International Actuarial Association (IAA)

Rob Brown, President-Elect
Presentation at East Asian Actuarial Conference
October 16, 2013 – Singapore

Moving the profession forward internationally
About the IAA

• Worldwide association of professional actuarial associations

  • 64 Full and 27 Associate Member associations representing approximately 60,000 actuaries in more than 108 countries

• 7 special interest Sections for individual actuaries

• Over 750 volunteer actuaries (Council, Committees, Sections) and 9 staff

• Based in Ottawa, Canada – constituted in Switzerland

• Exists to encourage development of a global profession, acknowledged as technically competent and professionally reliable, which will ensure that the public interest is served
Criteria for maintaining Full Membership status

• Must not act in a manner that is prejudicial to the aims or interests of IAA
• Must have a code of conduct which must be consistent with certain principles
• Must have a formal disciplinary procedure, including procedures for initiation of complaints, due process of defence and appeal
• If FMAs adopt standards, they must have a formal process to do so
Vision

The actuarial profession is:
• recognized worldwide as a major player in the decision-making process within the financial services industry
  – in the area of social protection and in the management of risk
• contributing to the well-being of society as a whole.
Mission

• To represent the actuarial profession and promote its role, reputation and recognition in the international domain.

• To promote professionalism, develop education standards and encourage research, with the active involvement of its Member Associations and Sections, in order to address changing needs.
HIGHLIGHTS/INTEGRATES
THREE PAPERS

• A Sustainable Population for a Dynamic Singapore
• BCG World Pension Summit: Getting Inspired
• CIA Retirement Age TF Report
A Sustainable Population for a Dynamic Singapore
Chart 4.1: Singapore's Total Population, June 2012

Total Population
5.31m

Citizens 3.29m + PRs 0.53m → Residents 3.82m + Non-Residents 1.49m
A Sustainable Population for Singapore

- Baby boomers (900,000 in total) started to retire in 2012
- From 2020, number of working-age CITIZENS will decline (older Singaporeans retiring outnumber younger ones starting work)
- CITIZEN population will start to decline in 2025 without action
## POPULATION PROJECTION IN 2030

<table>
<thead>
<tr>
<th>Category</th>
<th>Projection (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>6.5–6.9 m</td>
</tr>
<tr>
<td>Citizens</td>
<td>3.6–3.8</td>
</tr>
<tr>
<td>PRs</td>
<td>0.6</td>
</tr>
<tr>
<td>Non-Residents</td>
<td>2.3–2.5</td>
</tr>
<tr>
<td>Residents</td>
<td>4.2–4.4</td>
</tr>
</tbody>
</table>
Cause of Aging Population
Chart 1.1: Singapore’s Falling Total Fertility Rate

Resident total fertility rate (TFR)

Data prior to 1980 pertain to the total population.

Source: DOS
Cause of Aging Population

• Fertility Rate is Down
• Life Expectancy is Up
  --From 66 years in 1970 to 82 in 2010
  --One of the Highest in the World
• These Factors are Common in Many Developed Countries
Shrinking and Aging Citizen Population

• Without Intervention the Singapore Citizen Population will both Age and Shrink
Chart 1.2: Shrinking and Ageing Citizen Population

Citizen Population Size

<table>
<thead>
<tr>
<th>Year</th>
<th>Population Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>3.7 m</td>
</tr>
<tr>
<td>2025</td>
<td>peak</td>
</tr>
<tr>
<td>2060</td>
<td>2.2 m</td>
</tr>
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</table>

Median Age:

<table>
<thead>
<tr>
<th>Year</th>
<th>Median Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>40</td>
</tr>
<tr>
<td>2025</td>
<td>47</td>
</tr>
<tr>
<td>2060</td>
<td>55</td>
</tr>
</tbody>
</table>

*Assuming current birth rates and no immigration from 2013 onwards*

*Source: DOS*
Shrinking and Ageing Citizen Population

• Without Intervention by 2020 the Number of Citizens of Working Ages will Begin to Decline
Chart 1.3: Entry and Exit of Citizens from Working-Ages

2012

Citizen Population Size

Entering Working-Age 245K
Entry > Exit
Exiting Working-Age 123K

2 citizens entering working-age for every 1 citizen exiting

2030

Citizen Population Size

Entering Working-Age 171K
Entry < Exit
Exiting Working-Age 258K

0.7 citizens entering working-age for every 1 citizen exiting

Assuming current birth rates and no immigration from 2013 onwards
Source: DOS
Shrinking and Ageing Citizen Population

• Without Intervention, the Citizen Population Pyramid will become Inverted with more Elderly Citizens than Younger Ones
Chart 1.4: Our Changing Citizen Age Profile

Assuming current birth rates and no immigration from 2013 onwards.
Source: DOS
Shrinking and Ageing Citizen Population

• This creates a Declining Old-Age Support Ratio
**Chart 1.5: Declining Old-Age Support Ratio**

<table>
<thead>
<tr>
<th>Year</th>
<th>Citizen aged ≥ 65 years</th>
<th>Citizens in working-age band of 20-64 years</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>![2000 Icon]</td>
<td>![2000 8.4 Icon]</td>
<td>8.4</td>
</tr>
<tr>
<td>2012</td>
<td>![2012 Icon]</td>
<td>![2012 5.9 Icon]</td>
<td>5.9</td>
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<tr>
<td>2015</td>
<td>![2015 Icon]</td>
<td>![2015 4.9 Icon]</td>
<td>4.9</td>
</tr>
<tr>
<td>2020</td>
<td>![2020 Icon]</td>
<td>![2020 3.6 Icon]</td>
<td>3.6</td>
</tr>
<tr>
<td>2025</td>
<td>![2025 Icon]</td>
<td>![2025 2.7 Icon]</td>
<td>2.7</td>
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<tr>
<td>2030</td>
<td>![2030 Icon]</td>
<td>![2030 2.1 Icon]</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Assuming current birth rates and no immigration from 2013 onwards

Source: DOS
Shrinking and Ageing Citizen Population

• This Could Result in:
  – Rising Taxes
  – Smaller Less Energetic Workforce
  – Labour Shortages
  – Less Vibrant and Innovative Economy

• Young People Might Leave for a More Exciting and Growing Global City

• These Demographic Shifts will happen Quickly
Shrinking and Ageing Citizen Population

• Need to Encourage Singaporeans to work beyond the current expected Retirement Age
• Need to Encourage Employers to Tap this Increasing Pool of Experienced Older Workers
• None of this will Stop the Fall of the Old-Age Support Ratio
Vision For A Sustainable Population

• Founded on Three Pillars:
  – A strong and cohesive Society (Singaporean Core)
  – A Dynamic and Vibrant Economy with Good Jobs and Employment Opportunities
  – High Quality Living Environment for All Ages
Vision For A Sustainable Population

• More Citizens are remaining Single or Marrying Later
• Married Couples are Having Fewer Children
• TFR in 2011 was 1.20 (Not Rare in East Asia)
• Need to Foster a Pro-Family Culture
Foster a Pro-Family Culture

• Marriage and Parenthood Package
  – Makes it Easier and Faster to get Housing
  – Coverage of most (75%) of Conception and Delivery Costs
  – Defraying Child-Raising Costs including Healthcare
  – Baby Bonus ($6000 for first two; $8000 thereafter)
  – Help Couples Balance Work and Family
  – Signal to Fathers to Play Bigger Role in Bringing Up their Children (e.g., Paternity Leave)
**Chart 2.5: Effect of Raising Birth Rates on Citizen Population Size**

- At full replacement (TFR=2.1)
- At current TFR of 1.2 and with no immigration

**Source:** DOS
Vision for A Sustainable Population

• Keep Singaporeans Working or Studying Abroad (200,000) Engaged in Singapore:
  – Hope They will Return
• Continue to Welcome New Citizens and Permanent Residents (to replace non-births)
• Make it Easier for Non-Singaporean Spouses to Qualify for Permanent Residence
Chart 2.7: Citizen Population Size Under Various Immigration Scenarios

- With 25K new citizens/year
- With 20K new citizens/year
- At full replacement (TFR=2.1)
- With 15K new citizens/year
- At current TFR of 1.2 and with no immigration

Source: DOS
Sustainable Population Strategy

• Will actually tighten PR status to have a Permanent Pool of 0.5 to 0.6 million to Ensure a Pool of Suitable Potential Citizens
• Continue to Welcome Immigrants who can Contribute to Singapore, Shore Our Values and Integrate Into Our Society
• Help Immigrants adapt to Singapore Norms, Culture and Values
Creating Good Opportunities for Singaporeans (SCs)

• Need a Dynamic Economy that Creates Jobs and Opportunities for SCs

• Strategy:
  – Remain Open and Globally Competitive (with Asia)
  – Help Business Restructure and Move up the Value Chain (Improve Productivity from 1.8% to 2% to 3%)
  – Build a Strong SCs Core through High Quality Education and Life-Long Upgrading (PMET Jobs)
  – Complement the SCs with a Foreign Workforce (Can be moved In and Out)
  – Keep Older Workers Active Longer
Creating Good Opportunities for SCs

• Foreign Workers add to Economy but Not the Elderly
  – Return Home when Period of Employment Ends
  – Do not get Gov’t Subsidies Meant for Residents
  – Thus improve Old-Age Support Ratio and Broaden Tax Base
A High Quality Living Environment

- Invest in Infrastructure and Create High Quality Urban Spaces
- Keep Singapore an Attractive Place to Live
- Must have a Green Environment
- Infrastructure Fell Behind in 2005 to 2010
- Make Every Neighbourhood Senior Friendly
- Create Parks, Sport and Cultural Facilities
World Pension Summit: Getting Inspired (BCG)

• How to Build an Aging Proof Social Security System
• The End of the Biggest Ponzi Scheme Ever
World Pension Summit

• Impact of Aging on Society and the Economy will be Profound, Global and Lasting

• Will lead to:
  – Reduced GDP Growth
  – Increased Aging Burden
Global aging is inevitable

Reduced GDP growth

Aging burden

Tension

1. Government
   - Downward pressure on government income
   - Upward pressure on government expenditure

2. Competitiveness of nations
   - Need to attract immigrants and jobs
   - Need for higher contribution of younger generation

3. Capital
   - Less capital demand
   - More capital supply

Structure of the debate
Drivers of Population Aging

- Decreased Fertility
- Increased Longevity
- Shift More Profound for BRIC Countries
- China’s Problems are Immense with Worldwide Implications
- Africa will Follow
Main drivers are life expectancy and fertility rate

Life expectancy at birth (year)

Fertility rate

Replacement rate

Life expectancy × 2

2010

Fertility rate ÷ 2

Size reflects population ~100M

Canada

Italy

US

UK

Japan

Germany

France

Netherlands

US

Canada

UK

France

Germany

Japan

Italy

Netherlands
Main drivers are life expectancy and fertility rate

- Russia
- India
- China
- Brazil
- US
- UK
- Japan
- Germany

Life expectancy

Fertility rate

Size reflects population ~100M

2010

Life expectancy × 2 in 60 years

Fertility rate ÷ 3 in 60 years

1950
Aging Population

• 1950, World Population totals 2.5B
• Populations are Pyramid Shaped
• Inverse Dependency Ratio of 12:1
• Many Social Security Systems Introduced
• With Ever Growing Labour Force, Often PAYGO
Aging is changing demographic pyramid of last 2,000 years

1950 World
- Dependency ratio: 12:1
- Clear pyramid shape

2000 World
- Dependency ratio: 9:1
- Pyramid shape starts to change

2050 World
- Dependency ratio: 4:1
- House-shape

World population (Bln)
Aging Population

• Inverse Dependency Ratio
  – 12:1 in 1950
  – 9:1 in 2000
  – 4:1 by 2050 (Japan—1.4:1)

• Pyramid has become Ice-Cream Cone

• Must Rethink Social Security Design

• How much of Later Life will be Unhealthy?
Aging Population

• So far, Productive Life Expectancy has Risen with Overall Life Expectancy

• So Obvious SS Redesign: Raise the Age of Eligibility

• Should be Linked to Investing in Human Capital
  – Ensure People have the Right Skills for the Right Jobs
Aging Population

• SS Reform is Slow and Politically Difficult
• BCG Pushed for:
  – Fewer DB Systems
  – More DC or More Target Benefit Systems
• Don’t Blindly Pass Costs to Next Generation
Proposed Social Security Initiative

• Make Sure Everyone Understands the Magnitude of the Problem
• Find Fruitful Ways to get Technical Solutions Implemented
• Realize this is a Collective Process; Not a Problem that can be Solved by Individuals
Focus on Singapore

- DC System--so Aging Proof (?)
- Savings Rates are High
- All Big Life Risks (Housing, Health Care, Pensions) in One Holistic System
- System is Sustainable
- But Real Rates of “i” are Negative so Why Save?
Automatic Balancing Mechanisms

- DC Plans are Automatically Balanced at any Time
- Some DB and NDC Plans now Vary Pay-Out by Life Expectancy so are Life Expectancy Immune
Impact of Aging Population on Economy

• Economic Growth Comes From:
  – Workforce Growth
  – Productivity Growth

• Limit to Productivity Growth is 1.5% to 1.8%

• Workforce Growth Rates Expected to Decline
Differences in GDP growth per region are primarily driven by different growth rate of the workforce.

Annual GDP growth 1990-2008 (%)

<table>
<thead>
<tr>
<th>Region</th>
<th>Annual Growth</th>
</tr>
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<tbody>
<tr>
<td>US</td>
<td>2.5%</td>
</tr>
<tr>
<td>Canada</td>
<td>3.0%</td>
</tr>
<tr>
<td>Europe (G4)</td>
<td>3.2%</td>
</tr>
<tr>
<td>Japan</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

Annual growth of workforce (%)

size reflects 2008 GDP ~4 trln 2000 US$
Impact of Aging Population on Economy

• In Many Countries Workforce will Decline
• Aging will have Negative Impact on GDP Growth:
  – - 0.3% in Europe
  – - 0.8% in Canada
Impact of Aging Population on Economy

- Some Positive Impacts:
  -- Slower Population Growth Means Less Demand for Infrastructure

- Some Negative Impacts:
  – Slower Growth Means Lower Investment Rates of Return (Hard on Insurance Companies and Pensions)
Impact of Aging Population on Government

• Government incomes will Rise Slowly or Not at All
• At the Same Time, You need more for Health Care and Social Security
• Pay Now or Pay Later?: Expect Combination of:
  – Paying Later: Means Very High Tax Rates for Next Generation (50 to 70%)
  – Spreading the Pain: means Very High Levels of Gov’t Debt (As High as 300 to 600% of GDP in 2050)
  – Current Workers Work Longer or Accept Lower Standard of Living
Strategies for Government

• Invest in Areas that will Increase Productivity (Education and Continuing Education)
• Create Opportunities for Young Jobless
• Broaden the Workforce by Increasing Participation of Women and Older Workers
• (Redefine Responsibilities within Families)
Impact on Competitiveness of Nations

• To Attract Industry, Need High Productivity and Sufficient Labour Force Supply
• A Challenge in an Aging Population
• Mitigate Through:
  – Education and Continuing Education
  – Wise Immigration
• Design of SS System will have an Impact (Both as to Who Pays and Who Benefits)
Impact on Capital

• Reduced GDP Growth Means Less Demand for Capital
• As Workforce Retires, will be Decumulation of Savings (Less Capital Supply)
• Next Generation will Save More (Capital)
• With Slow GDP Growth Corporations Save More
• In Total, More Capital Resulting in:
  – Lower Rates of Return
  – Riskier Investment Behaviour
Impact on Capital

• May Need to Reinvent Financial Systems and Institutions

• Expect More Public/Private Partnerships
CIA Retirement Age Task Force

Mandate

• To prepare background info to assist the CIA in taking a position on whether the “retirement age” should be increased.

• How should the “issue” be presented?

• What are the consequences of raising the “retirement age”? 
CIA Retirement Age Research Report

• What is “retirement”?:
  --Exit from the Labour Force
  --Employment Income is no longer the Major Source of Income

• Often a long and random process—a transition
Canada’s Shifting Demographics

• Baby boom now headed into retirement (will all be 65+ by 2031)
• Labour force turns to the baby bust for GNP
Number of children per woman

Canada

United States


Note: The solid black horizontal line denotes the natural replacement population level of 2.1 children per woman.

Source: Statistics Canada
Number of Births and Deaths in Canada, 1926 to 2056

Source: Statistics Canada (2010)
Second Cause is Rising Life Expectancy

• Recent improvement has been at ages 60+
## Canadian Life Expectancy

<table>
<thead>
<tr>
<th>Year</th>
<th>At Birth</th>
<th>At Age 65</th>
<th>At Age 75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>1921</td>
<td>58.8</td>
<td>60.6</td>
<td>13.0</td>
</tr>
<tr>
<td>1941</td>
<td>63.0</td>
<td>66.3</td>
<td>12.8</td>
</tr>
<tr>
<td>1961</td>
<td>68.4</td>
<td>74.2</td>
<td>13.5</td>
</tr>
<tr>
<td>1981</td>
<td>71.9</td>
<td>79.0</td>
<td>14.6</td>
</tr>
<tr>
<td>2001</td>
<td>76.9</td>
<td>82.0</td>
<td>17.0</td>
</tr>
<tr>
<td>2006</td>
<td>78.3</td>
<td>82.9</td>
<td>18.1</td>
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</table>
Baby Boom just Advanced Problems

• Aged Dependency Ratios will not fall when Baby Boom dies off
Distribution of Canadian Population
By Age Group, 1956-2036

<table>
<thead>
<tr>
<th>Age</th>
<th>1956</th>
<th>1986</th>
<th>1996</th>
<th>2016</th>
<th>2036</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 20</td>
<td>39.4</td>
<td>35.6</td>
<td>26.7</td>
<td>21.1</td>
<td>20.2</td>
</tr>
<tr>
<td>20–64</td>
<td>52.9</td>
<td>55.8</td>
<td>61.1</td>
<td>62.4</td>
<td>55.0</td>
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<tr>
<td>65+</td>
<td>7.7</td>
<td>8.6</td>
<td>12.2</td>
<td>16.4</td>
<td>24.8</td>
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<td>75+</td>
<td>2.5</td>
<td>3.2</td>
<td>5.1</td>
<td>7.0</td>
<td>12.8</td>
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<tr>
<td>85+</td>
<td>0.4</td>
<td>0.7</td>
<td>1.2</td>
<td>2.1</td>
<td>3.8</td>
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Aged Dependency Ratios and Inverse

<table>
<thead>
<tr>
<th>Year</th>
<th>ADR</th>
<th>Inverse ADR</th>
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<tbody>
<tr>
<td>1956</td>
<td>0.146</td>
<td>6.9</td>
</tr>
<tr>
<td>1976</td>
<td>0.141</td>
<td>7.1</td>
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<tr>
<td>1996</td>
<td>0.200</td>
<td>5.0</td>
</tr>
<tr>
<td>2016</td>
<td>0.263</td>
<td>3.8</td>
</tr>
<tr>
<td>2036</td>
<td>0.451</td>
<td>2.2</td>
</tr>
</tbody>
</table>
Aged Dependency Ratios

• We have one of the most Rapidly Aging Populations in the World
• ADR defined as the ratio of those 65+ to those 20-64
• Rising ADR puts sustainability of Social Programs into question
## Aged Dependency Ratios and Growth
### 2050 versus 2010

<table>
<thead>
<tr>
<th>Country</th>
<th>ADR 2010 (%)</th>
<th>ADR 2050 (%)</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>31.0</td>
<td>61.7</td>
<td>113.3</td>
</tr>
<tr>
<td>Canada</td>
<td>20.3</td>
<td>42.3</td>
<td>108.4</td>
</tr>
<tr>
<td>France</td>
<td>25.9</td>
<td>43.4</td>
<td>99.0</td>
</tr>
<tr>
<td>Japan</td>
<td>35.5</td>
<td>69.6</td>
<td>96.1</td>
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<tr>
<td>U.S.</td>
<td>19.5</td>
<td>35.4</td>
<td>81.5</td>
</tr>
<tr>
<td>UK</td>
<td>25.1</td>
<td>39.9</td>
<td>59.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>28.0</td>
<td>42.3</td>
<td>51.1</td>
</tr>
</tbody>
</table>
Projected Cost of Social Programs—A Crisis?

- Will look at OAS (includes GIS)
- C/QPP
- Healthcare
OAS/GIS

• Cost $36.5 B in 2012
• Will cost $108 B in 2030
• But OAS is taxable income (goes out; comes back)
• Both OAS and GIS have clawbacks
• Benefits increase with CPI; taxes increase with GNP growth; OAS replacement ratio falls
• OAS costs 2.3% of GNP in 2012
• Costs peak at 3.1% in 2030
• Costs will be 2.6% in 2050
OAS/GIS

• Age of eligibility to rise from 65 to 67
• Shift starts in 2023; Fully implemented by 2029
• Can also Defer OAS for Five Years (with Actuarial Adjustment of Benefits)
• No impact on anyone born before 1959
• No impact on vast majority of baby boom
• Purpose seems to be purely political optics
• Similar moves in many OECD countries (or ABMs Based on Life Expectancy)
• May be Viewed as Regressive
C/QPP

• CPP sustainable at 9.9%
• QPP sustainable at 10.8%
• CPP Early/Late Adjustment Factors Widened to Reflect Life Expectancy Fully
Health Care Costs

• Health Care Costs are Clearly Age Related
Relative per Capita Costs of Health Care

- Male
- Female total
- Female net of pregnancy
Health Care Costs

• But look further

• Health Care Costs are a Direct Function of Time to Death
## Cost Ratio: Died/Survived

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Cost Ratio: Died/Survived</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>16.7</td>
</tr>
<tr>
<td>75–76</td>
<td>8.4</td>
</tr>
<tr>
<td>85–87</td>
<td>3.8</td>
</tr>
<tr>
<td>90–93</td>
<td>2.5</td>
</tr>
</tbody>
</table>
Health Care Costs

• Impact of Population Aging on Health Care Costs is 1% per annum
• If Health Care costs 10% of GNP today, it would cost 11% in ten years due to Aging
• Improving Life Expectancy is Good News
• In a PAYGO System, a Dollar of Cost Deferred is a Dollar of Cost Saved
# Health Care Cost Projections

<table>
<thead>
<tr>
<th>Year</th>
<th>Denton and Spencer</th>
<th>Brown and Suresh</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health Care Costs ($B)</td>
<td>10-Year Growth Rate</td>
</tr>
<tr>
<td>2005</td>
<td>104.16</td>
<td>1.64</td>
</tr>
<tr>
<td>2015</td>
<td>123.22</td>
<td>1.69</td>
</tr>
<tr>
<td>2025</td>
<td>149.23</td>
<td>1.93</td>
</tr>
<tr>
<td>2035</td>
<td>172.30</td>
<td>1.45</td>
</tr>
<tr>
<td>2045</td>
<td>180.59</td>
<td>0.47</td>
</tr>
<tr>
<td>2055</td>
<td>186.06</td>
<td>0.30</td>
</tr>
<tr>
<td>2065</td>
<td>193.85</td>
<td>0.41</td>
</tr>
<tr>
<td>2075</td>
<td>199.98</td>
<td>0.31</td>
</tr>
</tbody>
</table>
Health Care Costs

• Other Health Care Cost Drivers hide Behind Aging
• Must work hard to control Growth in Health Care Delivery costs
• A Crisis?
• An Avalanche or a Glacier?
Raising the “Retirement Age”
Good Public Policy?

• Work by Brown (with Bilodeau, Damm andSharara) assumed Workers Retire at Earliest Age Possible Once Consumption Requirements of all Society are Met

• Producers of GDP: The Labour Force

• Idle Consumers: The Young, the Aged and the Unemployed

• Must Strike an Equilibrium between Supply and Demand
Median Retirement Age in Canada
Raising the “Retirement Age”
Good Public Policy?

• Previous Graph assumes Productivity Growth of 0.9% per annum (historical average)
• With Productivity Growth of 1.29% per annum, Retirement Age would not have to Rise
• Authors see a Rise in Retirement Age as Inevitable regardless of Public Policy
Raising the “Retirement Age”
Good Public Policy?

• Average Age of Labour Force Exit Started to Rise around Year 2001
• Not necessarily connected to a rise in the Age at which one’s Pension Starts
• Started Before Plan to Raise OAS Eligibility Age
• Those with Highest Incomes/Education Retire Last
• Similar Findings in Most OECD Countries
• We expect Workers to stay Active Longer, Regardless of Public Policy
*Based on CPP Assumptions
## CPP: Proportion of Beneficiaries Working

<table>
<thead>
<tr>
<th>Age</th>
<th>Female</th>
<th>2001</th>
<th>2005</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-64</td>
<td></td>
<td>14.4%</td>
<td>19.7%</td>
<td>26.4%</td>
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<tr>
<td>65-69</td>
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<td>10.1</td>
<td>12.5</td>
<td>16.8</td>
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<td>70-74</td>
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<td>5.0</td>
<td>5.8</td>
<td>7.4</td>
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<tr>
<td>75+</td>
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<td>2.0</td>
<td>2.1</td>
<td>2.5</td>
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<tr>
<td>Overall</td>
<td></td>
<td>6.6</td>
<td>8.1</td>
<td>10.9</td>
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</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>2001</th>
<th>2005</th>
<th>2009</th>
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</thead>
<tbody>
<tr>
<td>60-64</td>
<td></td>
<td>24.1%</td>
<td>31.9%</td>
<td>37.2%</td>
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<tr>
<td>65-69</td>
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<td>17.6</td>
<td>21.1</td>
<td>26.1</td>
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<tr>
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<td>10.9</td>
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<tr>
<td>Overall</td>
<td></td>
<td>11.8</td>
<td>14.2</td>
<td>17.6</td>
</tr>
</tbody>
</table>
Raising the “Retirement Age”
Good Public Policy?

- Even with rise in Labour Force Exit Age, Still More Years in Retirement
# Ratio of Active Life to Retirement

<table>
<thead>
<tr>
<th>Year</th>
<th>Active Life (Years)</th>
<th>Retirement (Years)</th>
<th>Ratio</th>
</tr>
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<tbody>
<tr>
<td>Males</td>
<td></td>
<td></td>
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<tr>
<td>1980</td>
<td>42.8</td>
<td>16.7</td>
<td>2.6</td>
</tr>
<tr>
<td>1990</td>
<td>41.7</td>
<td>19.4</td>
<td>2.2</td>
</tr>
<tr>
<td>2005</td>
<td>41.9</td>
<td>21.7</td>
<td>1.9</td>
</tr>
<tr>
<td>Females</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1980</td>
<td>42.5</td>
<td>21.9</td>
<td>1.9</td>
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<tr>
<td>1990</td>
<td>41.2</td>
<td>24.3</td>
<td>1.7</td>
</tr>
<tr>
<td>2005</td>
<td>40.7</td>
<td>26.0</td>
<td>1.6</td>
</tr>
</tbody>
</table>
Shifts in DB Pensions

• DB Plans often encourage retirement at an early age (e.g., no actuarial discount)
  --Workers misinterpret its value (early vs late)
  --This is expensive, but popular
• Prevalent now only with Public Service Plans
• 82% of Public Sector have DB Plans
• Only 1/3 of private sector has any pension
• Less than 20% have a traditional DB Plan
Shifts in DB Pensions

• Reasons for less use (especially in Private Sector)
  – Lowers cost and more predictable costs
  – Workers want to work longer (e.g., happy, or need the savings)
  – Workers may prefer phased retirement
  – Concern about upcoming labour shortages
Shifts in DB Pensions

- Pension Plan Amendments cannot cut accrued benefits
- So cost cuts come slowly
- Some benefits becoming contingent on financial health of Plan (e.g., Indexation of Benefits)
- Or full Target Benefit Plans
Shift in Canadian Pensions

- CPP offers no incentive to Retire Early (Full Actuarial Adjustment on Early/Late Benefits)
Shift to DC Plans

• DC Plans Offer no Retirement Age Incentive
• DC Plans are more flexible
• DB Plans have problems with Benefit Portability
• Shift from DB to DC are expected to increase Retirement Age Further
Shift in Canadian Pensions

• Key Question:
  – What role should the Government Play in Trying to Influence when Workers Retire?
Other Programs That Would Feel Effect

- Provincial Welfare Programs
- Workers’ Compensation
- Employment Insurance
- Disability Plans
- Group Insurance Plans
Other Variables Affecting the Impact

• a) Fertility: Increasing Slowly (now 1.6)
  Unlikely to hit 2.1 (hard to increase)

• b) Immigration is good if:
  – The Net Level Rises
  – Their Average Age Falls
  – A Higher Percentage are Labour Force Prepared
    (today 23% of immigrants are “Family Completion”)
Other Variables Affecting the Impact

• c) Labour Force Participation
  – Female/Male Gap Assumed to Continue to Close
  – Will be Increased Demand for Workers
  – Work not as Physically Demanding Today
  – Must Make Sure Jobs are Available
  – Make Sure Labour Supply Matches the Needs of Jobs
  – Still, not much room for large increases here
Other Variables Affecting the Impact

- **d) Productivity**
  - Labour Shortages and Higher Wages will make Capital Investment and Innovation Wise
  - Raising Labour Productivity Can Go a Long Way to Solving the Negative Impact of an “Aging Population”
  - Should Target this Variable
Aging Population = Lower Standard of Living

• Higher Old-Age Dependency Ratio
• Higher Taxes Needed to Maintain Public Programs
• Lower Productivity of Older Workers
Aging Population = Higher Standard of Living

- Lower Overall Population Growth Rate
- Higher Savings Rate
- Lower Taxes as RRSPs Flip to Pay-Out
Lump of Labour Fallacy

• Will Incentives to Keep Older Workers in the Labour Force Create Youth Unemployment?
• Evidence says “NO”
• More Workers mean More GNP and More Jobs
• Early Retirement Incentives in Denmark (1970’s) led to Lower Employment Rates
Q & A
The old-age dependency ratio is the ratio of the population aged 65 years or over to the population aged 15-64.

Growth in the Aged Dependency Ratio

- Age 65+/Labour Force  2050/2005

<table>
<thead>
<tr>
<th>Country</th>
<th>ADR (2005)</th>
<th>ADR (2050)</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>12</td>
<td>58%</td>
<td>380%</td>
</tr>
</tbody>
</table>
Life expectancy and health expenditure around the world

Source: U.S. Census Bureau, WHO