Bureau du surintendant
des institutions financières

Bureau de l'actuaire en chef

Office of the Superintendent
of Financial Institutions

Office of the Chief Actuary

Better financed pension plans in a well balanced system

Presentation to the Canadian Pension and Benefits Institute

10 September 2002

Canada

Presentation

- Mandate of the Office of the Chief Actuary
- Actuarial report on the Canada Pension Plan
- Actuarial reports on the Public Sector Pension Plans
- Future challenges

Mission of OSFI

(Office of the Superintendent of Financial Institutions)

- Primary regulator in Canada of federal financial institutions and pension plans.
  - protects policyholders, depositors, and pension plan members against any undue loss
  - provides services and actuarial advice to the Government of Canada through the ***Office of the Chief Actuary***

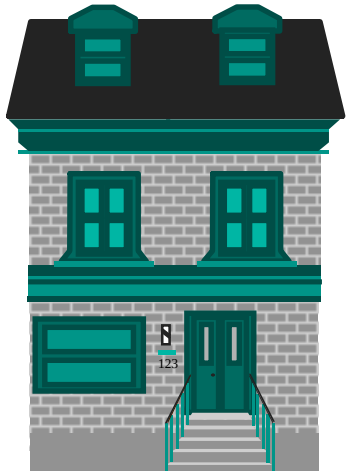
Mandate of Office of the Chief Actuary

- Prepares actuarial reports showing long-term financial projections for the Canada Pension Plan, the Old Age Security and the Canada Student Loans (22 mars 2002)
- Prepares actuarial reports on the financial status of the public sector pension plans: Public Service, Canadian Forces, RCMP, Judges and Members of Parliament
- Prepares actuarial reports for the public sector insurance programs
- Provides actuarial advice to our clients

Retirement Income Security

Canadian retirement system with mixed funding approaches is well recognized in the world for its capacity to adapt rapidly to changing conditions

- Full funding (RPP/RRSP)
- Partial funding (CPP/QPP)
- Pay-as-you-go funding (OAS/GIS)



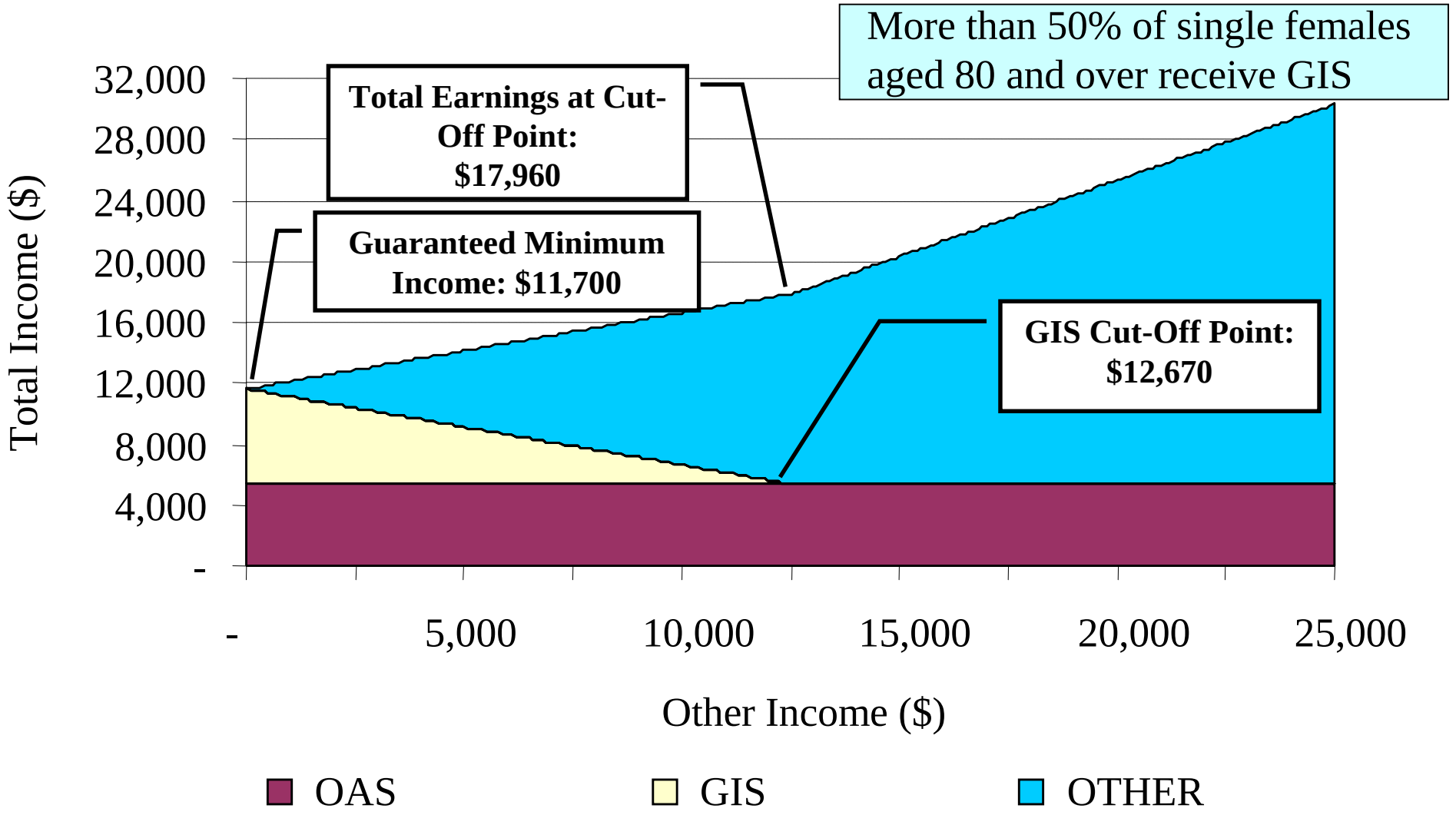
Old Age Security Program

- Tabled by the Minister of Human Resources Development on 19 June 2002
- Beneficiaries increase from 3.8M to 8.4M in the next 30 years
- GIS Beneficiaries increase from 1.5M to 2.3M
- Annual expenditures increase from $25 to $36 billion in 2010

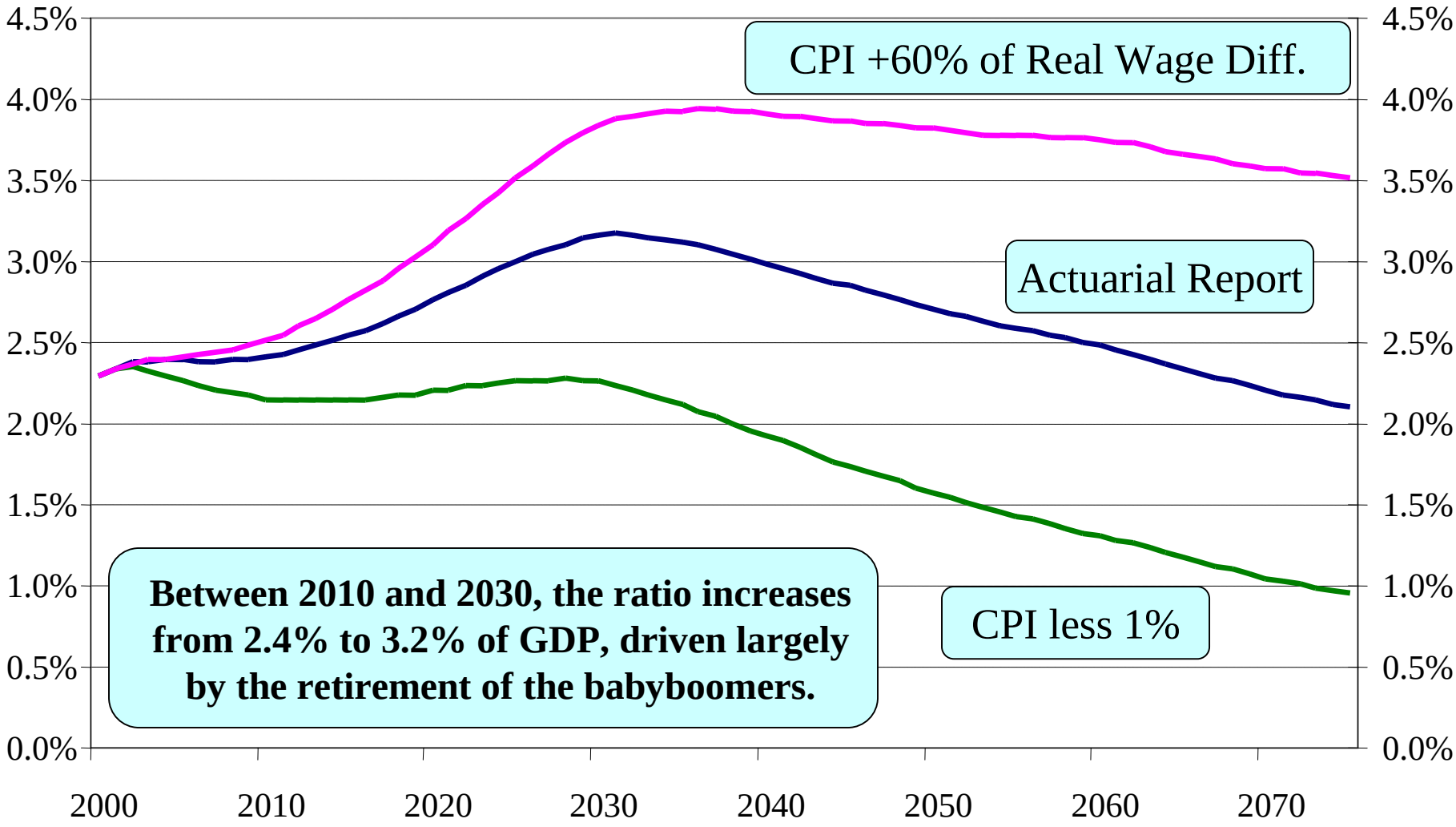
GIS Single

July 2002

(866,000: 80% are women)



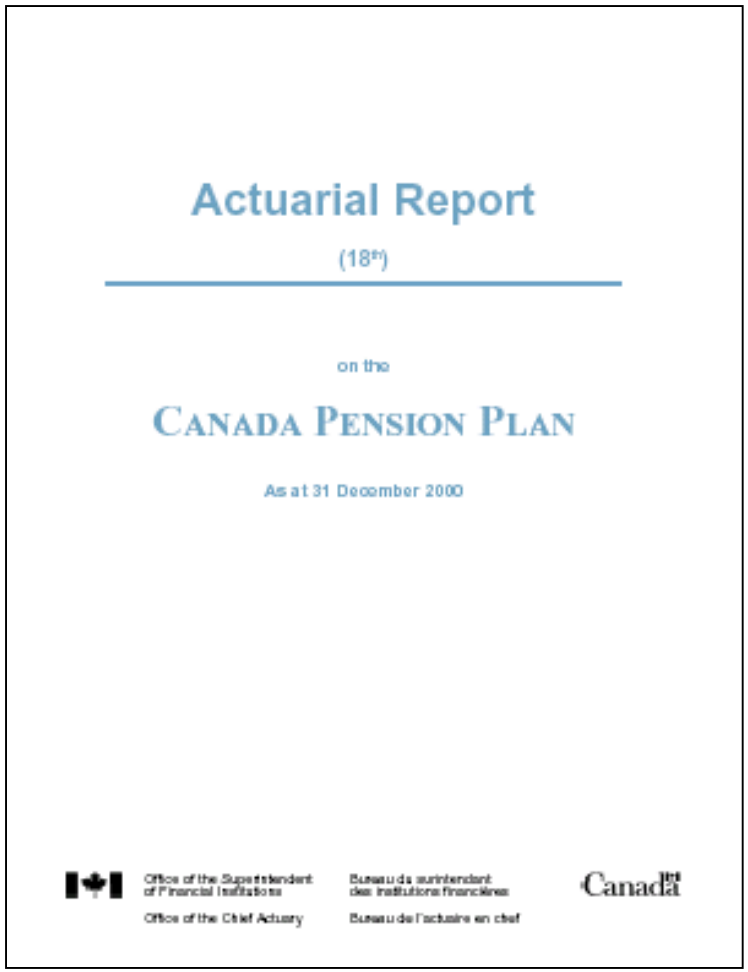
Evolution of Expenditures as % of GDP



- Tabled by the Minister of Finance on 16 December 2001

- Inform on the current and projected future financial status of the Canada Pension Plan

- Calculate the Steady-state contribution rate


Actuarial Report

(18th)

on the

CANADA PENSION PLAN

As at 31 December 2000

Office of the Superintendent of Financial Institutions
Office of the Chief Actuary
Bureau du surintendant des institutions financières
Bureau de l'actuaire en chef
Canada

Assumptions
(Pension Plans with different funding methods)

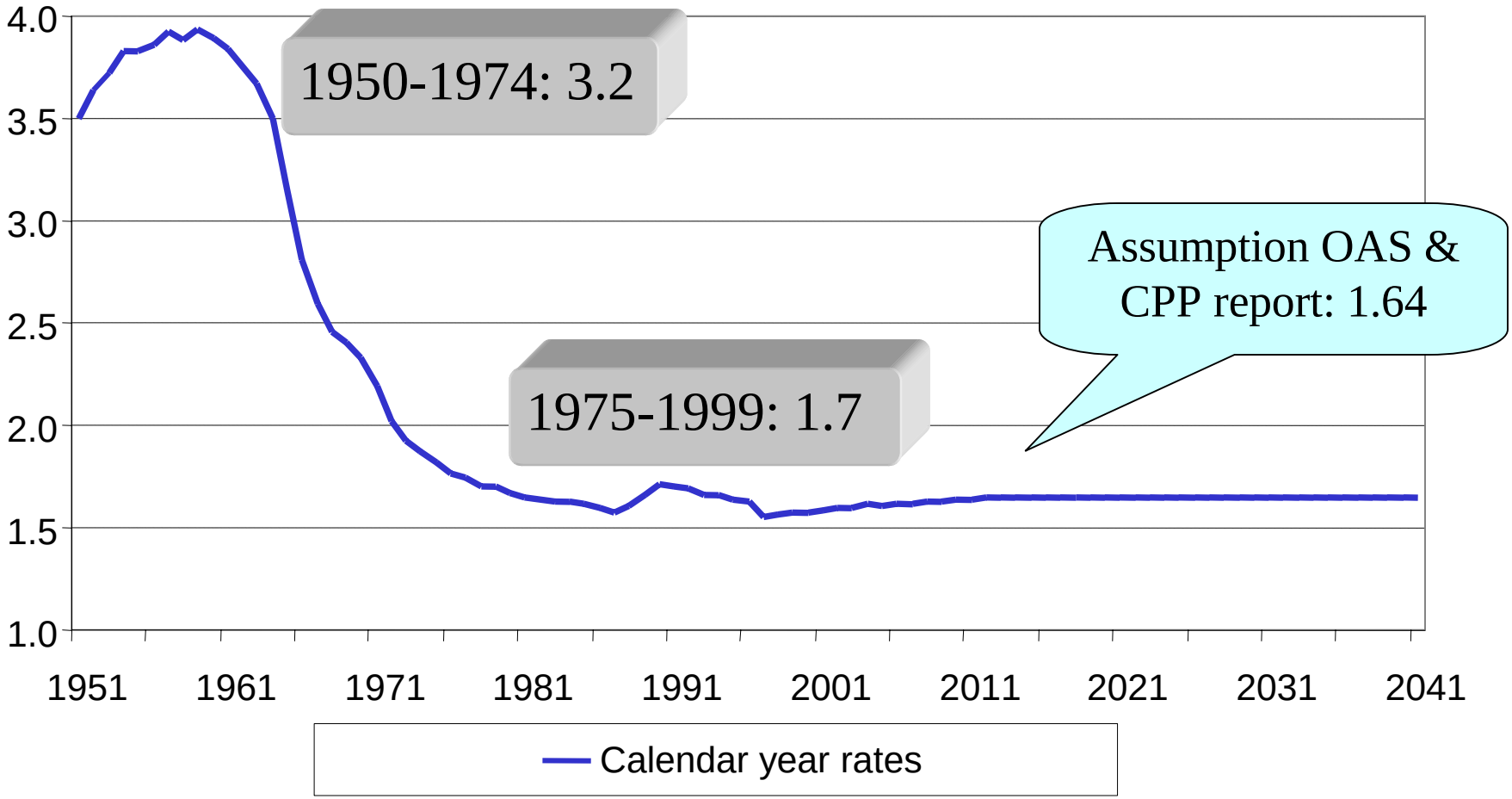
- Fertility, Migration and Mortality
- Participation rates
- Annual employment increase
- Unemployment rate

} Proportion of earners

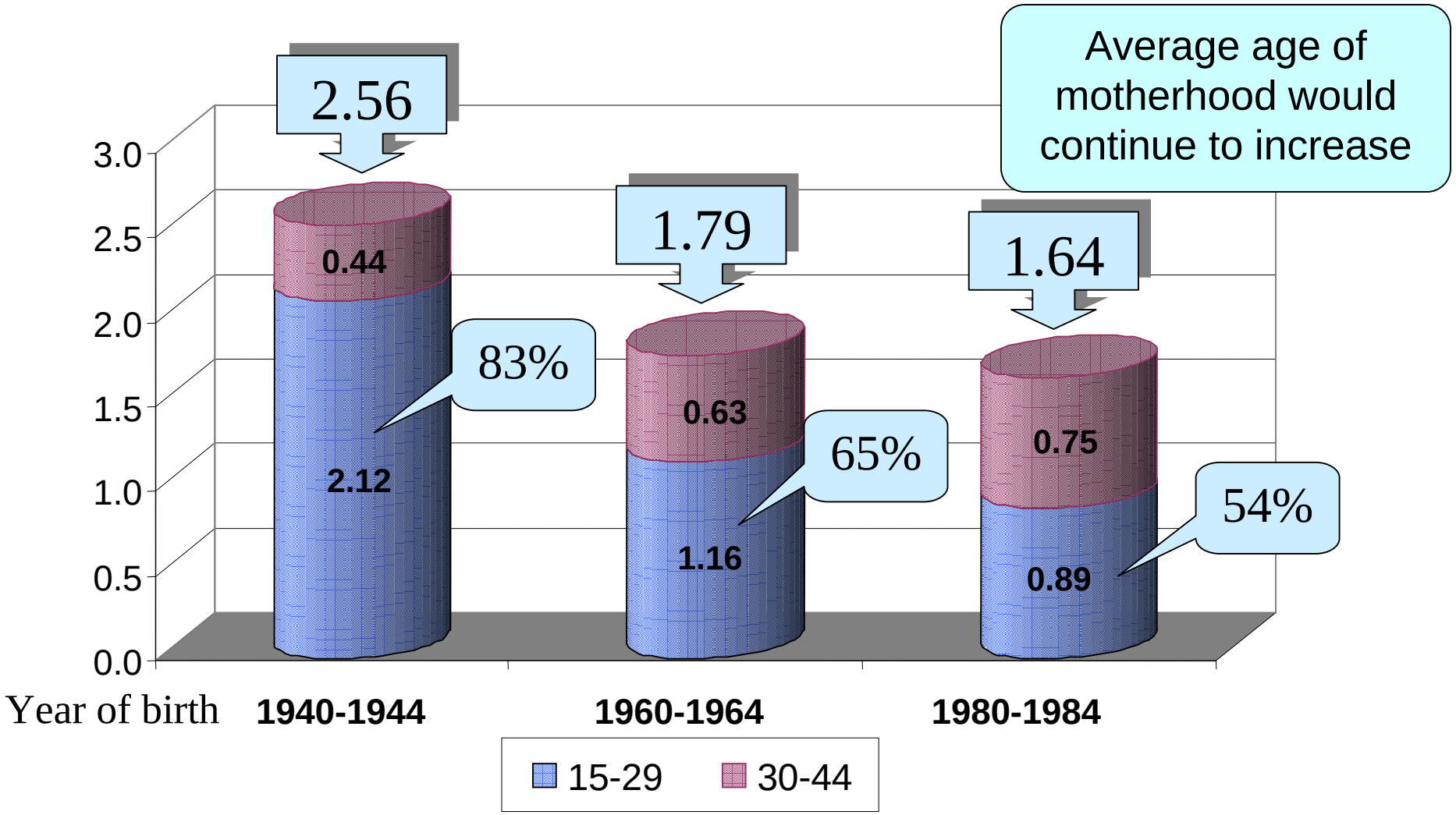
- Inflation rate
- Increase of average employment earnings
- Rate of return and asset mix
- Retirement rates
- Disability rates, etc…

- **Consistency among assumptions**

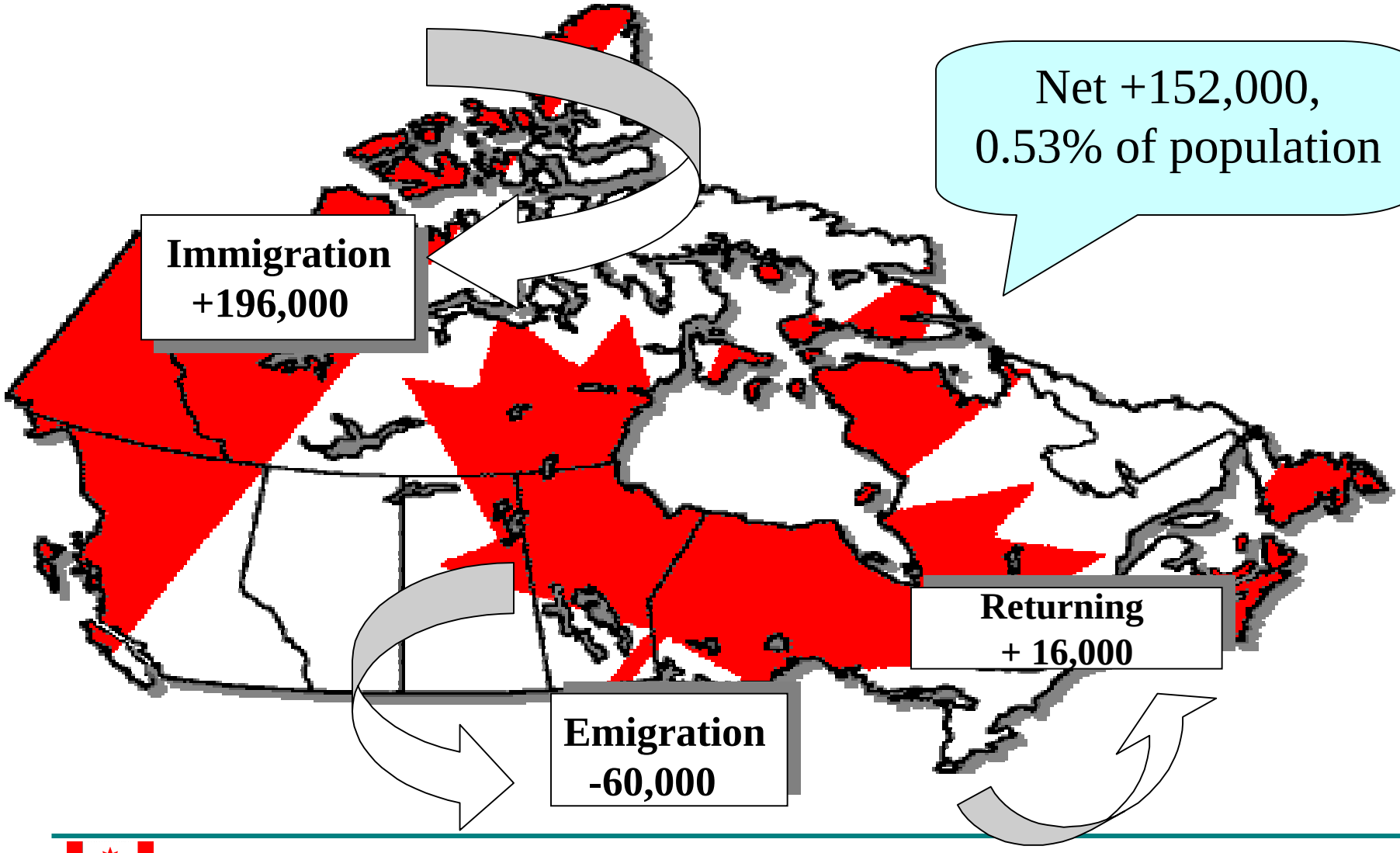
Fertility Rate



Fertility Rate



Migration
(1986-2000)



Mortality rate

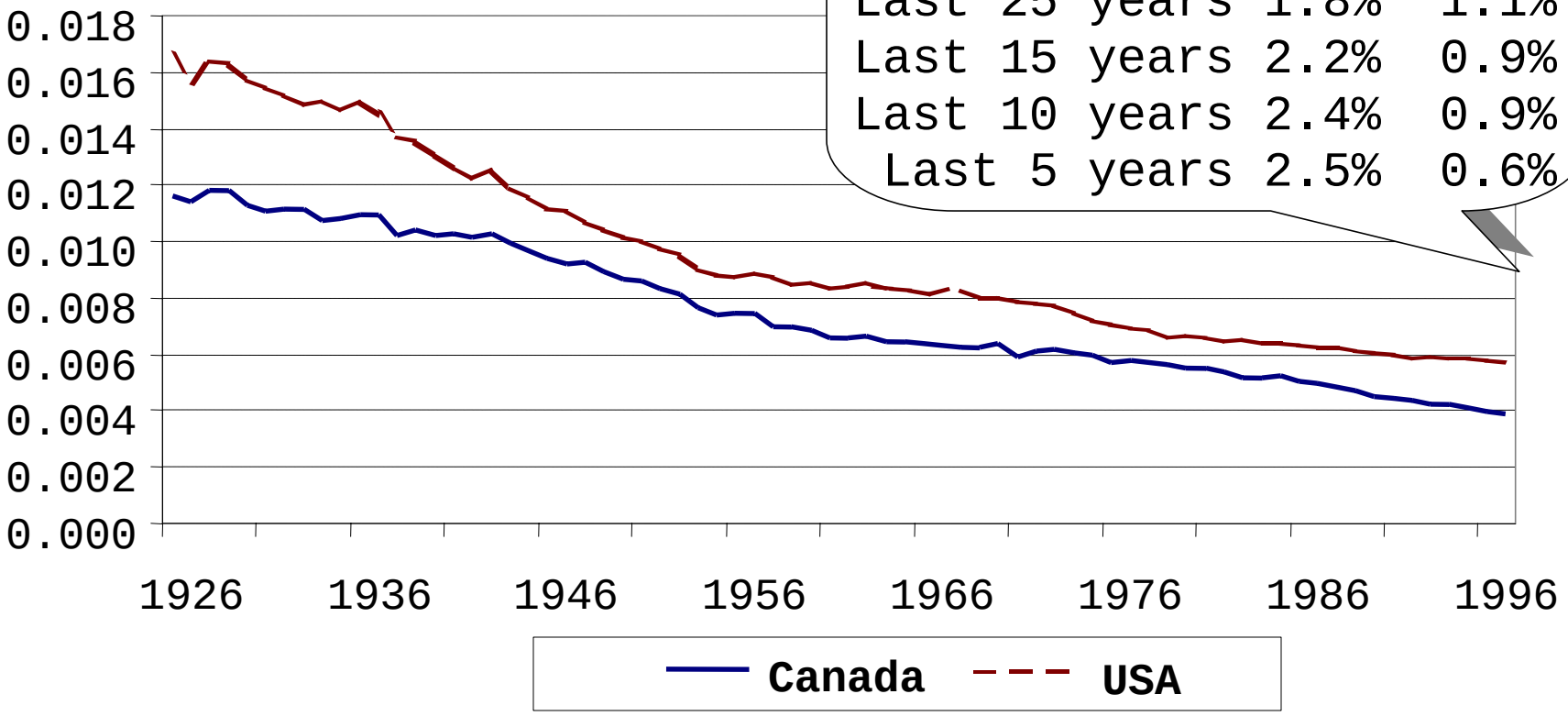
Yes, but…
It requires to eliminate all mortality risks before 80.

- In Canada and U.S., the leading causes of death are circulatory diseases (40% of deaths), cancer (20% of deaths) and accidents (9% of deaths).
- How long can we live?
- Can we reach 100 years old?
- From 130,000 years ago until 1900, life expectancy remained approximately at the same level.
- It has increased by three decades since 1900 from 49 to 79.
- Analysts argue that **further progress will come more slowly** because we are approaching lower limits to death rates and we have already won the easier medical battles.

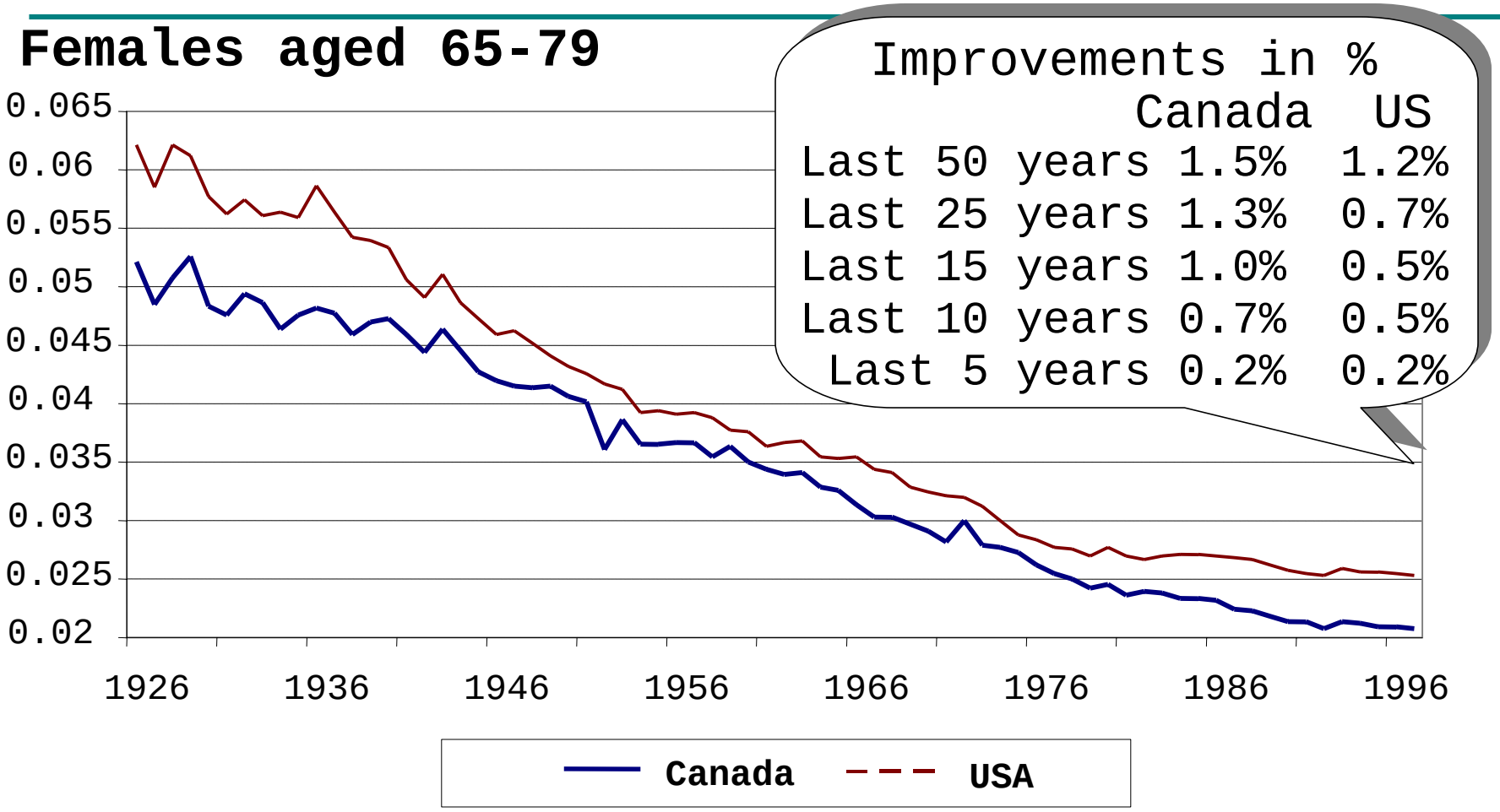
Mortality rate

Females aged 45-64

Improvements in %	Canada	US
Last 50 years	1.5%	1.2%
Last 25 years	1.8%	1.1%
Last 15 years	2.2%	0.9%
Last 10 years	2.4%	0.9%
Last 5 years	2.5%	0.6%



Mortality rate



Improvements in %

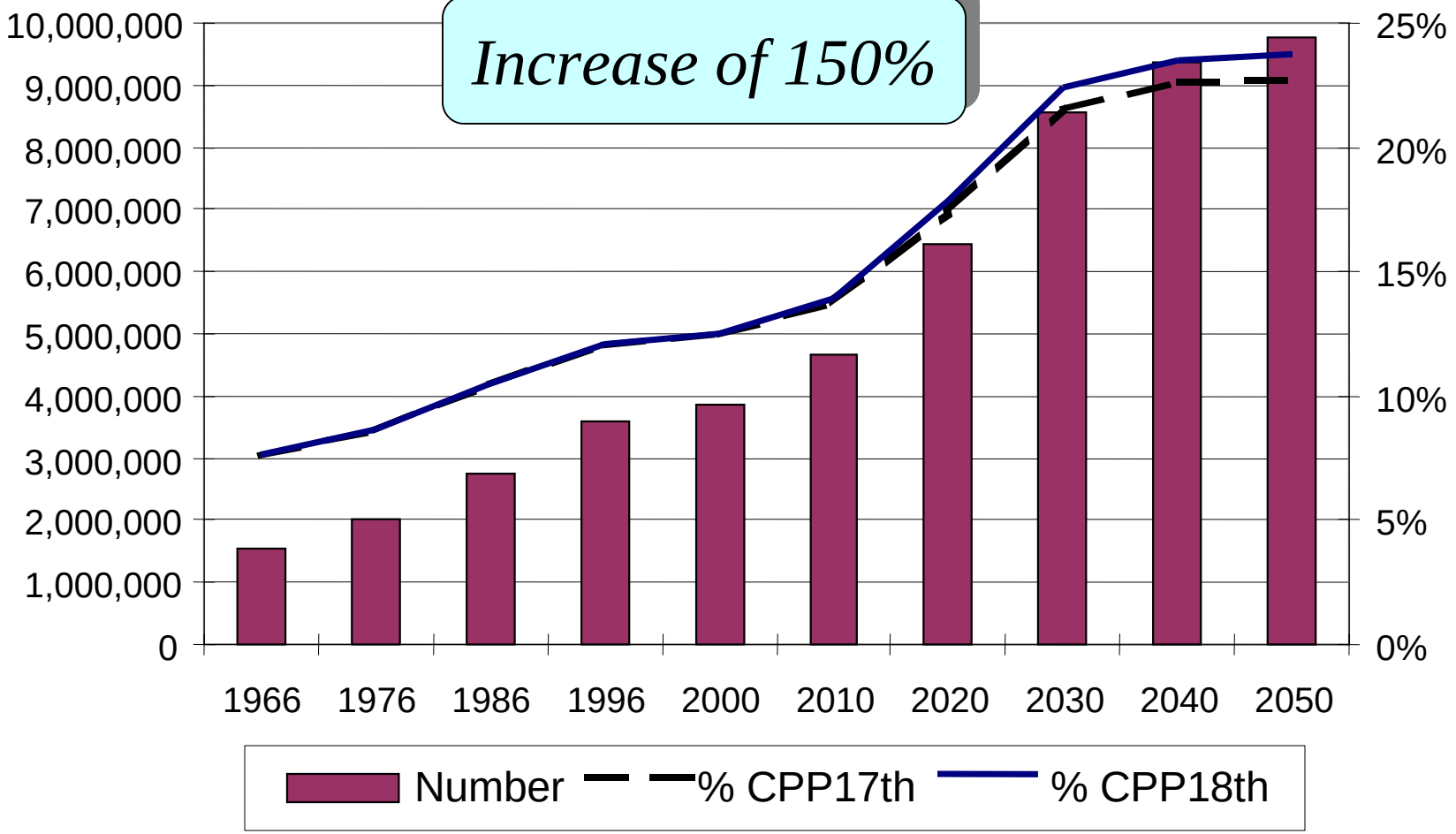
	Canada	US
Last 50 years	1.5%	1.2%
Last 25 years	1.3%	0.7%
Last 15 years	1.0%	0.5%
Last 10 years	0.7%	0.5%
Last 5 years	0.2%	0.2%

Recent improvements at a slower pace for 80 years and over

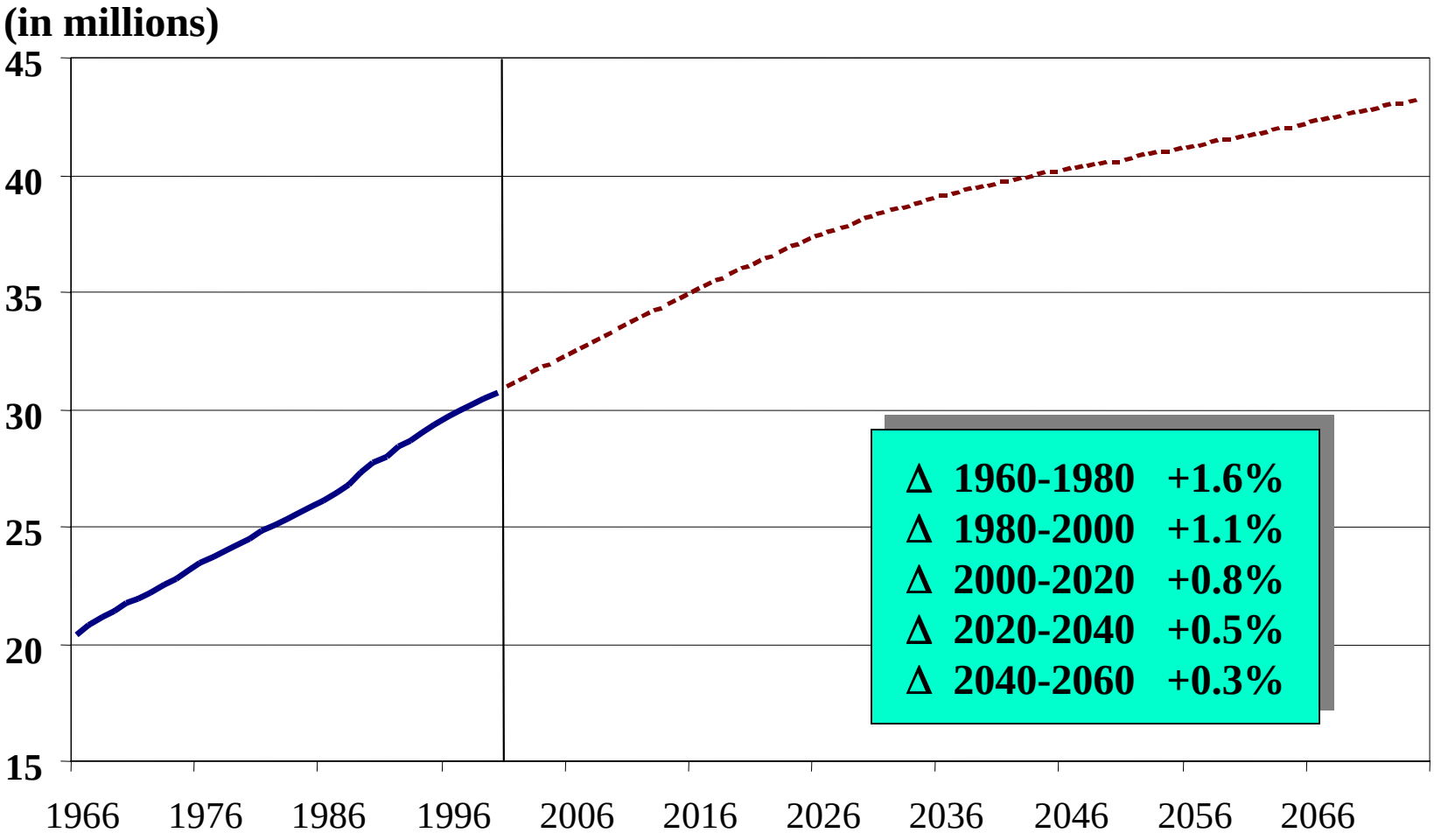
65+

Increase of 275% for 80+

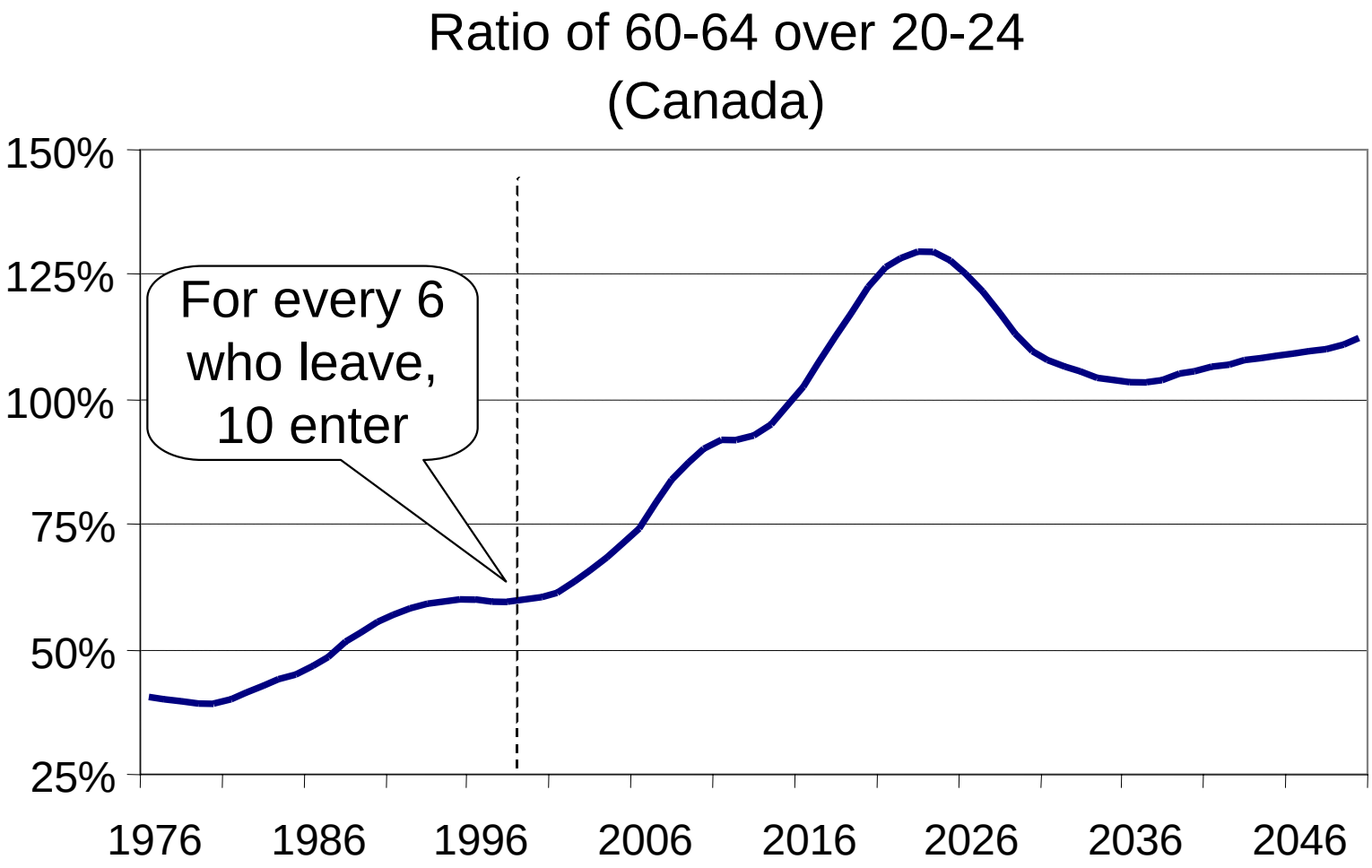
Increase of 150%



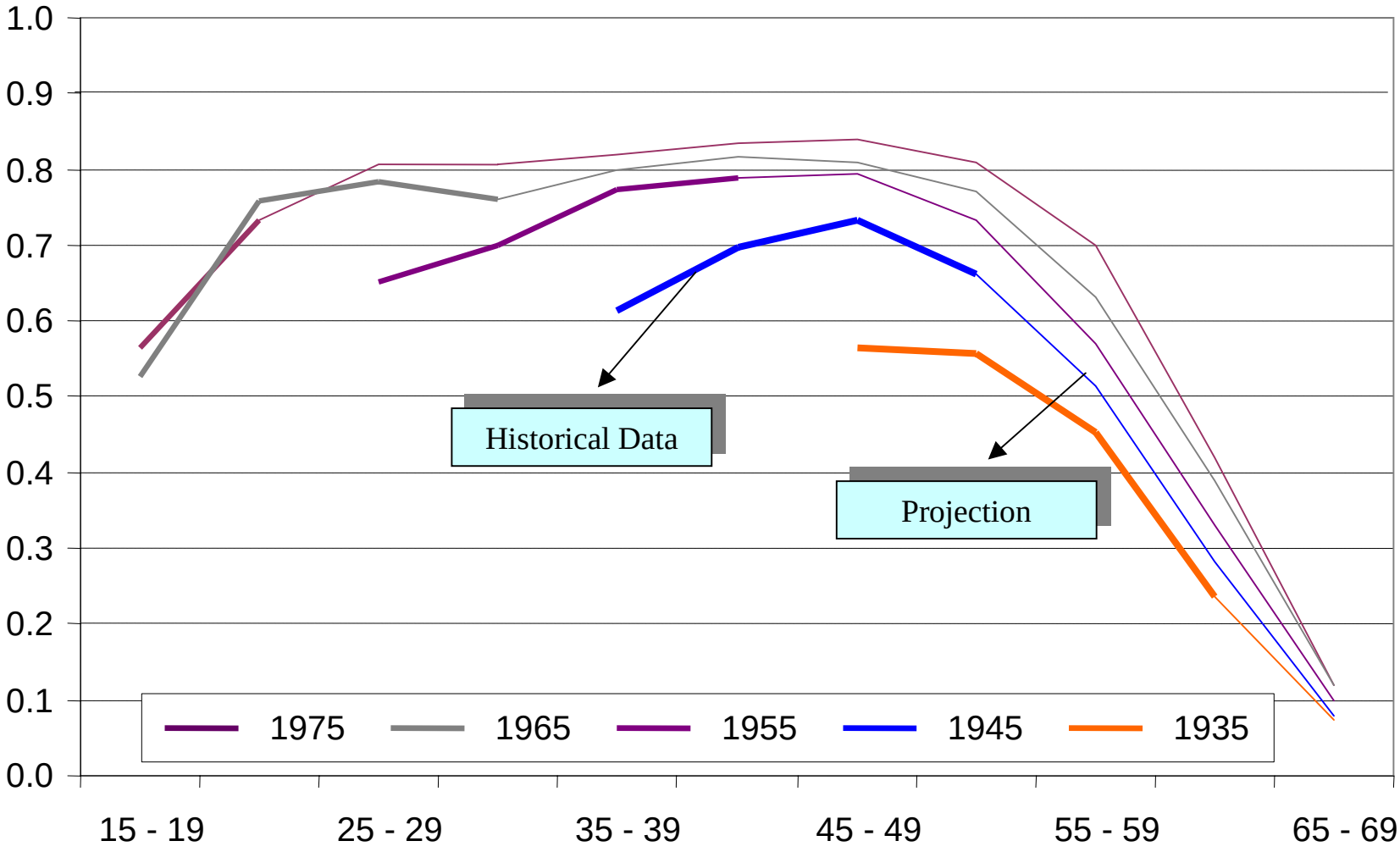
Population of Canada



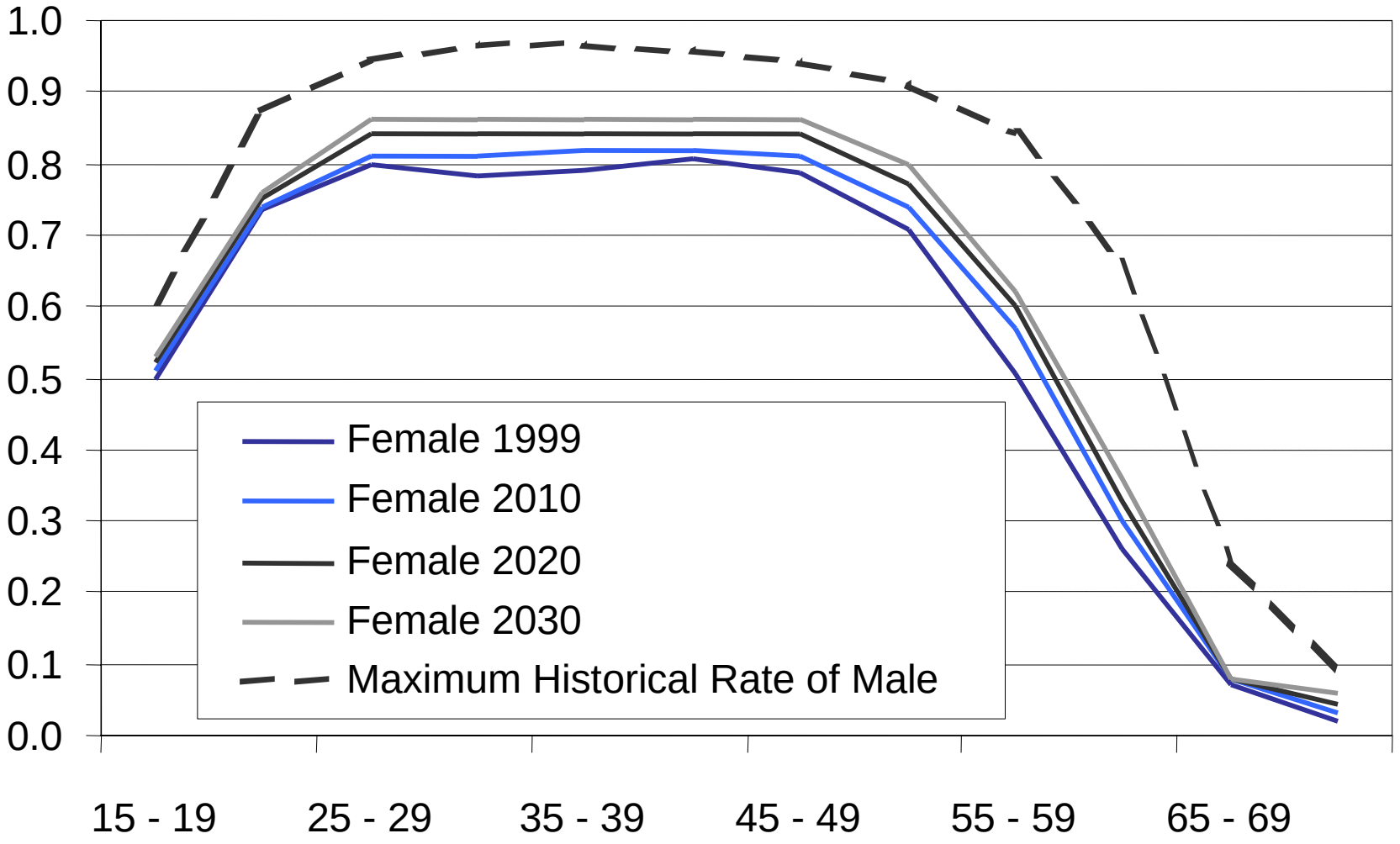
Future Labour Shortage
(More people leaving than entering)



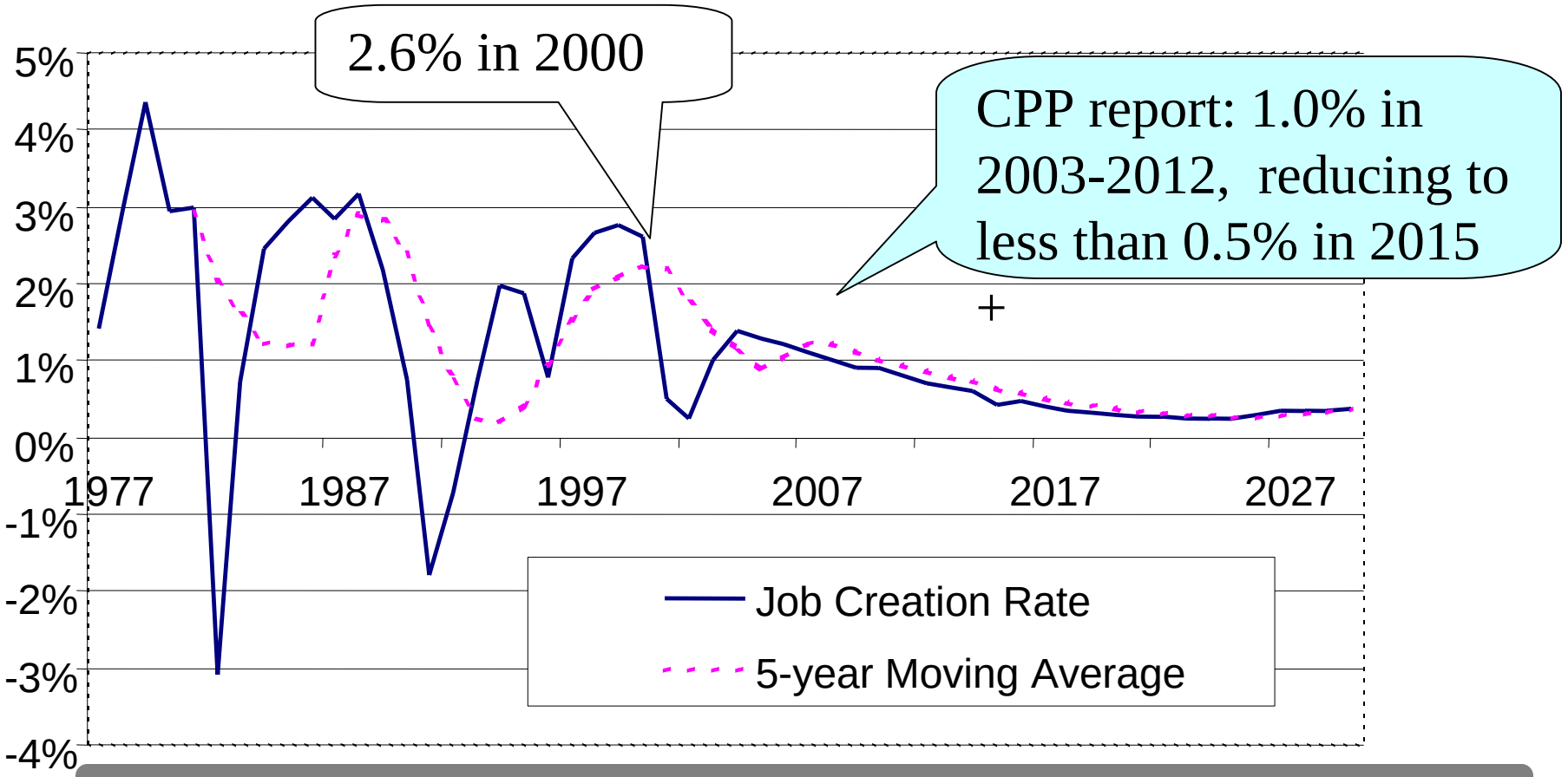
Female Participation Rates
(Canada)



Female Participation Rates
(Canada)

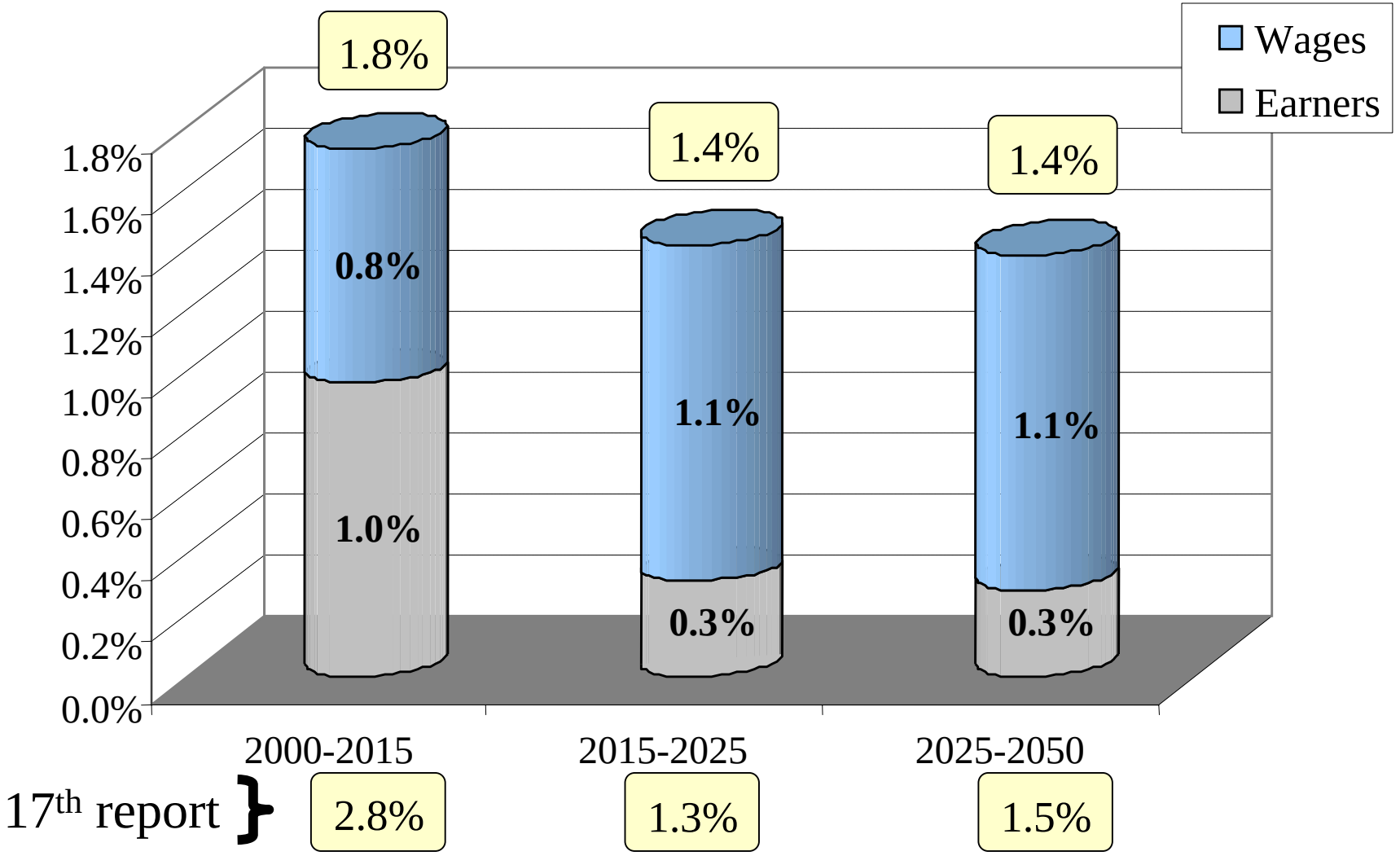


Job Creation Rate (Canada)

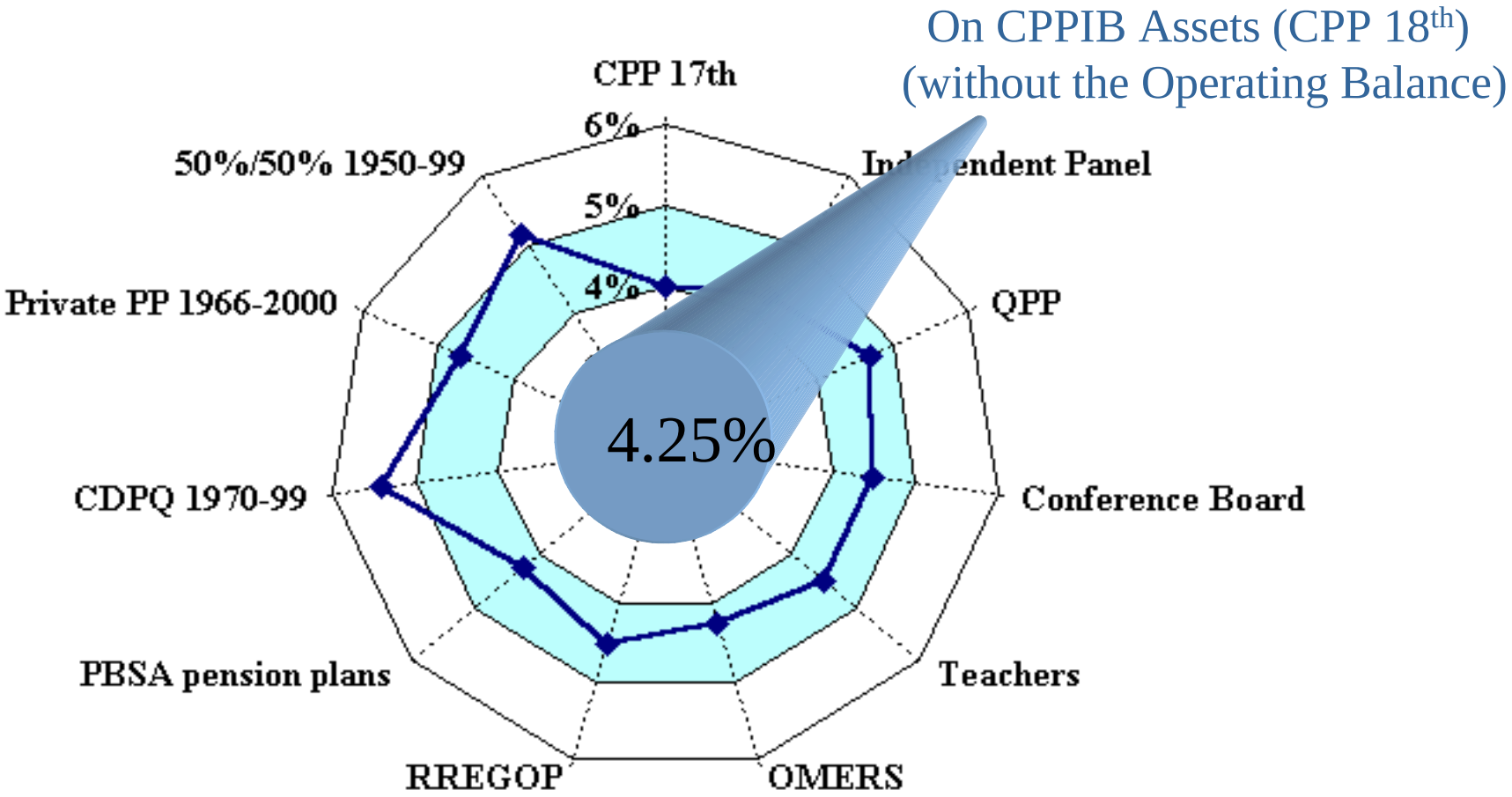


Ultimate unemployment rate of 6.5% attained in 2015

Real Increase of Total Employment Earnings



Information sources on real rate of return



This assumption presumed a defined asset mix.

Real rate of return on CPP Assets

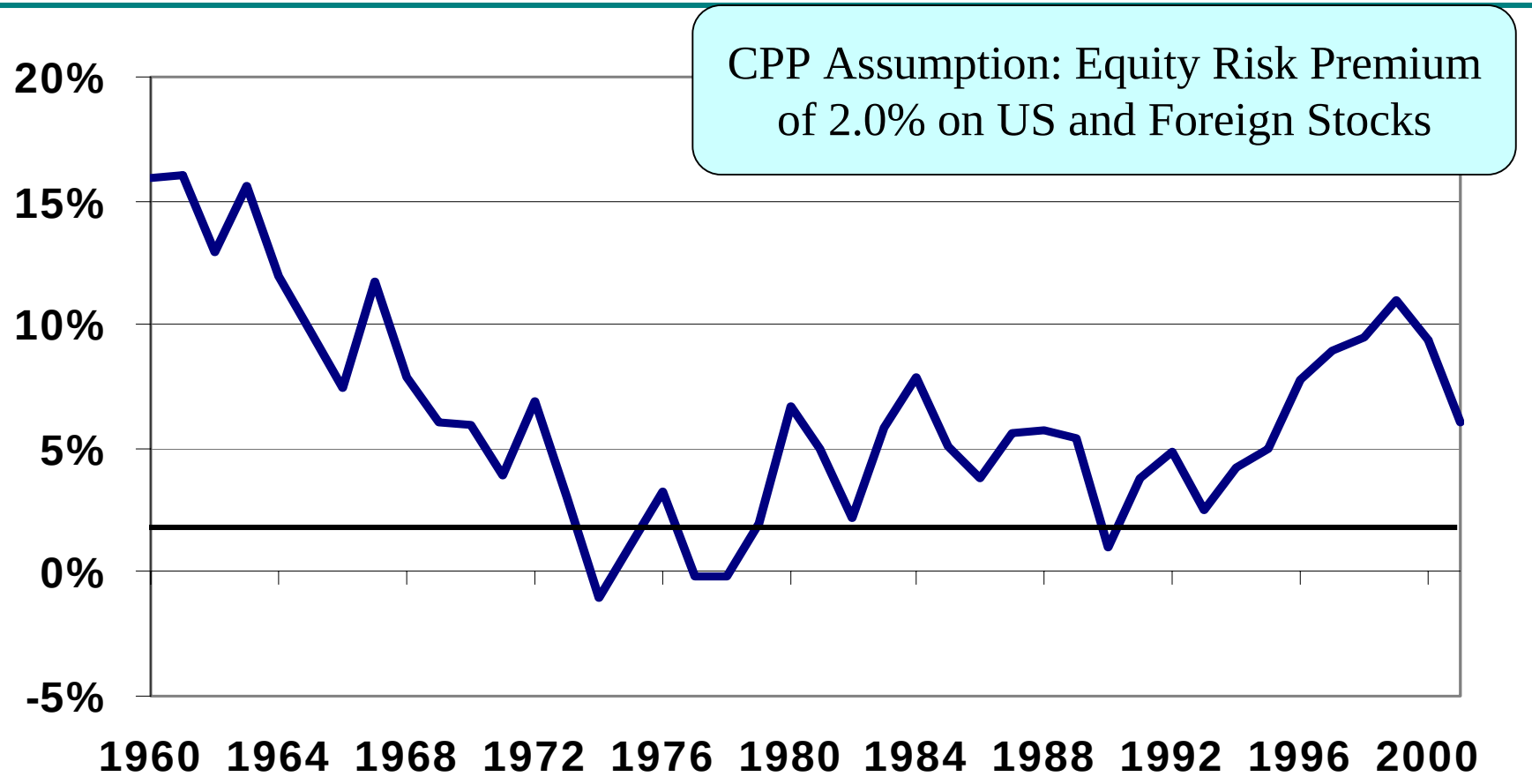
(by asset class)

Asset Class	18th CPP Actuarial Report		Bill C-58	
	Asset Mix	Return	Asset Mix	Return
Bonds	46%	3.8%	48%	3.8%
Short-Term	4%	2.0%	2%	2.1%
Canadian equities	26%	4.5%	25%	4.5%
US Equities	12%	5.0%	12.5%	5.0%
Foreign equities	12%	5.0%	12.5%	5.0%
Fixed / Variable	**50%:50%**	**4.20%**	**50%:50%**	**4.24%**
Net of Investment expenses		**4.16%**		**4.20%**

Independent actuaries indicated the assumption was reasonable, but they would have chosen an higher assumption by 0.5% to 0.75%.

American Risk Premium

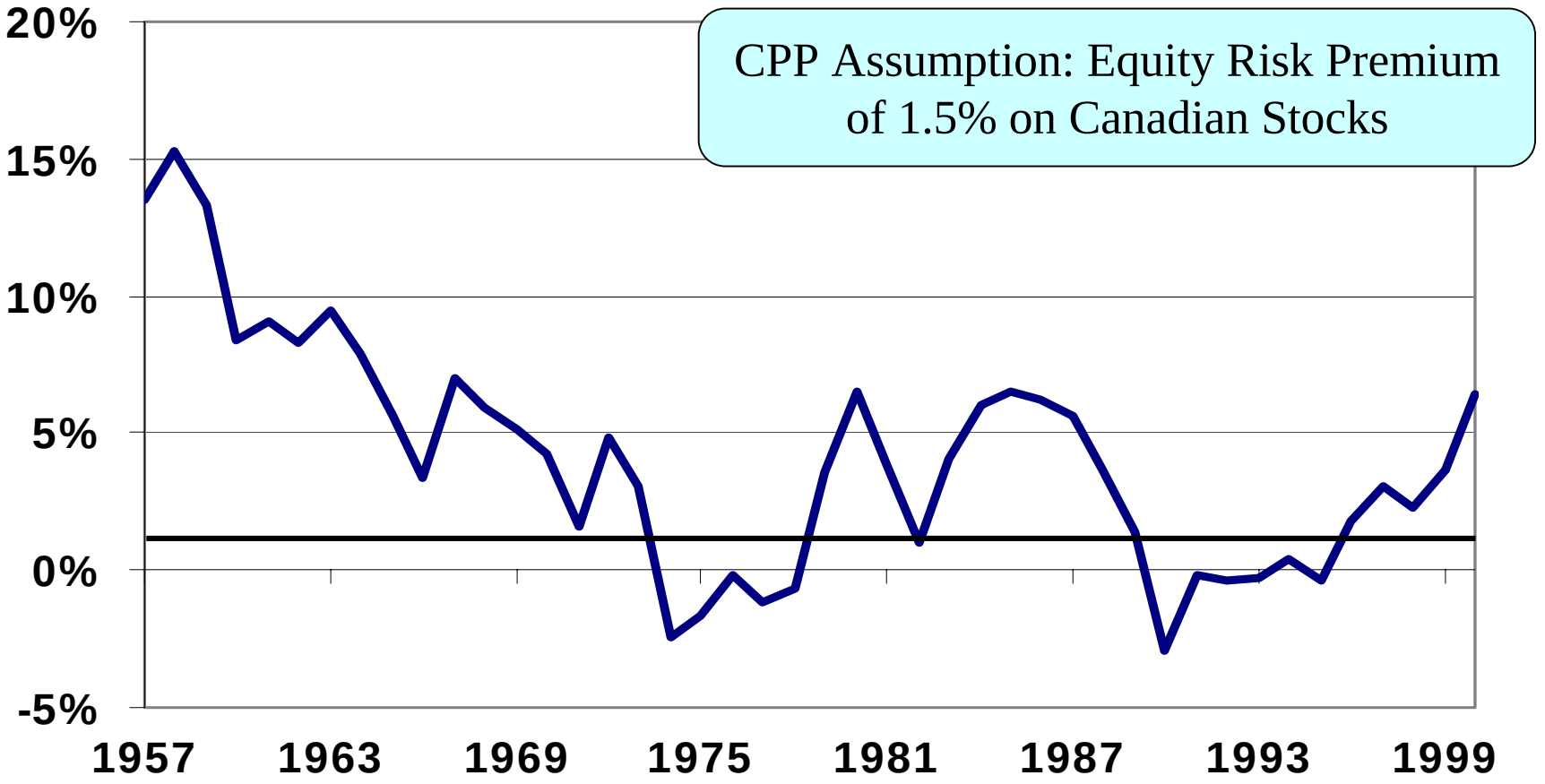
(10 years moving average 1960-2001)



Risk Premium = Return on Stocks – Return on Bonds

Canadian Risk Premium

(10 years moving average 1957-2000)



Risk Premium = Return on Stocks – Return on Bonds

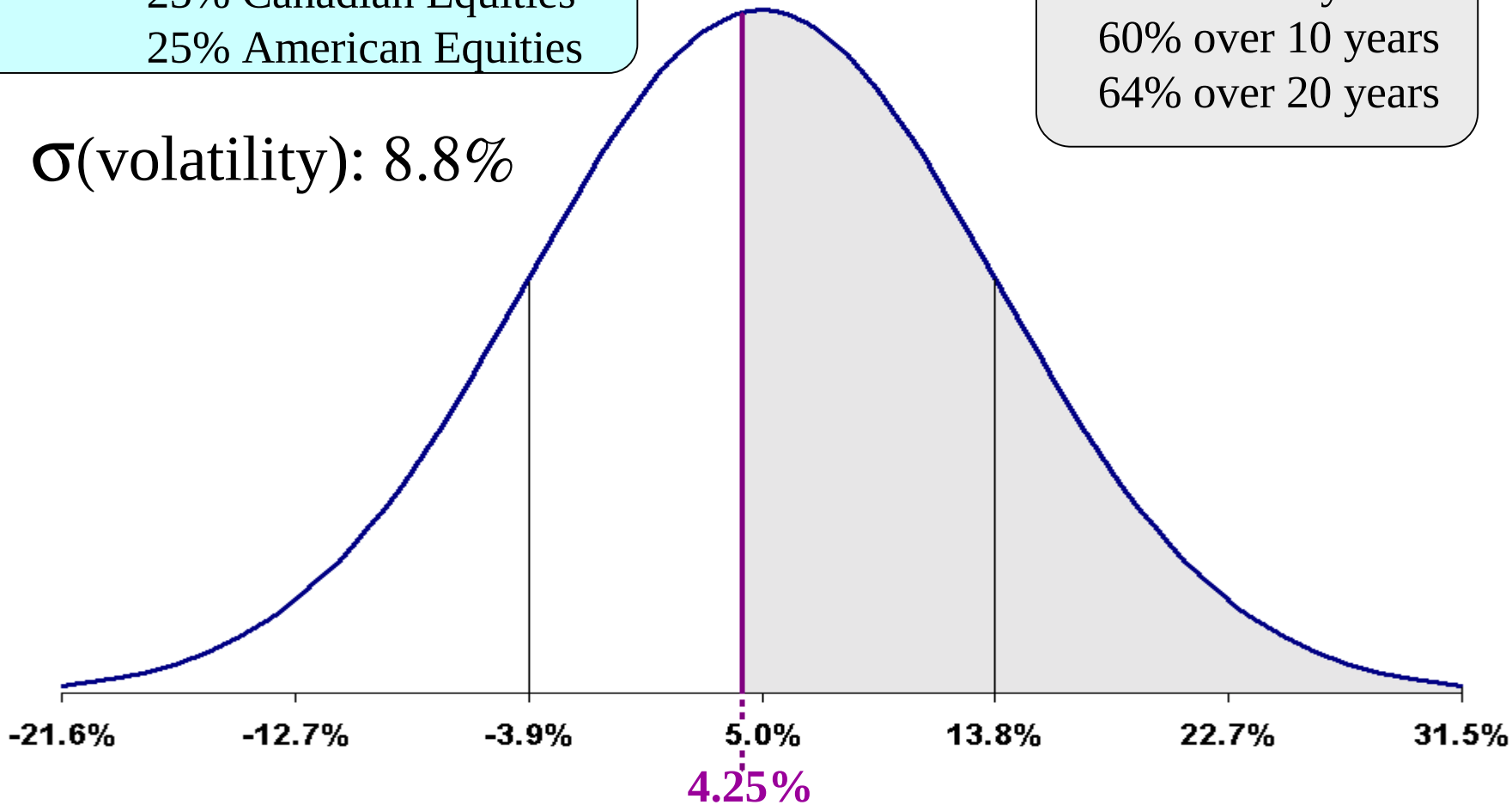
Historical Market Return Analysis

(Average real rate of return : Canada 1941-2000)

Portfolio: 50% LT Bonds
25% Canadian Equities
25% American Equities

σ(volatility): 8.8%

53% over 1 year
60% over 10 years
64% over 20 years



Main Findings

- From 2001 to 2020, contributions are more than sufficient to cover expenditures and assets are expected to more than triple over the next 10 years.

- Under the current schedule of contribution rates (9.9% for 2003 and thereafter), the funding rate will increase over the next 20 years.

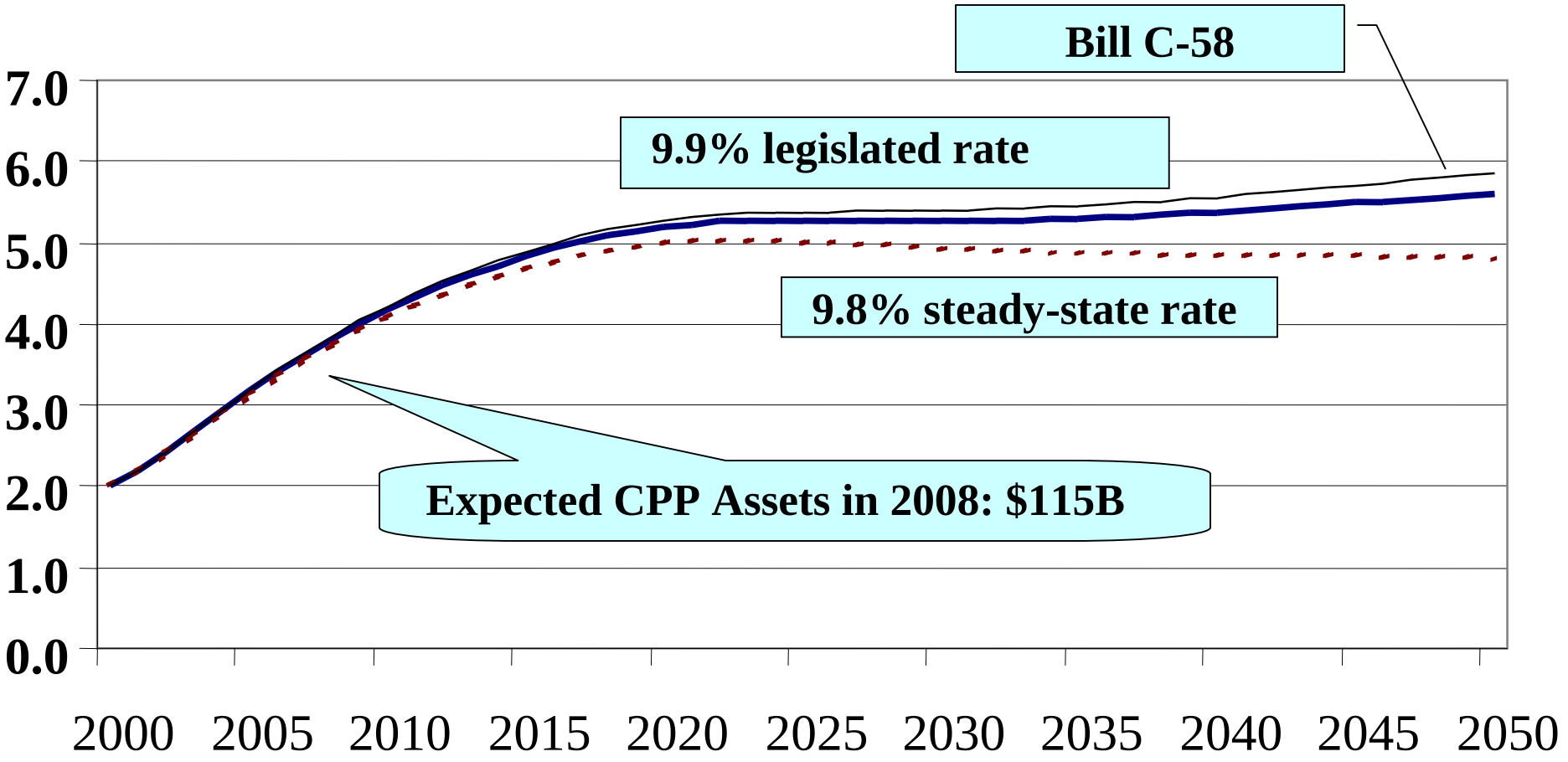
- The report confirms that the contribution rate of 9.9% is sufficient to sustain the Plan as larger numbers of Canadians reach retirement age and longevity continues to increase.

Contribution rate

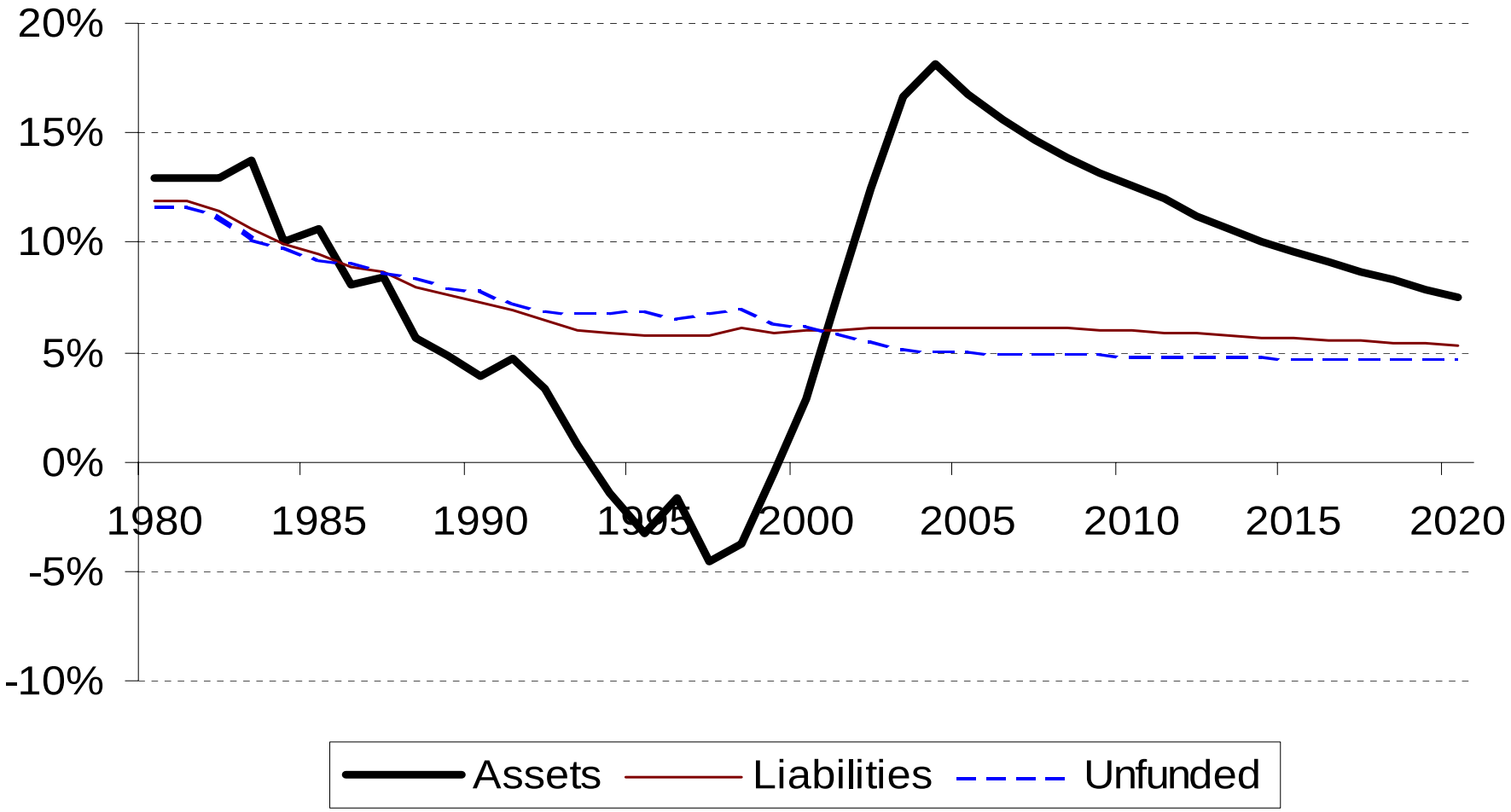
Steady-state contribution rate is 9.8%

- Lowest rate that can be maintained over the foreseeable future and that will result in a Asset/expenditure ratio generally constant over a long period of time.
- The steady-state rate is the lowest rate that can be charged that is sufficient to sustain the plan without further increase. A funding level of 20%-25% is sufficient to meet that condition.

Evolution of Asset/Expenditure ratio



Evolution of Assets and Liabilities
(Annual Increase in %)



Public sector Pension Plans

Average age at retirement and number of years of service

45 and 24 ***60 and 24*** ***48 and 27***

60,000 members

240,000 members

20,000 members

Purpose of the actuarial reports

- Public Sector Pension Plans are compulsory Defined Benefit Pension Plans
- Benefits are defined in the law; assumptions must be used to determine the current and projected cost
- Estimate the assets, liabilities, actuarial surplus/deficit and the amortization amount
- Actuarial opinion to qualify the data, methods and actuarial assumptions used
- Reasonable and appropriate assumptions
- Explicit note if the data are incomplete

Principles underlying the Investment Policy

- Since April 1st 2000, contributions of employees and employer are invested in a diversified portfolio managed by the Public Sector Pension Investment Board www.investpsp.ca

- Assets will equal liabilities if the realized investment return equals the actuarial interest assumption (real 4.25%).

- The three plans currently have similar characteristics, therefore, they have a common Investment Policy.

- Contributions are expected to exceed benefits for next 25 years.

Normal Cost of the Pension Plans

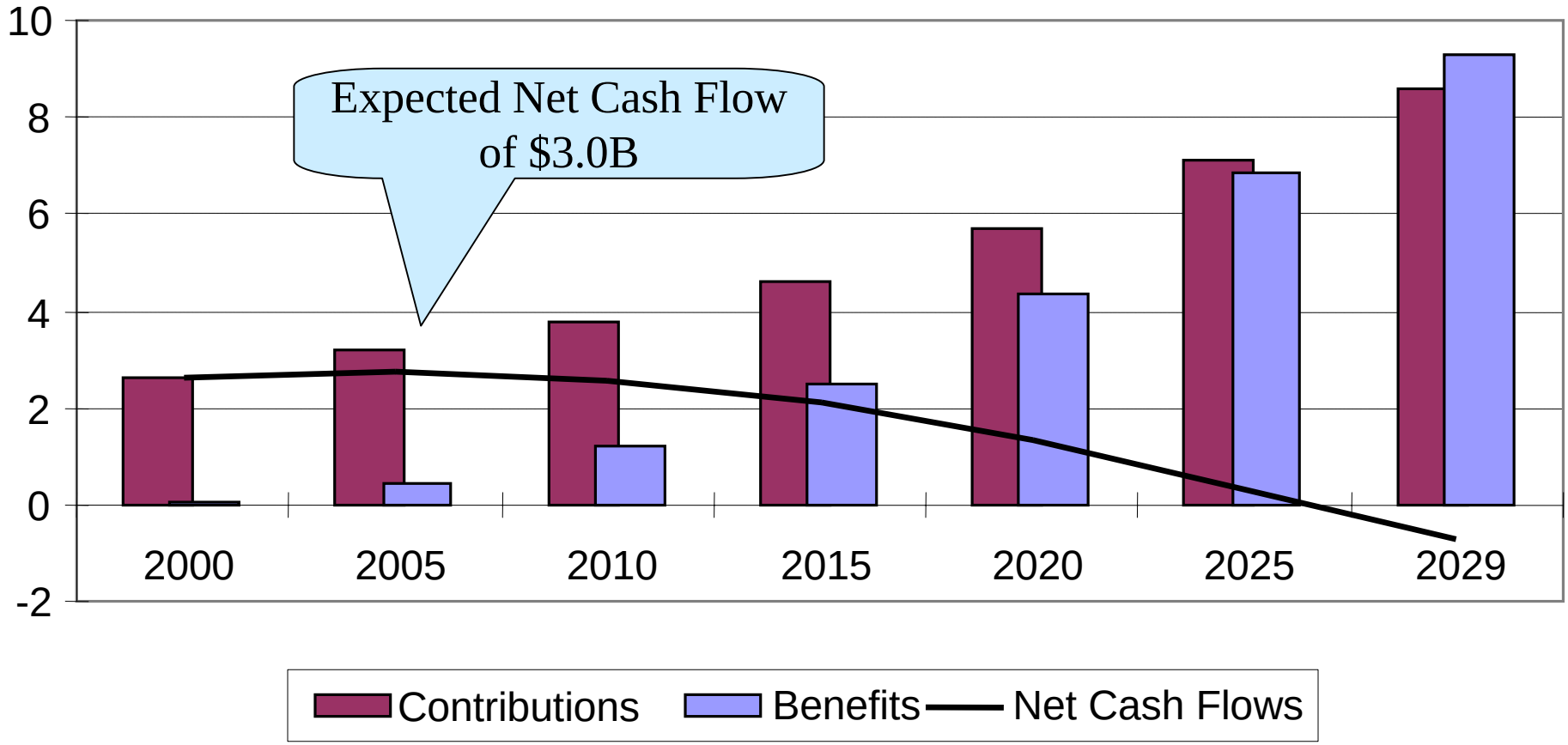
For 2000 to 2003

	Public Service	Canadian Forces	RCMP
Total contributions	$1,900M	$700M	$200M
Total cost of the plan*	17%	22%	21%
Member contributions	5%	5%	5%
Government cost	12%	17%	16%
Proportion paid by Employer	***71%***	***77%***	***75%***

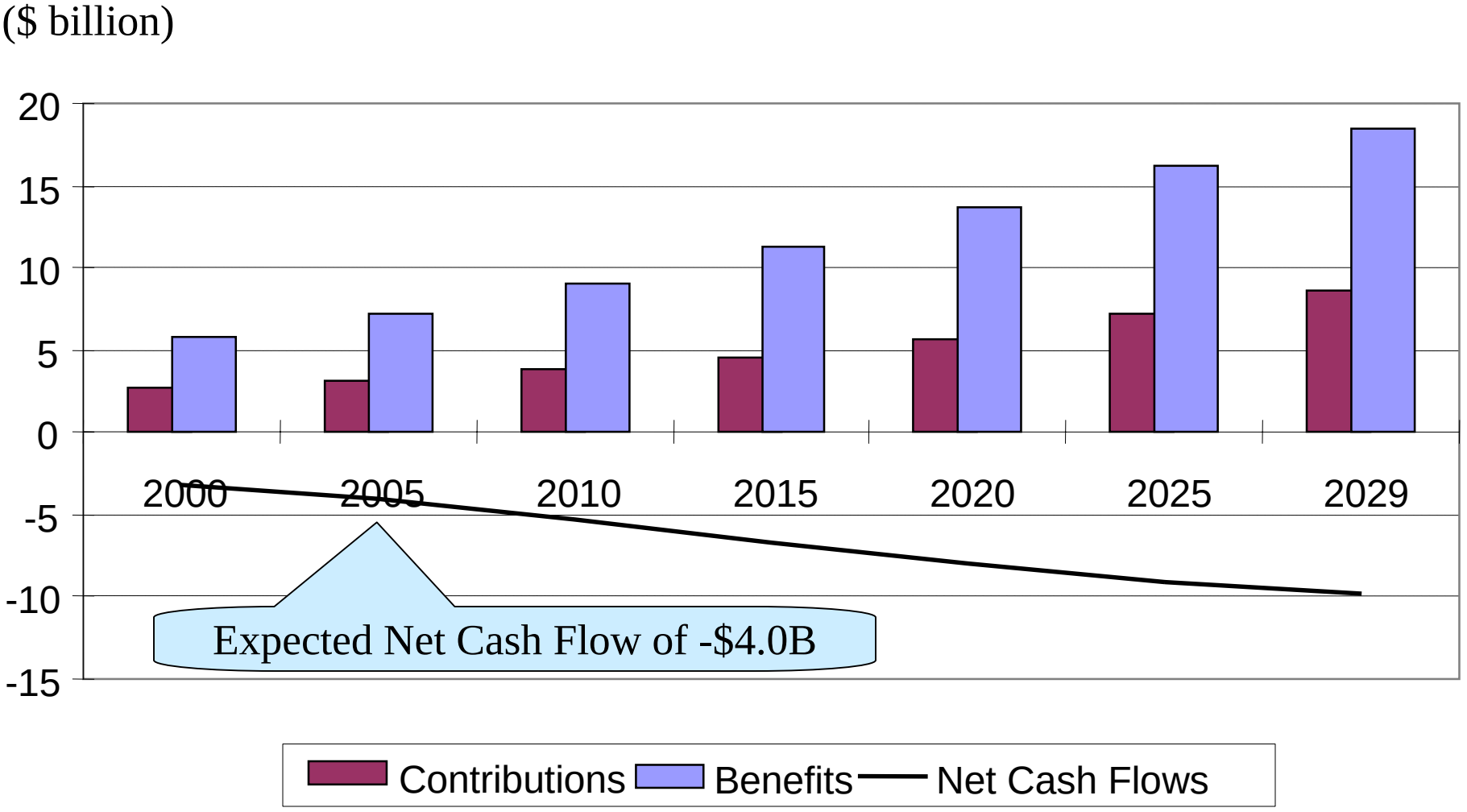
* Relative to pensionable earnings

Evolution of Net Cash Flows of Funds
(Funds managed by the Investment Board)

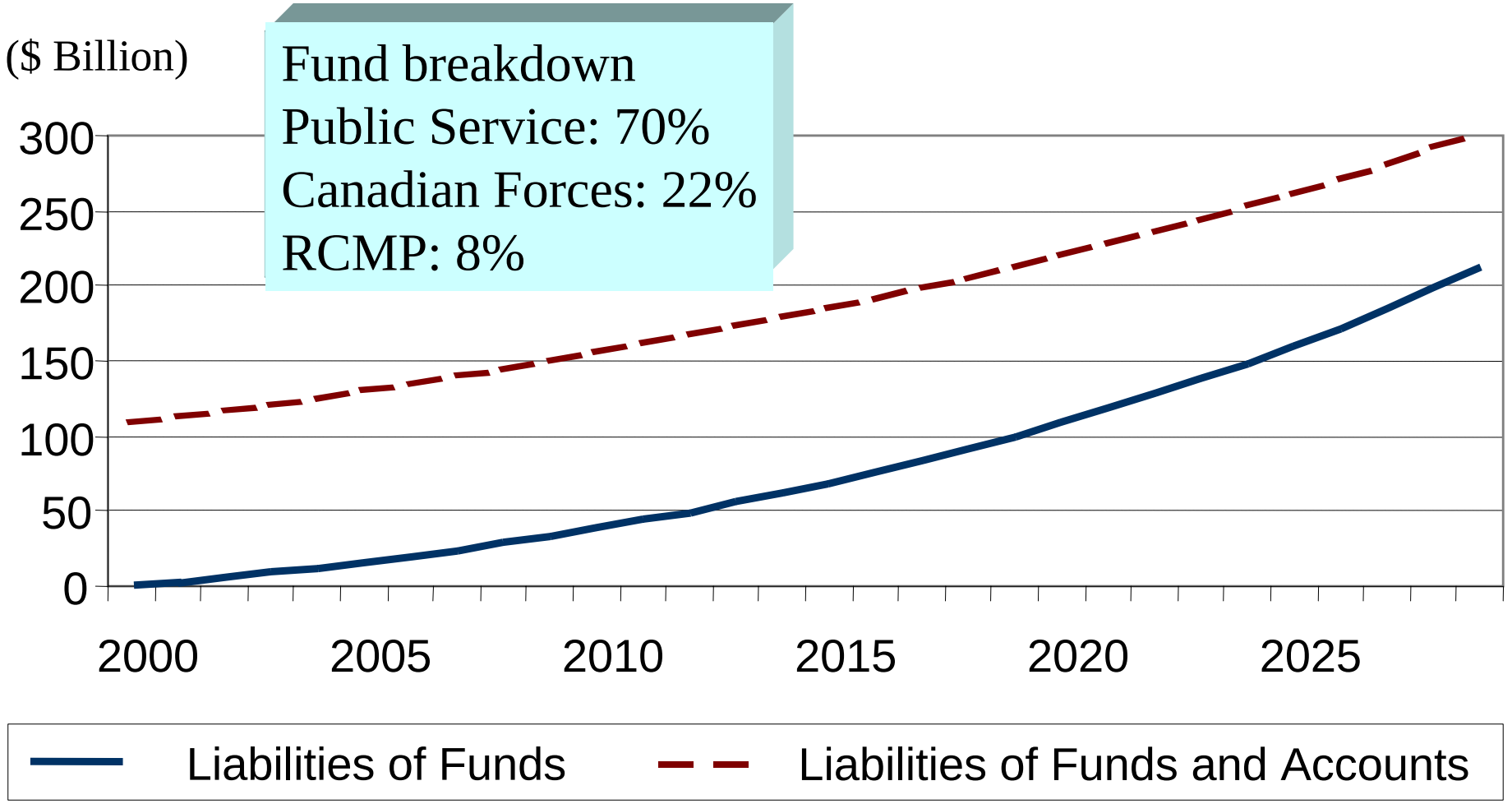
($ billion)



Evolution of Net Cash Flows
(Funds + Accounts)



Evolution of the Total Liabilities



Future challenges

- Retirement is a reality for a vast majority of Canadians.

- The aging is expected to be more severe in Canada than in United States, our main commercial partner.

Future challenges

- The expected aging of the working labor force and the resulting labor shortage that could occur will represent one of the biggest challenge in the coming years.

- To some extent, the aging of the working labor force will create pressure on the :
  - Migration rates
  - Participation rates
  - Retirement rates
  - Inflation rate
  - Real wage increases

International comparisons of pension programs

Organization for Economic Cooperation and Development

FINANCIAL SITUATION OF THE ELDERLY

	France	UK	Germany	Netherlands	Canada	USA
Poverty among retirees						
Income of retired and non-retired persons						
Disparities among retired persons						
Difference men/women						

Good performance **Average performance** **Poor performance**

Future challenges

The OECD has recognized the solid performance of the Canadian model by showing that the structure is meeting its objectives in terms of:

1) reducing poverty
2) preserving people's standard of living during transition from labour market to retirement
3) maintaining the balance of income between men and women

Our challenge: Maintain this performance and do the adjustments due to the aging of the labor force