

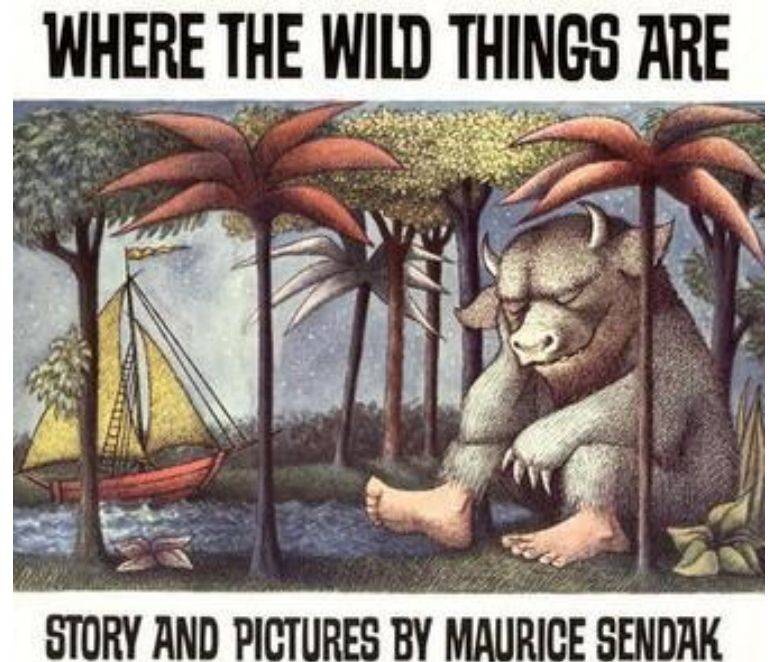
Boomerangst: Is Canada Afflicted?

Will Canada be Able to Afford its Aging Population?

- Canada's demographic future
- where the fears are – public pension and health care costs
- warning: data geek at work

Michael Wolfson, uOttawa

Acknowledgements: Bonnie-Jeanne Macdonald, Russ Robinson & COA Experts Panel on Income Security, CIHR grant, John Hirdes

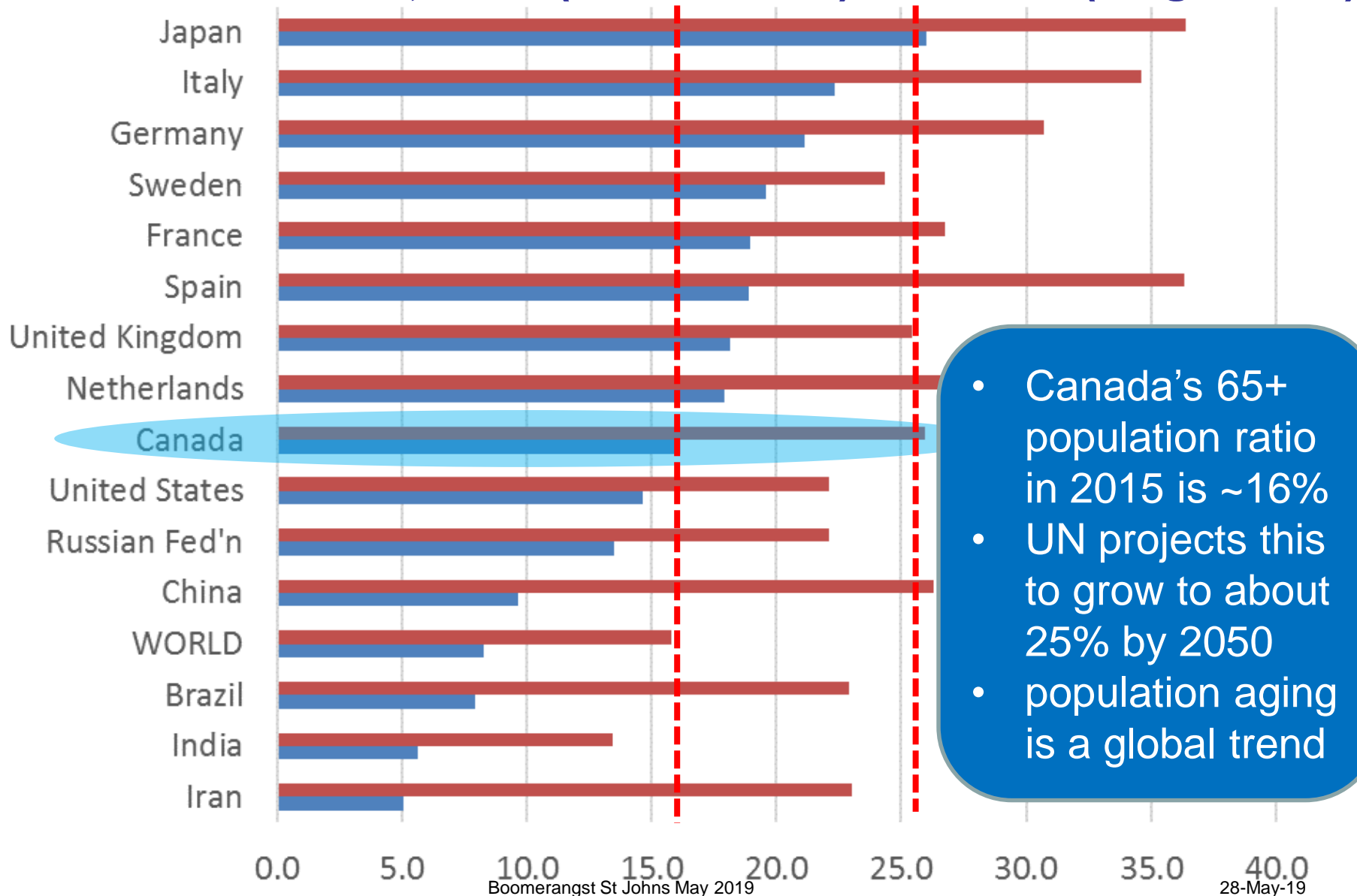


Demographic Future

- global context: conventional population projections from the UN for selected countries
- Canadian context (1): conventional projections from Statistics Canada
- Canadian context (2): new kind of projection using the LifePaths computer simulation model

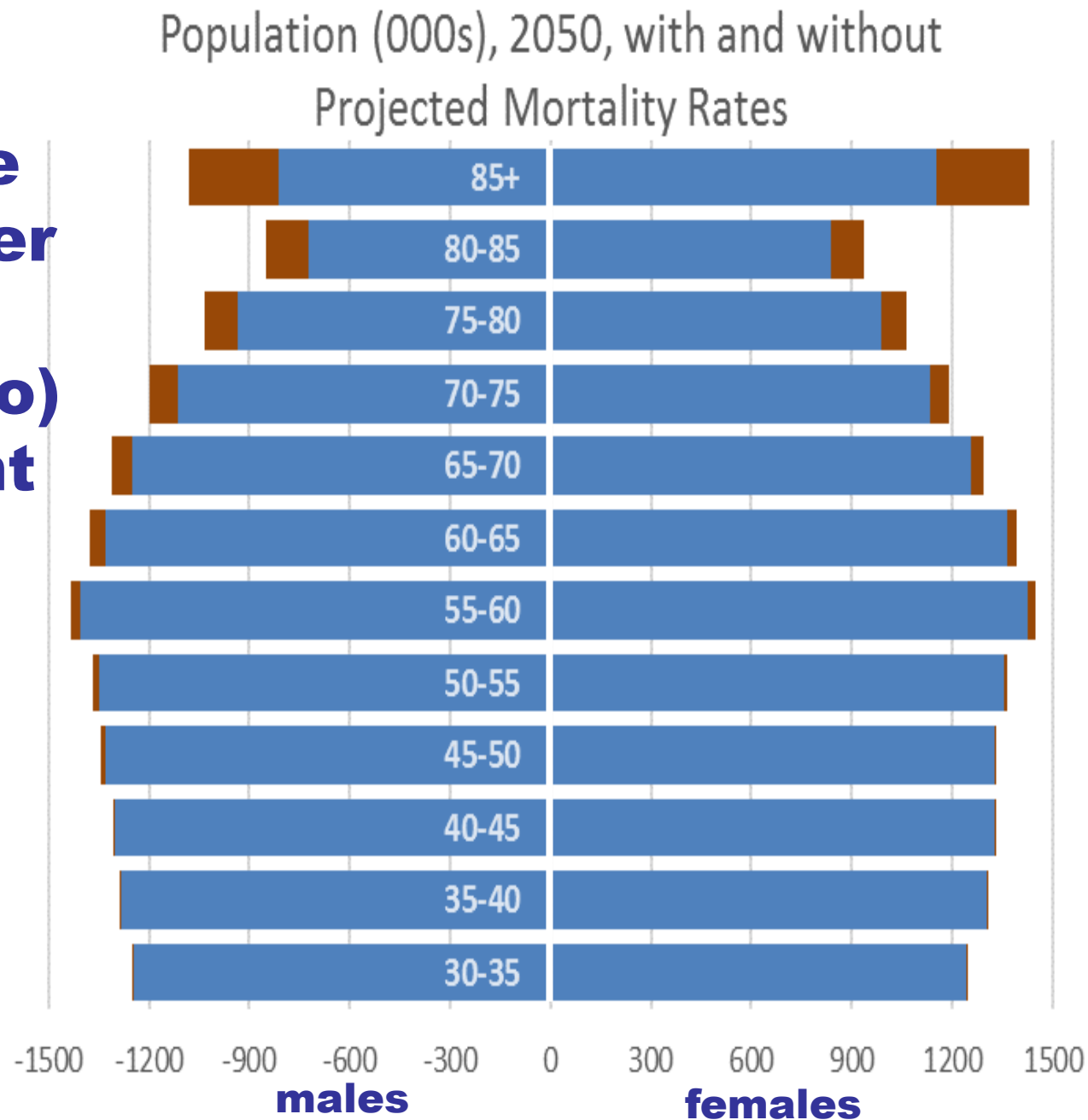
Age 65+ Demographic Ratios (%)

Selected Countries, 2015 (shorter bars) and 2050 (longer bars)

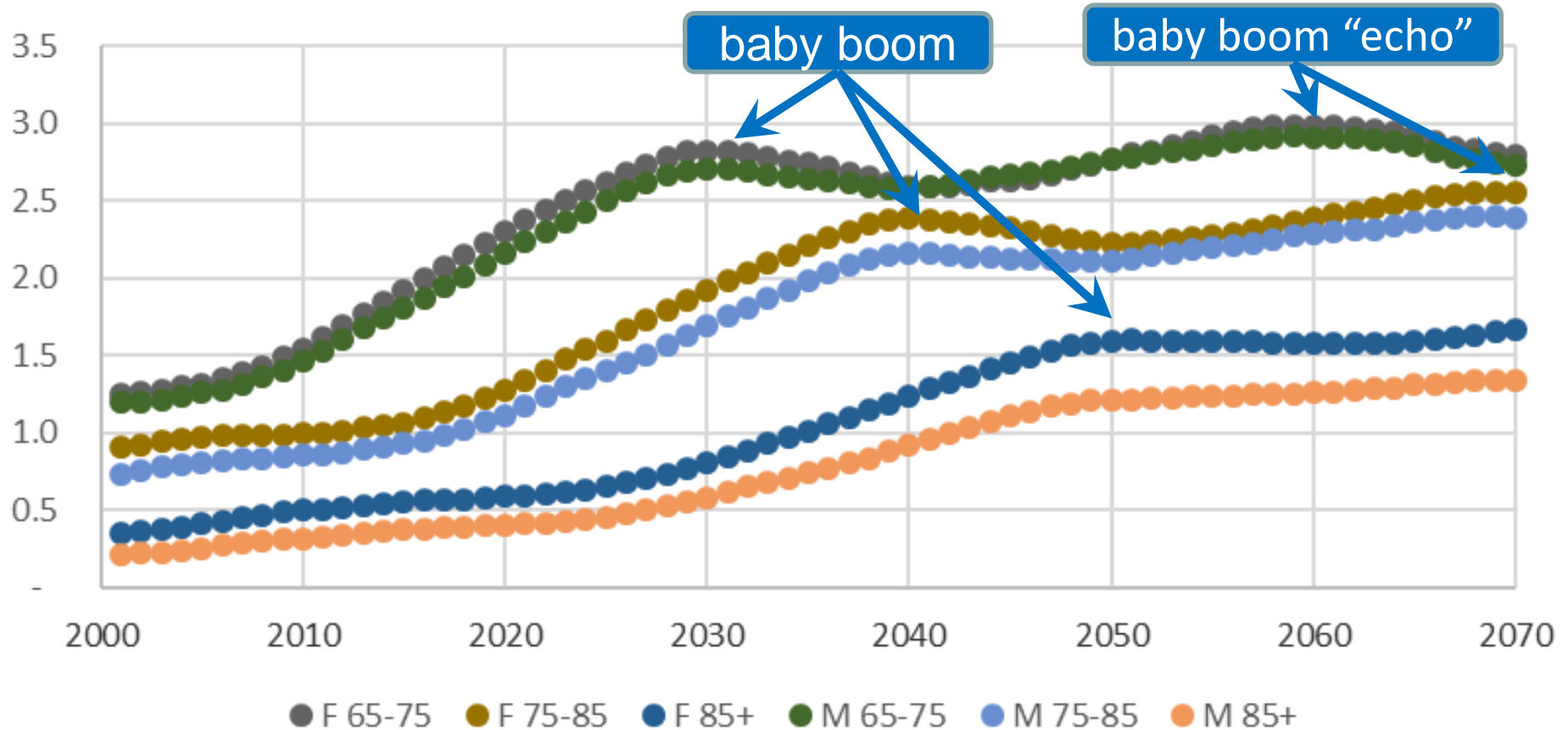


Improving Life Expectancy (per Stat Can's middle scenario) is an Important Factor

(ignore minus signs for males; it is a trick to get Excel to make this graph)



Projected Population (millions) by Age Group and Sex

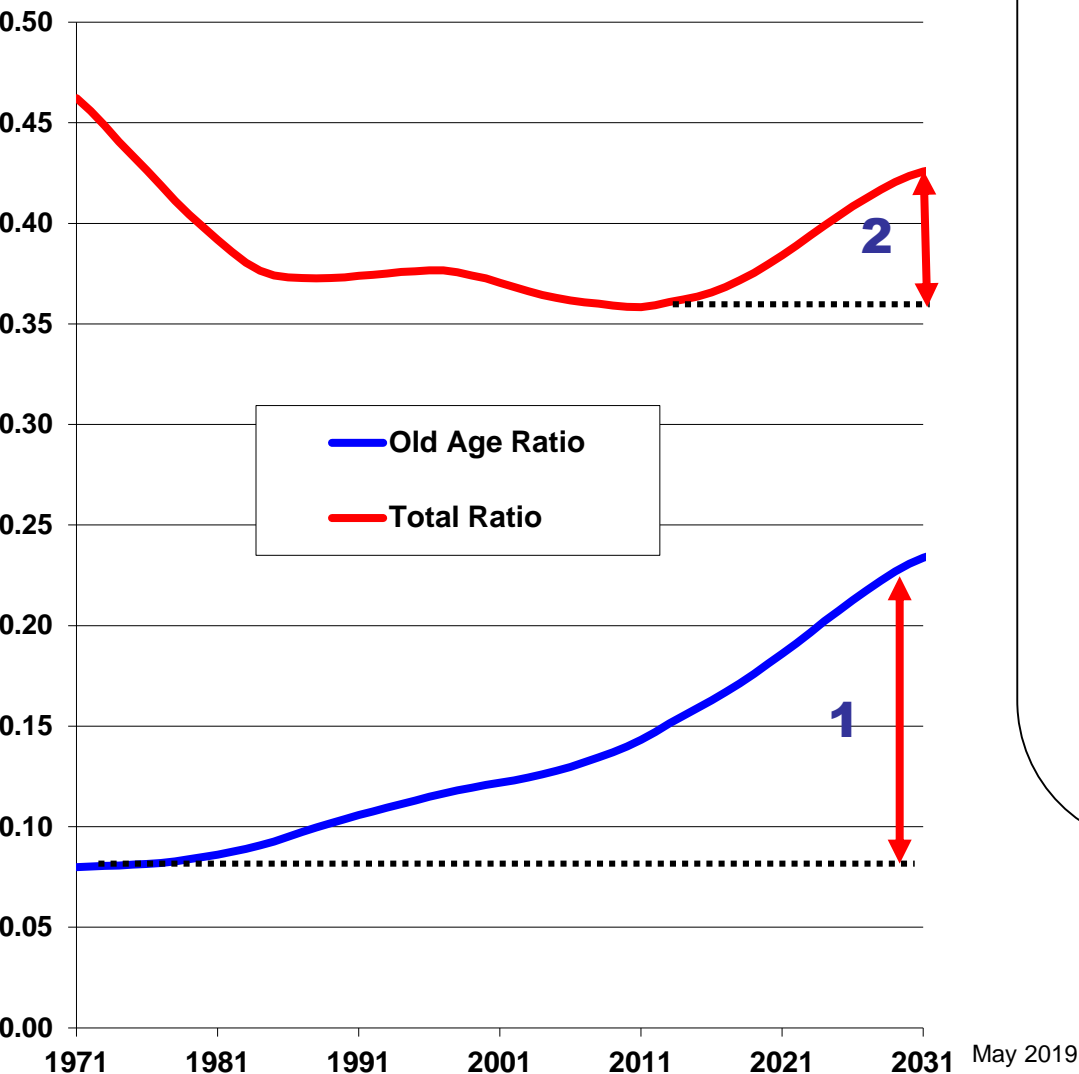


- peak of the “baby boom” reaches ages 65 to 74 around 2030
- they reach ages 75 to 84 10 years later around 2040, and ages 85+ after 2050
- children of the baby boom (“echo”) reach 65+ around 2060

Demographic Future

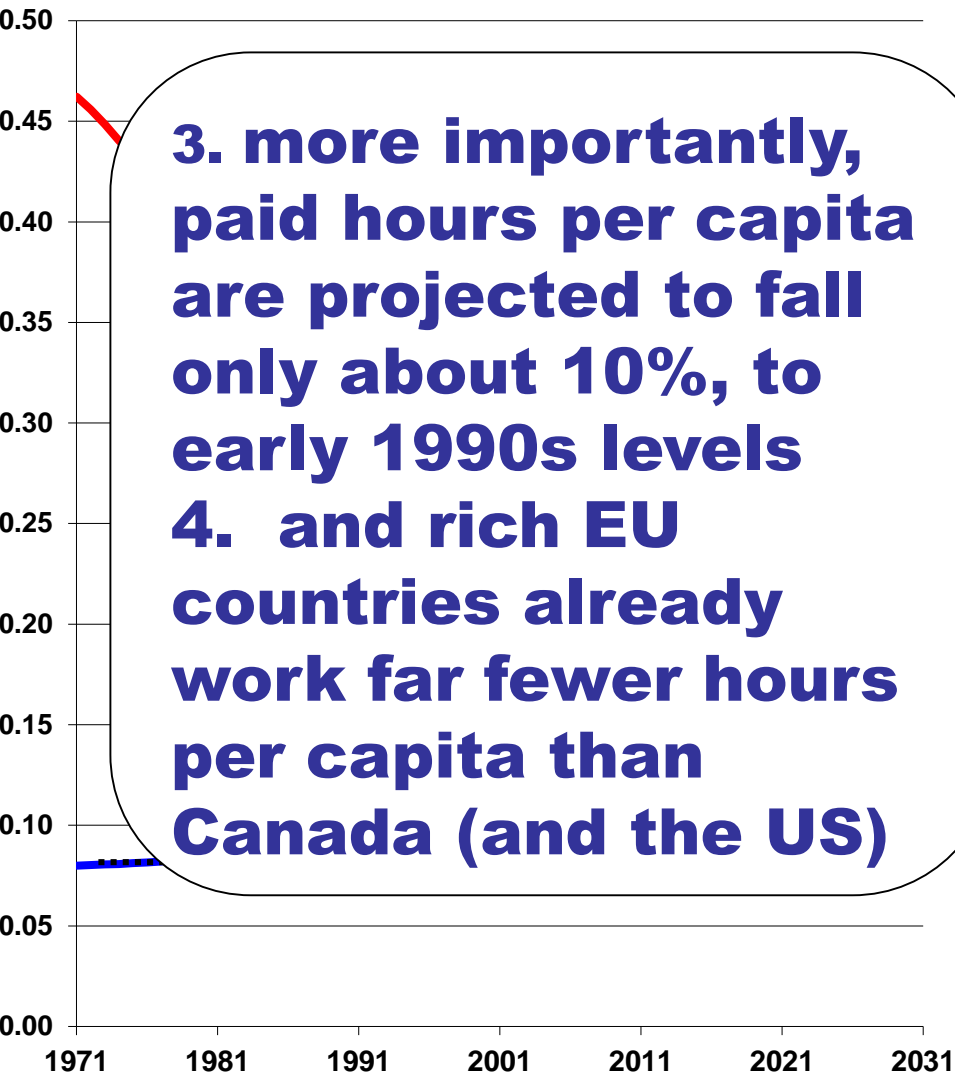
- it is not all about counting **bodies**: the usual demographic “dependency ratios” = how many seniors per working-age person
- for the future *affordability* of public pensions and health care, it is better to look at how many **hours of work** there will be in the economy

Old Age and Total “Dependency” Ratios (Body Counts)

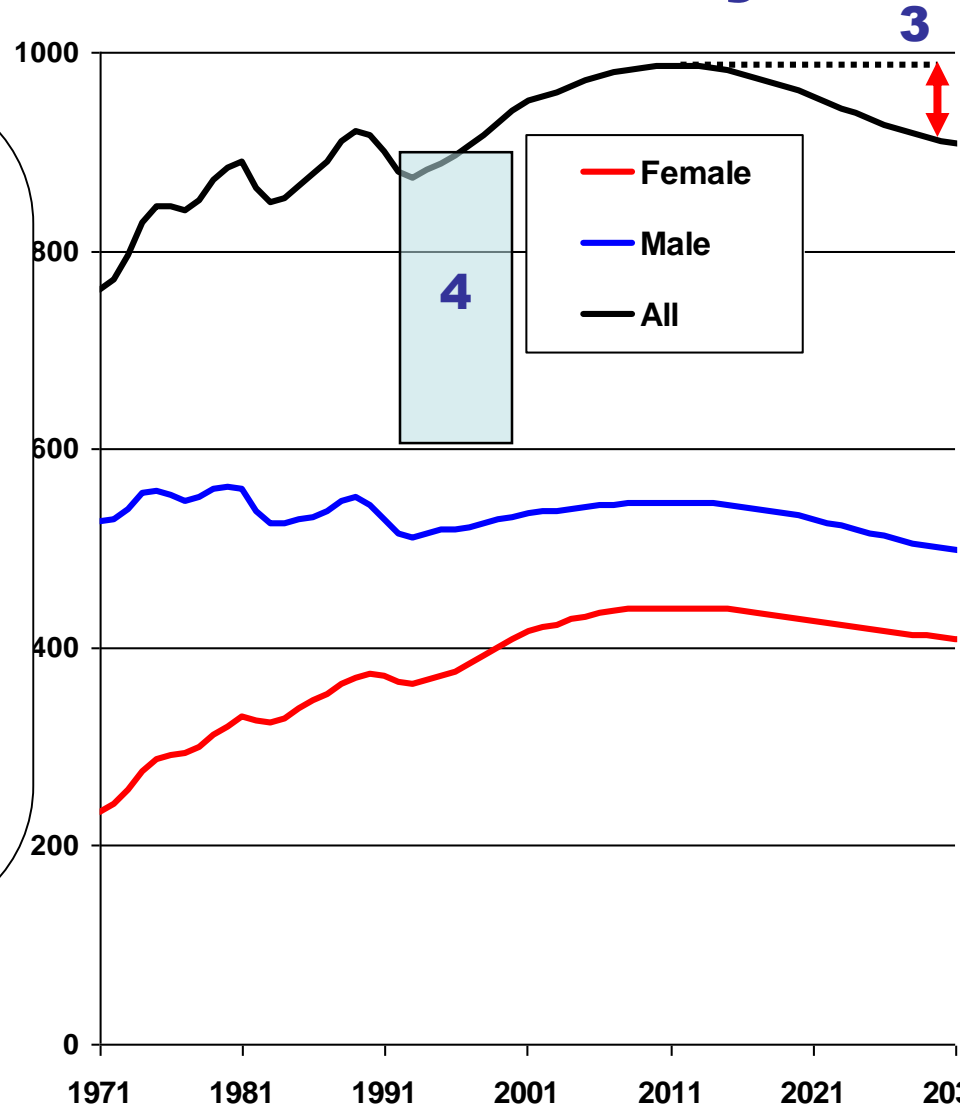


1. yes, the ratio of the population age 65+ will increase to almost 25% by 2031
2. but there will be fewer young people (age < 18) so the “total dependency ratio” will not increase by nearly as much

Old Age and Total “Dependency” Ratios (Body Counts)



Per Capita Annual Hours of Paid Work in the Economy



Grey Tsunami and Demo Doom?

- Canada's "body count" old age demographic ratio will increase substantially as the baby boom cohort reaches age 65
- but using a more relevant measure, paid hours per capita, Canada's level
 - is projected to fall by less than 10%
 - and will remain about 30% higher than a number of wealthy EU countries that today already have higher (conventionally measured) old age "dependency" ratios

where the fears are

- most of the fears of an aging population relate to expected “huge” increases in the costs of public pensions and health care
- from population aging alone, letting everything else stay exactly as it is today, these costs would increase by about 30% from today to 2050
- key question: is there scope to save about 1% per year over the next 30 years in public pensions and public health care expenditures – without anyone becoming significantly worse off?



Grey Tsunami of Public Pension Costs 1

- for Old Age Security (OAS) and Guaranteed Income Supplement (GIS)
 - there are legislated regular inflation adjustments
 - but they likely will not keep up with real per capita economic growth
 - so OAS and GIS will shrink as a percent of GDP anyway, unless there are periodic ad hoc increases
 - such ad hoc increases (in GIS) have occurred historically, and will continue to be needed
 - also there is a need to publicize and strengthen flexibility (actuarial adjustments) for age when benefits can start, both before and after age 65

Grey Tsunami of Public Pension Costs 2

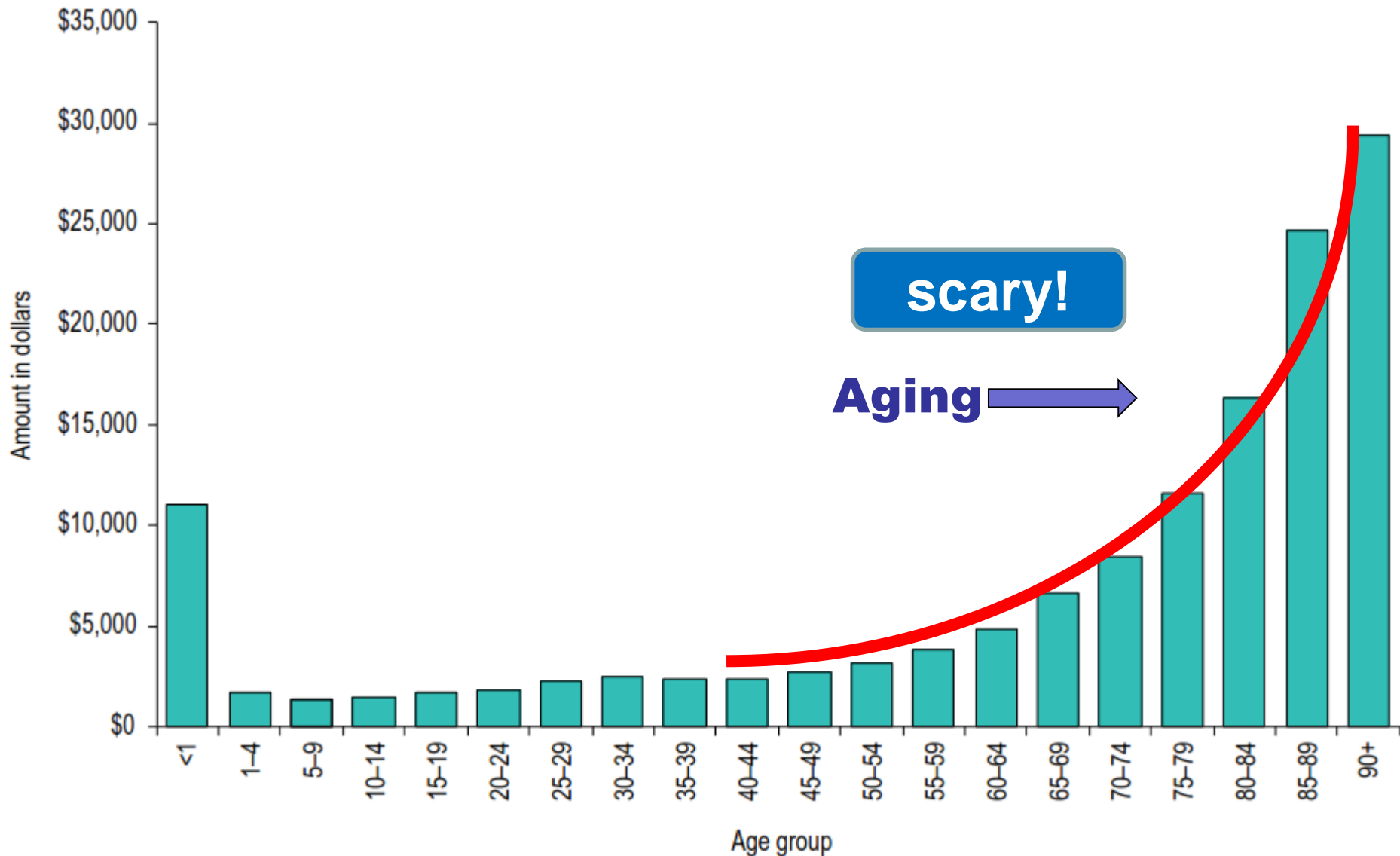
- for Canada and Quebec Pension Plans (C/QPP)
 - benefits do generally keep up with the economy, so overall costs will increase with population aging
 - aging has already been taken into account by the current payroll tax rate schedule
 - but the recent “modest” expansion of C/QPP was actually “miniscule” – many currently at working age can expect a significant decline in living standards after retirement in future
 - costs of a needed more substantial expansion of C/QPP can be managed by increasing “normal” pension age to 67 or 68 (gradually over 20 years)

What About Public Health Care?

- public expenditures currently at ~7% GDP
- let's look first overall
- then the main components: hospitals, doctors, drugs, and long term care (LTC)



Provincial / Territorial Per Capita Government Health Expenditures (\$) by Age Group, 2015

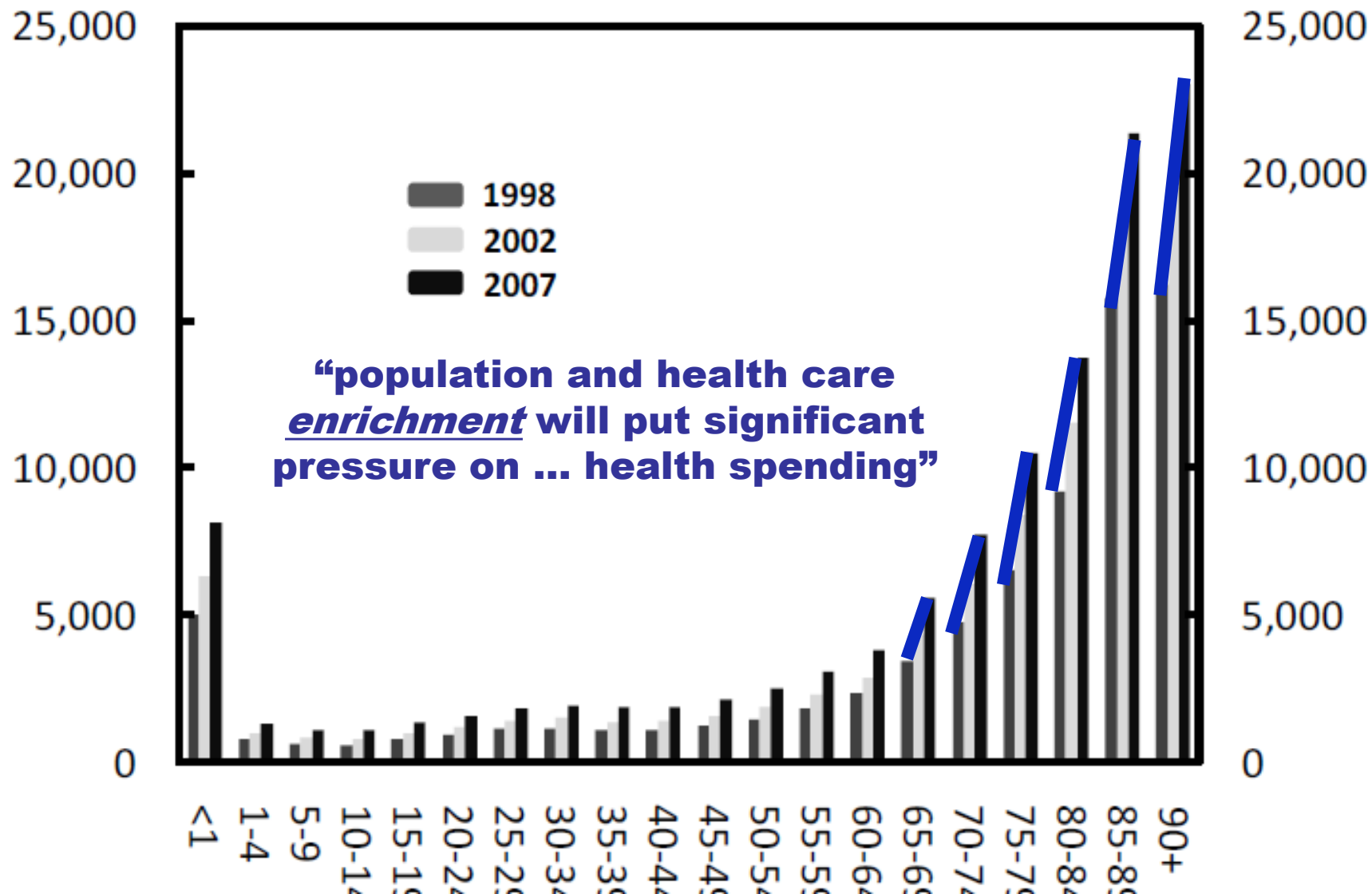


Provincial-Territorial Government Health

Expenditures by Age Group

(Parliamentary Budget Office,
Fiscal Sustainability Report, 2010)

(Dollars per capita)



Consider Small Area Variations

Component of Statistics Canada Catalogue no. 82-003-X
Health Reports

Article

Variations by health region in treatment and survival after heart attack

by Helen Johansen, Julie Bernier, Philippe Finès,
Susan Brien, William Ghali and Michael Wolfson
for the Canadian Cardiovascular Outcomes Research Team

May, 2009



Statistics
Canada

Statistique
Canada

Produced by the
Institute for Clinical Evaluative Sciences
with the support of the Heart and Stroke Foundation of Ontario

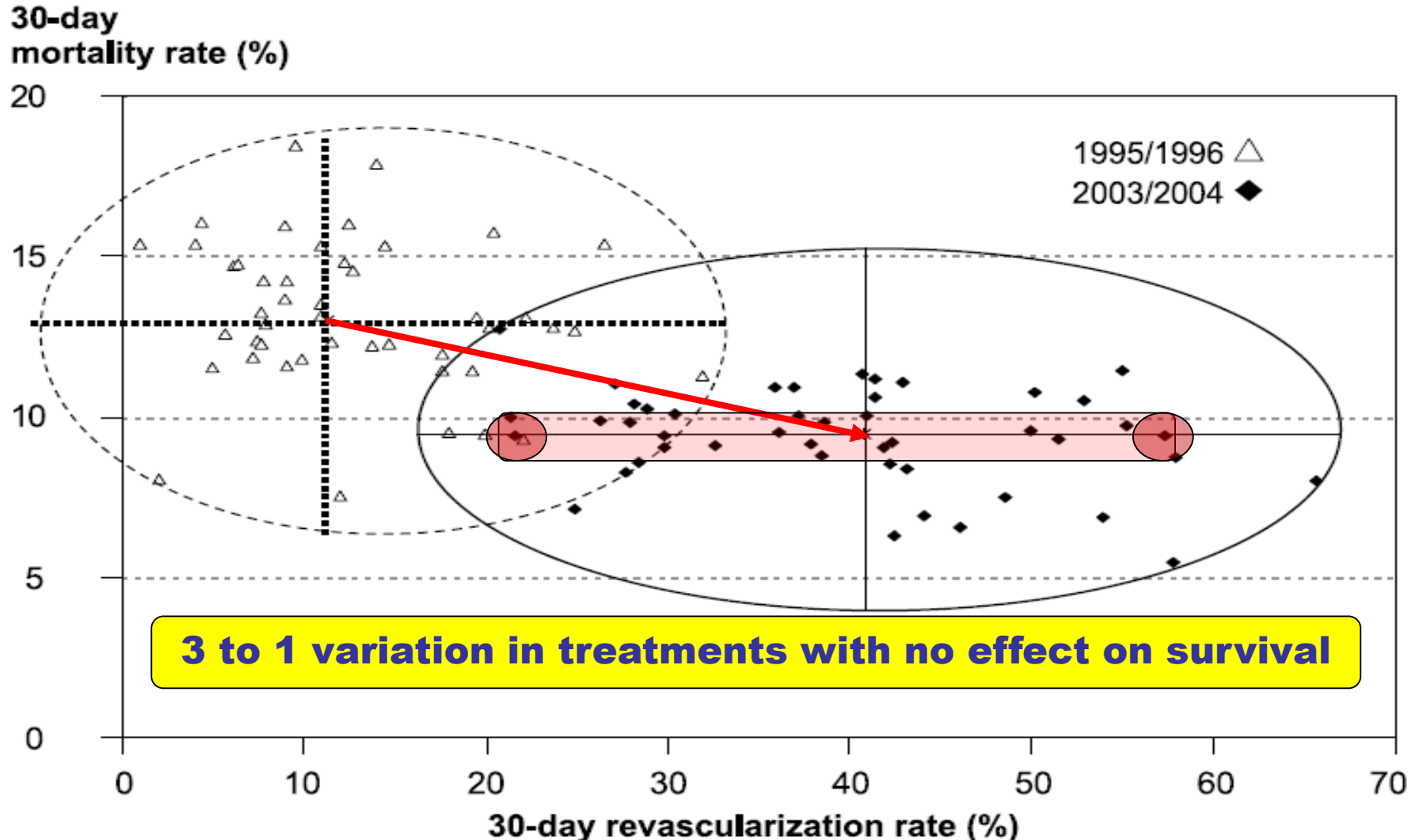


Canada

connect

the dots”

Heart Attack Survival in Relation to Treatment by Health Region, Seven Provinces



Important Caveats for the AMI → Revascularization → Mortality Results

- other clinical aspects of treatment not taken into account, e.g. thrombolysis, post discharge Rx
- no risk factors considered – e.g. obesity, physical fitness, smoking, hypertension, lipids
- no socio-economic factors considered
- n.b. in related analysis, co-morbidity (Charlson Index) was included, with one-year (versus 30 day) mortality follow-up – results essentially unchanged
- revascularization is also intended to relieve symptoms, but no health-related quality of life (HRQoL) data available

Fast Forward – ICES 2016

Health Services Research
Series Editor: Boris Sobolev

Medical Practice Variations

Medical Practice Variations in Acute Myocardial Infarction

David Alter¹ and Mary Forhan²

(1)Institute for Clinical Evaluative Sciences (ICES), 2075 Bayview Avenue, Suite G106, M4N 3M5 Toronto, ON, Canada

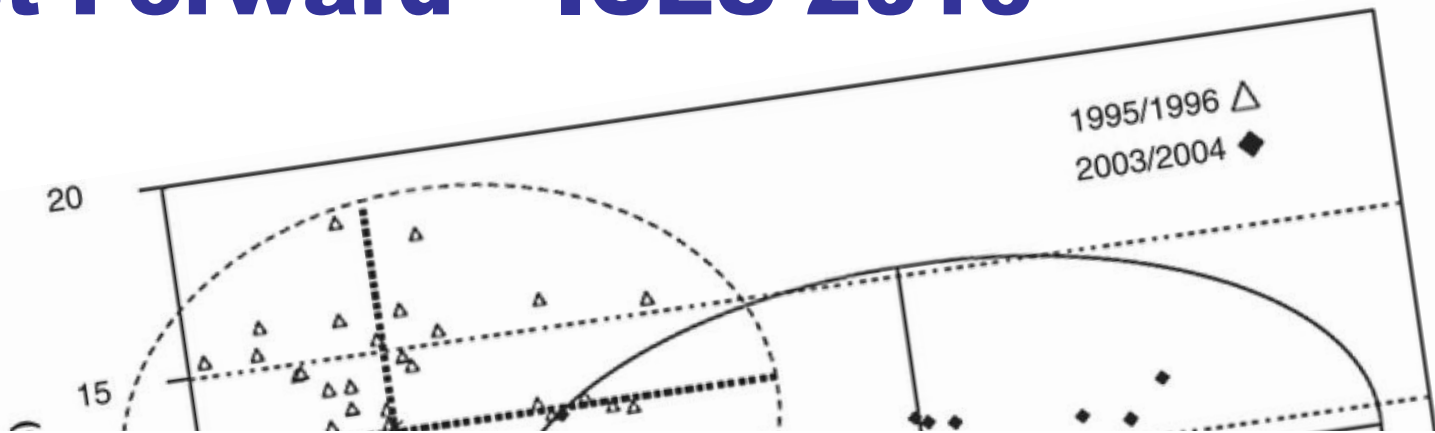
(2)University of Alberta, Edmonton, Canada

 Springer Reference

The volume introduces the early history of medical practice variations, outlines established concepts and frameworks, and provides an overview of methods used to understand the variations in medical care. Such variations raise critical concerns about the quality, equity and efficiency of health care resources across the world.

[Read Online](#)

Fast Forward – ICES 2016



Is the Growth of Post-AMI Coronary Angiography and PCI Driven by Evidence or by Improved Service Availability?

Nonetheless, the utilization of coronary angiography and PCI is still likely driven by variations in hospital access to on-site cardiac catheterization and PCI facilities, **irrespective of clinical evidence** (Yeh et al. [2010](#)). For example, as demonstrated in Fig. 1 below, wide variations in revascularization post-AMI still exist, suggesting the presence of unexplained factors driving utilization beyond

Fig. 1
Thirty-day revascularization and 30-day mortality rates of acute myocardial infarction patients with at least 100,000 population, seven provinces (NS, NB, QC, ON, Man, Sask, AB), 1995/1996 and 2003/2004 (Stats Canada [2009](#))



There are many ways for a healthcare system to finance medically necessary prescription drugs. None is perfect; however, the most costly, inequitable, and inefficient financing systems are those that diminish pharmaceutical purchasing power, impose considerable patient charges and isolate the management of prescription drugs from other key components of the healthcare system. This is not good news for Canada – the “pharmacare” systems in each of our provinces do all of these things.

THE STAR

UBC Researchers, 2015

News • Canada

Pharmacare program could save \$4 billion: study

THE STAR

News • Canada

Parliamentary Budget Office, 2017

Universal pharmacare could save more than \$4 billion a year

By **MIA RABSON** The Canadian Press
Thu., Sept. 28, 2017



OTTAWA—A national, universal pharmacare program that all but eliminates all out-of-pocket expenses for Canadians who need to fill their prescriptions could slash the overall price tag for drugs in this country by more than \$4 billion a year.

The New York Times

Trump Promises Lower Drug Prices, but Drops Populist Solutions

Alex M. Azar II, the secretary of health and human services,

America's trading partners "need to pay more because they're using socialist price controls, market access controls, to get unfair pricing," said Mr. Azar, a former top executive at the drugmaker Eli Lilly and Company. "And they're doing it on the backs of their patients. God help you if you get cancer in some of these countries."

By Robert Pear

May 11, 2018

Grey Tsunami of Health Care Costs?

- heart attack example: major unexplained variations remain \Rightarrow there is opportunity for substantial expenditure reductions without any adverse effects on population health
- primary care reform plus scope of practice: physicians \rightarrow nurse practitioners + pharmacare
- \Rightarrow opportunities for major cost savings
- (need immunity from US policies)
- what about long term care (LTC = home care and nursing homes)?



Whither Long Term Care (LTC) Costs?

- many important sources of uncertainty
 - in addition to population projections, need to understand future prevalence of disability and consequential care needs
 - also need to understand likely drivers of care costs
- and questions about how best to deal with projected aging-related cost increases
 - everything up to now can be managed with good foresight and policy: public pensions, hospitals, physicians, drugs
 - but generally there has been far less discussion of policy options for long term care (home care and nursing homes) – beside observing long waiting lists, widespread unmet needs, and new federal money

Projection Method

- use Statistics Canada's LifePaths microsimulation model
 - unfortunately mothballed after 2010 (budget cut)
- widely used for pension policy analysis
- sophisticated disability dynamics estimated using 1994 to 2008 NPHS (Geoff Rowe)
 - recalibrated to recent CCHS
 - uses simplified mild / moderate / severe disability classification cross-walked between McMaster HUI and interRAI
- private pay retirement residences – population estimates - 2011 census (collective dwellings)

Projection Key Assumptions

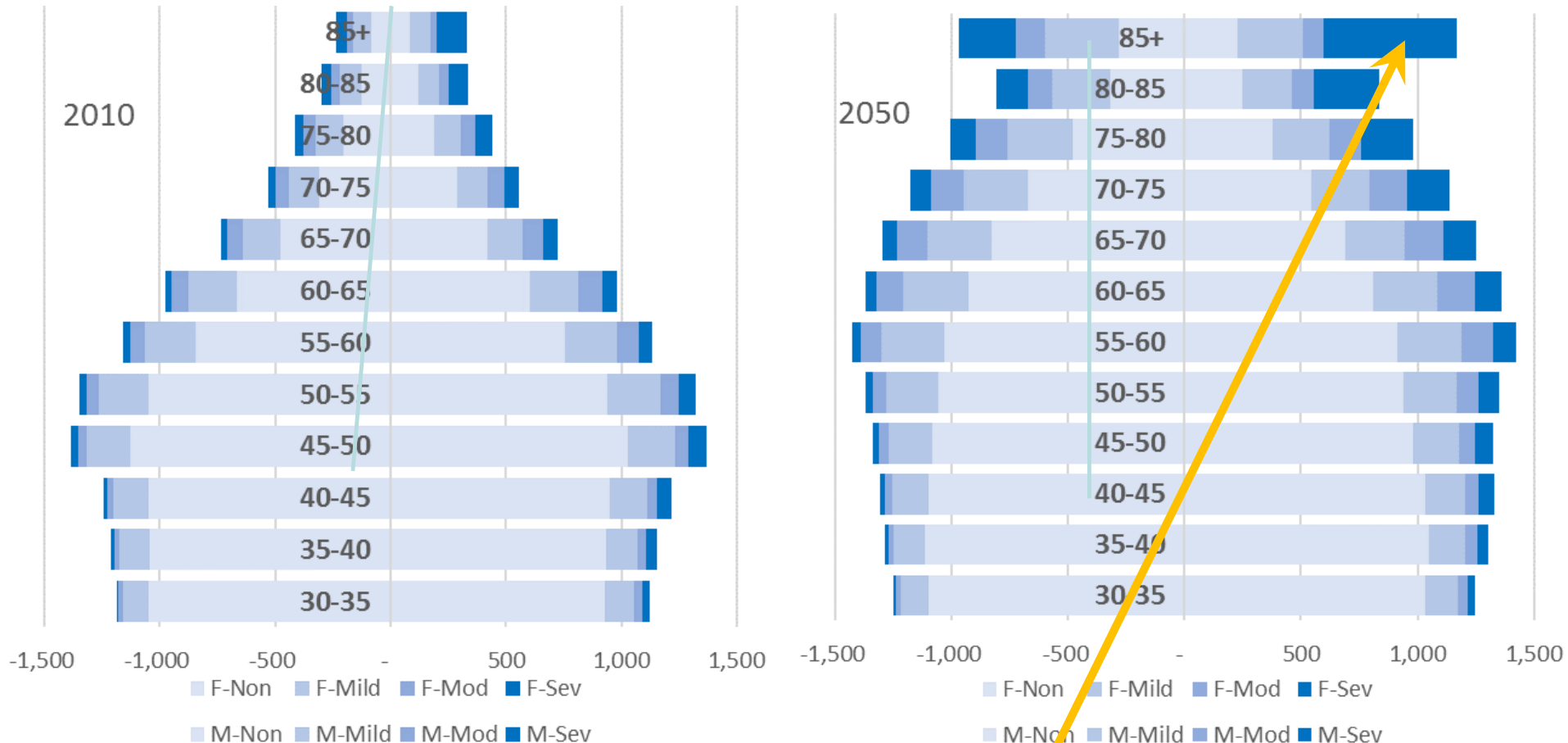
- OAS / GIS effectively wage indexed
- individual income tax also wage indexed (to avoid bracket creep with current CPI indexing)
- “dynamic equilibrium” for disability prevalence \equiv ratio of HALE (health-adjusted life expectancy) to LE (life expectancy) generally constant
- LTC (long term care) \equiv HC (home care) & NH (nursing home) services modules added
 - unit costs increase in line with overall average wages

Uncertainties – Projection Inputs

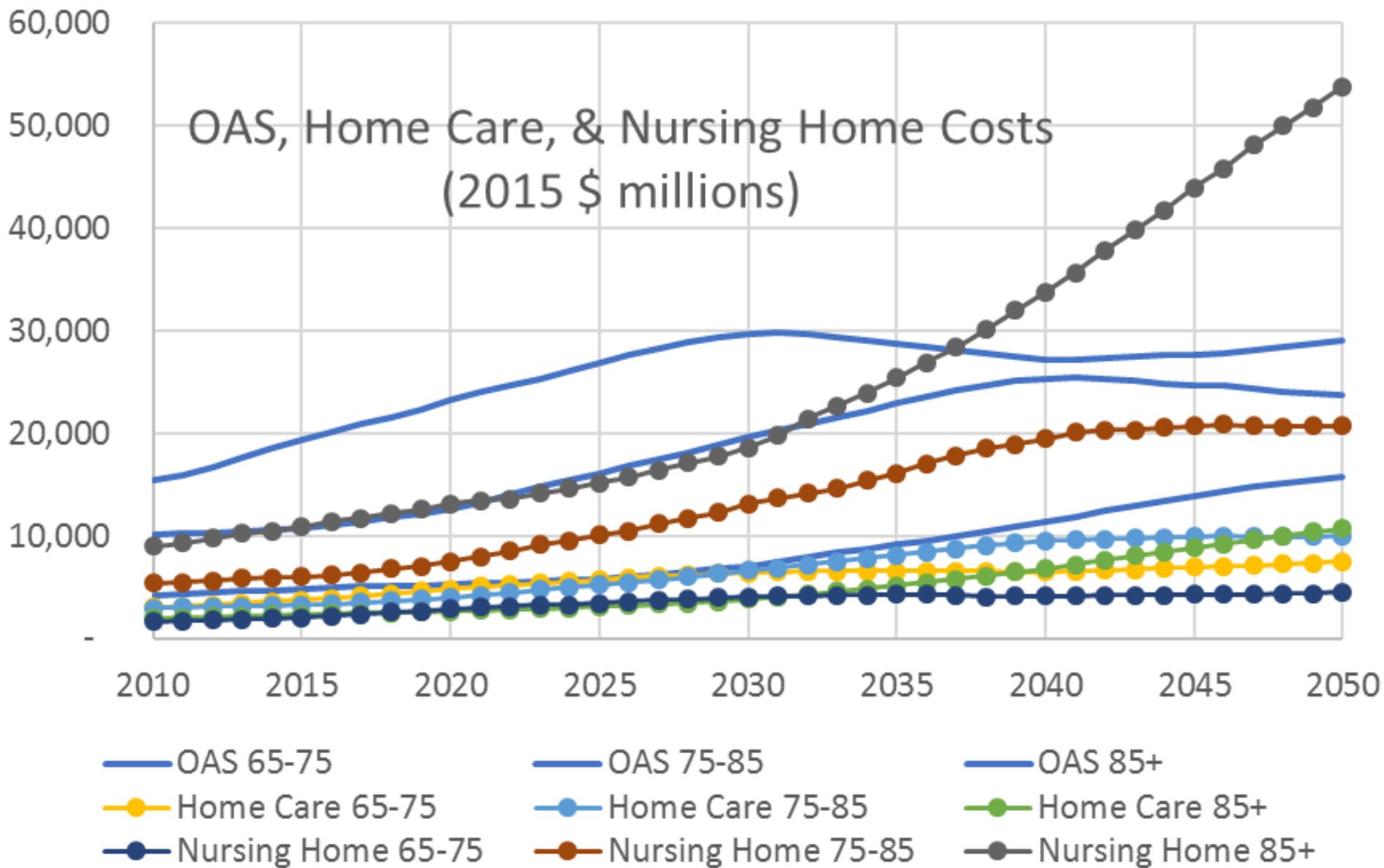
- current / recent patterns of LTC utilization
 - extrapolated from Ontario interRAI, CCHS, census
 - recall 2004 & 2017 Health Accords – no new data
- current / recent provincial budget costs of LTC
 - last Residential Care Facilities survey 2014
 - OECD Health Accounts, hence CIHI, exclude non-health = the bulk of home care?
 - assume \$30/hour for HC, \$175/day for NH
- extent of unmet needs for LTC
 - recently in CCHS; previous survey questions changing, not designed for projection modeling
- who provides informal LTC care, and how much
- how does extent of care affect frailty progression

Projected Disability Trends

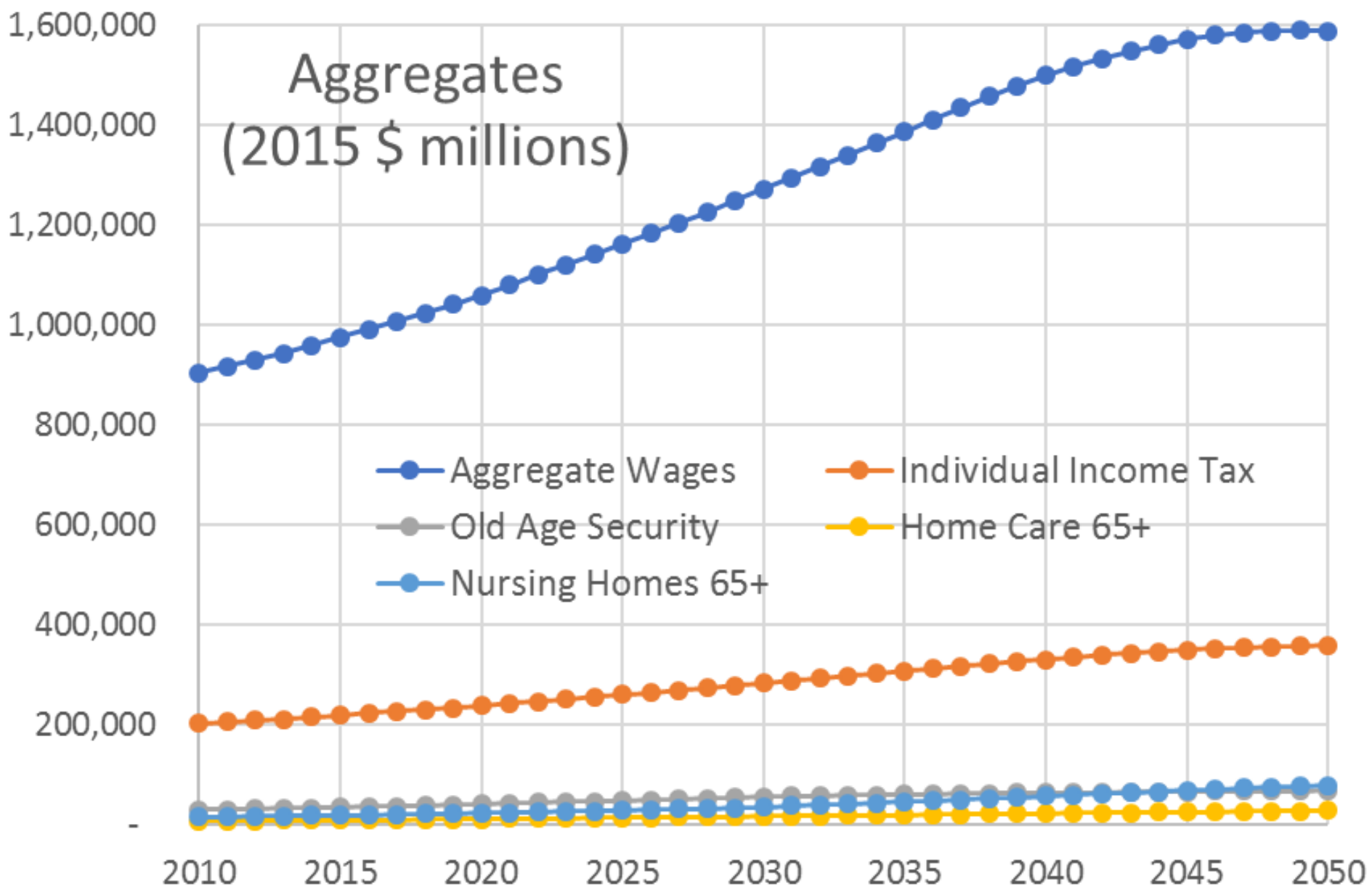
Population (000s) Pyramids



- dramatic increase for ages 85+
- n.b. ~30 years from now



Aggregates (2015 \$ millions)



Bending the Cost Curve ?

- more obvious factors
 - control PSW wages
 - shift \$\$ from acute care (hospitals ALC = alternative levels of care) to long term care
 - pre-funding via social insurance ?
- speculative factors – new technologies
- built environment / housing / transportation
 - vast majority of public / media attention in the housing area is to the homeless and to young people not being able to afford a first home ⇒ less attention to looming issues for seniors needing care
 - n.b. multi-decade adjustment times ⇒ now is not too soon to start with smarter urban planning

Quick Digression on Urban Structure – Gravity Model

- longstanding theory: gravity model
 - population density and other urban characteristics are concentrated in urban core, and tail off non-linearly with distance from the core
- future frail seniors now living in suburban / low density fringes; if they “age in place” and lose their drivers licenses ⇒
 - more social isolation
 - harder to provide in home services

Defying Gravity? – Toronto Urban Core



Defying Gravity? – Urban Sprawl



“housing” is really housing + services

- “aging in place” versus “aging in the community”
- water, sewage, garbage, snow removal
- natural gas, oil, electricity
- phone, TV, internet
- ambulance, police, fire department
- sidewalks, (walking?) distance to public transit
- access to food, pharma, primary care, hospitals
- neighbours, community social activities
 - to avoid social isolation
- **home care services**

Uncertainties – Future Unknowns

- new technology: e.g. exoskeletons / GPS bracelets for mild dementia and wandering / home sensors for falls / robot puppies
- major improvements in dementia treatments
- dramatic rise in antibiotic resistant infections
- long term slowdown in economic growth
- trends in life expectancy (LE) and compression or expansion of morbidity / frailty
- climate change (unlikely to have major effects on this time scale?)



Inter-generational (In)Equity

- will future working age generations be willing to pay for baby boom cohort's LTC?
 - many are currently unhappy with inability to enter home ownership
- could pre-fund and organize LTC as a new category of social insurance
 - but then working age generation could end up paying twice, as fund would not cover 100% of LTC
- and inter-generational fairness is more complex
 - pre-funding \neq higher future capacity to fund LTC; as more household saving \neq higher economic growth
 - elephant in the room: bequest of global climate change

Uncertainties – Future Public Policies

- unavoidable pressures to increase PSW = personal support workers' wages (and training / credentials)
 - allow more immigration for PSWs (import labour)?
- more revenues from general taxation, or a move to (partial) social insurance pre-funding
- provinces fail to control hospital / physician / drug costs, so continue to lag even more in shifting funding from acute care to LTC
 - or provinces become more sophisticated re “LTC Lite”
- provincial differences in demographics and government cost controls lead to more pressures on fiscal equalization
- cities fail to adapt zoning and transportation such that LTC costs (especially home care) spiral up: “aging in place”(s) where services are expensive to deliver
- more prevention / avoiding isolation: better day care / multi-age dwellings / better respite care + family mediation

Concluding Comments

- impacts of population aging on public pension costs can be managed – provided active, manageable changes are made over coming years
- Canada's health care system is (far too) often not being managed based on analysis of which expenditures generate the greatest health benefits
- the cost of inappropriate care and inefficiency in health care is possibly larger than the total impact of population aging over coming decades
- thus population aging can be relatively small as a factor accounting for future increases in health care expenditures in Canada, except possibly LTC

not so wild after all ☺

