certain guarantees, and insurance company rating) and the full range of each attribute. The questionnaire used in the DCE can be found in Appendix A. We told the respondents that, apart from these attributes, the annuities were identical in their characteristics except for the monthly income payments, which varied with the four attributes mentioned above. After a brief introduction to annuities, the respondents were asked to indicate on a four-point scale to what extent they understood the attributes of an annuity: *not understood at all*, *not understood*, *understood*, or *completely understood*. Only those who indicated that they either understood or completely understood were asked to participate in the DCE (n = 500).
- 4.3 In the DCE, the respondents were asked to imagine that they were 65 years old now and they had HK\$1 million in their MPF retirement savings

- account. Then they were presented 18 scenarios; for each scenario, there were two rounds of choices. In the first round, they had three options: two annuity options and one choice-deferral opt-out (the wording for the opt-out was “I refuse to choose – I defer my choice and continue to self-manage my retirement savings”). If a respondent chose the opt-out, then in the second round he/she was required to make a choice between the two remaining annuities options. In this way, the choice in the first round was more realistic and allowed estimation of the actual take-up of annuities;^{58,59} with the second round, we ensured that sufficient data was gathered for us to estimate the trade-offs between attributes.⁵⁷ The annuity options were unlabeled, in the sense that we asked the respondents to choose between two annuities without information on the company providing it; this was to avoid having the respondents display intrinsic preferences for specific companies, and associations with, specific alternatives.⁵⁷
- 4.4 The annuity options were generated by varying four attributes³⁵ such that they were offered annuities with three levels of percentage increases in annual income – 0% (fixed payments), a 3% annual increase, and a 5% annual increase; annuities with and without intra-year “bonus” payments in a month of the respondents’ choice; annuities with three types of period-certain guarantees – no period-certain guarantee, a 10-year period-certain guarantee, and a 30-year period-certain guarantee; and annuities from insurance companies with three levels of financial strength ratings – A, AA, and AAA. The annual increase option was used to test whether or not inflation protection was associated with the respondents’ annuitization decisions; the respondents were told that the annual inflation rate was assumed to be 3% in the coming decades.^{33,35}
- 4.5 The respondents were asked to suppose they had certain starting incomes, so as to elicit a more informed decision from them. We calculated the starting income according to the values of the four attributes as assessed by an actuarial model. The calculation was based on assumptions regarding the annual inflation rate (3%); the investment return rates for different ratings of insurance company (5%, 5.5%, and 6.0% for AAA, AA, and A, respectively); the mortality rates of healthy US annuitants (with expected longevity improvement); and insurance companies charging 10% to cover administrative expenses and risks and to secure profits. Due to differences in their life expectancy rates, the female and male respondents were presented with different starting incomes. For instance, if the annuity was a fixed payment annuity without bonus payments, was period-certain guaranteed, and its provider had an A rating, then the starting income was HK\$5,845 (US\$749.4) per month for the male respondents but HK\$5,531

⁵⁸ Ravi Dhar and Itamar Simonson, "The Effect of Forced Choice on Choice," *Journal of marketing research* 40, no. 2 (2003).

⁵⁹ Emily Lancsar and Jordan Louviere, "Conducting Discrete Choice Experiments to Inform Healthcare Decision Making," *Pharmacoeconomics* 26, no. 8 (2008).

(US\$709.1) for the female respondents.

- 4.6 We decided to present 18 choice sets to each individual; this number was seen as a practical limit before boredom sets in.⁶⁰ Since the number of choice sets determines the maximum number of parameters that can be identified, 18 choices gave a comfortable buffer for identifying all the main effects of the attribute levels. We chose to generate an efficient design that picked out the 18 most informative choice sets for the given set of prior values. Apart from the statistical efficiency, an important advantage is that efficient designs avoid so-called dominant alternatives – uninformative choice sets where, in this case, one of two annuities would have been superior in all levels of the attributes. In the design, we minimized the mean “D-error,” which is the determinant of the asymptotic variance-covariance (AVC) matrix of the parameters.⁶¹ The prior values were directly based upon previous work by Shu et al.:³⁵ we used Bayesian priors, with 1,000 Halton draws from a normal distribution, to ensure robustness against misspecification and against possible differences between the preferences of individuals residing in Hong Kong and individuals residing in the US. The experimental design was generated using the software program Ngene version 1.1.1⁶² (see Appendix B for details).

DCE Data Analysis

- 4.7 In the analysis of the DCE, conditional logit and mixed logit models were used to estimate the relative importance of the four attributes, namely the three levels of annual percentage income increases; there being or not being intra-year bonus payments; there being no period-certain guarantee or there being period-certain guarantees (of different duration); and the insurance company providers’ financial strength ratings. The mixed logit model allows preferences to be heterogeneous.⁵⁹ The model assumes that an individual n ($n = 1, \dots, N$) derives a certain amount of latent utility from each alternative j ($j = 1, 2$) in a choice situation t ($t = 1, \dots, 18$). This utility is determined by the attributes of alternative j in choice situation t , the characteristics of individual n as the decision maker, and a random component. In each choice situation, the respondent compares the utility of choosing alternative $j = 1$ with the utility of choosing alternative $j = 2$ and chooses the alternative with greater utility. What we observe is the outcome of these latent utility comparisons. Hence, the dependent variable is a binary indicator of which of the two alternatives was chosen in choice situation t by respondent n . Estimation of the model provides us with the determinants of annuity demand, where we take into account the panel

⁶⁰ Kara Hanson et al., "Preferences for Hospital Quality in Zambia: Results from a Discrete Choice Experiment," *Health economics* 14, no. 7 (2005).

⁶¹ Joel Huber and Klaus Zwerina, "The Importance of Utility Balance in Efficient Choice Designs," *Journal of Marketing research* 33, no. 3 (1996).

⁶² Choice Metrics, "Ngene 1.1. 1 User Manual & Reference Guide," *Sydney, Australia: ChoiceMetrics* (2012).

structure of the data (since the same individual responds to 18 choice sets). Unlike the mixed logit model, the conditional logit model assumes preferences are the same (homogenous) for all the individuals in our sample.

Chapter 5. Results of the Discrete Choice Experiment

5.1 Descriptive statistics for the 500 respondents who participated in the DCE are shown in Table 1. Approximately 59% of the respondents were aged between 40 and 49 years; the mean age of the respondents was 48.3 years. Sixty-two percent of the respondents were female and over three quarters (76.2%) of the respondents were married. About one quarter of them had had a lower secondary-school education or below; only about 16% of them had had a university level education. The median personal income and household income was HK\$15,000–20,000 and HK\$30,000–50,000, respectively.

Table 1 Characteristics of respondents in the choice experiment (N = 500)

	Percentage
Sociodemographic and economic factors	
Age in years	
40–44	35.2%
45–49	23.8%
50–54	19.4%
55–64	21.6%
Age in years – mean (SD)	48.30 (6.81)
Sex	
Male	38.6%
Female	61.4%
Marital status	
Married	76.2%
Never married	14.8%
Widowed/Divorced/Separated	9.0%
Educational attainment	
Lower secondary or below	24.0%
Upper secondary	59.8%
Post-secondary or above	16.2%
Personal income	
Less than HK\$10,000	17.0%
HK\$10,000–HK\$15,000	25.4%
HK\$15,001–HK\$20,000	28.2%
More than HK\$20,000	29.4%
Household income	
Less than HK\$20,000	17.6%
HK\$20,000–HK\$30,000	33.4%
HK\$30,001–HK\$50,000	35.0%
More than HK\$50,000	14.0%

5.2 The results (concerning the estimated average marginal effects and the willingness to pay for an annuity) from the conditional logit model and the mixed logit model are shown in Table 2. The standard errors are given in parentheses; for the mixed logit model they were obtained by using 50 bootstrap iterations. The results of the two models are similar. First, an annual increase (whether a 3% or a 5% increase) reduced the likelihood of the annuity being chosen. Specifically, the likelihood of choosing an annuity with a 5% annual increase was almost 9 percentage points less than the likelihood of choosing an annuity with a fixed monthly income. The results indicate that the period-certain guarantee had a significant impact on the annuity choices. An annuity with a period-certain guarantee of 30 years was approximately 8 percentage points more likely to be chosen than an annuity without any period-certain guarantee. The bonus payments and the insurance companies' (the providers') financial ratings were found to be less important than the other two attributes; there were small and conflicting estimates of the effect of the company ratings, and the effect of the bonus payments was insignificant.

Table 2 Conditional logit and mixed logit models – average marginal effect on willingness to pay for an annuity (N = 500)

Variable	Conditional logit	
	Average marginal effect	Willingness to pay
Expected payout in HK\$1M	0.1521 (0.0777)*	HK\$1,000,000
Annual increase (Ref.: No increase)		
3% increase	-0.0656 (0.0101)**	-HK\$431,125
5% increase	-0.0863 (0.0132)**	-HK\$567,324
Having bonus payments	0.0023 (0.0039)	HK\$15,416
Period-certain guarantee (Ref: No guarantee)		
10 years	0.0792 (0.0171)**	HK\$520,233
30 years	0.0671 (0.0333)*	HK\$440,824
Company rating (Ref.: A)		
AA	-0.0294 (0.0064)**	-HK\$193,389
AAA	-0.0267 (0.0116)*	-HK\$175,241
Percentage of correct predictions	59.7%	
	Mixed logit	
	Average marginal effect	Willingness to pay
Expected payout in HK\$1M	0.1485 (0.0769)	HK\$1,000,000
Annual increase (Ref.: No increase)		
3% increase	-0.0661 (0.0116)**	-HK\$444,997
5% increase	-0.0892 (0.0179)**	-HK\$600,994
Having bonus payments	0.0035 (0.0338)	HK\$23,883

Period certain guarantee (Ref.: No guarantee)		
10 years	0.0751 (0.0119)**	HK\$506,025
30 years	0.0576 (0.0323)	HK\$388,099
Company (provider) rating (Ref.: A)		
AA	-0.0019 (0.0086)	-HK\$12,942
AAA	0.0319 (0.0139)*	HK\$214,614
Percentage of correct predictions	59.8%	

Note: Standard errors are given in parentheses; for the mixed logit model they are obtained using 50 bootstrap iterations.

*p < 0.05. **p < 0.01.

Chapter 6. Consumer Survey – Methodology

Sampling

6.1 A household survey was conducted to collect the data for the DCE. The inclusion criteria included (1) being between 40 and 64 years old; (2) working full-time; and (3) participating in the MPF. The choice of the lower bound of the age range was based on previous studies in which the correlates of the demand for annuities were examined;^{31,35} the upper bound of the age range was used because of the MPF regulation that members can receive their MPF benefit when they become 65 years old. Random sampling was employed, and the sample frame was provided by the Department of Census and Statistics (based on the frame of quarters maintained by the Department of Census and Statistics, which consist of the Register of Quarters and the Register of Segments). This is the most up-to-date, most complete, and most reliable sampling frame available in Hong Kong. A two-stage stratified sample design was used, with the records in the frame of quarters first stratified by geographical area and types of quarters. In the first stage, we conducted a random sampling of quarters in which at least one target respondent was living. In the second stage, one member of each participating household – he/she being a person who was between 40 and 64 years old, working, and participating in the MPF scheme – was invited for an interview (by the most recent birthday method). The sample for this consumer survey was completely independent of the DCE sample. There were 1,790 eligible respondents; 1,077 respondents were successfully interviewed (a response rate of 60.0%).

Data Collection and Measures for the Consumer Survey

6.2 The respondents were asked to complete a questionnaire and face-to-face interviews with the respondents were conducted by five well-trained part-time interviewers. The interviews took about 30 minutes to complete. As in the DCE, a brief introduction to annuities (and the four selected characteristics) was presented, and the respondents were then asked whether they had understood the brief description or not. Employing the findings of the DCE, we designed an “optimal” annuity with a fixed monthly income, a 10-year guarantee period, without bonus payments, and having a product provider with a financial rating of A. The starting income for the female and male participants was HK\$6,208 and HK\$5,957, respectively. The respondents were told the following: “Suppose that you are 60 years old. You are about to retire and have accumulated HK\$1 million in your MPF account. We want to know whether you prefer to use the money to buy an annuity or to continue to self-manage the savings.” The questionnaire used in this consumer survey can be found in Appendix C.

6.3 Besides the annuity question, we also asked about the respondents’ total current assets; retirement savings; bequest motives; anticipated

expenditure on funeral arrangements and on healthcare and long-term care services; purchase of healthcare and long-term care insurance; self-rated health status; number of medical conditions; anticipated receipt of CSSA, OALA, and OAA; and anticipated financial support from their adult children. Their total current assets were assessed by asking the respondents to report their possession of four categories of assets: (1) cash and savings; (2) stocks, bonds, and funds; (3) self-occupied properties; and (4) property they did not occupy. For this, they were given 15 options: 1 = less than US\$1,282; 2 = US\$1,282–6,410; 3 = US\$6,411–12,820; 4 = US\$12,821–25,641; 5 = US\$25,642–38,461; 6 = US\$38,462–51,282; 7 = US\$51,283–64,102; 8 = US\$64,103–76,923; 9 = US\$76,924–89,743; 10 = US\$89,744–102,564; 11 = US\$102,565–115,385; 12 = US\$115,386–128,205; 13 = US\$128,206–256,410; 14 = US\$256,411–512,820; 15 = US\$512,821 or more. (US\$1 = HK\$7.8.)

- 6.4 The retirement savings were assessed by asking for information about the amount of MPF savings, savings in other retirement schemes, and private retirement savings. The respondents were asked if they had bequest motives (for making bequests to their spouses, or their children, or other family members). In terms of expected utilization of assets, the respondents were asked how much they had reserved for funeral arrangements as well as about anticipated expenditure on healthcare and long-term care services. The latter two were calculated by multiplication of the anticipated chances of their using healthcare services or long-term care services and the amount of money they would use on those services. They were also asked if they had purchased any health insurance and long-term care insurance plans. Further, their self-rated health was measured on a 5-point scale (ranging from *excellent* to *very poor*); and the absence/presence of 21 chronic illnesses (arthritis, heart disease, hypertension, asthma, gastrosia, diabetes, Parkinson's disease, dementia, other psychiatric disorders, stroke, cancer, eye problems, high cholesterol, gout, urinary or fecal incontinence, ulcer, hemiparesis, kidney disease, liver disease, and chronic obstructive pulmonary disease) was also assessed. (The item on self-rated health was later dichotomized into 1 = *poor or very poor* and 0 = *other*.)
- 6.5 After a brief introduction to the old-age CSSA, the OALA, and the OAA – including the benefit amounts and the eligibility criteria (age criteria and the disqualifying income and asset limits) – the respondents were asked about the likelihood of their being eligible for either or both of the two means-tested welfare schemes (old-age CSSA and OALA) and the likelihood (from zero to 100%) of their applying for all three schemes when they became eligible. Subsequently, the probability of receiving benefits from these three schemes was calculated by multiplying the probability of a respondent becoming eligible to receive a particular benefit and the probability of applying for it. Because the OAA is universal, the probability of becoming eligible to receive it was assumed to be 100%. Lastly, the respondents were asked how many children

they had, whether they expected financial support from their adult children, and how much they expected to receive from them when the respondents retired.

- 6.6 Third, five psychological factors – including willingness to take risks, financial knowledge, experience of the stock market, self-assessed life expectancy, and understanding of annuities – were measured. The respondents' risk aversion was measured by asking them about the risk they were willing to take on investments; a 4-point scale was used, ranging from *high* (3) to *none* (0). Their financial literacy was assessed using three items that were originally designed for the 2004 Health and Retirement Study (HRS) and have been used in other national surveys as well as in various household surveys in other countries.^{63,64,65,66} The three items are the following. (1) "Suppose you had \$100 in a savings account and the interest rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow: more than \$102; exactly \$102; or less than \$102?" (2) "Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, would you be able to buy more than, exactly the same as, or less than today with the money in this account?" (3) "Do you think that the following statement is true or false? 'Buying a single company stock usually provides a safer return than buying a stock mutual fund.'" These three items captured the respondents' basic knowledge of finance. A respondent's score was the sum of the number of correct answers to these three questions. The respondents were also asked whether they had ever participated in the stock market; if they responded positively to this item, they were then asked to report if they were still participating in the stock market at the time of the data collection. Fourth, the respondents were asked about their life expectancy: they were asked what they thought the chances were that they would live to be 65 (using a scale ranging from zero to 100).⁴⁰ The respondents were also asked if they understood the description of an annuity given at the beginning of the survey. Lastly, their age, gender, marital status, level of education, number of children, and personal/household income were assessed as basic sociodemographic and socioeconomic variables.

Analysis of the Consumer Survey

- 6.7 We first performed a descriptive statistical analysis of all the variables measured in the consumer survey. We then used a logistic regression model to evaluate the association of the independent with the dependent variable (namely, the demand for an annuity) after adjusting

⁶³ Annamaria Lusardi and C. M. Mitchell, "Financial Literacy around the World: An Overview," *Journal of Pension Economics and Finance* 10, no. 4 (2011).

⁶⁴ E. Fornero and C. Monticone, "Financial Literacy and Pension Plan Participation in Italy," *ibid.*

⁶⁵ Monika Butler, Kim Peijnenburg, and Stefan Staubli, "How Much Do Means-Tested Benefits Reduce the Demand for Annuities?," in *CESifo Working Paper 3493* (2011).

⁶⁶ J. Almeberg and J. Save-Soderbergh, "Financial Literacy and Retirement Planning in Sweden," *Journal of Pension Economics and Finance* 10, no. 4 (2011).

for the covariates. We examined multicollinearity between all the independent variables and covariates, and all tolerance values were at an acceptable level. We performed the data analysis and estimated the regression models using the SPSS software for Windows 16.0.⁶⁷

⁶⁷ SPSS, "Spss for Windows 16.0," *Chicago: SPSS Inc* (2006).

Chapter 7. Results of Consumer Survey

7.1 Descriptive statistics of our samples for the consumer survey are given in Table 3. More than one third of our respondents had total assets of more than HK\$4.4 million; the median of their private retirement savings was about HK\$1.0–1.5 million. Almost two-thirds of them planned to leave their assets to their children. More than three quarters of the respondents expected to spend less than HK\$100,000 on their healthcare services, less than HK\$100,000 on their long-term care, and less than HK\$100,000 on their funeral arrangements. The majority (70.7%) of the respondents bought healthcare insurance, while only about 16% purchased insurance for their long-term care services. Almost three quarters of the respondents anticipated that when they retired they would receive financial support from their adult children, while about 40% of them participated in the stock market at the time of the data collection.

Table 3 Characteristics of respondents in the consumer survey (N = 1,066)

	Percentage
Chose annuity	32.4%
Financial assets, bequest motives, other uses of assets, and health status	
Total current assets	
Less than HK\$300,000	18.8%
HK\$300,000–HK\$600,000	21.1%
HK\$600,001–HK\$2,000,000	10.5%
HK\$2,000,001–HK\$4,400,000	14.5%
More than HK\$4,400,000	35.1%
Amount of retirement savings	
Less than HK\$ 500,000	19.3%
HK\$500,000–HK\$1,000,000	26.0%
HK\$1,000,001–HK\$1,500,000	23.1%
HK\$1,500,001–HK\$3,000,000	22.8%
More than HK\$3,000,000	8.8%
Bequest motives	
Leave saving to children	65.7%
Do not leave saving to children	34.3%
Anticipated expenditure on healthcare services	
Less than HK\$20,000	24.0%
HK\$20,001–HK\$50,000	27.4%
HK\$50,001–HK\$100,000	19.0%
More than HK\$100,000	29.5%
Anticipated expenditure on long-term care services	
HK\$0	14.5%
HK\$1–HK\$30,000	34.1%
HK\$30,001–HK\$100,000	27.5%
More than HK\$100,000	23.8%
Anticipated expenditure on funeral arrangements	
HK\$0	19.0%
HK\$1–HK\$30,000	36.6%

HK\$30,001–HK\$100,000	23.4%
More than HK\$100,000	21.0%
Purchased healthcare insurance	70.7%
Purchased long-term care insurance	15.9%
Poor self-rated health status	29.7%
Mean number of chronic illnesses, mean (SD)	0.65 (1.12)
Anticipated sources of income after retirement	
Chance of receiving CSSA, mean (SD)	15.74 (25.96)
Chance of receiving OALA, mean (SD)	26.68 (33.22)
Chance of receiving OAA, mean (SD)	88.42 (23.81)
Financial support from adult children	
HK\$0	25.5%
HK\$1–HK\$30,000	17.5%
HK\$30,001–HK\$50,000	28.9%
More than HK\$50,000	28.0%
Psychological factors	
Willingness to take risks, mean (SD)	1.36 (0.88)
Financial knowledge, mean (SD)	2.01 (0.92)
Experience of stock investment	
Now participating	38.6%
Experience in the past	24.0%
No experience	37.4%
Survival probability at the age of 65, mean (SD)	88.73 (12.31)
Understanding of annuities	73.3%
Sociodemographic and economic factors	
Age (in years)	
40–44	29.5%
45–49	26.3%
50–54	20.7%
55–64	23.5%
Mean age (SD)	48.86 (6.41)
Sex	
Male	44.2%
Female	55.8%
Marital status	
Married	76.2%
Never married	13.7%
Widowed/divorced/separated	10.1%
Educational attainment	
Lower secondary or below	28.4%
Upper secondary	54.2%
Post-secondary or above	17.4%
Number of children	
0	28.9%
1	32.1%
2+	39.0%
Personal income	
Less than HK\$10,000	17.8%
HK\$10,000–HK\$15,000	28.8%
HK\$15,001–HK\$20,000	24.2%

More than HK\$20,000	29.2%
Household income	
Less than HK\$20,000	22.6%
HK\$20,000–HK\$30,000	33.8%
HK\$30,001–HK\$50,000	27.2%
More than HK\$50,000	16.4%

- 7.2 As can be seen in Table 4, those who chose to “purchase” an annuity were more likely than those who did not choose to purchase an annuity to (1) have a lower level of total current assets, (2) have a bequest motive, (3) have higher expected expenditure on healthcare and funeral-arrangements, (4) purchase long-term care insurance, (5) expect to receive CSSA after retirement, (6) receive more financial support from their adult children, (7) report a lower level of financial knowledge, (8) have no experience in the stock market, (9) have a shorter self-assessed life expectancy, and (10) have a greater understanding of annuities. However, they were less likely to (1) expect to receive OAA and to (2) be married.

Table 4 Bivariate analysis of annuity choice (N = 1,066)

	Not choosing annuity (n = 721)	Choosing annuity (n = 345)	χ^2 /t-test statistic
Financial assets, bequest motives, other uses of assets, and health status			
Total current assets			14.65**
Less than HK\$300,000	19.8%	16.6%	
HK\$300,000–HK\$600,000	19.5%	24.4%	
HK\$600,001–HK\$2,000,000	11.5%	8.4%	
HK\$2,000,001–HK\$4,400,000	12.3%	18.9%	
More than HK\$4,400,000	36.8%	31.7%	
Amount of retirement savings			3.90
Less than HK\$ 500,000	20.0%	18.0%	
HK\$500,000–HK\$1,000,000	26.5%	24.9%	
HK\$1,000,001–HK\$1,500,000	22.1%	25.2%	
HK\$1,500,001–HK\$3,000,000	21.9%	24.6%	
More than HK\$3,000,000	9.6%	7.2%	
Bequest motives			8.75**
Leave saving to children	62.7%	71.9%	
Do not leave saving to children	37.3%	28.1%	
Anticipated expenditure on healthcare services			14.95**
Less than HK\$20,000	24.7%	22.6%	
HK\$20,001–HK\$50,000	30.5%	20.9%	
HK\$50,001–HK\$100,000	17.5%	22.3%	
More than HK\$100,000	27.3%	34.2%	
Anticipated expenditure on long-term care services			4.19
HK\$0	14.0%	15.7%	
HK\$1–HK\$30,000	36.2%	29.9%	
HK\$30,001–HK\$100,000	26.6%	29.3%	
More than HK\$100,000	23.2%	25.2%	
Anticipated expenditure on funeral arrangements			21.43**
HK\$0	19.3%	18.6%	
HK\$1–HK\$30,000	40.8%	27.8%	

HK\$30,001–HK\$100,000	20.4%	29.6%	
More than HK\$100,000	19.6%	24.1%	
Purchased healthcare insurance	70.7%	70.7%	0.00
Purchased long-term care insurance	13.9%	20.3%	7.18**
Poor self-rated health status	29.4%	30.4%	0.12
Mean number of chronic illnesses, mean (SD)	0.66 (1.15)	0.64 (1.05)	0.33
Anticipated sources of income after retirement			
Chance of receiving CSSA, mean (SD)	13.40 (23.91)	20.65 (29.23)	–4.01**
Chance of receiving OALA, mean (SD)	25.32 (33.05)	29.51 (33.45)	–1.92
Chance of receiving OAA, mean (SD)	90.75 (21.36)	83.54 (27.66)	4.27**
Financial support from adult children			14.42**
HK\$0	26.8%	22.9%	
HK\$1–HK\$30,000	20.0%	12.5%	
HK\$30,001–HK\$50,000	26.6%	33.6%	
More than HK\$50,000	26.6%	31.0%	
Psychological factors			
Willingness to take risks, mean (SD)	1.39 (0.90)	1.30 (0.82)	1.59
Financial knowledge, mean (SD)	2.16 (0.86)	1.71 (0.96)	7.31**
Experience of stock investment			7.14*
Now participating	38.0%	39.7%	
Experience in the past	26.4%	19.1%	
No experience	35.6%	41.2%	
Survival probability at the age of 65, mean (SD)			
Understanding of annuities	89.55 (12.05)	87.02 (12.67)	3.10**
Sociodemographic and economic factors			
Age (in years)			
40–44			2.08
45–49	30.8%	26.7%	
50–54	25.7%	27.5%	
55–64	20.7%	20.9%	
Mean age (SD)	22.9%	24.9%	
Sex			
Male	44.1%	44.3%	0.01
Female	55.9%	55.7%	
Marital status			
Married	78.4%	71.6%	6.02*
Never married	12.6%	15.9%	
Widowed/divorced/separated	9.0%	12.5%	
Educational attainment			
Lower secondary or below	28.2%	29.0%	0.46
Upper secondary	54.0%	54.8%	
Post-secondary or above	17.9%	16.2%	

Number of children			1.63
0	30.1%	26.4%	
1	31.8%	32.8%	
2+	38.1%	40.9%	
Personal income			0.98
Less than HK\$10,000	17.9%	17.7%	
HK\$10,000–HK\$15,000	27.9%	30.7%	
HK\$15,001–HK\$20,000	24.7%	23.2%	
More than HK\$20,000	29.5%	28.4%	
Household income			3.89
Less than HK\$20,000	22.5%	22.9%	
HK\$20,000–HK\$30,000	32.0%	37.4%	
HK\$30,001–HK\$50,000	28.2%	25.2%	
More than HK\$50,000	17.3%	14.5%	

*p < 0.05. **p < 0.01.

7.3 Lastly, we conducted analyses using a multivariate logistic regression model to identify the characteristics associated with the demand for the annuities; Table 5 shows the results of the analyses. First, compared with those who had assets of less than HK\$300,000, those who had assets valued at between HK\$1.5–3.0 million were more likely to buy an annuity. Second, unexpectedly, those who had a bequest motive were more likely to choose an annuity than were those who did not have a bequest motive. Third, three anticipated sources of income – the Old Age CSSA, OAA, and financial support from children – had a significant effect on choosing to purchase an annuity. Specifically, the expectation of receiving the Old Age CSSA had a positive effect; but anticipation of receiving the OAA had an adverse impact on choosing to purchase an annuity. Those respondents who expected to receive less than HK\$30,000 in financial support from their adult children were less likely to choose to purchase an annuity than were those who did not expect to receive any financial support from their adult children.

Table 5 Odds ratios of annuity choice (N = 1,066).

Variables	Odds ratio (95% C.I.)
Financial wealth, bequest motives, other uses of assets, and health status	
Total current assets (Ref.: <HK\$300,000)	
HK\$300,000–HK\$600,000	1.51 (0.92, 2.47)
HK\$600,001–HK\$2,000,000	0.74 (0.38, 1.40)
HK\$2,000,001–HK\$4,400,000	1.52 (0.88, 2.63)
More than HK\$4,400,000	1.03 (0.60, 1.75)
Amount of retirement savings (Ref.: <HK\$500,000)	
HK\$500,000–HK\$1,000,000	1.21 (0.74, 2.01)
HK\$1,000,001–HK\$1,500,000	1.68 (0.93, 3.05)
HK\$1,500,001–HK\$3,000,000	2.09 (1.09, 4.03)*
More than HK\$3,000,000	1.84 (0.82, 4.09)
Bequest motives (Ref: Do not leave savings to children)	

Leave savings to children	2.01 (1.39, 2.94)**
Anticipated expenditure on healthcare services (Ref.: <HK\$20,000)	
HK\$20,000–HK\$50,000	0.69 (0.44, 1.08)
HK\$50,001–HK\$100,000	1.19 (0.73, 1.93)
More than HK\$100,000	1.23 (0.75, 2.03)
Anticipated expenditure on long-term care services (Ref.: More than HK\$100,000)	
HK\$0	1.51 (0.85, 2.66)
HK\$1–HK\$30,000	1.06 (0.65, 1.75)
HK\$30,001–HK\$100,000	1.52 (0.97, 2.41)
Anticipated expenditure on funeral arrangements (Ref.: HK\$0)	
HK\$1–HK\$30,000	0.76 (0.49, 1.18)
HK\$30,001–HK\$100,000	1.58 (0.99, 2.53)
More than HK\$100,000	1.36 (0.82, 2.29)
Purchased healthcare insurance	0.89 (0.61, 1.30)
Purchased long-term care insurance	1.40 (0.93, 2.12)
Poor self-rated health status	0.92 (0.64, 1.32)
Number of chronic illnesses	0.97 (0.83, 1.12)
Anticipated sources of income after retirement	
Chance of receiving CSSA	1.01 (1.01, 1.02)**
Chance of receiving OALA	1.00 (0.99, 1.00)
Chance of receiving OAA	0.99 (0.98, 0.99)**
Financial support from adult children (Ref.: HK\$0)	
HK\$1–HK\$30,000	0.53 (0.31, 0.88)*
HK\$30,001–HK\$50,000	1.16 (0.76, 1.78)
More than HK\$50,000	0.98 (0.63, 1.54)
Psychological factors	
Willingness to take risks	1.01 (0.83, 1.24)
Financial knowledge	0.64 (0.54, 0.76)**
Experience of stock investment (Ref.: No experience)	
Now participating	0.85 (0.57, 1.26)
Experience in the past	0.69 (0.45, 1.04)
Survival probability at the age of 65	0.98 (0.97, 1.00)**
Understanding of annuities	3.05 (2.10, 4.49)**
Sociodemographic and economic factors	
Age in years (Ref: 40–44)	
45–49	1.32 (0.86, 2.02)
50–54	1.55 (0.96, 2.51)
55–64	2.05 (1.19, 3.56)*
Sex (Ref: Male)	
Female	1.11 (0.80, 1.54)
Marital status (Ref: Married)	
Never married	2.53 (1.40, 4.60)**
Widowed/Divorced/Separated	1.54 (0.92, 2.58)
Educational attainment (Ref.: Post-secondary or above)	
Lower secondary or below	1.08 (0.72, 1.61)
Upper secondary	1.06 (0.68, 1.64)
Number of children (Ref: 0)	

1	1.33 (0.80, 2.23)
2+	1.34 (0.80, 2.28)
Personal income (Ref.: More than HK\$20,000)	
Less than HK\$10,000	1.54 (0.81, 2.95)
HK\$10,000–HK\$15,000	1.55 (0.93, 2.57)
HK\$15,001–HK\$20,000	1.22 (0.76, 1.97)
Household income (Ref.: More than HK\$50,000)	
Less than HK\$20,000	1.34 (0.72, 2.52)
HK\$20,000–HK\$30,000	1.78 (1.05, 3.03)*
HK\$30,001–HK\$50,000	1.33 (0.80, 2.22)
Pseudo R ²	0.170

*p < 0.05. **p < 0.01.

7.4 In terms of the psychological factors examined, only financial knowledge, self-rated life expectancy, and perceived understanding of annuities were significantly associated with the demand for an annuity. Specifically, an understanding of annuities was positively associated with the likelihood of choosing to purchase an annuity. In contrast, financial knowledge and self-assessed life expectancy had adverse impacts on the demand for an annuity. Regarding the demographic variables, we found significant associations between the likelihood of buying annuity and the age, marital status, and household income of the respondents. Specifically, those who were aged between 55 and 64 were more likely to choose an annuity than those aged between 40 and 44; and those who had never married were more likely to purchase an annuity than those who were currently married. Those whose income was between HK\$20,000 and HK\$30,000 were more likely to choose the annuity than those whose monthly household income was more than HK\$50,000.

Chapter 8. Discussion

- 8.1 Our analysis first identified the desirable characteristics of an annuity product and then we examined the demand for an optimal annuity (within a certain choice set). The aim of the DCE was to determine the optimal annuity product along four dimensions drawn from previous studies (in particular, Beshears et al.³¹ and Shu et al.³⁵). Two of these attributes turned out to be significant predictors of annuity choice, independently of the model specification (conditional or mixed logit). First, given equivalent expected present values, a fixed-payment annuity was preferred over alternative annuity products that provided annual increases in annuity payments. Recall that the participants were told to assume there would be annual inflation of 3%. The likelihood of choosing a certain annuity was reduced by about 6.5 and 9 percentage points if the annual annuity payments increased by 3% or 5%, respectively. This is in contrast to the findings of the choice experiment conducted by Beshears et al.³¹ in which very few individuals favored (in real terms) declining annuity payments. (The methodologies of the two surveys are comparable.)
- 8.2 The difference in the preferences of the respondents in Hong Kong and the US might be explained by recent experiences of inflation: the most recently calculated annual inflation rate in Hong Kong was 2.8% (composite CPI, published by the Census and Statistics Department in Hong Kong) when our survey was conducted (in April 2015). The corresponding statistic in the US was 3.8% (CPI for all urban consumers, published by the US Bureau of Labor Statistics) in August 2011, when the Beshears et al.³¹ data were collected. However, the average experienced annual inflation rates over the five, 10, and 30 years preceding the surveys were 4.2%, 3.1%, and 4.0%, respectively, in Hong Kong; and 2.1%, 2.4%, and 3.1%, respectively, in the US. Thus, the preference for fixed-payment annuities in Hong Kong seems to be inconsistent with the medium- to long-term experience of inflation. The answers to our questionnaire are consistent with the money illusion and a preference for higher payments during the initial period of retirement, which the average person will survive with relatively high probability. Our findings are also consistent with those of Hurd and Rohwedder,³² who found that actual household expenditures are reduced by 2% per year during retirement.³²
- 8.3 Second, an annuity with a 10-year period-certain guarantee was preferred to an annuity without a guarantee period and to an annuity with a 30-year guarantee. Compared to an annuity without a guarantee, a 10-year (30-year) guarantee significantly increases the probability of choosing to buy the annuity by about 7.9 (6.7) percentage points. Similarly, Shu et al.,³⁵ using US data, document a preference for medium-term (10-year to 20-year) guarantees rather than short-term (5-year) and long-term (30-year) guarantees. The preference for period-certain guarantees is intrinsically tied to the presence of bequest motives. An extensive literature in economics and finance presents

arguments against (e.g., Hurd^{68,69}) or in favor of (e.g., Kopczuk and Lupton;⁷⁰ Inkmann and Michaelides⁷¹) the positive effect of bequest motives on the demand for annuities. Starting with Yaari,¹¹ bequest motives have been recognized as a major restraint on annuity demand (e.g., Friedman and Warshawsky⁷²). Our findings, along with those of Shu et al.,³⁵ introduce a new element to this discussion: the respondents' preferences for period-certain guarantees seem to suggest that bequest motives are mostly operational over a medium-term horizon of about 10 to 20 years after retirement and subsequently decline.

- 8.4 The third attribute under consideration, annual bonus payments, did not significantly affect individual preferences for annuity design in our DCE. In 2014 Beshears et al. reported that bonus payments were preferred by 60% of the respondents in their study, which can be interpreted as being similarly inconclusive evidence.³¹
- 8.5 Finally, the fourth attribute, the financial rating of the annuity issuer, significantly affects annuity product choice; but the effects yielded by the conditional and mixed logit models significantly differ (being both positive and negative) – this renders it difficult to interpret the result. Lopes and Michaelides argue that rare events, such as defaults by annuity providers, are unlikely to explain the lack of annuity demand.⁷³ This is because only consumers with high levels of risk aversion will change their behavior in the presence of small default probabilities, and high risk aversion at the same time also increases the demand for annuities. This argument might explain the somewhat mixed evidence we obtained from our two model specifications. The less restrictive mixed logit model implied a significant 2.3 percentage point increase in annuity demand with an AAA-rated issuer (as against an A-rated company); the effect of an AA rating was insignificant. Similarly, Shu et al. found that consumers significantly preferred annuities from an AAA-rated issuer (rather than from an AA-rated company).³⁵

Demand for Annuities

- 8.6 About one-third of the respondents (345 out of 1,066) chose the annuity product that was optimized in accordance with the findings of the earlier DCE. Even accounting for the fact that survey responses (unlike observed annuity purchases) do not affect the actual life outcomes of

⁶⁸ Michael D. Hurd, "Savings of the Elderly and Desired Bequests," *American Economic Review* 77, no. 3 (1987).

⁶⁹ "Mortality Risk and Bequests," *Econometrica* 57, no. 4 (1989).

⁷⁰ W. Kopczuk and J. P. Lupton, "To Leave or Not to Leave: The Distribution of Bequest Motives," *Review of Economic Studies* 74, no. 1 (2007).

⁷¹ J. Inkmann and A. Michaelides, "Can the Life Insurance Market Provide Evidence for a Bequest Motive?," *Journal of Risk and Insurance* 79, no. 3 (2012).

⁷² Benjamin M. Friedman and Mark J. Warshawsky, "The Cost of Annuities: Implications for Saving Behavior and Bequests," *The Quarterly Journal of Economics* 105, no. 1 (1990).

⁷³ P. Lopes and A. Michaelides, "Rare Events and Annuity Market Participation," *Finance Research Letters* 4, no. 2 (2007).

respondents, this fraction seems high in comparison to observed annuity-market participation rates. Inkmann et al., for example, reported that less than 6% of retiree households living in England voluntarily purchase annuities.⁴⁰ After we analyzed the determinants of annuity demand using the multivariate logit model, several results stood out (see Table 5).

- 8.7 The odds of choosing the optimized annuity product developed from the DCE were two to one for individuals who reported having a bequest motive (for bequeathing assets to a spouse, child/children, or other family members). This is a remarkable result. As mentioned earlier, bequest motives are usually seen as a major obstacle to annuitization. Our question deliberately included family members other than children because previous work by Kopczuk and Lupton has shown that a focus on bequeathing to children^{68,69} may overlook other bequest motives.⁷⁰ Indeed, Brown and Inkmann and colleagues did not find a significant impact of having children on annuity demand, but did report a negative and significant impact of being married; this can be interpreted as resulting in a bequest motive (for bequeathing to a surviving spouse).^{42,40} In contrast, we found that bequest motives increased the demand for the optimized annuity product. Recall that the optimized annuity product includes a 10-year period-certain guarantee; we interpreted the finding as evidence that a bequest motive operates over the first stage of retirement. The annuity-demand analysis seems to confirm this interpretation. Once a 10-year period-certain guarantee is provided, bequest motives are no longer an obstacle to annuitization and actually increase the demand for annuities. This is an important insight, which shows how important it is to design an appealing annuity product.
- 8.8 Since we controlled for bequest motives, the more positive impact of “never married” (as compared to “married”) on choosing the annuity must be unrelated to any bequest considerations. A possible explanation for this result is intra-household hedging of longevity risk;^{74,75} such hedging is not available to the unmarried. Having children did not significantly affect annuity demand, according to our empirical analysis.
- 8.9 We found a negative and significant impact of financial literacy on the demand for the optimized annuity product. This seems to stand in contrast to an extensive literature relating financial literacy to individual behavior – including the demand for financial products – reviewed by Lusardi and Mitchell.⁷⁶ They show, for example, that financially less literate individuals are less likely to plan for retirement and they

⁷⁴ Laurence J. Kotlikoff and Avia Spivak, "The Family as an Incomplete Annuities Market," *Journal of Political Economy* 89, no. 2 (1981).

⁷⁵ Andreas Hubener, Raimond Maurer, and Ralph Rogalla, "Optimal Portfolio Choice with Annuities and Life Insurance for Retired Couples," *Review of Finance* 18, no. 1 (2014).

⁷⁶ Annamaria Lusardi and Olivia S. Mitchell, "The Economic Importance of Financial Literacy: Theory and Evidence," *Journal of Economic Literature* 52, no. 1 (2014).

accumulate less retirement wealth.^{63, 77} Using the same index of financial literacy employed in our analysis, Brown et al. found that financially less literate individuals are less likely to correctly value annuity products.⁷⁸ However, in our case, the negative impact of general financial literacy was counteracted by the significant and positive impact of annuity-specific knowledge. The odds of choosing the optimized annuity product were three to one for those individuals (73.3% of the sample, according to the data shown in Table 3) who confirmed that they understood the description of the optimized annuity product (provided at the beginning of the survey). While this result cannot explain the negative impact of general financial literacy, it seems to indicate that to understand a complex financial product like an annuity specific knowledge is required. This is confirmed by the finding that the level of general education did not significantly affect annuity demand.

- 8.10 The impact of survival probabilities on annuity demand was statistically significant and negative, contrary to previous findings by Inkmann et al.⁴⁰ However, the magnitude of the coefficient was statistically very small (odds ratio of 0.98).

⁷⁷ "Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel (October 2007)," *Michigan Retirement Research Center Research Paper No. WP 2007-157* (2007).

⁷⁸ Jeffrey R. Brown et al., "Decision Complexity as a Barrier to Annuitization," (National Bureau of Economic Research, Inc, NBER Working Papers: 19168, 2013).

Chapter 9. Policy Implications and Recommendations

- 9.1 In the consultation document entitled “Retirement Protection Forging Ahead” released by the Commission on Poverty in December 2015, it is suggested that the Government provide a positive policy environment in which more financial products (such as annuities) be developed for better management of retirement savings – either their MPF accrued benefits or private savings.⁷⁹ The Commission on Poverty in general also supports the concept of an annuity.⁷⁹ In fact, a Public Annuity Scheme proposed by Dr. Law Chi-kwong is attached to the consultation document (in an appendix) for consideration by the community.
- 9.2 In Dr. Law’s proposal, the scheme would be run by the Government or a statutory body; the plan may be evolved into a mandatory scheme after three years of running the pilot scheme as a voluntary one, since retired persons who have accumulated MPF benefits for more than 15 years could be enrolled in the scheme automatically. There are three plans with three different periods-certain guarantee options: (1) no guarantee; (2) a 15-year guarantee period if retired persons purchase the annuity at the age of 65; and (3) a 25-year guarantee period if retired persons buy the annuity at the age of 65. According to our findings, an annuity with a 10-year period-certain guarantee would be preferred to an annuity without a guarantee and to an annuity with a 30-year guarantee. Therefore, we believe that the second option (a 15-year guarantee) would be the prevailing choice.
- 9.3 In our study, we have found that consumers significantly prefer annuities from an AAA-rated company to those from an A-rated company. However, retired persons may prefer an annuity provided by the Government or a statutory body to one provided by a private company, for two reasons. First, the latter has a higher risk of insolvency; and second, a private company, by its nature, has to make a profit and this may lower the income generated from the annuity product. The statutory body could be set up to operate like the Hong Kong Mortgage Corporation Limited, which runs the reverse mortgage program in Hong Kong. Our findings demonstrate that the demand for an annuity from an AA-rated company with a 10-year period guarantee is 32.2%±2.8% (95% confidence interval). If the issuer were the Government or a statutory body, we believe that the acceptance rate would be even greater than 32%.
- 9.4 On the other hand, despite such a high acceptance rate, it may still be controversial to make this Public Annuity Scheme mandatory. Therefore, **we recommend that the Government or a statutory body launch a Public Annuity Voluntary Scheme with a 10-year period guarantee.**
- 9.5 After developing and launching the Public Annuity Scheme, the most

⁷⁹ Commission of Poverty, “Retirement Protection Forging Ahead Consultation Document,” ed. Commission of Poverty (2015).

important question will be how to promote it. Our findings have provided the most effective method: ensure that retired persons understand the financial product, namely, in this case, the proposed annuity. Because the likelihood of purchasing the proposed annuity is almost 75% among those who understand the nature of annuities, **we recommend that intensive public education about annuities be delivered to middle-aged adults who will retire in the coming five years.**

Appendix A. Questionnaire used in the Discrete Choice Experiment

問卷編號：_____

香港教育學院
亞洲及政策研究學系
在職人士問卷

_____ 先生/小姐/太太：

你好。我是香港教育學院亞洲及政策研究學系派來的訪問員。

香港教育學院現正進行一項有關全職及正在供強積金的在職人士(年齡介乎 40 至 64 歲)的調查，作為制訂相關政策的參考資料。是次研究由中央政策組轄下的公共政策研究資助計劃提供資源。我們很高興你願意作為此次訪問的對象。而在訪問過程中所蒐集到的一切個人資料會絕對保密。

年金的選擇

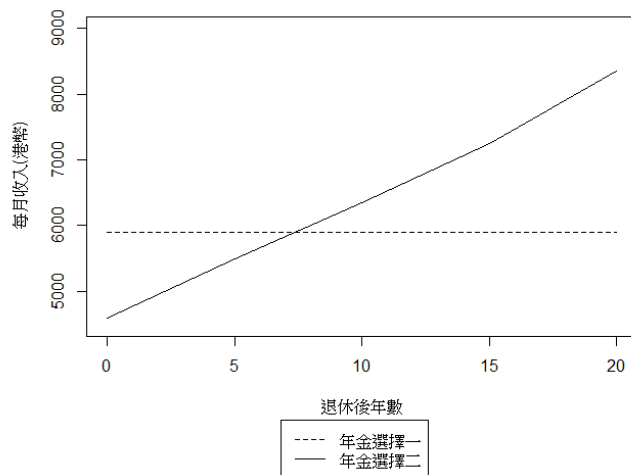
年金計劃是你與金融機構訂立的合約安排，以一次過的付款，換取日後定期發放的款項。透過年金計劃，你可以在退休後繼續獲得穩定的收入來源。換句話，年金計劃是一種您可以向銀行或保險公司購買的金融產品。通常是你退休時，先支付一筆錢給這些金融機構，然後它們便會每月支付給你一定金額的生活費，直至您終老。

年金的主要好處是每月你會從提供年金計劃的金融機構，收取固定的收入直至終老。如果你自行管理退休儲蓄，假如你的壽命比你自已預計要長，你所冒的風險便是在終老之前，就已經花光了所有退休儲蓄。而且假如你將退休儲蓄進行一些投資，亦要承受一定的風險。

年金有多種類型，它們可能基於以下四個特徵而有所不同。

第一個特徵是，每月的收入會否按年有所增加（**選擇 1=固定金額；選擇 2=每年增長 3%；選擇 3=每年增長 5%**），以對抗通貨膨脹(簡稱通脹)。通貨膨脹意即物價在一段時間內上升。假設你退休後每年的通脹率都是 3%。隨著通脹，物價上升，你用同一金額的金錢可以購買的東西便會越來越少。例如，假設今天你用 100 元買一籃子雜貨。一年後，在通脹率是 3%的情況下，同一籃子的雜貨將花費你 103 元。因為通脹，雜貨的價格上漲。因此，第二個和第三個選擇（3%和 5%的年增長）便能夠保護你的購買力，避免受通貨膨脹的影響。但為了彌補每年金額增長，這兩個選項在退休後的幾年每月你得到的收入會比第一個選擇（固定付款）為少。

圖一：年金選擇 1 和 2 每月收入的分別



年金選擇 1 = 每月年金收入固定

年金選擇 2 = 每月年金收入按年增長 3%

圖一顯示第一個和第二個選擇按年發放每月年金收入的改變。如圖一所示，第一個選擇的年金所發放的金額固定不變，因為我們假設退休後，每年通脹率是 3%，所以其收入的購買力便會按年逐步減少。第二個選擇的年金所發放的金額則每年增加 3%，剛好抵消通脹的影響，令其收入的購買力維持不變。不過，代價是開始發放每月年金收入的頭幾年，金額會比第一個選擇的年金所發放的收入金額為低。

第二個特徵是你會否在所選定的月份獲得**雙糧**，即可以收取平時每月收入金額的兩倍。在有雙糧的年金選擇中，你會收到額外的一個月的一年金收入，而且你可以選擇獲得雙糧的月份。這個月份可能是你需要花費較平時多的旅遊季節或者是過農曆年的時候。如果你選擇年金收入是固定的話，你所獲得的雙糧每年也是固定的。而如果你所選擇的年金是按年增加的，例如增長 3% 或者 5%，那麼你的雙糧也會是按年增加 3% 或 5% 的。同樣地，為了彌補雙糧的支出，有雙糧的年金計劃中的每月支付的金額會比沒有雙糧的年金計劃的每月支付金額為少。

第三個特徵是否有保證期的規定，有這規定的年金稱為定期年金（**沒有保證期；10 年保證期；30 年保證期**）。如果一位退休人士購買定期年金後，在保證期內去世，年金收入可以繼續向他事前指定的家人發放，直至保證期結束為止。或者可以將保證期內應發放的年金收入一次過作為遺產支付給指定的收益人。但是假如一位退休人士購買沒有保證期的年金計劃，無論他/她在甚麼時候身故，年金收入都會立即停止發放，而所有年金亦會予金融機構。同樣地，為彌補保證期的額外承擔的支出，有固定保證期的年金計劃的每月支付金額會比沒有保證期的年金計劃每月支付金額為少。

第四個特徵是提供年金計劃的金融機構的財政實力。這些金融機構有不同財政實力的評級（**評級 A 表示強；評級 AA 表示非常強；評級 AAA 表示極強**）。評級越強表示該金融機構越少機會出現沒有充足資金支付承諾的年金收入的情況。為

補償金融機構資本不足的風險，低評級的金融機構可提供的每月的年金收入會比高評級的金融機構提供的每月年金收入為高。

一般來說，評級較高的金融機構會在投資方面較評級較低的保守，所以其投資回報亦會較低。換句話說，評級越高的金融機構，其投資回報率便越低。我們假設不同評級金融機構之間的投資回報有 0.5% 的差異。我們亦假設一個評級 A 的金融機構在整個退休期間的投資回報率是 6%，那麼評級 AA 的金融機構其投資回報率便是 5.5%，而評級 AAA 的機構其投資回報率便是 5%。

A. 了解程度

A1. 對以上的說明的了解程度？

- 1 完全不了解 (全卷完)
- 2 不了解 (全卷完)
- 3 了解
- 4 完全了解

B. 選擇題

假設你現在 65 歲，即將退休，而強積金戶口中已累積了港幣一百萬元。我們想知道當你取回這一百萬元後，會否用這筆錢購買年金。根據上述所介紹年金的四個特徵，我們設計了不同的年金計劃以供選擇。除了我們設計的金年計劃外，你亦可拒絕選擇這些年金，自行管理你的強積金儲蓄（見下第三個選項）。

為了提供更多資料而供你考慮，我們計算出假如你決定自行用這筆錢投資，而每月提取固定金額以供自己生活，這筆款項可以維持多少年。我們假設你的投資回報率每年是 5%。

表一： 每月提取的金額及資金所能持續年期

每月提取的金額	資金所能持續年期
\$5,000	34.5 年
\$6,000	23.3 年
\$7,000	17.8 年

如表一所示，假如你每月提取五千元，你的強積金儲蓄可以維持 34.5 年。如果每月提取金額增至六千或七千元，儲蓄便分別只可以維持 23.3 年和 17.8 年。

如前所述，我們假設你退休後的每年的通脹率是 3%。假如你每月提取的款項每年亦增加 3%，以對抗通脹，及維持其購買力不變。那麼你的強積金儲蓄可以維持年期便會減少。（見表二）

表二： 每月支付的金額按年增長 3% 及資金所能持續年期

第一年每月提取的金額	資金所能持續年期
\$5,000	20.5 年
\$6,000	16.4 年
\$7,000	13.8 年

B1.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長 3%	固定	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	沒有保證期	10年保證期	
4. 金融機構評級	AA評級	A評級	
男性第一年每月收入	4,718	6,280	
女性第一年每月收入	3,891	5,957	

第一年年金收入是根據上述年金的四個特徵（每月收入增幅；雙糧；保證期；金融機構評級）、死亡率和經濟增長預測，運用保險精算模型計算出來的。例如，通常情況下，女性的壽命比男性的長，所以女性的第一年年金收入會比男性為少，因為她們可以收取年金收入的時間平均來說會比男性長。另外，如前所述我們假設評級AAA，評級AA和評級A的金融機構評級其投資回報率分別是5%，5.5%，

和6%。我們用健康的年金購買者的死亡率去計算平均壽命，並且假設金融機構會收取10%的附加費作行政支出、利潤和風險保證金。

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B2.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長 5%	固定	
2. 額外的雙糧	沒有雙糧	有雙糧	
3. 保證期	沒有保證期	10年保證期	
4. 金融機構評級	A評級	AAA評級	
男性第一年每月收入	3,794	5,239	
女性第一年每月收入	3,491	5,001	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B3.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長 3%	每年增長 5%	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	10年保證期	30年保證期	
4. 金融機構評級	AAA評級	AA評級	
男性第一年每月收入	3,846	2,633	
女性第一年每月收入	3,598	2,581	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B4.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	固定	每年增長 5%	
2. 額外的雙糧	沒有雙糧	有雙糧	
3. 保證期	沒有保證期	10年保證期	

4. 金融機構評級	AA評級	A評級	
男性第一年每月收入	6,121	3,417	
女性第一年每月收入	5,807	3,169	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B5.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長 3%	固定	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	沒有保證期	10年保證期	
4. 金融機構評級	A評級	AA評級	
男性第一年每月收入	4,413	5,940	
女性第一年每月收入	4,125	5,686	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B6.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長 5%	每年增長 3%	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	10年保證期	30年保證期	
4. 金融機構評級	AA評級	AAA評級	
男性第一年每月收入	3,210	3,260	
女性第一年每月收入	2,963	3,212	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B7.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長 3%	固定	
2. 額外的雙糧	沒有雙糧	有雙糧	
3. 保證期	10年保證期	30年保證期	
4. 金融機構評級	AA評級	AAA評級	
男性第一年每月收入	4,407	4,348	
女性第一年每月收入	4,138	4,313	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B8.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長3%	每年增長5%	
2. 額外的雙糧	沒有雙糧	有雙糧	
3. 保證期	10年保證期	30年保證期	
4. 金融機構評級	AAA評級	A評級	
男性第一年每月收入	4,167	2,616	
女性第一年每月收入	3,897	2,569	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B9.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長3%	固定	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	30年保證期	沒有保證期	
4. 金融機構評級	AA評級	AAA評級	
男性第一年每月收入	3,216	5,845	
女性第一年每月收入	3,173	5,531	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B10.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長5%	固定	
2. 額外的雙糧	沒有雙糧	沒有雙糧	
3. 保證期	30年保證期	沒有保證期	
4. 金融機構評級	A評級	AA評級	
男性第一年每月收入	2,834	6,121	
女性第一年每月收入	2,783	5,807	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B11.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	固定	每年增長3%	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	沒有保證期	沒有保證期	
4. 金融機構評級	A評級	A評級	
男性第一年每月收入	5,907	4,781	
女性第一年每月收入	5,618	4,469	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B12.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	固定	每年增長5%	
2. 額外的雙糧	沒有雙糧	有雙糧	
3. 保證期	30年保證期	10年保證期	
4. 金融機構評級	A評級	AA評級	
男性第一年每月收入	5,242	3,210	
女性第一年每月收入	5,208	2,963	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B13.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長5%	每年增長3%	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	沒有保證期	30年保證期	
4. 金融機構評級	AAA評級	AA評級	
男性第一年每月收入	3,079	3,484	
女性第一年每月收入	2,807	3,438	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B14.

	選擇1	選擇2	選擇3
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	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	固定	每年增長3%	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	30年保證期	沒有保證期	
4. 金融機構評級	AA評級	AAA評級	
男性第一年每月收入	4,591	4,276	
女性第一年每月收入	4,558	3,968	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B15.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	每年增長5%	每年增長3%	
2. 額外的雙糧	沒有雙糧	有雙糧	
3. 保證期	30年保證期	10年保證期	
4. 金融機構評級	AAA評級	A評級	
男性第一年每月收入	2,440	4,295	
女性第一年每月收入	2,387	4,048	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B16.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
5. 每月收入會否按年有所增加	每年增長5%	每年增長3%	
6. 額外的雙糧	沒有雙糧	有雙糧	
7. 保證期	10年保證期	30年保證期	
8. 金融機構評級	AAA評級	A評級	
男性第一年每月收入	3,260	3,431	
女性第一年每月收入	2,994	3,389	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B17.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的
1. 每月收入會否按年	固定	每年增長5%	

有所增加			選擇，自行管理我的強積金儲蓄
2. 額外的雙糧	沒有雙糧	有雙糧	
3. 保證期	10年保證期	沒有保證期	
4. 金融機構評級	A評級	AAA評級	
男性第一年每月收入	6,208	3,079	
女性第一年每月收入	5,957	2,807	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

B18.

	選擇1	選擇2	選擇3
	年金1	年金2	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
1. 每月收入會否按年有所增加	固定	每年增長5%	
2. 額外的雙糧	有雙糧	沒有雙糧	
3. 保證期	30年保證期	沒有保證期	
4. 金融機構評級	AAA評級	AA評級	
男性第一年每月收入	4,348	3,562	
女性第一年每月收入	4,313	3,262	

選擇_____

如果受訪者選擇第三個選項，詢問受訪者如果只有兩個選擇：1 或 2。你會怎麼選擇呢？選擇_____

C. 個人資料

C1 性別：[訪問員：自行填寫]

- 1 男
2 女

C2 年齡：_____

C3 婚姻狀況：

- 1 未婚
2 已婚
3 喪偶
4 分居
5 離婚

C4 你在香港最高取得的學歷：

- 1 未受過正式教育
2 小學
3 初中
4 高中
5 大專
6 大學

7 大學碩士或以上

C5 每月個人收入

- | | | |
|---|---|--------------------------------------|
| 1 <input type="checkbox"/> \$2,000 以下 | 7 <input type="checkbox"/> \$8,000-\$8,999 | 13 <input type="checkbox"/> |
| \$25,000-\$29,999 | | |
| 2 <input type="checkbox"/> \$2,000-\$3,999 | 8 <input type="checkbox"/> \$9,000-\$9,999 | 14 <input type="checkbox"/> |
| \$30,000-\$49,999 | | |
| 3 <input type="checkbox"/> \$4,000-\$4,999 | 9 <input type="checkbox"/> \$10,000-\$12,499 | 15 <input type="checkbox"/> |
| \$50,000-\$69,999 | | |
| 4 <input type="checkbox"/> \$5,000-\$5,999 | 10 <input type="checkbox"/> \$12,500-\$14,999 | 16 <input type="checkbox"/> \$70,000 |
| 或以上 | | |
| 5 <input type="checkbox"/> \$6,000-\$6,999 | 11 <input type="checkbox"/> \$15,000-\$19,999 | |
| 6 <input type="checkbox"/> \$7,000-\$7,999 | 6+. | |
| 3 12 <input type="checkbox"/> \$20,000-\$24,999 | | |

C6 每月家庭收入

- | | | |
|--|---|--------------------------------------|
| 1 <input type="checkbox"/> \$2,000 以下 | 7 <input type="checkbox"/> \$8,000-\$8,999 | 13 <input type="checkbox"/> |
| \$25,000-\$29,999 | | |
| 2 <input type="checkbox"/> \$2,000-\$3,999 | 8 <input type="checkbox"/> \$9,000-\$9,999 | 14 <input type="checkbox"/> |
| \$30,000-\$49,999 | | |
| 3 <input type="checkbox"/> \$4,000-\$4,999 | 9 <input type="checkbox"/> \$10,000-\$12,499 | 15 <input type="checkbox"/> |
| \$50,000-\$69,999 | | |
| 4 <input type="checkbox"/> \$5,000-\$5,999 | 10 <input type="checkbox"/> \$12,500-\$14,999 | 16 <input type="checkbox"/> \$70,000 |
| 或以上 | | |
| 5 <input type="checkbox"/> \$6,000-\$6,999 | 11 <input type="checkbox"/> \$15,000-\$19,999 | |
| 6 <input type="checkbox"/> \$7,000-\$7,999 | 12 <input type="checkbox"/> \$20,000-\$24,999 | |

C7 家庭人數：____成人 ____ 0-5 歲 ____ 6-12 歲 ____ 13-17 歲

C8 你有沒有子女：

- 1 有____位；他/她們的年歲： (第一位)____ 歲
 (第二位)____ 歲
 (第三位)____ 歲
 (第四位)____ 歲
- 2 沒有

C9 包括自願性供款，而家你同僱主每月嘅強積金嘅實際供款率分別係你收入嘅百分之幾呢？(如 5% 或 10%)

- (i) 僱主：____% (ii) 你本人：____%

C10 你參加緊嘅強積金所作嘅基金投資分布係點呢？

- | | | |
|-----------------|---|----------------|
| (i) 保本基金____% | 或 | (i) 低風險____% |
| (ii) 保證基金____% | | (ii) 中風險____% |
| (iii) 均衡基金____% | | (iii) 高風險____% |
| (iv) 增長基金____% | | |
| (v) 恆指基金____% | | |

C11 到目前為止，你嘅強積金度儲咗幾多錢呢？

- | | |
|--|---|
| 1 <input type="checkbox"/> \$10,000 以下 | 9 <input type="checkbox"/> \$500,000 – \$599,999 |
| 2 <input type="checkbox"/> \$10,000 – \$49,999 | 10 <input type="checkbox"/> \$600,000 – \$699,999 |
| 3 <input type="checkbox"/> \$50,000 – \$99,999 | 11 <input type="checkbox"/> \$700,000 – \$799,999 |
| 4 <input type="checkbox"/> \$100,000 – \$149,999 | 12 <input type="checkbox"/> \$800,000 – \$899,999 |
| 5 <input type="checkbox"/> \$150,000 – \$199,999 | 13 <input type="checkbox"/> \$900,000 – \$999,999 |
| 6 <input type="checkbox"/> \$200,000 – \$299,999 | 14 <input type="checkbox"/> \$1,000,000 或以上 |
| 7 <input type="checkbox"/> \$300,000 – \$399,999 | 15 <input type="checkbox"/> 不知道 |
| 8 <input type="checkbox"/> \$400,000 – \$499,999 | |

Appendix B. How to generate the DEC design.

We generate a design with three alternatives, with in total 18 choice sets. We use a Multinomial Logit Model (mnl) to generate the design. While ideally the design reflects the ultimate model to be estimated, the generation of 18 choice sets using a panel mixed logit specification with Bayesian priors is infeasible given the computational complexity (Bliemer and Rose, 2010, p. 732; Rose and Bliemer, 2013). Instead, we opt for the cross-sectional multinomial logit model with Bayesian priors to generate our design. While this seems like a large departure from a panel mixed logit model, numerous case studies and simulations show that there is only a slight loss in efficiency, and the performance of cross-sectional multinomial logit is better than cross-sectional mixed logit if the true model is panel mixed logit (Bliemer and Rose, 2010). The algorithm minimizes the mean D-error, uses row swapping, and we set the convergence criterion such that convergence is achieved if no improvement is found in 10 minutes. Since we have an unlabeled design, all parameters are generic across the alternatives, and there is no constant specified (Hensher et al., 2005, p. 151). The prior values of the parameters are set using Bayesian priors using 1000 Halton draws from a Normal distribution (see Table A1 for an overview).

Attribute	Prior distribution
Income increase (baseline 7%)	
0%	$N(-0.874, 0.218)$
5%	$N(-0.191, 0.062)$
Bonus (baseline "Yes")	
No	$N(-0.5, 0.161)$
Period certain (baseline 30 years)	
0 years	$N(-0.909, 0.147)$
10 years	$N(-0.452, 0.146)$
Rating (baseline AAA)	
A	$N(-0.826, 0.133)$
AA	$N(-0.413, 0.133)$

Table A.1: Prior distribution for each level. Prior for the opt-out option is $N(-0.2, 0.2)$.

Appendix C. Questionnaire used in the Consumer Survey

問卷編號：_____

香港教育學院
亞洲及政策研究學系
在職人士問卷

_____ 先生/小姐/太太：

你好。我是香港教育學院亞洲及政策研究學系派來的訪問員。

香港教育學院現正進行一項有關全職及正在供強積金的在職人士(年齡介乎40至64歲)的調查，作為制訂相關政策的參考資料。是次研究由中央政策組轄下的公共政策研究資助計劃提供資源。我們很高興你願意作為此次訪問的對象。而在訪問過程中所蒐集到的一切個人資料會絕對保密。

年金的選擇

年金計劃是你與金融機構訂立的合約安排，以一次過的付款，換取日後定期發放的款項。透過年金計劃，你可以在退休後繼續獲得穩定的收入來源。換句話，年金計劃是一種您可以向銀行或保險公司購買的金融產品。通常是你退休時，先支付一筆錢給這些金融機構，然後它們便會每月支付給你一定金額的生活費，直至您終老。

年金的主要好處是每月你會從提供年金計劃的金融機構，收取固定的收入直至終老。如果你自行管理退休儲蓄，假如你的壽命比你自已預計要長，你所冒的風險便是在終老之前，就已經花光了所有退休儲蓄。而且假如你將退休儲蓄進行一些投資，亦要承受一定的風險。

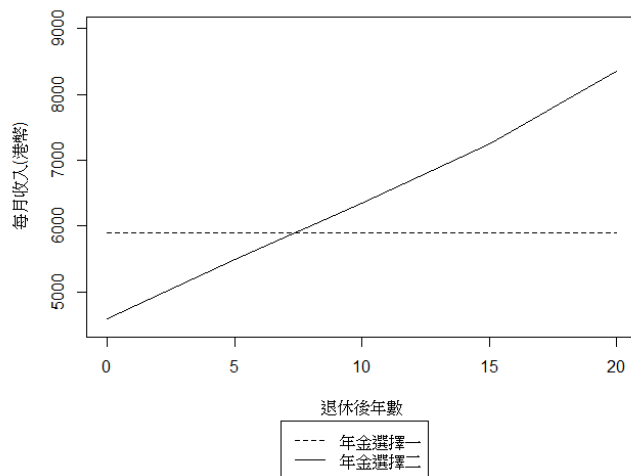
年金有多種類型，它們可能基於以下三個特徵而有所不同。

第一個特徵是否有保證期的規定，有這規定的年金稱為定期年金。如果一位退休人士購買定期年金後，在保證期內去世，年金收入可以繼續向他事前指定的家人發放，直至保證期結束為止。或者可以將保證期內應發放的年金收入一次過作為遺產支付給指定的收益人。但是假如一位退休人士購買沒有保證期的年金計劃，無論他/她在甚麼時候身故，年金收入都會立即停止發放，而所有年金亦會予金融機構。同樣地，為彌補保證期的額外承擔的支出，有固定保證期的年金計劃的每月支付金額會比沒有保證期的年金計劃每月支付金額為少。

第二個特徵是，每月的收入會否按年有所增加，以對抗通貨膨脹(簡稱通脹)。通貨膨脹意即物價在一段時間內上升。假設你退休後每年的通脹率都是3%。隨著通脹，物價上升，你用同一金額的金錢可以購買的東西便會越來越少。例如，假

設今天你用 100 元買一籃子雜貨。一年後，在通脹率是 3% 的情況下，同一籃子的雜貨將花費你 103 元。因為通脹，雜貨的價格上漲。因此，假如你的年金每月收入每年會增長 3% 便能夠保護你的購買力，避免受通貨膨脹的影響。但為了彌補每年金額增長，這種年金在退休後的幾年每月你得到的收入會比固定付款為少。

圖一：年金選擇 1 和 2 每月收入的分別



年金選擇 1 = 每月年金收入固定

年金選擇 2 = 每月年金收入按年增長 3%

圖一顯示第一個和第二個選擇按年發放每月年金收入的改變。如圖一所示，第一個選擇的年金所發放的金額固定不變，因為我們假設退休後，每年通脹率是 3%，所以其收入的購買力便會按年逐步減少。第二個選擇的年金所發放的金額則每年增加 3%，剛好抵消通脹的影響，令其收入的購買力維持不變。不過，代價是開始發放每月年金收入的頭幾年，金額會比第一個選擇的年金所發放的收入金額為低。

第三個特徵是提供年金計劃的金融機構的財政實力。這些金融機構有不同財政實力的評級（評級 A 表示強；評級 AA 表示非常強；評級 AAA 表示極強）。評級越強表示該金融機構越少機會出現沒有充足資金支付承諾的年金收入的情況。為補償金融機構資本不足的風險，低評級的金融機構可提供的每月的年金收入會比高評級的金融機構提供的每月年金收入為高。

一般來說，評級較高的金融機構會在投資方面較評級較低的保守，所以其投資回報亦會較低。換句話說，評級越高的金融機構，其投資回報率便越低。我們假設不同評級金融機構之間的投資回報有 0.5% 的差異。我們亦假設一個評級 A 的金融機構在整個退休期間的投資回報率是 6%，那麼評級 AA 的金融機構其投資回報率便是 5.5%，而評級 AAA 的機構其投資回報率便是 5%。

D. 了解程度

A1. 對以上的說明的了解程度？

- 1 完全不了解
- 2 不了解
- 3 了解
- 4 完全了解

E. 選擇題

假設你現在 65 歲，即將退休，而強積金戶口中已累積了港幣一百萬元。我們想知道當你取回這一百萬元後，會否用這筆錢購買年金。根據上述所介紹年金的三個特徵，我們設計了一款年金計劃以供選擇。除了我們設計的年金計劃外，你亦可拒絕選擇這些年金，自行管理你的強積金儲蓄（見下第二個選項）。

為了提供更多資料而供你考慮，我們計算出假如你決定自行用這筆錢投資，而每月提取固定金額以供自己生活，這筆款項可以維持多少年。我們假設你的投資回報率每年是 5%。

表一： 每月提取的金額及資金所能持續年期

每月提取的金額	資金所能持續年期
\$5,000	34.5 年
\$6,000	23.3 年
\$7,000	17.8 年

如表一所示，假如你每月提取五千元，你的強積金儲蓄可以維持 34.5 年。如果每月提取金額增至六千或七千元，儲蓄便分別只可以維持 23.3 年和 17.8 年。

如前所述，我們假設你退休後的每年的通脹率是 3%。假如你每月提取的款項每年亦增加 3%，以對抗通脹，及維持其購買力不變。那麼你的強積金儲蓄可以維持年期便會減少。（見表二）

表二： 每月支付的金額按年增長 3% 及資金所能持續年期

第一年每月提取的金額	資金所能持續年期
\$5,000	20.5 年
\$6,000	16.4 年
\$7,000	13.8 年

B1

a	<input type="checkbox"/> 選擇1	<input type="checkbox"/> 選擇2
	年金1	拒絕選擇，我將按照我的選擇，自行管理我的強積金儲蓄
5. 保證期	保證期十年	
6. 每月收入會否按年有所增加	沒有增長，固定收入	
7. 金融機構評級	A評級	
男性第一年每月收入	6,208	
女性第一年每月收入	5,957	

第一年年金收入是根據上述年金的三個特徵（保證期；每月收入增幅；金融機構評級）、死亡率和經濟增長預測，運用保險精算模型計算出來的。例如，通常情況下，女性的壽命比男性的長，所以女性的第一年年金收入會比男性為少，因為她們可以收取年金收入的時間平均來說會比男性長。另外，如前所述我們假設評

級A的金融機構評級其投資回報率分別是6%。我們用健康的年金購買者的死亡率去計算平均壽命，並且假設金融機構會收取10%的附加費作行政支出、利潤和風險保證金。

b 如果受訪者選擇第二個選項。假設你的強積金戶口中有港幣一百萬元，你會否考慮用當中一個百份比購買年金計劃一？_____ %

c 如果受訪者選擇第二個選項，拒絕選擇提供的年金計劃，詢問受訪者其拒絕原因，選項如下：

(可多項選擇)

1 不滿意計劃條件 (追問想改變那些條件及怎樣改改變那些條件)

a) 請問不滿意那部份條件特徵？怎樣改善計劃條件才能接受該年金計劃？

1.1 特徵一：保證期規定。保證期年份應該

1.1.1 增加：_____年 1.1.2 減少：_____年 1.1.3

不需要提供。

1.2 特徵二：每月年金收入的改變。

每年需增加：_____ %

1.3 特徵三：金融機構評級。金融機構評級應為：

1.3.1 AAA 級 1.3.2 AA 級 1.3.3 BBB 級 1.3.4 BB 級

或以下

2 不需要年金安排，有子女供養

3 不需要年金安排，有長俸

4 不信任提供年金計劃的金融機構

5 相信自己理財的回報會更高

6 不需要年金安排，有相當可觀的儲蓄

7 不需要年金安排，自己已有財務安排

8 希望將金錢留給子女，例如作為買樓首期

9 相信自己會蝕給提供年金計劃的金融機構

10 不熟悉年金計劃

11 其他，請註明：_____

B2 請用 1 至 7 分評估你嘅財務知識，1 分代表十分低，7 分代表十分高。
你俾自己幾多分？

_____ (1-7)

B3 你估計退休後需要用一大筆錢在自己的醫療上的機會有幾大？

_____ %

B4 你會為自己呢方面的需要留幾多錢呢？_____

B5 你估計退休後需要用一大筆錢在自己的長期照顧服務(如老人院)上的機會有幾大? _____%

B6 你會為自己呢方面的需要留幾多錢呢? _____

B7 你會為自己的葬禮預留幾多錢作為棺材本呢? _____

B8 你有冇為自己買醫療保險呢?

1 有 2 冇

B9 你有冇為自己買長期照顧服務的保險呢?

1 有 2 冇

B10 你覺得你而家健康情況係點呢?

1 非常好 2 幾好 3 普通 4 唔係幾差 5
 非常差

B11 以下我想了解多啲你嘅健康狀況。

		B12
		咁耐以嚟有無醫生話過你有以下的病?
		0 = 無、1 = 有
(a)	關節炎(包括腰骨痛、膝頭痛、生骨刺、類風濕關節炎、退化性關節炎)	
(b)	心臟病(包括冠心病、心力衰竭、心跳不正常、風濕性心臟病、心絞痛)	
(c)	高血壓	
(d)	氣喘(包括慢性支氣管炎或肺氣腫、哮喘)	
(e)	胃病(包括消化道潰瘍, 十二指腸潰瘍)	
(f)	糖尿病	
(g)	老年骨折	
(h)	柏金森氏病(柏金遜病症)	
(i)	腦退化症(老人痴呆症)	
(j)	其他精神病(包括抑鬱)	
(k)	中風(包括腦血管病、爆血管)	
(l)	癌病(包括任何部位)	
(m)	眼病(包括糖尿眼、白內障、青光眼)	
(n)	膽固醇過高	
(o)	痛風症(尿酸過高)	
(p)	失禁(大、小便)	
(q)	潰瘍	
(r)	半身麻痺; 半身不遂	
(s)	腎病	
(t)	肝病	
(u)	慢性阻塞性肺病	
(v)	其他慢性病(即需多過一年長期醫理: 如紅斑性狼瘡、甲狀腺、貧血)	
(w)	其他, 請註明: _____	

簡單介紹綜合社會保障援助計劃(綜援) 金額和申請資格。

申請人必須: (1) 是香港居民; (2) 取得香港居民身份不少於一年; 及(3) 在取得香港居民身份後, 在香港總共居住滿一年。

申請人必須通過入息及資產的審查。申請人如與家人同住, 便須以家庭為單位提出申請。

由 2015 年 2 月 1 日起, 「入息及資產」限額如下:

	單身人士個案	家庭個案-健全成人/兒童的家庭			
	成人	1 位	2 位	3 位	4 位
每月總入息	申請人及其家庭成員每月可評估的總入息不足以應付他們在綜援計劃下的每月認可需要總額				
資產限額	\$28,000	19,000	38,000	57,000	76,000

資產:(1) 包括在香港、澳門、內地或海外所擁有的土地、非自住物業、資產(現金、銀行儲蓄、股票等);(2)如家庭中有年老、殘疾或經醫生證明為健康欠佳的成員，自住物業的價值可獲全數豁免計算。

標準金額 (由 2015 年 2 月 1 日起生效的金額)：

類別	標準金額 (每人每月以港元計)	
	單身人士	家庭成員
60 歲或以上的長者		
健全／殘疾程度達 50%	3,200	3,015
殘疾程度達 100%	3,870	3,425
需要經常護理	5,450	5,000

B12 你估計退休後你合資格申請綜援的機會有幾大？_____%

B13 如果你合資格申請綜援，你估計退休後你會申領綜援的機會有幾大？
_____%

簡單介紹長者生活津貼的金額和申請資格。

「長者生活津貼」的申請資格，與現行適用於 65 至 69 歲長者申領普通高齡津貼相同。

申請人必須：(1) 年滿 65 歲或以上；(2) 已成為香港居民最少七年，以及在緊接申請日期前已連續居港最少一年；(3) 申報資產及入息的水平與普通高齡津貼的規定限額看齊；及(4) 不得同時領取公共福利金計劃下的高齡津貼/傷殘津貼或綜合社會保障援助。

由 2015 年 2 月 1 日起，「入息及資產」限額如下：

	單身人士	夫婦
每月總入息	\$7,340	\$11,830
資產限額	\$210,000	\$318,000

「入息」:(1) 包括薪金、工資、每月收到的佣金或獎金，從自僱所得的每月入息、退休金/長俸，以及從收租所得的淨收益等;(2) 不包括家庭成員或親友的金錢援助，及在逆按揭計劃下每月所獲得的款項。

資產:(1) 包括在香港、澳門、內地或海外所擁有的土地、非自住物業、資產(現金、銀行儲蓄、股票等);(2) 不包括香港主要居所的住宅物業。

每月金額：2,390 港元

B14 你估計退休後你合資格申請長者生活津貼的機會有幾大？_____%

B15 如果你合資格申請長者生活津貼，你估計退休後你會申領長者生活津貼的機會有幾大？_____%

簡單介紹生果金的金額和申請資格。

高齡津貼(生果金)是社會福利署為 70 歲或以上的香港居民，每月提供的現金津貼，以應付因年老而引致的特別需要。申請人無須供款，亦不需通過入息審查。

申請人必須：(1) 年滿 65 歲或以上；(2) 已成為香港居民最少七年，以及在緊接申請日期前已連續居港最少一年；

每月金額：1,235 港元

B16 你估計退休後你會申領生果金的機會有幾大？_____%

B17 以下邊一句最能夠形容你係投資上願意承受嘅風險？

[訪員讀出 1-4 項，次序由電腦隨機排列，只選一項]

- 1 可以承受高嘅風險以搏取高嘅回報
- 2 可以承受中等嘅風險以取得中等嘅回報
- 3 只可以承受低嘅風險而取得低嘅回報
- 4 唔願意承受任何風險
- 5 以上皆否

B18 假設你銀行戶口有\$ 100 存款，每年有兩厘息。如果你將啲錢就咁放係銀行，五年後，你戶口會有幾多錢？

- 1 多於\$102
- 2 \$102
- 3 少於\$102

B19 假如而家銀行利息係每年一厘，通脹係百分之二。一年後，你能利用呢筆銀行存款購買嘅物品將會：[訪員讀出 1-3 項，次序由電腦隨機排列，只選一項]

- 1 比今天多
- 2 與今天一樣
- 3 比今天少

B20 有意見認為「購買一間公司股票嘅投資風險普遍比股票互惠基金低」，你認為呢個講法係咪正確？

- 1 正確
- 2 不正確

B21 你有否曾經參與股票市場？

- 1 有
- 2 冇

B22 你現在有否參與股票市場？

- 1 有
- 2 冇

B23 你估計你的壽命會比你同年齡的人長些、短些、還是一樣呢？

- 1 長些
- 2 短些
- 3 一樣

B24 您估計您活到這個年齡的可能性有多大。

	受訪者年齡							
	65 歲	69 歲	74 歲	79 歲	84 歲	89 歲	94 歲	100 歲
0 - 100%								

F. 個人資料

C12 性別：[訪問員：自行填寫]

- 1 男
2 女

C13 年齡：_____

C14 婚姻狀況：

- 1 未婚
2 已婚
3 喪偶
4 分居
5 離婚

C15 你在香港最高取得的學歷：

- 1 未受過正式教育
2 小學
3 初中
4 高中
5 大專
6 大學
7 大學碩士或以上

C16 每月個人收入

- | | | |
|--|---|-----------------------------|
| 1 <input type="checkbox"/> \$2,000 以下 | 7 <input type="checkbox"/> \$8,000-\$8,999 | 13 <input type="checkbox"/> |
| \$25,000-\$29,999 | | |
| 2 <input type="checkbox"/> \$2,000-\$3,999 | 8 <input type="checkbox"/> \$9,000-\$9,999 | 14 <input type="checkbox"/> |
| \$30,000-\$49,999 | | |
| 3 <input type="checkbox"/> \$4,000-\$4,999 | 9 <input type="checkbox"/> \$10,000-\$12,499 | 15 <input type="checkbox"/> |
| \$50,000-\$69,999 | | |
| 4 <input type="checkbox"/> \$5,000-\$5,999 | 10 <input type="checkbox"/> \$12,500-\$14,999 | 16 <input type="checkbox"/> |
| \$70,000 或以上 | | |
| 5 <input type="checkbox"/> \$6,000-\$6,999 | 11 <input type="checkbox"/> \$15,000-\$19,999 | |
| 6 <input type="checkbox"/> \$7,000-\$7,999 | 12 <input type="checkbox"/> \$20,000-\$24,999 | |

C17 每月家庭收入

- | | | |
|--|---|-----------------------------|
| 1 <input type="checkbox"/> \$2,000 以下 | 7 <input type="checkbox"/> \$8,000-\$8,999 | 13 <input type="checkbox"/> |
| \$25,000-\$29,999 | | |
| 2 <input type="checkbox"/> \$2,000-\$3,999 | 8 <input type="checkbox"/> \$9,000-\$9,999 | 14 <input type="checkbox"/> |
| \$30,000-\$49,999 | | |
| 3 <input type="checkbox"/> \$4,000-\$4,999 | 9 <input type="checkbox"/> \$10,000-\$12,499 | 15 <input type="checkbox"/> |
| \$50,000-\$69,999 | | |
| 4 <input type="checkbox"/> \$5,000-\$5,999 | 10 <input type="checkbox"/> \$12,500-\$14,999 | 16 <input type="checkbox"/> |
| \$70,000 或以上 | | |
| 5 <input type="checkbox"/> \$6,000-\$6,999 | 11 <input type="checkbox"/> \$15,000-\$19,999 | |

- 1 有：HK\$_____
- 2 有：拒絕透露
- 3 冇

C27 你計劃以後每個月會為退休後嘅生活儲幾多錢？

- 1 有：HK\$_____
- 2 有：拒絕透露
- 3 冇

遺產的動機

C28 以下有四句關於父母將遺產留給子女的句子，請選擇最切合你的想法的一句。

- 1 如果我們的子女在我們年紀老邁時好好的照顧我們，我們會打算給他們留一筆可觀的遺產。
- 2 不管他們在我們年紀老邁時如何照顧我們，我們都會給他們留一筆可觀的遺產。
- 3 對於給自己子女留下遺產，我們沒有預先想好的計劃。
- 4 我們沒有打算留下任何遺產給我們的子女。
- 5 以上皆否

C29 你想將來怎樣處理你的財產？（可作多個選擇）

- 1 交給配偶 / 子孫
 你會將哪類型的資產交給配偶 / 子孫呢？（可作多個選擇）
- 1.1 儲蓄 1.3 股票，債券或其他投資
- 1.2 物業 1.4 全部資產
- 2 捐贈慈善機構
- 3 在生時自己把款項用掉
- 4 其他: _____
- 5 沒有想過

C30 跟住我想同你傾下你嘅資產狀況。

	請問你而家有無以下嘅資產呢? 1=有 2= 無	你認為你呢樣資產嘅總值或現市價係幾多呢?(若同人夾份擁有嘅資產，只計算你所佔嘅部份)
1 現金 / 活期 / 定期存款		
2 股票 / 債券 / 基金		
3 自住物業		
4 香港及海外嘅非自住物業 (如舖位、出租住宅單位等)		
5 香港及海外嘅生意		
6 所有退休保障計劃的供款結餘(包括強積金、公積金等未曾提取過的款項)	1	
7 其他，請註明: _____		
8 總資產		

C31 總資產（包括自住物業／非自住物業）：

- | | |
|--|---|
| 1 <input type="checkbox"/> \$10,000 以下 | 9 <input type="checkbox"/> \$600,000 – \$699,999 |
| 2 <input type="checkbox"/> \$10,000 – \$49,999 | 10 <input type="checkbox"/> \$700,000 – \$799,999 |
| 3 <input type="checkbox"/> \$50,000 – \$99,999 | 11 <input type="checkbox"/> \$800,000 – \$899,999 |
| 4 <input type="checkbox"/> \$100,000 – \$199,999 | 12 <input type="checkbox"/> \$900,000 – \$999,999 |
| 5 <input type="checkbox"/> \$200,000 – \$299,999 | 13 <input type="checkbox"/> \$1,000,000 – \$1,999,999 |
| 6 <input type="checkbox"/> \$300,000 – \$399,999 | 14 <input type="checkbox"/> \$2,000,000 – \$3,999,999 |
| 7 <input type="checkbox"/> \$400,000 – \$499,999 | 15 <input type="checkbox"/> \$4,000,000 或以上 |
| 8 <input type="checkbox"/> \$500,000 – \$599,999 | 16 <input type="checkbox"/> 不知道 |