

Securing Lifelong Retirement Income

OUP UNCORRECTED PROOF – , 5/4/2011, Spi

Securing Lifelong Retirement Income: Global Annuity Markets and Policy

EDITED BY

Olivia S. Mitchell, John Piggott,
and Noriyuki Takayama

OXFORD
UNIVERSITY PRESS

OXFORD

UNIVERSITY PRESS

Great Clarendon Street, Oxford ox2 6DP

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide in

Oxford New York

Auckland Cape Town Dar es Salaam Hong Kong Karachi

Kuala Lumpur Madrid Melbourne Mexico City Nairobi

New Delhi Shanghai Taipei Toronto

With offices in

Argentina Austria Brazil Chile Czech Republic France Greece

Guatemala Hungary Italy Japan Poland Portugal Singapore

South Korea Switzerland Thailand Turkey Ukraine Vietnam

Oxford is a registered trade mark of Oxford University Press
in the UK and in certain other countries

Published in the United States
by Oxford University Press Inc., New York

© Pension Research Council, The Wharton School, University of Pennsylvania, 2011

The moral rights of the author have been asserted

Database right Oxford University Press (maker)

First published 2011

All rights reserved. No part of this publication may be reproduced,
stored in a retrieval system, or transmitted, in any form or by any means,
without the prior permission in writing of Oxford University Press,
or as expressly permitted by law, or under terms agreed with the appropriate
reprographics rights organization. Enquiries concerning reproduction
outside the scope of the above should be sent to the Rights Department,
Oxford University Press, at the address above

You must not circulate this book in any other binding or cover
and you must impose the same condition on any acquirer

British Library Cataloguing in Publication Data

Data available

Library of Congress Cataloging in Publication Data

Data available

Typeset by SPI Publisher Services, Pondicherry, India

Printed in Great Britain

on acid-free paper by

MPG Books Group, Bodmin and King's Lynn

ISBN 978-0-19-959484-9

1 3 5 7 9 10 8 6 4 2

Preface

As the world ages, millions of savers and investors are beginning to wake up to the fact that they face longevity risk. This refers to the possibility that an individual, or indeed, an entire cohort of people, might live much longer than expected and hence become exposed to the chance of running out of retirement money. This volume focuses on how insurers and other financial market players can help protect against this critical and increasingly important financial and demographic challenge, taking an international focus.

As this book points out, there are three main ways to protect against longevity. Traditional societies relied on large, multigenerational families, but reliance on one's children is a less attractive option than it was in the past. State provision was mainly a twentieth-century phenomenon and, as we note, faces substantial challenges in many nations. Last is the insurance industry which can cover the long lives of some retirees by pooling survival risk across the population, including those who live less long. The particular question this volume addresses is whether and how more general and formalized private longevity insurance provision can be provided, and is being offered, through annuity products. We are delighted to represent the vigorous debate currently underway by academics, financial experts, regulators, and plan sponsors, all seeking to define a new future for mechanisms to help protect against outliving one's wealth.

Previous research studies published by the Pension Research Council and the Boettner Center of the Wharton School of the University of Pennsylvania have focused on pensions and retirement adequacy around the world. In this volume, as in our many others, we have relied on many fine contributors, coeditors, and commentators. In the present instance, John Piggott and Noriyuki Takayama provided the impetus to turn a rich set of conversations and ideas into a high-quality research volume worthy of the Pension Research Council series. The Senior Partners and Institutional Members of the Pension Research Council are also very much appreciated for their intellectual and financial support. The Institute of Economic Research at Hitotsubashi University in Tokyo hosted an early meeting for the researchers, under the direction of Professor Takayama. Additional support was provided by the Pension Research Council, the Boettner Center for Pensions and Retirement Research, and the Ralph H. Blanchard Memorial Endowment at the Wharton School of the University of Pennsylvania. The manuscript was expertly prepared and carefully edited by Andrew Gallagher and Matt Rosen, with help from Irene Shaffer.

vi Preface

On behalf of these institutions and individuals, we thank all of our fine collaborators and supporters for their help and intellectual guidance in these times of financial turmoil.

Olivia S. Mitchell

Pension Research Council
Boettner Center for Pensions and Retirement Research
The Wharton School

Contents

<i>List of Figures</i>	ix
<i>List of Tables</i>	xii
<i>Notes on Contributors</i>	xiv
<i>Abbreviations</i>	xvii
1. Turning Wealth into Lifetime Income: The Challenge Ahead	1
<i>Olivia S. Mitchell and John Piggott</i>	
Annuity Markets Around the World	
2. The Swedish Annuity Market: Where it is and Where it's Headed	13
<i>Edward Palmer and Bo Larsson</i>	
3. Market Structure and Challenges for Annuities in India	32
<i>Mukul G. Asher and Deepa Vasudevan</i>	
4. Annuities and their Derivatives: The Recent Canadian Experience	50
<i>Moshe A. Milevsky and Ling-wu Shao</i>	
5. The United States Longevity Insurance Market	63
<i>Anthony Webb</i>	
6. Too Much Risk to Insure? The Australian (non-) Market for Annuities	81
<i>Hazel Bateman and John Piggott</i>	
7. Pension Payouts in Chile: Past, Present, and Future Prospects	106
<i>Jose Ruiz and Olivia S. Mitchell</i>	

viii Contents

8. The Private Life Annuity Market in Germany: Products and Money's Worth Ratios	131
<i>Barbara Kaschützke and Raimond Maurer</i>	
9. Annuity Markets in Japan	159
<i>Junichi Sakamoto</i>	
10. Compulsory and Voluntary Annuity Markets in the United Kingdom	171
<i>Edmund Cannon and Ian Tonks</i>	
11. Payouts in Switzerland: Explaining Developments in Annuitization	195
<i>Monika Büttler and Stefan Staubli</i>	
<i>End Pages</i>	214
<i>Index</i>	219

List of Figures

Figure 2.1	Share of private and occupational pension for those retired in 1992	22
Figure 2.2	Form of private pension withdrawal (1992)	23
Figure 3.1	Types of annuities	36
Figure 4.1	Money's worth ratio (MWR) for annuities purchased at age 65 with no guaranteed periods	54
Figure 4.2	Adjusted money's worth ratio (MWR) for annuities purchased at age 65 with no guaranteed periods	55
Figure 5.1	Fraction of workforce covered by pension plan of given type over time	67
Figure 6.1	Components of retirement income provision	86
Figure 6.2	Value of retirement benefits: lump sum and income stream (1997–2008)	94
Figure 6.3	Value of private retirement income streams (1989–2008)	94
Figure 7.1	Growth of the Chilean AFP pension system	108
Figure 7.2	Time pattern of affiliates and retirees in the Chilean AFP system	108
Figure 7.3	Chilean retirees by type, over time	109
Figure 7.4	Fraction of retirees taking an annuity, phased withdrawal (PW), or temporary withdrawal (TW)	112
Figure 7.5	Phased withdrawal and annuity payments in Unidad de Fomento (UF) units: simulation over the life cycle. Panel (A): single male who retires at age 65 (no dependents); Panel (B): single female who retires at age 60 (no dependents)	114
Figure 7.6	Time path of Chilean minimum pension guarantee (MPG) levels and minimum monthly earned income (in Unidad de Fomento)	115
Figure 7.7	Time path of annuities purchased (RV) and phased withdrawal benefits (RP) elected in the Chilean pension system	116

x List of Figures

Figure 7.8	Time path of Chilean pension values according to payout method elected	117
Figure 7.9	Time path of commissions for annuity sales in Chile	118
Figure 7.10	Proportion of Chilean AFP member retirees electing the lowest cost annuity quote by access channel utilized	121
Figure 7.11	Distribution of age at death of Chilean population and annuity purchasers conditional on attaining age 25. Panel (A): males; Panel (B): females	123
Figure 8.1	Development of average annuity payout rates for German voluntary single immediate life annuities 1997–2006. Panel (A): age 60, without period-certain payout guarantee; Panel (B): age 65, without period-certain guarantee; Panel (C): age 70, without period-certain guarantee; Panel (D): age 70, with period-certain guarantee	141
Figure 8.2	Survival probabilities for annuitants aged 60 and 70. Panel (A): annuity is purchased at age 60; Panel (B): annuity is purchased at age 70	145
Figure 8.3	Standard deviation of money’s worth ratio averages, products without period-certain guarantees, German voluntary annuity market, range of entry ages, 1997–2006. Panel (A): annuitant; Panel (B): population	149
Figure 8.4	Year-by-year development of money’s worth ratios for 65-year-old annuitants in the German voluntary annuity market. Panel (A): male aged 65 without period-certain guarantee; Panel (B): male aged 65 with period-certain guarantee; Panel (C): female aged 65 without period-certain guarantee; Panel (D): female aged 65 with period-certain guarantee	151
Figure 9.1	Framework of the retirement income security system in Japan	160
Figure 10.1	Growth in annuity sales 1994–2006	172
Figure 10.2	Six-firm concentration ratio in the compulsory purchase market	176
Figure 10.3	Composition of life insurers’ assets	177

List of Figures xi

Figure 10.4	Annuity rates in the compulsory market (65-year-old male)	178
Figure 10.5	Annuity rates in the voluntary market (65-year-old male)	179
Figure 10.6	Money's worth for compulsory annuities for a 65-year-old male	186
Figure 10.7	Money's worth for voluntary annuities for a 65-year-old male	187
Figure 11.1	Annual cash-out rates in autonomous pension funds and collective funds	203
Figure 11.2	Evolution of money's worth ratios over time	206
Figure 11.3	Cash-out rates and accumulated pension wealth in the second pillar	211

List of Tables

Table 1.1	Demographic profiles of selected countries (current and projected)	3
Table 2.1	Distribution of tax-deductible pension saving (2008)	16
Table 2.2	Number of pensions and type of benefit received (2008)	18
Table 2.3	Estimated multinomial model for persons of age 55–67 drawing private voluntary benefit during some years during 1992–2007	25
Table 3.1	Labor force and demographic indicators in India	33
Table 3A.1	Annuity products offered in India	38
Table 3A.2	Mortality tables and life expectancy calculations for India	40
Table 4.1	Typical guaranteed lifetime withdrawal benefit (GLWB) product features	59
Table 5.1	Annuity sales by product types for the period 1996–2008 (dollars in billions)	69
Table 5.2	Immediate annuity qualified and non-qualified sales 2001–6	71
Table 6.1	Account-based pensions in Australia: minimum drawdowns by age	88
Table 6.2	Private retirement benefits in Australia (2009)	89
Table 6.3	Retirement income product coverage by sex and age in Australia (2006)	90
Table 6.4	Evolution of the tax-transfer treatment of retirement benefits	92
Table 6.5	Patterns of annuity purchase in Australia (2001–9)	96
Table 7.1	Characteristics of alternative payout modes under the Chilean retirement system	112
Table 7.2	Time path of requests for annuity quotes under the Chilean SCOMP system	119
Table 7.3	Annuity quotes accepted in Chile based on ranking of benefit offered	120

List of Tables xiii

Table 7.4	Money's worth ratios for Chilean payout annuities derived in prior studies	125
Table 7.5	Updated money's worth ratios for Chilean payout annuities	125
Table 8.1	Main studies on money's worth ratios (MWRs), surveyed countries, and time periods	134
Table 8.2	Structure of the typical annuity product in the German market	139
Table 8.3	Structure of the data sample for calculation of money's worth ratios in the German voluntary annuity market	140
Table 8.4	German voluntary annuity market money's worth ratios averages from 1997 to 2006 for products with and without period-certain guarantees	148
Table 8.5	Money's worth ratios for the year 2006, based on minimum, average, and maximum quotes	153
Table 9.1	Duration of annuity payments in Japan	164
Table 9.2	Age at which annuity payments start in Japan	165
Table 9.3	Reliable financial vehicles to save for retirement	165
Table 10.1	Scenarios for the size of the annuity market (estimated annual flows, £ billion)	174
Table 10.2	Money's worth ratios (MWRs) in the UK compulsory market for 65-year olds	185
Table 11.1	Demographic trends in Switzerland	201
Table 11.2	Money's worth ratios for the Swiss second pillar in 2009	205

Notes on Contributors

Mukul G. Asher is Professor of Public Policy at the Lee Kuan Yew School of Public Policy of the National University of Singapore. He specializes in public finance, social security reforms, and India's external economic relations. He has been a consultant to many governments and multilateral institutions including the World Bank and the International Labor Organization. He received the Ph.D. in Economics from Washington State University.

Hazel Bateman is Associate Professor of Economics and the Director of the Centre for Pensions and Superannuation at the University of New South Wales in Sydney, Australia. Her research interests include public and private provision for retirement, pension finance, and behavioral aspects of retirement saving. She received the Ph.D. from the University of New South Wales.

Monika Büttler is Professor of Economics and Public Policy at St. Gallen University, Switzerland, and Managing Director of the Swiss Institute for Empirical Economic Research SEW-HSG. Her field of research is aging and pensions, family economics, and political economics. She received the Ph.D. in Economics from the University of St. Gallen.

Edmund Cannon is Professor of Economics, Finance, and Management at the University of Bristol. His research interests include macroeconomics, long-run economic development, productivity, regional growth rates, the role of financial markets, agricultural history, and the effect of demographic change and pensions on the macroeconomy. He received the D.Phil. in Economics from the University of Oxford.

Barbara Kaschützke is researcher in the Finance Department of the Goethe University Frankfurt, at the Chair of Investment, Portfolio Management, and Pension Finance. Her fields of specialization include pension regulation, institutional investors, and payout phase of funded pensions. Previously, she worked in mergers and acquisitions with Rothschild GmbH in Frankfurt and London. She received the Doctorate in Business Administration in Finance at the Goethe University Frankfurt.

Bo Larsson is an Analyst at the Swedish Pensions Agency and Assistant Professor at Dalarna University College. His research focuses on finance, risk, taxation, and public finance. He received the Ph.D. in Economics from Stockholm University.

Notes on Contributors xv

Raimond Maurer holds the endowed Chair of Investment, Portfolio Management, and Pension Finance in the Finance Department at the Goethe University Frankfurt. His research concentrates on asset management, lifetime portfolio choice, and pension finance. He advises the German Society of Actuaries and the Association of Certified International Investment Analysts, and he serves on the Advisory Board for the Pension Research Council at Wharton. He received his habilitation and Ph.D. in Business from Mannheim University.

Moshe A. Milevsky is Professor of Finance at the Schulich School of Business at York University in Toronto and the Executive Director of The IFID Centre. His research focuses on insurance, investments, pensions, retirement, and annuities. He received the Ph.D. in Business Finance from York University.

Olivia S. Mitchell is the International Foundation of Employee Benefit Plans Professor and the Chair of the Department of Insurance and Risk Management, Executive Director of the Pension Research Council, and Director of the Boettner Center on Pensions and Retirement Research at the Wharton School. Her areas of research and teaching are private and public insurance, risk management, public finance and labor markets, and compensation and pensions, with a US and an international focus. She received the Ph.D. degree in Economics from the University of Wisconsin-Madison.

Edward Palmer is Professor of Social Insurance Economics at Uppsala University, Sweden, and is Senior Adviser to the Swedish Social Insurance Agency. His research focuses on social security and pensions; previously, he worked on the Swedish pension reform, and he is a Consultant for the World Bank and other international institutions. He received the Ph.D. in Economics from Stockholm University.

John Piggott is Professor of Economics in the Australian School of Business, University of New South Wales, where he also heads up the Australian Institute for Population Ageing Research. His research examines economic and financial aspects of population aging. He received the Ph.D. in Economics from the University of London.

Jose Ruiz is Professor of Finance in the Business School at the University of Chile. His interests include pension economics, risk management, and capital markets. He received the Ph.D. in Applied Economics from the Wharton School at the University of Pennsylvania.

Junichi Sakamoto is Chief Adviser to the Pension Management Research Group of the Nomura Research Institute and Lecturer at the University of Tokyo, Nihon University, and Sophia University. Previously, he was the Director of the Japanese Government's Actuarial Affairs Division of the

xvi Notes on Contributors

Pension Bureau of the Ministry of Health, Labor, and Welfare. He received the MS in Mathematics from the University of Tokyo, Japan.

Ling-wu Shao is a doctoral student in Finance at the Schulich School of Business, York University. His Ph.D. research is investigating the money's worth of annuity products in Canada.

Stefan Staubli is Research Associate at the Swiss Institute for Empirical Economic Research at the University of St. Gallen. His research focuses on labor supply effects of government expenditure programs and the role of annuities in financing retirement. He received the Ph.D. from the University of St. Gallen.

Noriyuki Takayama is the JRI Pension Research Chair Professor at the Institute of Economic Research with Hitotsubashi University in Tokyo and is a Distinguished Scholar at the Research Institute for Policies on Pension and Aging. His research interests include intergenerational economic issues, public and private pensions, and household saving and wealth formation. He received the Ph.D. from the University of Tokyo.

Ian Tonks is Professor of Finance in the School of Management at the University of Bath. His research focuses on pension economics, fund manager performance, market microstructure, and the new issue market. He has also consulted with the Bank of England and the Financial Services Authority.

Deepa Vasudevan is a researcher who focuses on pension systems and reforms, macroeconomic policy, the monetary sector, and financial markets. She received the Ph.D. in Financial Studies from the University of Delhi, India.

Anthony Webb is Associate Director of Research at the Center for Retirement Research at Boston College. His work examines the role of annuities in retirement asset decumulation, as well as the impact of pensions and Social Security on retirement. He received the Ph.D. in Economics from the University of California, San Diego.

Abbreviations

ABS	Australian Bureau of Statistics
AEW	Annuity equivalent wealth
AFTS	Australia's Future Tax System
ALDA	Advanced life deferred annuity
APRA	Australian Prudential Regulatory Authority
ATO	Australian Taxation Office
AVS	First-pillar welfare scheme
BLS	Bureau of Labor Statistics
CLHIA	Canadian Life and Health Insurance Association
CMI	Central Mortality Investigation Bureau
CPI	Consumer price index
CREF	College Retirement Equities Fund
CRRA	Constant relative risk aversion
DA	Deferred annuity
DAV	Deutsche Aktuarvereinigung
DB	Defined benefit
DC	Defined contribution
DCA	Dollar cost averaging
EPF	Employees' Pension Fund
EPI	Employees' Pension Insurance
ER	Early retirement
ETF	Exchange traded fund
FaHCSIA	Department of Family, Housing, Community Services and Indigenous Affairs
FDC	Funded defined contribution
FPF	Farmers' Pension Fund
FRBM	Fiscal Responsibility and Budget Management
FSA	Financial Services Authority
GDV	Gesamtverband der Deutschen Versicherungswirtschaft
GLWB	Guaranteed Lifetime Withdrawal Benefit

xviii Abbreviations

GSA	Group Self Annuitization
IA	Immediate annuity
IAI	Institute of Actuaries of India
ILO	International Labor Organization
INE	Instituto Nacional de Estadísticas
IRA	Individual Retirement Account
IRDA	Insurance Regulatory and Development Authority
IRS	Individual retirement saving
LIC	Life Insurance Corporation of India
LIF	Life Income Funds
LPiA	Lifetime payout income annuity
LPP	Federal Law on Occupational Retirement, Survivors and Disability Pension Plans
LRIF	Locked-In Retirement Fund
LSRB	Lump-Sum Retirement Benefit Plans
LTC	Long-term care
MAA	Mutual Aid Association
MPG	Minimum pension guarantee
MWR	Money's worth ratio
NDC	Notional defined contribution
NP	National Pension
NPF	National Pension Fund
NPS	New Pension Scheme
NR	Normal retirement
OECD	Organisation for Economic Co-operation and Development
PASIS	<i>pension asistencial</i>
PAYGO	Pay-as-you-go
PFRDA	Pension Fund Regulatory and Development Authority
PW	Phased withdrawal
PWER	PW at the early retirement age
PWNR	PW at the normal age
RBL	Reasonable Benefit Limits
RCLA	Ruin Contingent Life Annuity
RCV	Residual capital value

Abbreviations xix

RMLA	Reverse mortgage loan annuity
RRIF	Registered Retirement Income Fund
RRSP	Registered Retirement Saving Plan
SAFP	Superintendencia de Administradoras de Fondos de Pensiones
SCOMP	<i>sistema de consultas y ofertas de montos de pensión</i>
SEK	Swedish kronor
SG	Superannuation Guarantee
SPIA	Single premium immediate annuity
SSA	Social Security Administration
S2P	State Second Pension
SWiP	Systematic withdrawal plan
TAP	Term allocated pension
TFR	Total fertility rate
TIAA	Teachers Insurance and Annuity Association
TIPS	Treasury inflation-protected securities
TQPP	Tax-Qualified Pension Plans
TW	Temporary withdrawal
UF	Unidad de Fomento
VA	Variable annuity
WRAMAF	Workers' Retirement Allowance Mutual Aid Fund

OUP UNCORRECTED PROOF – , 5/4/2011, Spi

Chapter 1

Turning Wealth into Lifetime Income: The Challenge Ahead

Olivia S. Mitchell and John Piggott

In the last century, governments have shouldered a growing share of financial provision for the elderly. This trend was sustainable as long as populations were kept young by above-replacement fertility rates, so that growing labor forces provided a ready source for financing the retired. But as the twentieth century ended and the twenty-first began, the reality of population aging has made it clear that such promises are exerting a burdensome fiscal strain. While government payouts will likely continue to increase for many decades, it is now evident that future retirees will not be as well off as they had thought. Indeed, several countries have already reduced government-financed retirement promises by raising the retirement age, changing benefit indexation, and reducing retiree and dependent benefits. This process has been exacerbated by the steady decline in defined benefit occupational pensions which formerly paid lifetime benefits. Today, however, workers are more likely to receive defined contribution plans (if any pension at all), which provide retirees with lump sums or phased withdrawals.

This trend presents a substantial social challenge, especially when seen in the context of a globally aging population. The United Nations (2008) has estimated that the number of people in the world over the age of 60 totaled a little over three-quarters of a billion in 2008; by 2050, over 2 billion people are expected to be over age 60, or a 250 percent increase. Those over 80 are expected to increase from about 105 million today to nearly 400 million by mid-century. In the same period, total population will increase from 6.9 to 9.1 billion – a rise of about 31 percent. The retreat of the public sector and the burgeoning of an ageing world are clearly related, but their combined impact compounds the magnitude of the issue.

In the international context, there are only three major sources of longevity insurance. First is large families, which played a central role in old-age support in the past. Second is state provision, which was primarily a twentieth-century phenomenon and faces challenges in the future. Third is the insurance industry, which is able to pay for some long-lived retirees by

2 Securing Lifelong Retirement Income

pooling survival risk across others who do not live long. A question we take up in this volume is whether the twenty-first century is likely to be an era of more general and formalized private longevity insurance provision through annuities. We have gathered a global group of experts to examine current practice in both developed and emerging economies, to provide guidance to address several questions including: What do annuity markets look like today? What is the potential to transform this product type into a familiar and widely used financial instrument like a mortgage or life insurance? What is the appropriate regulatory structure for lifetime payout annuities?

To answer these questions, we analyze a variety of countries. Some have mandatory annuitization (the United Kingdom, Sweden); others have mandatory accumulation plans without requiring annuitization (Australia, Chile, Switzerland); and still others remain heavily dependent on traditional social security with private annuities representing what might best be described as a residual market (Germany, Japan). Also in some nations, innovations in longevity insurance products have been embraced, apparently rather successfully (e.g., in Canada and the United States; Milevsky and Shao 2011). And in others – notably among emerging economies – India stands out as a country of nearly 1 billion people without a significant annuity market. Not included in this study is China, as it has only just started down this track with its incipient Enterprise Annuity program.

The demographic context

As we have argued earlier, the global demographic transition underpins a renewed interest in annuity markets. Accordingly, it is instructive to summarize the demographic profiles of the countries represented in the volume, outlined in Table 1.1. We include some ‘old’ economies, such as Germany and Japan, some younger developed countries such as the United Kingdom, Australia, Canada, and the United States, and still other nations that are exporting their young workers such as India. In every case, however, all are aging. Thus, across developed countries, fertility rates are now below the 2.1 rate required to sustain a steady state population, and in some countries the figures are low indeed. As a result, the aged dependency ratio is set to increase, most notably in Japan where the 2050 projection of 0.74 means there will be only 1.37 workers to support each retiree.

Turning Wealth into Lifetime Income: The Challenge Ahead 3

TABLE 1.1 Demographic profiles of selected countries (current and projected)

Country	Population (millions)	Total fertility rate	Life expectancy at birth	Aged dependency ratio	2050 aged dependency ratio
Australia	21.5	1.85	82.2	0.21	0.40
Canada	33.9	1.62	81.4	0.20	0.43
Chile	17.1	1.89	79.1	0.13	0.36
Germany	82.1	1.34	80.5	0.31	0.59
India	1214.5	2.52	65.2	0.08	0.20
Japan	127.0	1.27	83.7	0.35	0.74
Sweden	9.3	1.85	81.6	0.28	0.41
Switzerland	7.6	1.49	82.5	0.26	0.45
The United Kingdom	61.9	1.85	80.1	0.25	0.38
The United States	317.6	2.02	79.9	0.19	0.35

Source: United Nations (2008).

The demand for annuities

One theme that emerges from the studies in this volume is that voluntary life annuity markets are generally thin. This is not a surprise, since annuity markets are characterized by asymmetric information; accordingly, in the absence of appropriate regulatory support, they tend not to be efficient. In general, low demand for annuities is explained by several factors, including retiree bequest motives, their reluctance to lose discretionary control over their capital, the crowding-out of private annuities by public pensions, and adverse selection, where price is increased and value reduced for those with normal life expectancies.

Nevertheless, two countries studied in this volume, Chile and Switzerland, do host substantial voluntary markets for annuities. What is interesting about these two nations is that both rely heavily on mandatory accumulation policies for retirement. Thus, Ruiz and Mitchell (2011) show that in Chile, a combination of policy settings and market features combine to generate high annuity demand. There, annuities represent good value with a relatively high money’s worth ratio (MWR). Also of particular interest is the establishment of an online bidding mechanism in which all providers participate, making market information much more accessible. Access to accumulations is available to early retirees, if they have substantial balances taken as an annuity. Additionally, pension payouts have been limited to those having twenty years of contributions, leading

4 Securing Lifelong Retirement Income

risk-averse retirees with relatively modest accumulations to nevertheless choose annuitization.¹

Switzerland also stands out as a nation with a strong voluntary annuity market. Bütler and Staubli (2011) suggest several explanations for the penetration of the Swiss market. First, good money's worth values are important, and in many cases, these exceed unity. But second, behavioral factors are also influential. For instance, information provided to pension fund members emphasizes what Brown et al. (2008) refer to as a 'consumption' frame, as opposed to an accumulation or returns frame, and much political debate is conducted in terms of consumption outcomes. And third, defaults matter. While MWRs for the mandatory accumulations are very high, super-mandatory conversions lead to lower MWRs for that portion of annuitization. Yet, most retirees make polar choices, and most annuitize both the mandatory and super-mandatory components of their retirement benefits. Indeed, the Swiss case shows that lower income individuals with access to means-tested government benefits are less likely to annuitize. This is consistent with the view that crowding-out is important.

Chile and Switzerland both rely on a mandatory accumulation policy as a mainstay of earnings-related retirement provision. They share this characteristic with Australia, as analyzed in this volume by Bateman and Piggott (2011). The surprising fact, however, is that while Chile and Switzerland have strong voluntary annuity markets, in Australia they are almost nonexistent. Thus, in the nine months to September 2009, only seventeen life annuities were sold in the entire nation. One reason is that Australia lacks the traditional defined benefit social security system, and instead it has a means-tested pension that is quite generous as a poverty alleviation instrument. For instance, for a single individual, it delivers about 28 percent of average fulltime earnings, wage indexed, and this is available to all eligible residents at age 65 regardless of labor force participation history. Couples receive about 41 percent of average earnings. Over half the eligible retired population today receives the full age pension and over three-quarters receive some means-tested benefit. As a result, there seems to be little residual demand for private annuities.

Over the last decade, the Australian annuities market has ebbed and flowed in response to policy decisions which have affected the way in which annuity purchase impacts upon the means-tested first-pillar, tax rules, and the impact of decisions taken by the national prudential (regulatory) authority. Framing would appear to provide part of the explanation, since Australia's pension industry emphasizes accumulations and returns, while downplaying the level of consumption an accumulation might deliver. In addition, the authors suggest that policy coordination might be a possible explanation, a theme to which we return later.

Turning Wealth into Lifetime Income: The Challenge Ahead 5

In several other countries described in this volume, the conventional wisdom also seems to apply, namely that voluntary annuities are often a hard sell. Interestingly, this remains true even when MWRs are high, in part because publicly provided social security can crowd out private provision as in the United Kingdom. Thus, Cannon and Tonks (2011) report that, while the UK compulsory annuity market is very active, the voluntary market is very small. The same applies to Sweden, as noted by Palmer and Larsson (2011). In Germany, as reported by Kaschützke and Maurer (2011), annuities also have high MWRs, yet market volume remains small. And Sakamoto (2011) likewise reports very low take-ups of voluntary annuities in Japan.

Progress and obstacles in insuring the risk

Innovations in the annuity market are also of interest, despite obstacles to efficient supply raised in several of the chapters. As Asher and Vasudevan (2011) point out, it is essential to have disaggregated morbidity and mortality databases in order for the market to work efficiently, and for investors to learn how to match assets and long-term liabilities. At the same time, greater financial literacy and more robust regulation are also greatly needed. While Asher and Vasudevan write about the Indian context, these points are also relevant in most other countries as well. To illustrate our points, we offer a brief and selective discussion focusing on longevity projections and risks, product innovation, and policy coordination to support longevity insurance markets.

Longevity projections and risks

Many approaches have been used and proposed to project mortality. Mortality improvements have been estimated from medical scenarios, but this has consistently underestimated mortality. Analysts have often claimed biological limits for humankind only for mortality improvements to overtake their projections, sometimes within a few years (Oeppen and Vaupel 2002).

Demographers rely more heavily on extrapolation of past trends. Lee and Carter (1992) both formalized and popularized extrapolative methods, which give better estimates of life expectancy but often imply an implausible degree of accuracy (Alho 1992). Their approach also has limitations. Some analysts argue that future mortality improvements will now have to come at older ages, thus reducing the impact on life expectancy at birth. Others suggest that developments such as the increased incidence of obesity will inhibit future increases in life expectancy in developed countries (Olshansky et al. 2005).

6 Securing Lifelong Retirement Income

Current actuarial approaches, including those used by the Society of Actuaries and the UK Institute of Actuaries, are based on actuarial life tables. Here, mortality projections are, at best, crude and based on high-, medium-, and low-projected deterministic tables (or sometimes they assume deterministic improvement trends). These tables therefore offer limited guidance on the risk arising from longevity changes and hence have major limitations for pricing or capital assessment for insurers.

Increasingly, in the international sphere, attention is being placed on alternative and more sophisticated models better-suited to risk management and pricing. Active life expectancy, which is the period of life free from disability, is important for financial products and longevity risks. Modern stochastic modeling incorporating disability-specific mortality indicates higher active life expectancies than cruder models and provides a basis for assessing morbidity risks and their financial impact (Manton and Land 2000).

What is still lacking, however, is an integrated approach based on modern statistical models that captures the essential characteristics of mortality and morbidity data across different populations, takes into account mortality and morbidity risk factors, produces estimates of risk for longevity products, and recognizes the need for professional and commercial application and acceptance. Developing this framework could greatly enhance the development of more robust annuity markets, since it would provide the basis for risk spreading through reinsurance. Reinsurance is occurring, but it is limited in its reach.

Product innovation

The life payout annuity has been around for a long time, and until recently, there has been remarkably little innovation in its basic form. In this volume, however, several authors discuss product innovations that may make annuities more attractive. For instance, Webb (2011) emphasizes the importance of the mortality multiplier, pointing out that annuities are most effective when used to finance consumption at advanced old age. The advanced life deferred annuity (ALDA), so named by Milevsky (2005), could be purchased at retirement or earlier, and it would provide an inflation-indexed income stream starting at some advanced age, and conditional on survival to that age. Such products can be very reasonably priced because of the size of the survival credit embedded within them; a related product was also discussed by Bateman et al. (2001).

While the ALDA gains leverage from increasing mortality rates at later ages, a more sophisticated product analyzed by Milevsky and Shao (2011) is the Guaranteed Lifetime Withdrawal Benefit (GLWB). This is an investment product which has attached to it a provision for a life annuity

Turning Wealth into Lifetime Income: The Challenge Ahead 7

payment contingent on the invested portfolio falling below some wealth threshold (or some other sort of index of declining market performance). It can potentially be a very efficient instrument since it delivers insurance when the consumer needs it, that is, when the market declines. The authors report that this product has become popular in Canada; whether this represents a step toward more widespread sales of industry-based longevity insurance remains to be seen.

Policy coordination to promote longevity insurance

The longevity insurance market faces a key difficulty: information is not symmetric between buyer and seller, resulting in adverse selection. This problem, combined with the other challenges documented earlier, means that such regulatory support may be needed to have annuities develop and function efficiently. The discussion by Asher and Vasudevan (2011) takes up the key challenges to be met by coordinated government policy.

In the real world, of course, policy surrounding longevity insurance products and associated market regulation tends to be divided across several agencies. For instance, in Australia, a product provider requires approvals and agreements from the Australian Prudential Regulator Authority (APRA), the Taxation Office, and the Department of Family and Community Services, which administers the age pension (Bateman and Piggott 2011). Not only do these agencies approach their regulatory responsibilities in isolation from one another but also none has a mandate to support the longevity insurance market. As a result, it becomes difficult to devise and market an innovative product. Furthermore, incentives to purchase life annuities rather than take lump sums have been entirely removed. Accordingly, a plausible reason for the success of the annuity markets in Chile and Switzerland is that coordinated regulation supports these markets. Where this is absent, the market struggles.

Unfortunately, it appears that coordinated policy is the exception rather than the rule. In Japan, for example, Sakamoto (2011) points to a taxation anomaly making life annuities an unattractive purchase, and in India, Asher and Vasudevan (2011) suggest that policy on life annuities is sorely underdeveloped.

Conclusion

In the old days, longevity risk management was first and foremost a family obligation. When development, migration, and the scattering of families became more common, government and employers became the mainstays of longevity insurance in the twentieth century. In the twenty-first century,

8 Securing Lifelong Retirement Income

demographic shift and government overspending has put all three of these sources under stress. Smaller families mean fewer children, so many are becoming increasingly vulnerable to an old age without substantial family support. The public sector, with its growing number of retirees to support, is backing away from promises which were, perhaps, unrealistic from the start.

What remains, then, is self-provision, mediated by the financial and insurance sector. The developed world may be just at the beginning of large-scale reliance on the private sector to deliver this insurance. Yet, as this volume shows, much new knowledge will be needed to make the private sector efficient. Knowledge about increasing longevity, and the distributions of outcomes around such projections, is at an early stage. Knowledge to inform regulatory specification, such as risk-based solvency requirements required to effectively price annuities, is also sparse and undeveloped. The role of asset–liability matching, and the possibility that governments may be able to structure debt issues to allow matching to be better achieved, remains largely unexplored. In sum, much remains to be done to deal with the demands of a robust privately based longevity insurance regime. The next decade will determine how well we can meet this challenge.

Note

- ¹ Recent changes to minimum benefit requirements will make these much easier to obtain, and this may impact annuity demand.

References

- Alho, J.M. (1992). ‘Comment on “Modelling and Forecasting U.S. Mortality,”’ *Journal of the American Statistical Association*, 87: 673–74.
- Asher, Mukul G. and Deepa Vasudevan (2011). ‘Market Structure and Challenges for Annuities in India,’ in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- Bateman, Hazel and John Piggott (2011). ‘Too Much Risk to Insure? The Australian (non-) Market for Annuities,’ in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- G. Kingston, and J. Piggott (2001). *Forced Saving: Mandating Private Retirement Incomes*. Cambridge: Cambridge University Press.
- Brown, Jeffery R., Jeffrey R. Kling, Sendhil Mullainathan, and Marian V. Wrobel (2008). ‘Why Don’t People Insure Late Life Consumption? A Framing Explanation

Turning Wealth into Lifetime Income: The Challenge Ahead 9

- of the Under-Annuitization Puzzle,' *American Economic Review: Papers and Proceedings*, 98: 304–9.
- Bütler, Monika and Stefan Staubli (2011). 'Payouts in Switzerland: Explaining Developments in Annuitization,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- Cannon, Edmund and Ian Tonks (2011). 'Compulsory and Voluntary Annuity Markets in the United Kingdom,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- Kaschützke, Barbara and Raimond Maurer (2011). 'The Private Life Annuity Market in Germany: Products and Money's Worth Ratios,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- Lee, R.D. and L.R. Carter (1992). 'Modelling and Forecasting U.S. Mortality,' *Journal of the American Statistical Association*, 87: 659–71.
- Manton, K.G. and K.C. Land (2000). 'Active Life Expectancy Estimates for the U.S. Elderly Population: A Multi-dimensional Continuous-Mixture Model of Functional Change Applied to Completed Cohorts 1992–1996,' *Demography*, 37(3): 253–65.
- Milevsky, Moshe A. (2005). 'Real Longevity Insurance with a Deductible: Introduction to Advanced-Life Delayed Annuities (ALDA),' *North American Actuarial Journal*, 9(4): 109–22.
- Ling-wu Shao (2011). 'Annuities and Their Derivatives: The Recent Canadian Experience,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- Oppen, J. and J.W. Vaupel (2002). 'Enhanced: Broken Limits to Life Expectancy,' *Science*, 296: 1029–31.
- Olshansky, S.J., Douglas J. Passaro, Ronald C. Hershow, Jennifer Layden, Bruce Carnes, Jacob Brody, Leonard Hayflick, Robert N. Butler, David B. Allison, and David S. Ludwig (2005). 'A Possible Decline in Life Expectancy in the United States in the 21st Century,' *New England Journal of Medicine*, 352: 1103–10.
- Palmer, Edward and Bo Larsson (2011). 'The Swedish Annuity Market: Where It Is and Where It's Headed,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- Ruiz, Jose and Olivia S. Mitchell (2011). 'Pension Payouts in Chile: Past, Present, and Future Prospects,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- Sakamoto, Junichi (2011). 'Annuity Markets in Japan,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.
- United Nations (2008). *World Population Prospects: The 2008 Revision, Population Database*. New York, NY: United Nations. <http://esa.un.org/unpp>
- Webb, Anthony (2011). 'The United States Longevity Insurance Market,' in O.S. Mitchell and J. Piggott, eds., *Revisiting Retirement Payouts: Market Developments and Policy Issues*. Oxford, UK: Oxford University Press.