

# The changing nature of work

## *Paths to the Future*

*Centre for the Study of Living Standards*

Armine Yalnizyan

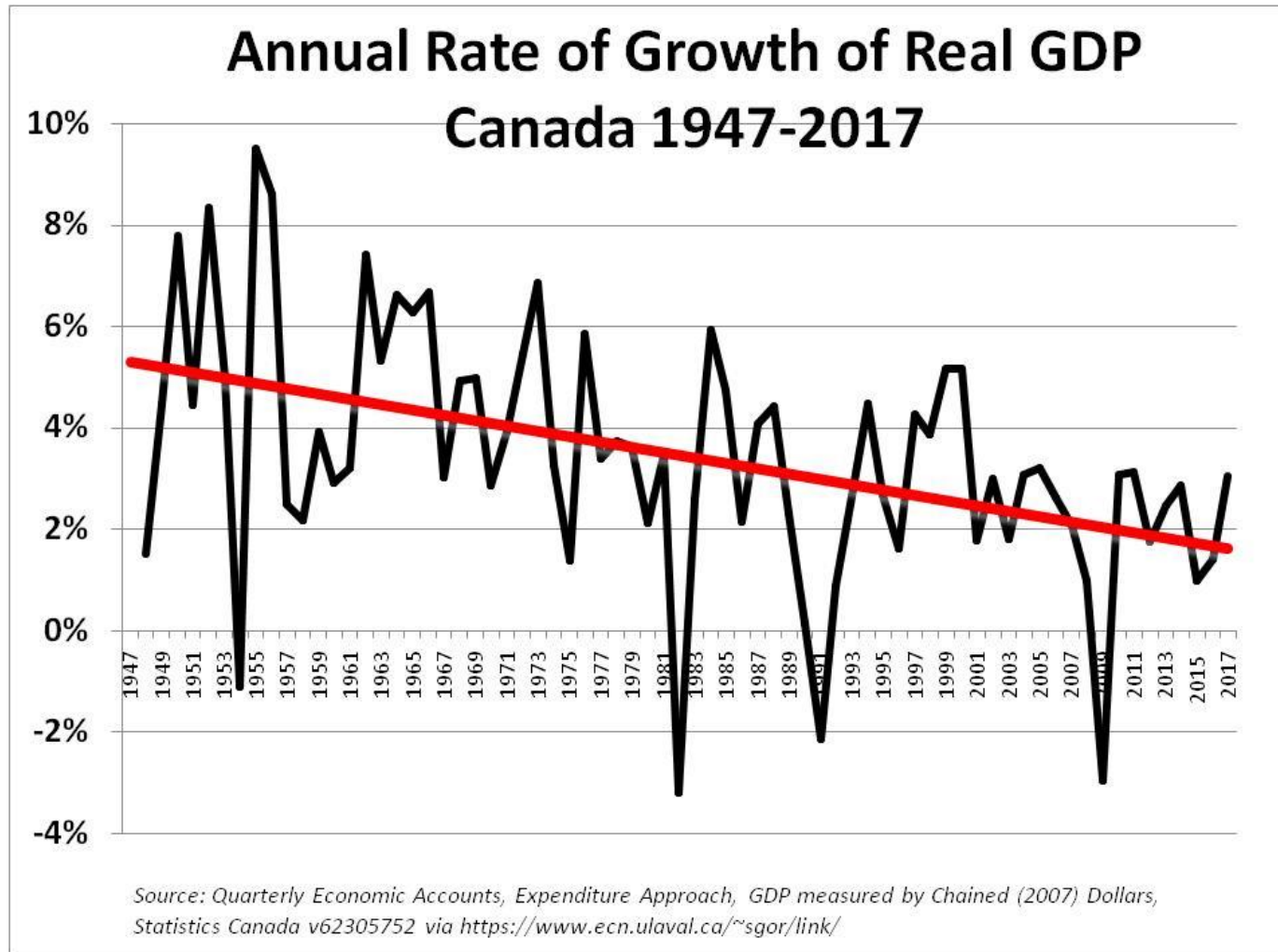
*Senior Economic Policy Advisor to the Deputy Minister of  
Employment and Social Development Canada*

February 19, 2019

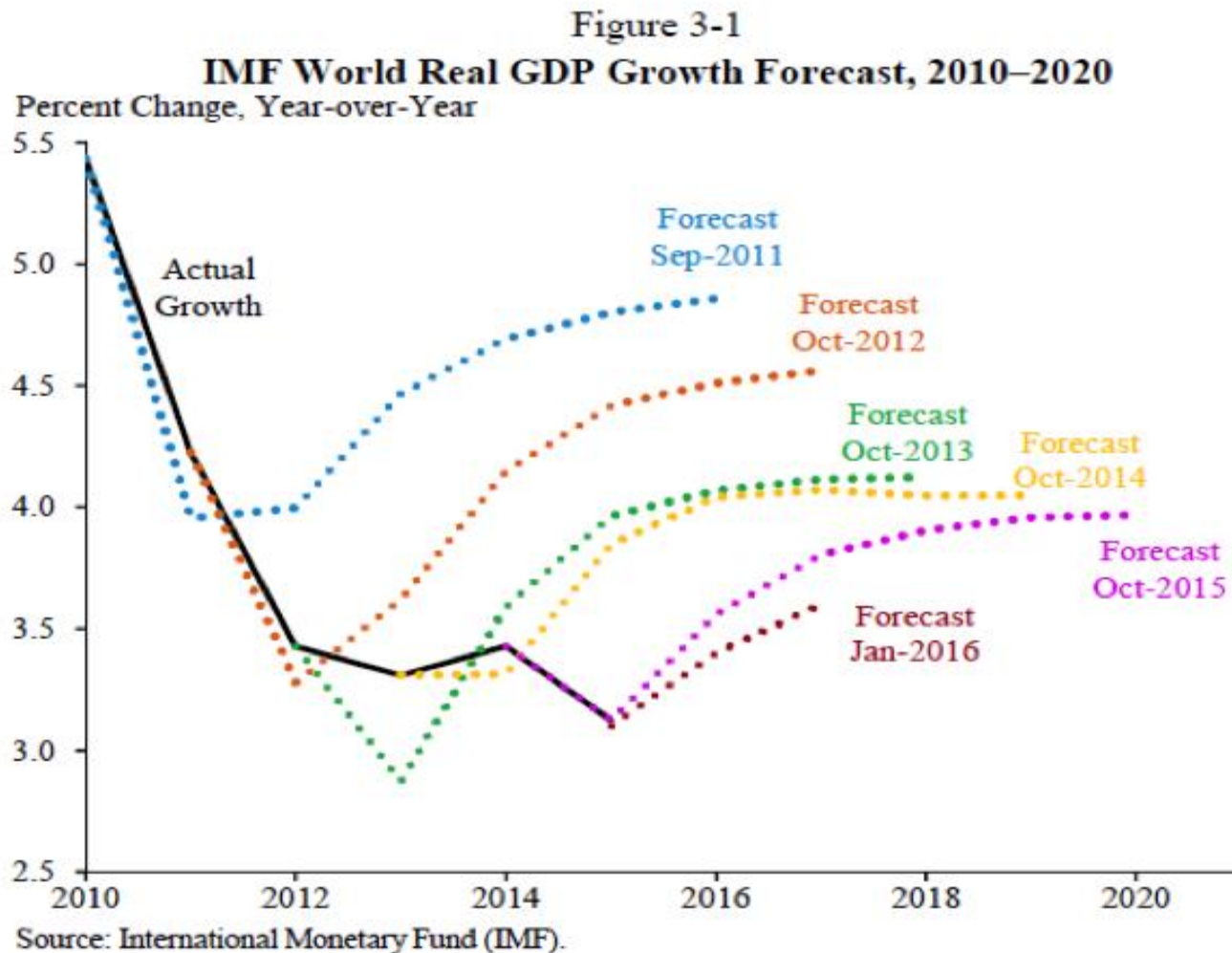
# Overview

- **The New Abnormal: Slowth**
- **The New Clarion Call: Inclusive Growth**
- **Non-Digital Futures: Mostly Predictable?**
- **Digital Futures: Mostly Unpredictable?**
- **Future Frameworks: Highly Contested**

# The New Abnormal: Slowth (Slow Growth)



# Beyond Canada, global forecasts: slowness



# Canadian Forecasts: Slowth

Chart 2: Survey forecasts of the nominal yields have also declined



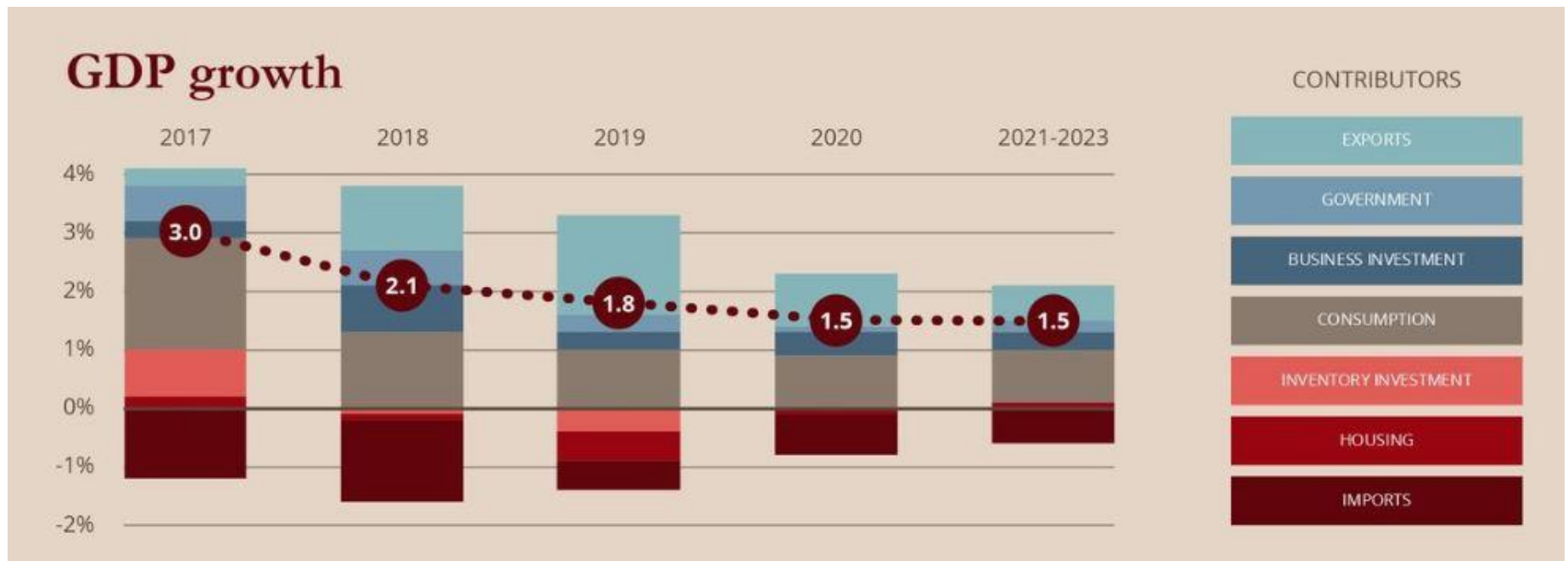
Sources: Department of Finance Canada and Bank of Canada

# Slowing growth, coming faster

In 1960s: >5% p.a.

Today: ~2.5% p.a.

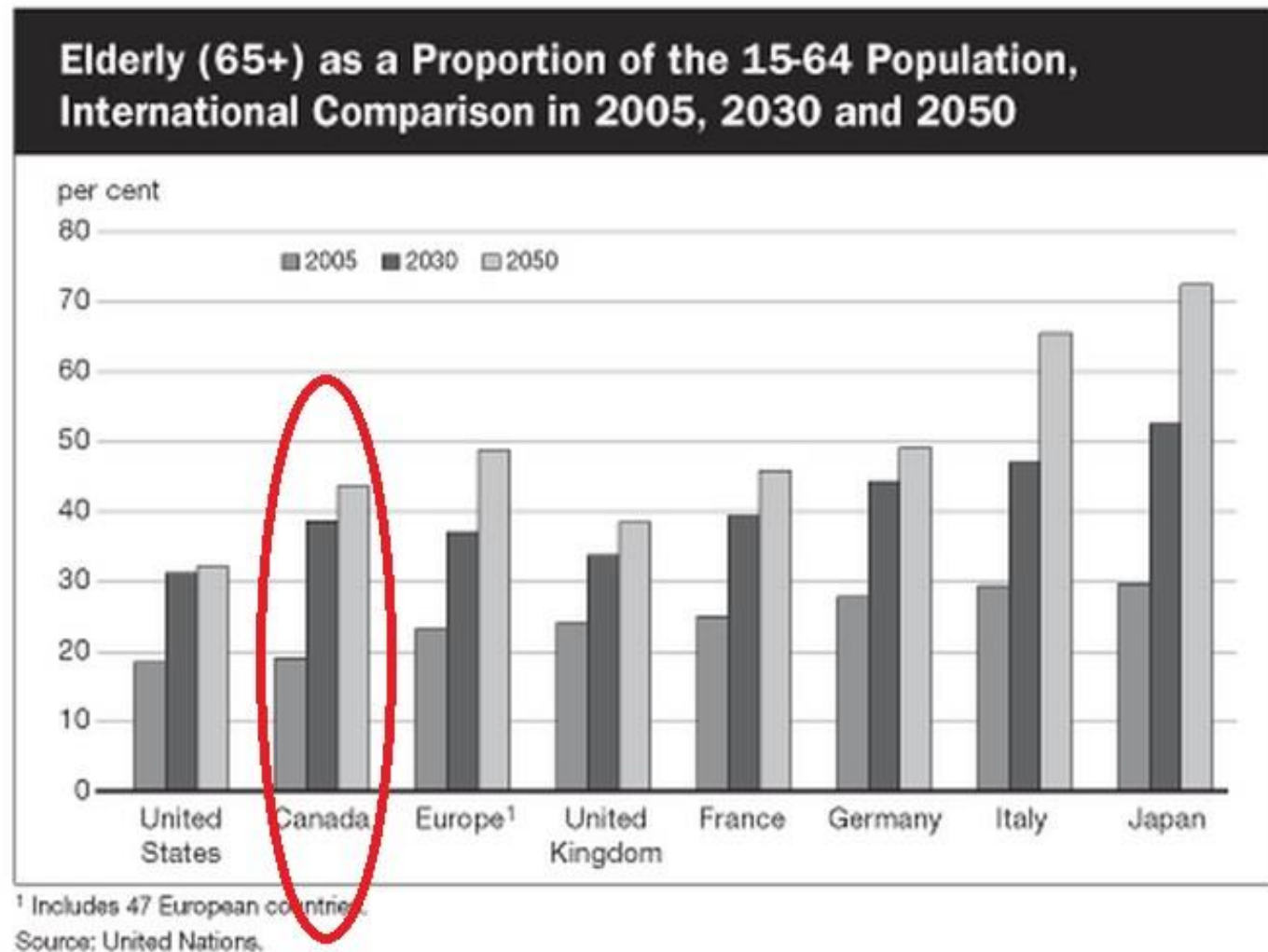
In 2 years: 1.5%



# Why Slowth Is Not Temporary

- **Population Aging**
- **Extreme Climate Events**
- **Geopolitical Shifts**
- **Income and Wealth Inequality Trends**

# Population Aging In The Richest Nations – Less Spending Power Globally?





# Canadian Population Aging

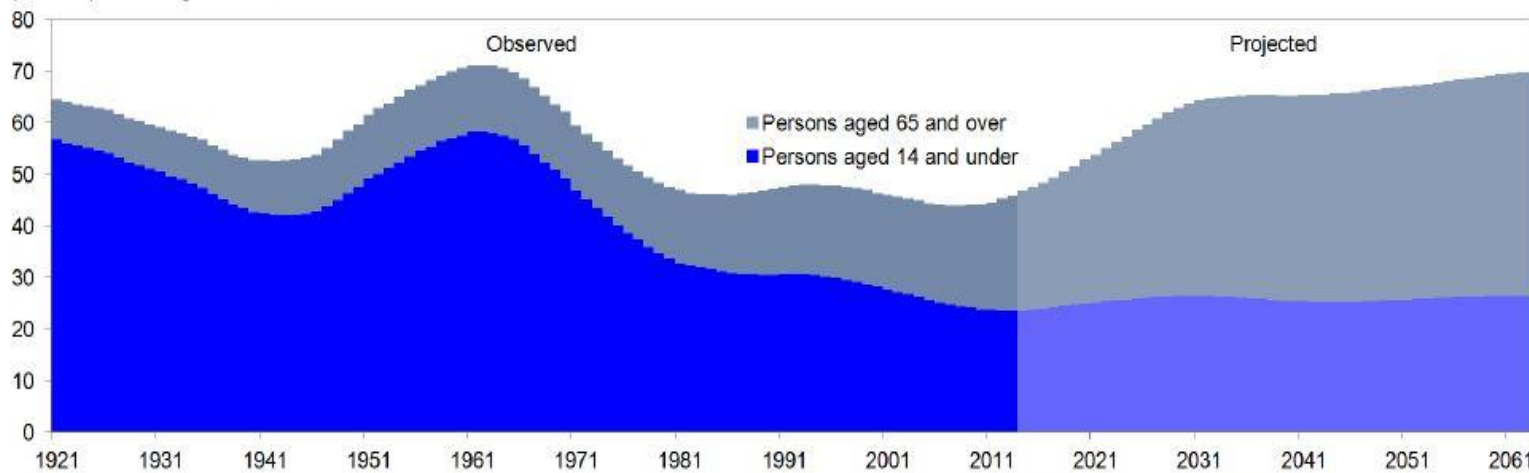
**Approaching the same dependency ratio as in 1960s,\*BUT\*  
for longer, and with half the rate of GDP growth**

Population Projections for Canada (2013 to 2063), Provinces and Territories (2013 to 2038)

Figure 2.7

Demographic dependency ratio, observed (1921 to 2013) and projected (2014 to 2063) according to the medium-growth (M1) scenario, Canada

per 100 persons aged 15 to 64



Note: The demographic dependency ratio is the number of persons aged 14 and under or 65 and over per 100 persons aged 15 to 64 years.

Source: Statistics Canada, Demography Division.

# Costs of Extreme Climate Events

- **Globally, insurance payouts for weather-related damage grew 5-fold since 1980s (inflation-adj.)**
- **In Cda: \$400M in 1983, \$1.7B by 2011. \$3.2B for just 2 floods in 2015. \$3.8B for just insurance costs of Fort McMurray fire in 2017.**
- **60% of damage not insured (CDN rule of thumb)**
- **National Roundtable on Environment and Economy 2011 estimate: \$5B by 2020, \$21-43B p.a. by 2050**
- **StatCan doesn't measure economic impacts.**

# Geopolitical Shifts

## Rise Of

- China (& Russia?)
- Nationalism
- Autocracy
- Populism

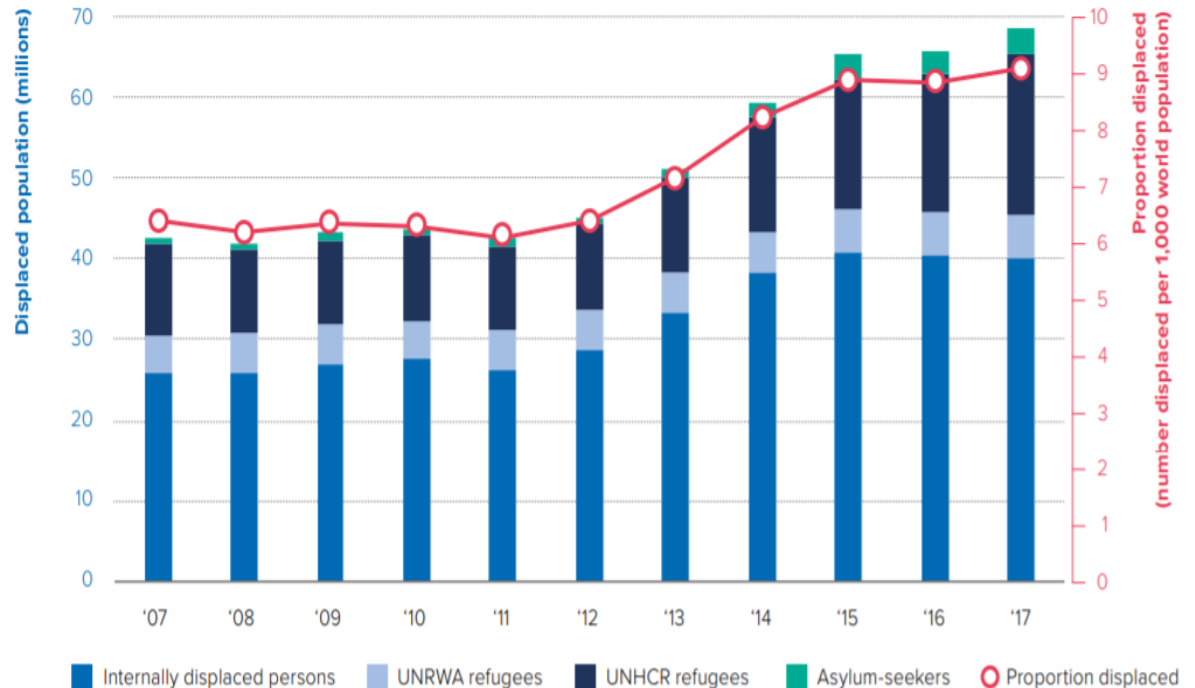
## Drag On

- Trade
- Multilateralism
- Immigration
- Tolerance

# Globally: More People Forced to Move

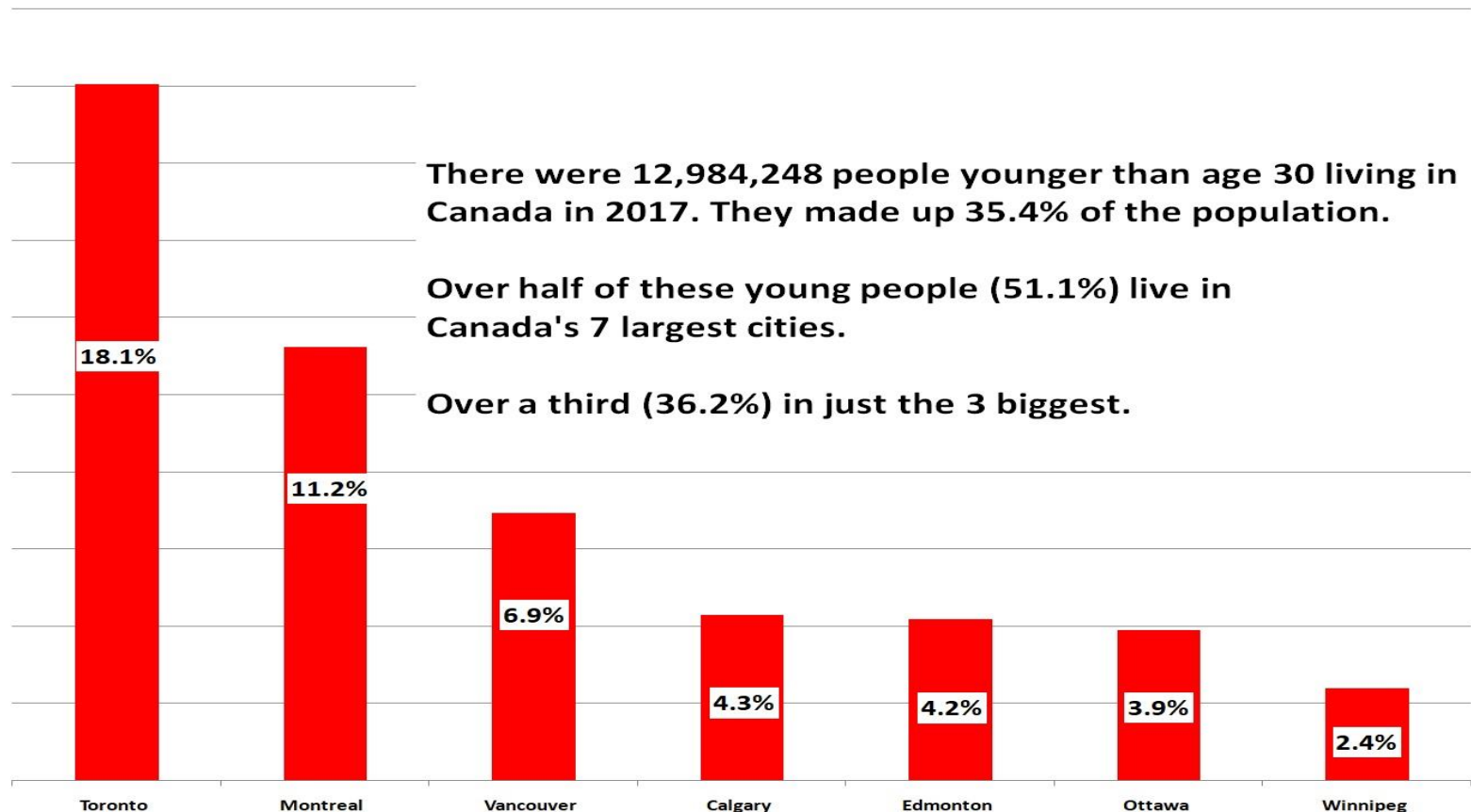
- 68.5 M forcibly displaced in 2017
- 52% children
- Rising share displaced from home country (more refugees, more asylum seekers)
- Falling share able to return home

Figure 1 | Trend of global displacement and proportion displaced | 2007-2017



# In Canada: More people in biggest cities

## Over Half of Canada's Population Under Age 30 Live in Seven Cities

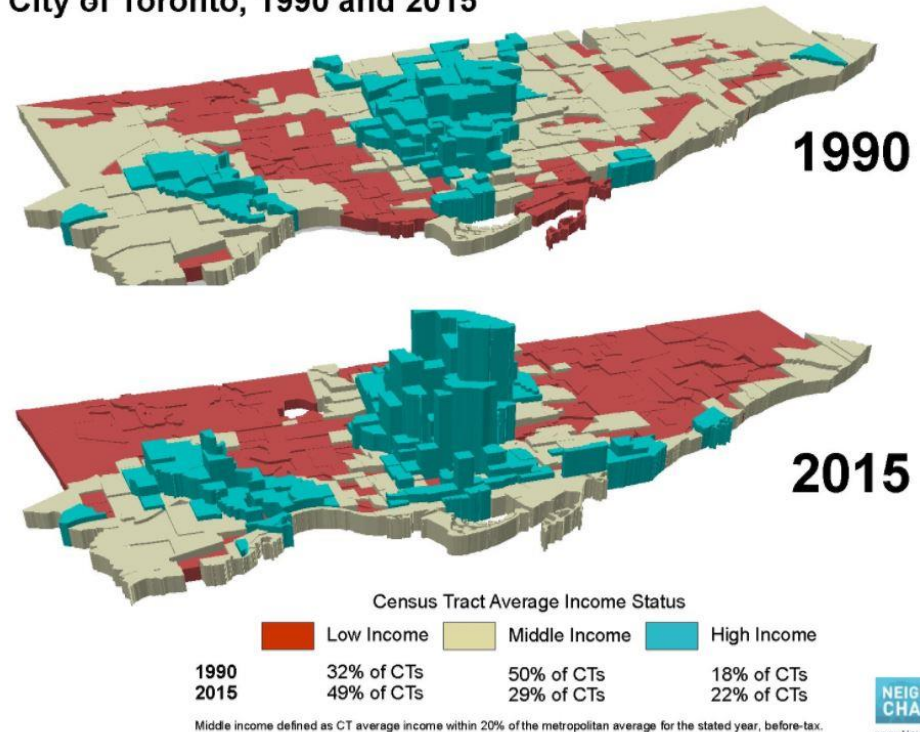


Source: Statistics Canada CANSIM 051-0056 and 051-0001

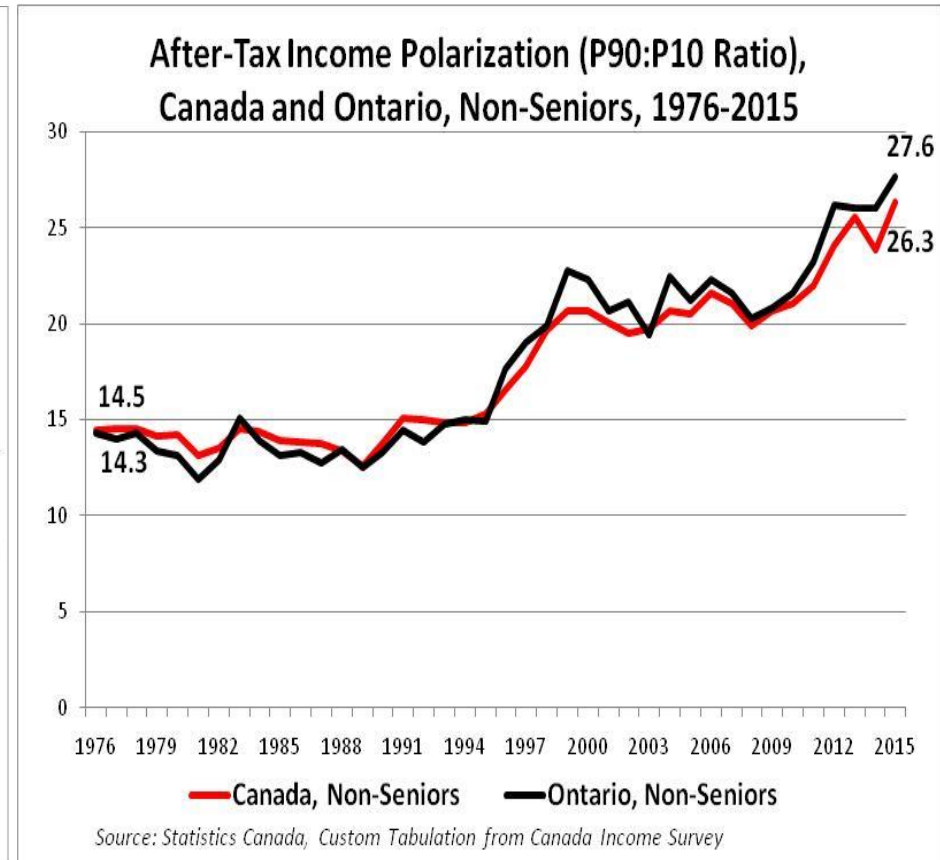
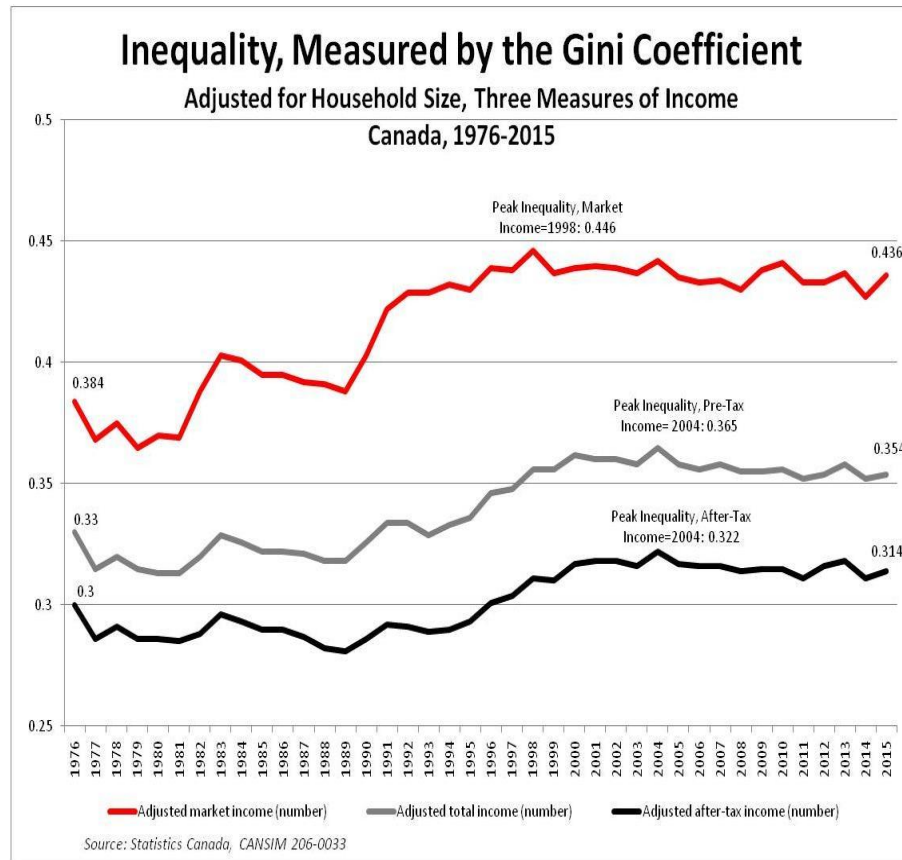
# Inequality becomes hardwired as income polarization turns into spatial polarization

- 1990: 50% of census tracts were middle income
- 2015: 49% of census tracts were low income
- Inequality of opportunity shaped by inequality of outcome
- Less social mobility

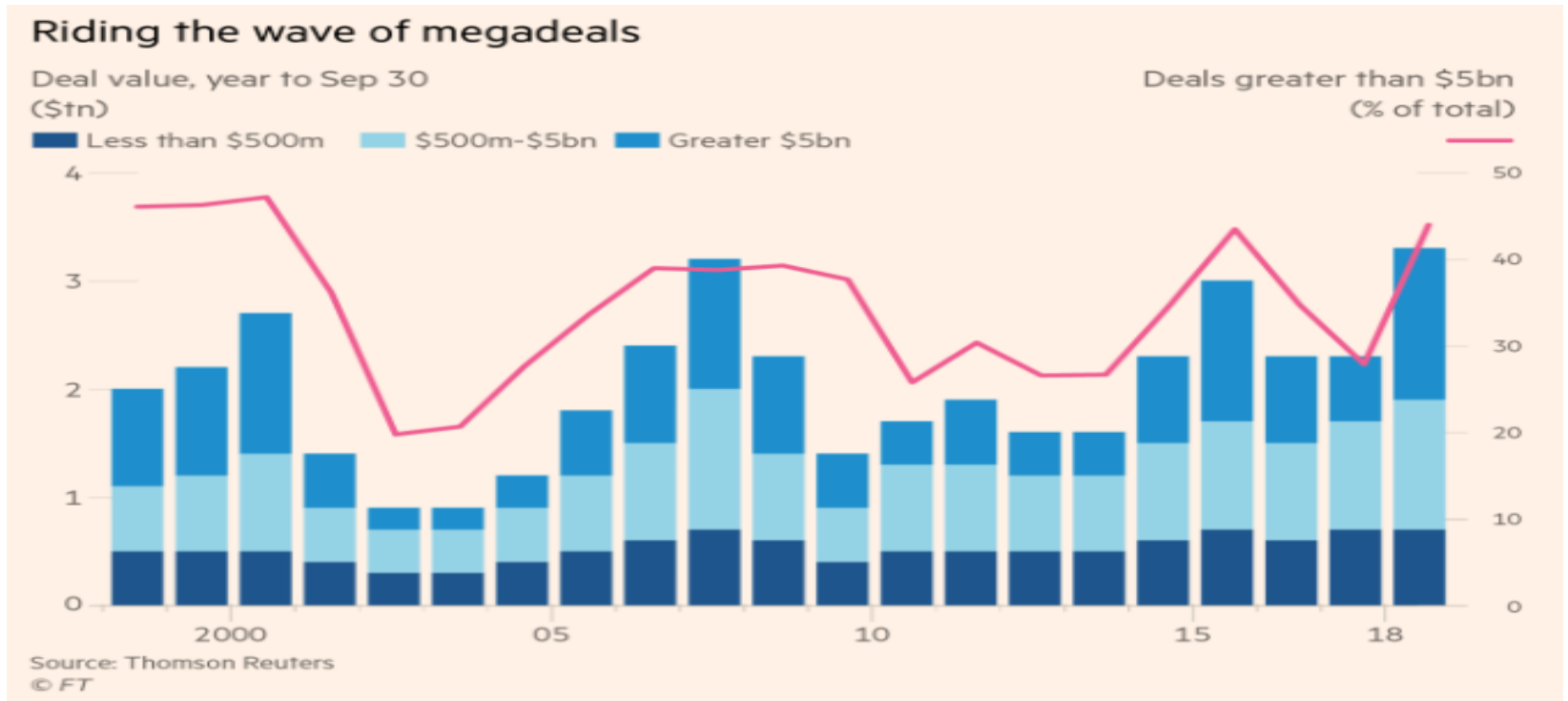
Average Individual Income  
City of Toronto, 1990 and 2015



# Around the world and in Canada: Higher inequality, more polarization within nations



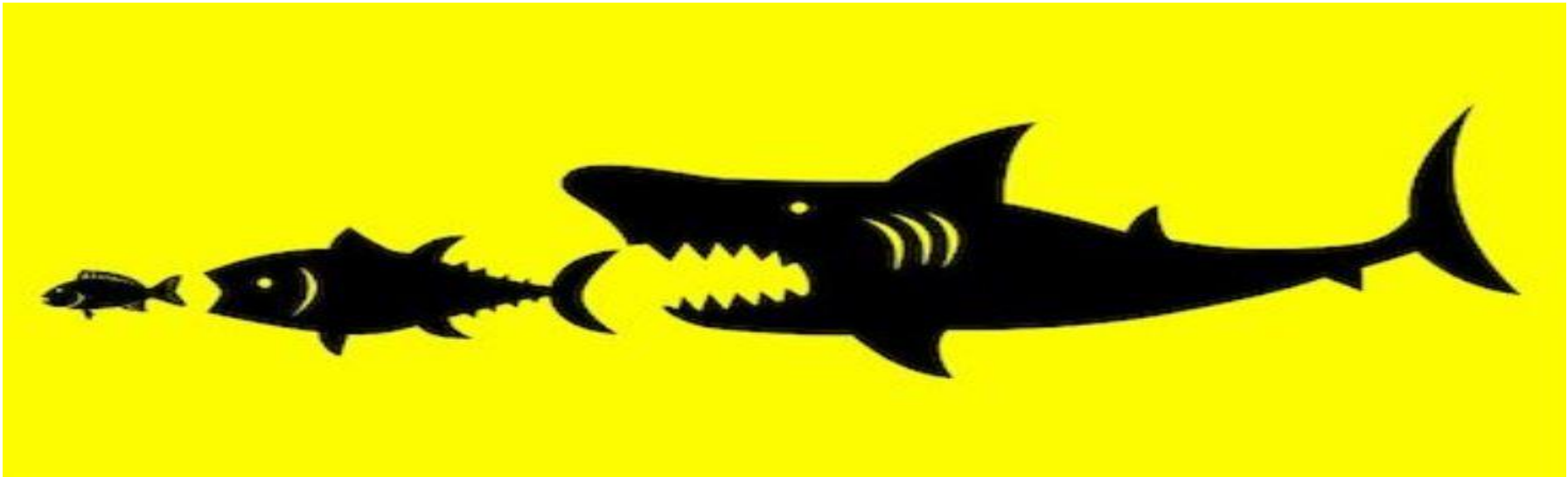
# Around the world and in Canada: The big are getting bigger.



**2018 posed to be biggest year on record for M&A  
(\$3.3TR)**

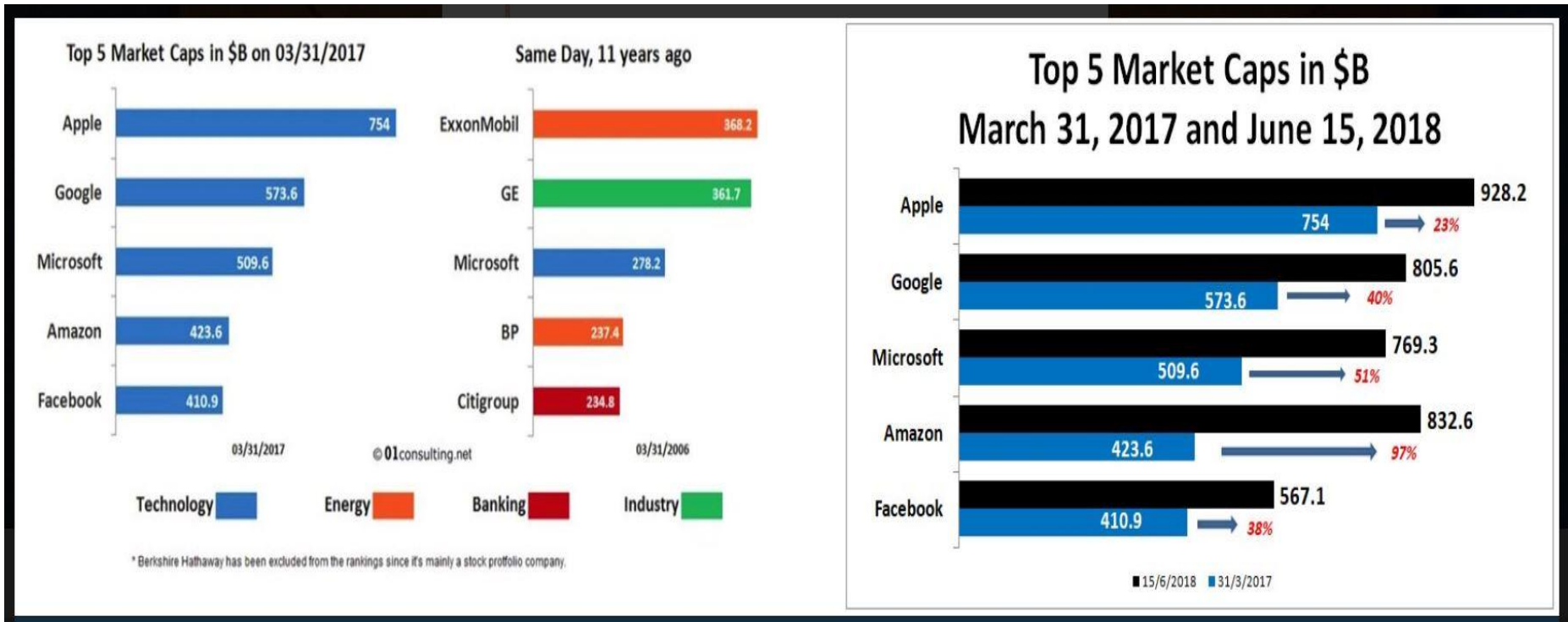


# Around the world and in Canada: Corporate Concentration



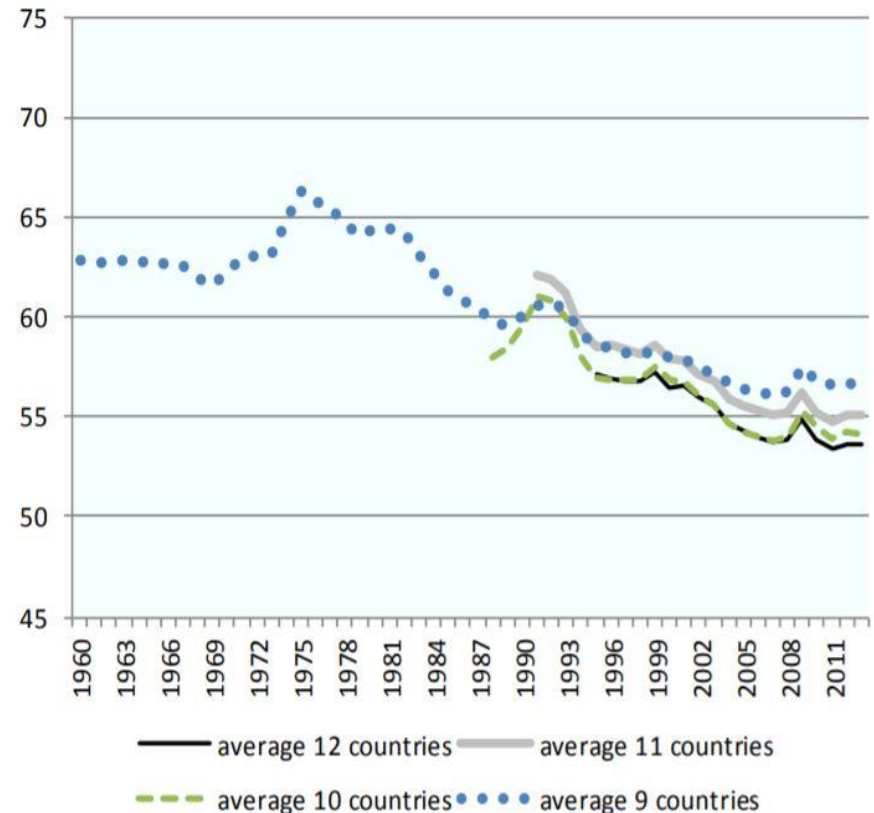
**Fewer than 10% of publicly traded companies account for over 80% of profits globally (2015)**

# The New Corporate Titans: Fewer Jobs, Harder to Tax & Regulate



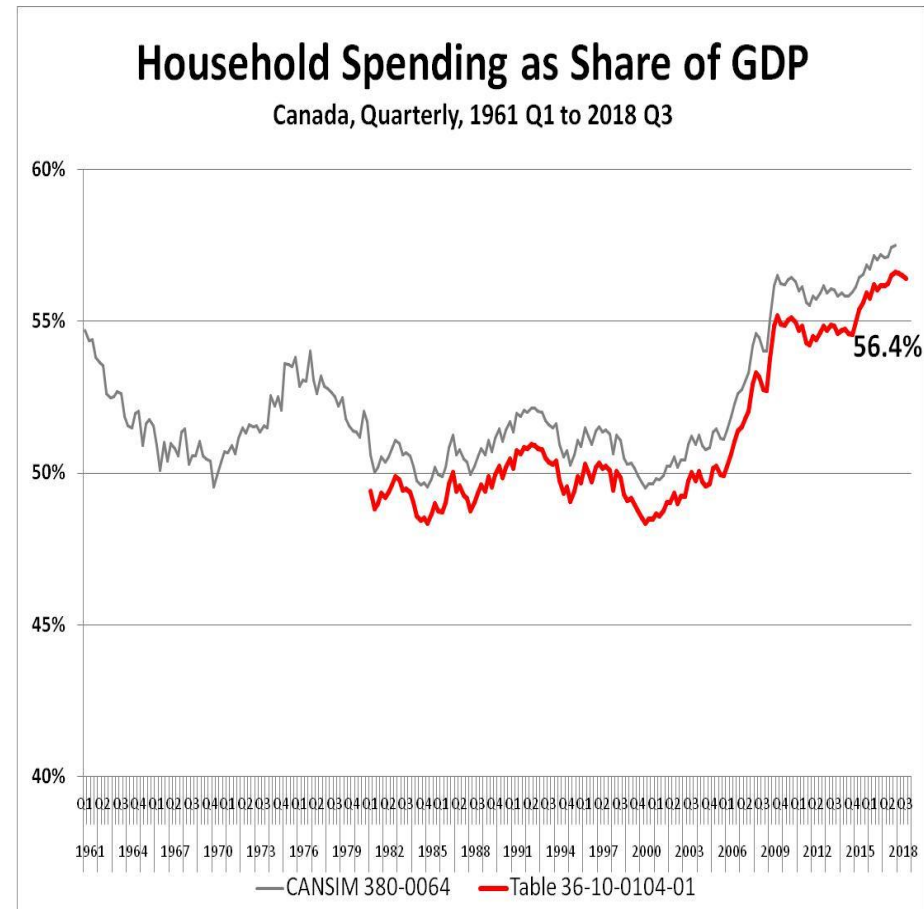
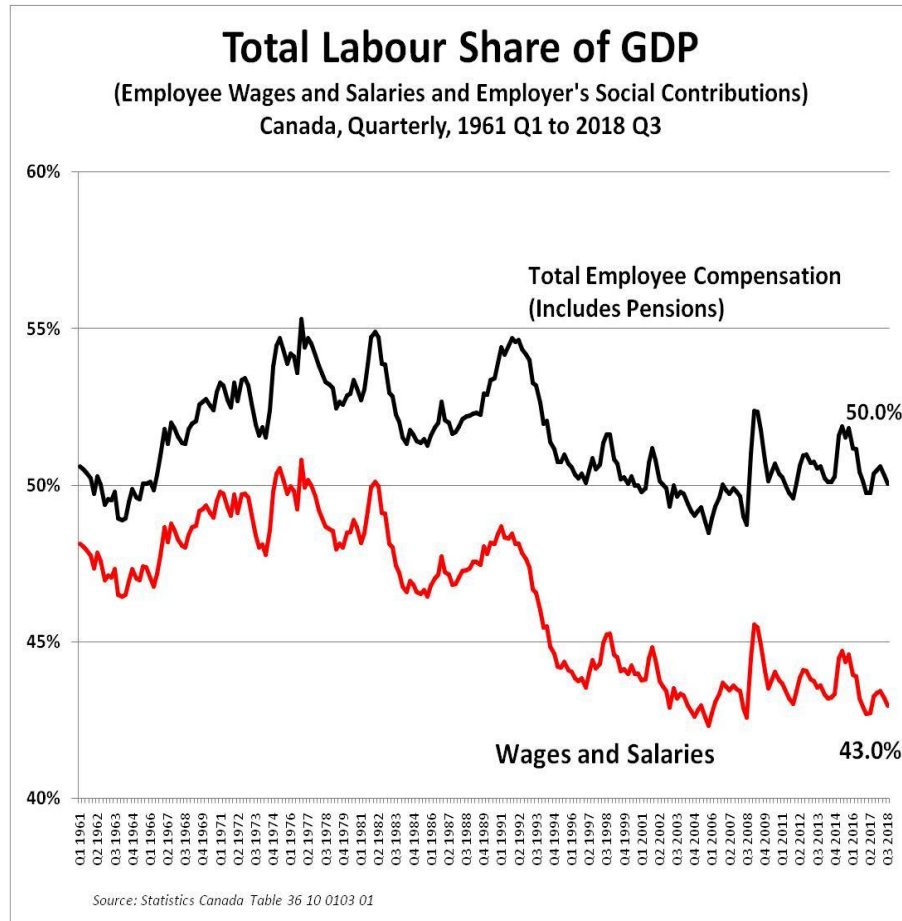
# Why We Are Talking About Inclusive Growth

- **Falling Labour Share of GDP**
- **“The Game Is Rigged”**  
**Trump                  Brexit**
- **Challenge to Stability**
- **Is Canada different?**  
**“exceptional”?**

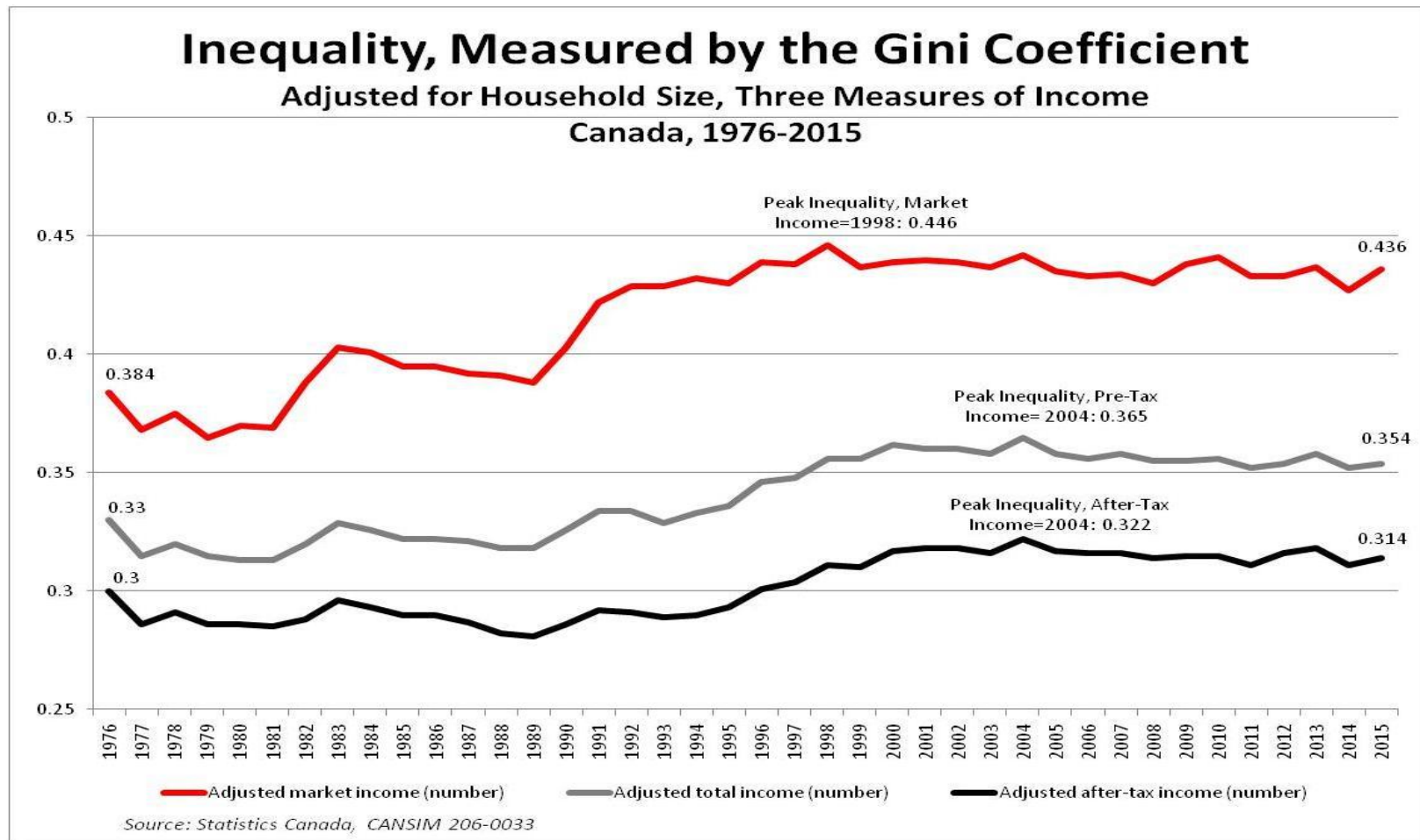


# Canadian Exceptionalism:

## Labour share of GDP hasn't kept falling but household consumption share has soared.



# Canadian Exceptionalism: Inequality did not worsen, but even robust GDP growth didn't reduce it.



# Canadian “Exceptionalism”: Tapped Out?

## Commodity Supercycle

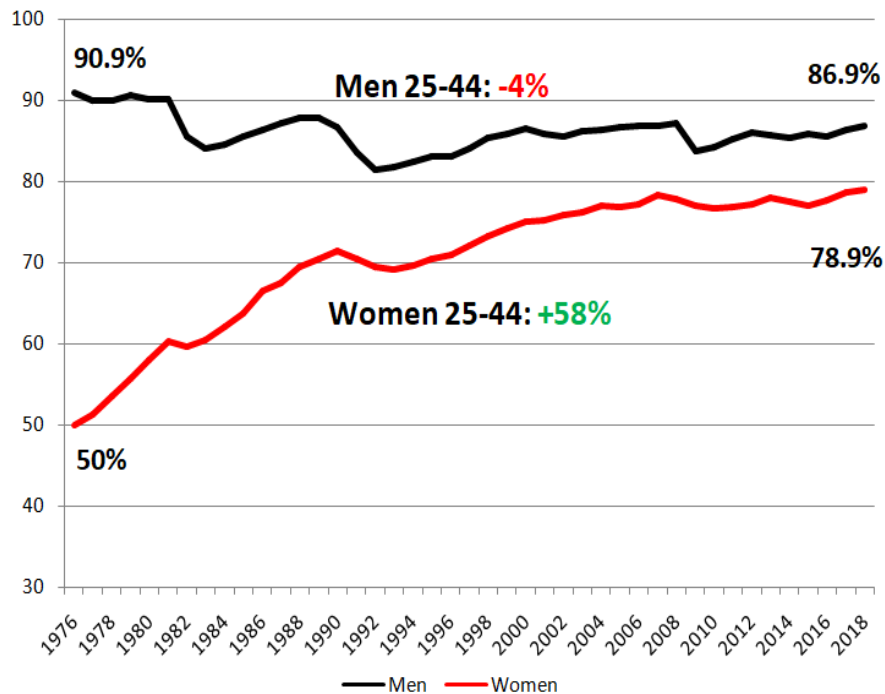
- Regionally specific
- More capital than labour intensive
- Increased both men’s and women’s wages
- Permitted expansion of public services (women-centric)

## The Girl Effect

- Rising enrolment in post-secondary education
- Rising employment rates
- More diverse, better paid occupational choices

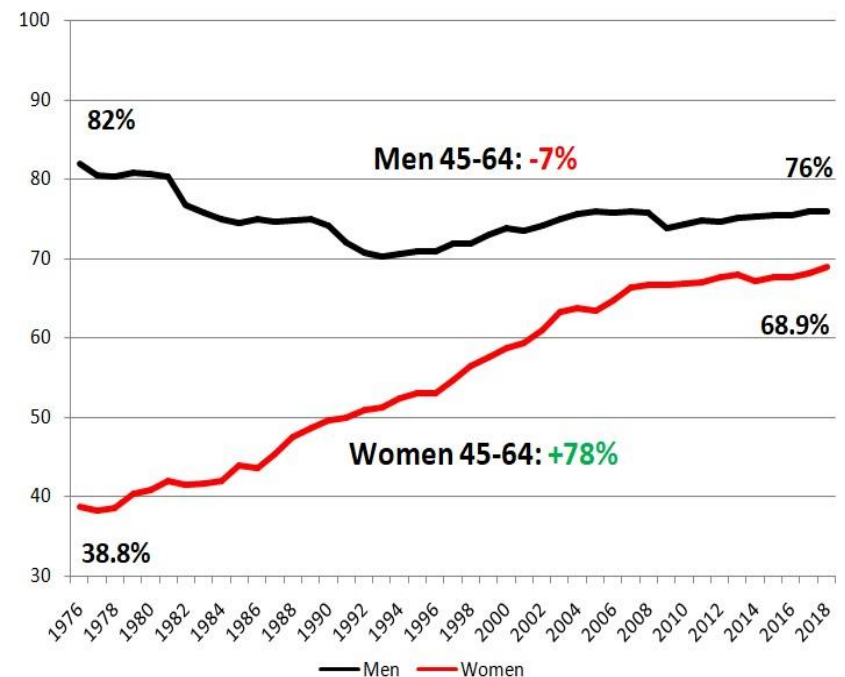
# Girl Power – A Strategy With Diminishing Returns?

Employment Rate, Canada, 1976 to 2018  
Men and Women Aged 25-44



Source: Statistics Canada, Table 14 10 0018 01

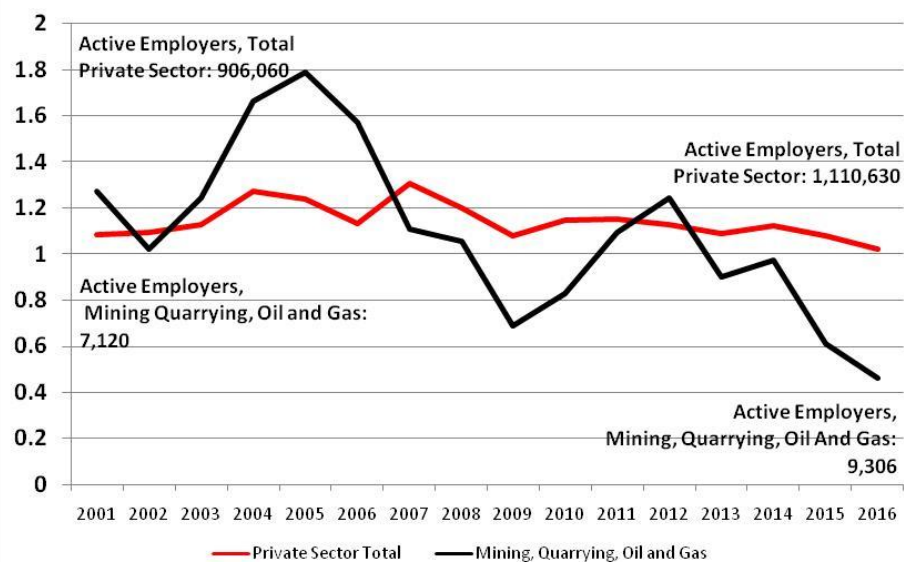
Employment Rate, Canada, 1976 to 2018  
Men and Women Aged 45-64



Source: Statistics Canada, Table 14 10 0018 01

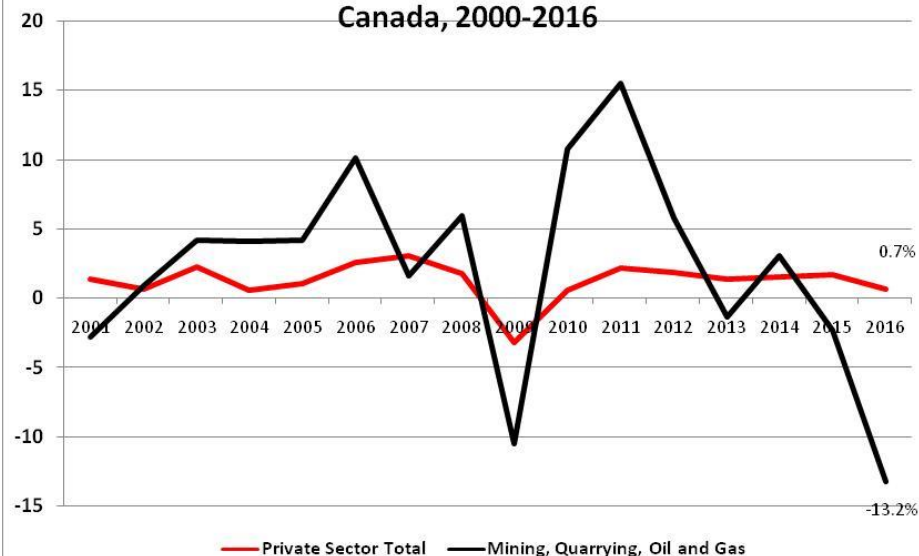
# Mining, Quarrying, Oil and Gas declining as engine of growth

Ratio of Business Entries to Exits, Canada 2001-2016



Source: Statistics Canada, Table 33-10-0164-01

Private Sector Net Employment Growth (in %)  
Canada, 2000-2016



Source: Statistics Canada, Table 33-10-0164-01



# What's Next?

**What We Don't Know:**

Digital Futures

**What We Do Know:**

Non-Digital Trends

**Responses:**

**Skill/Labour Shortages**

Skills Development or Immigration?

**Inclusive Growth Policies**

The GBA+ Factor

The Wage Factor

The Services Factor

**Tax/Spend:** Needs versus Constraints

# Unknown: Digital Futures

- Estimates of job/task loss via automation by 2030: 5% to 47%
- Job creation less foreseeable than destruction
- OnLine Labour Index: Canadian demand is growing most rapidly, but is it new work?
- Measurement issues (BLS, StatCan, OECD)
- Job creation in Canada's IT sector fastest in world

# Friendly Reminder

## FACTS

• New York City replaced 50 clerks with an electronic brain that does their work.

• All but 70 of a National Insurance list of 2,400 can be replaced by one accounting machine.

• Ford's in Cleveland, U.S.A., have robots and 350 men doing twice the work that 2,500 men used to do.

• Vauxhall in Luton, need only one man and a machine to turn rough castings into finished and checked gear boxes.

# When will the UNIONS wake up to the ROBOT REVOLUTION?

If six men can produce the electricity for an entire town, it needs only three of these men to be on strike for the city to be plunged into darkness.

If nine men can keep a whole country's light car industry in production, only two of these men need to stop work to halt car production.

If four men can do the major job in the production of a third of Britain's trucks, only two of these men need to strike for Southern England to be without all products.

A 17-day railway strike by 67,000 men meant damage to Britain. When The Robot Revolution comes, a touch of that number striking for a touch of the time could do ten times as much damage.

There is only one answer to problems like this. Get labour contented BEFORE the automatic age begins.

This is a job for the trade unions. But they do not seem to be worrying about it much.

### THE NEW AGE OF 'LOOK—NO HANDS!' IS UPON US

No need to count on your fingers. No need to carry the right figure to the next column.

This robot counting machine does it all for you . . . Without

hands. Without fatigue. Without mistakes.

At the flick of a switch it counts medicinal tablets as they are fed into containers.

not there. Nor was the great Transport and General.

Nor was any other of the T.U.C.'s 194 trade unions.

Some of them, do not even seem to know what the word automation means.

### UGLY

It is an ugly word. But it is an ugly word for the unions. In "ponder" "Technological unemployment" — a public way of telling a man he has been pushed into the bread line by a robot.

America last year produced exactly as many goods as she produced the year before—but with 80,000 FEWER men. Machines did the job for them.

Luckily, the American unions have long been preoccupied with the threat of automation—and they have acted.

Walter Reuther, dynamic boss of the huge automobile workers' union, was being shown round the Ford plant at Cleveland when he came across a battery of robots.

He said a strong effort "to show you going to select union men from those guys."

The threat was obvious. Whenever trouble the robots bring, they will not keep personnel managers awake at night. They will not demand strikes when other robots are coming on-line. That will come unaided. That will not be for men and a hell of a lot of money.

measured from the two biggest motor corporations a guaranteed annual wage.

And so in slump periods American workers will get paid instead of being laid off.

In SLACK TIMES automation will not be expanded as an excuse for major layoffs.

In BOOM TIMES it will be expanded to create more jobs.

The American unions are working with the robots and not against them.

BRITISH trade unionists must do the same. Already the six car giants are making full use of automation. By using robots, Austin's cut the labour costs of making a lorry chassis from £2 15s. 2d. to £10s. 10d.

They are aware that they will not stand for unemployment — but just cannot find a robot to Country.

The T.U.C., in an unhelpful sort of way, is studying the new revolution. What is needed is for every trade union to understand the new age.

### OVERTIME

Trade unionism was born in the first industrial revolution. It will have to be reborn in the second.

Men trained through long apprenticeships will find their jobs being done at the pace of a robot. Men who took home pay for jobs done with

### This union leader DID wake up

Walter Reuther, boss of the 1,000,000-member Service Employees' Union, American Automobile Workers, American Newspaper Guild and three to four million more, says:

overtime will find machine out of date. They will look to their unions to get higher pay, shorter hours, guaranteed jobs.

The unions can carry out these tasks only by learning to live with robots. NOW. They may have to change the whole structure of trade unionism. Apocalyptic branch meetings, for instance, may give way to union organisation centred inside the factory.

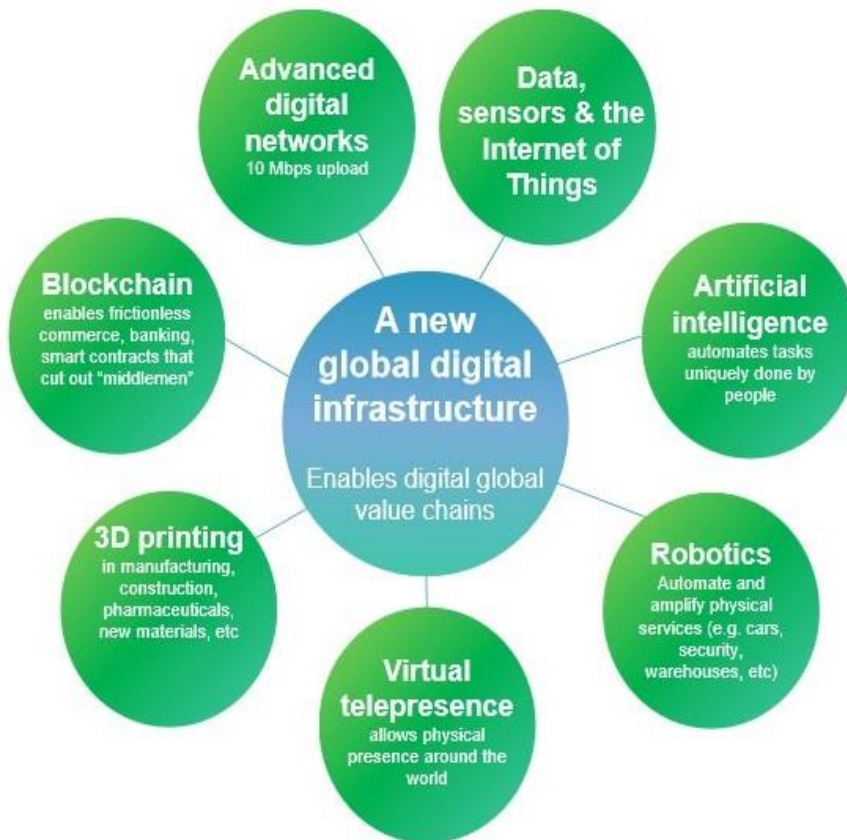
Shop stewards and factory floor union officials may be the new key men of the unions. Management-union relations will have to be even closer.

All over Britain, men who are looking thirty years into the future. The unions must look as far, and further. Because in The Robot Revolution will mean medical advances, and peacekeeping. AND WE SHALL LEARNED NO LESSON FROM THE LOOM-SMASHERS OF A CENTURY AND A HALF AGO.

## TOMORROW: what will happen in YOUR office, YOUR factory

# This Time It's Different?

## Robots For Brawn, Digital For Brains



- **Substitutes for workers**  
(robotics, AI, 3D printing)
- **Moves work from place to place**  
(telepresence, telerobotics)
- **Eliminates work**  
(fintech, blockchain, no middle man)

# Jobs to Tasks: Work is being “unbundled”



- **Online freelancing**  
(Upwork, Freelancer)
- **Crowd-based microwork**  
(Amazon Mechanical Turk, Cloudflower)
- **Real World On-demand**  
(Uber, AirBnB, Taskrabbbit, Foodora)
- **Virtual Worlds**  
(Second Life, VR)

# **The Big Shift Forward**

**feels like the past for many**

- **Shift from the farmer's field to the office in 20<sup>th</sup>C; from the office to the web in 21<sup>st</sup>C**
- **Borderless digital and virtual realities mean global rebalancing of wages**
- **More flexibility also means less predictability**
- **A virtual Wild West means more exploitation**
- **Workers' level of control echoing 100 years ago?**

# Future Shock or Future Schlock?



**Taylor Mann** @Mann\_Major ·18h

Never in American history has technology displaced so few and scared so many. See chart: rate of occupational change (job churn) by decade, 1850 to 2015.

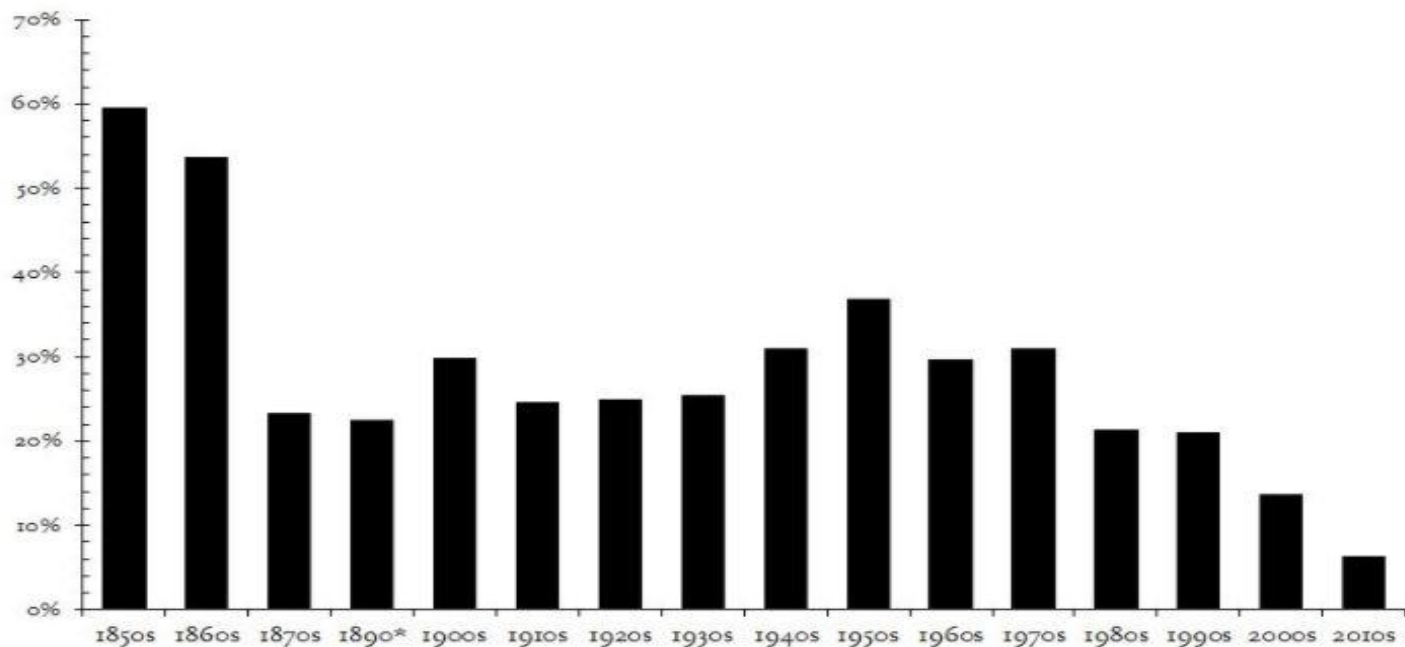


FIGURE 1. RATE OF OCCUPATIONAL CHANGE BY DECADE: 1950 OCCUPATIONAL CATEGORIES, 1850-2015

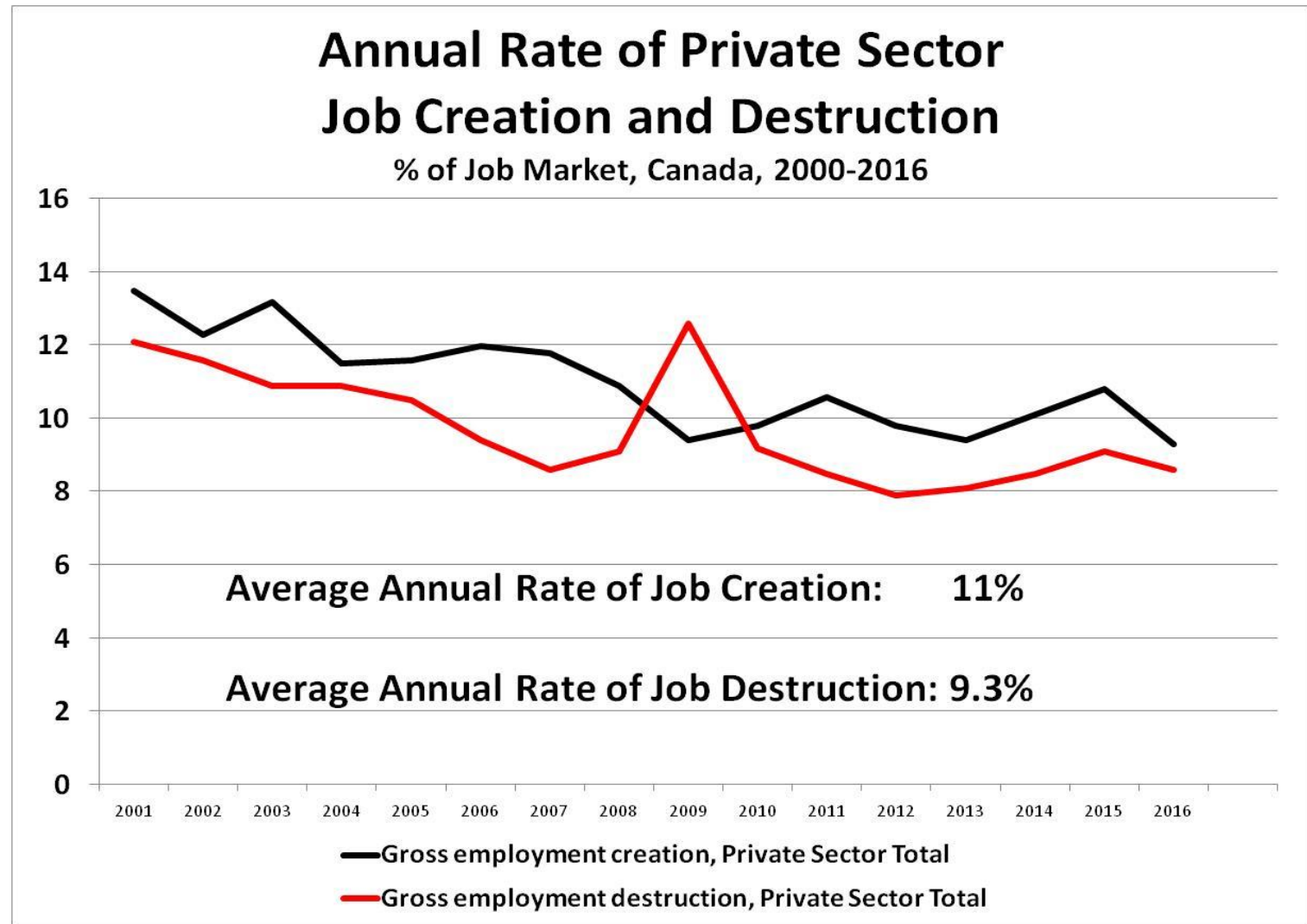
Notes: job churn is defined as 'the sum of the absolute values of jobs added in growing occupations and jobs lost in declining occupations' per source [2]. Source: Steen Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. *Integrated Public Use Microdata Series: Version 7.0* [dataset]. Minneapolis: University of Minnesota, 2017. <https://doi.org/10.18128/D010.V7.0>; [2] Robert D. Atkinson and John Wu. *False Alarmism: Technological Disruption and the U.S. Labor Market, 1850-2015* [dataset]. Washington: Information Technology & Innovation Foundation, 2017. <https://itif.org/publications/2017/05/08/false-alarmism-technological-disruption-and-us-labor-market-1850-2015>.

\*Represents the time period between 1880-1899

PINE CAPITAL



# Job Birth and Death Rates Both Falling





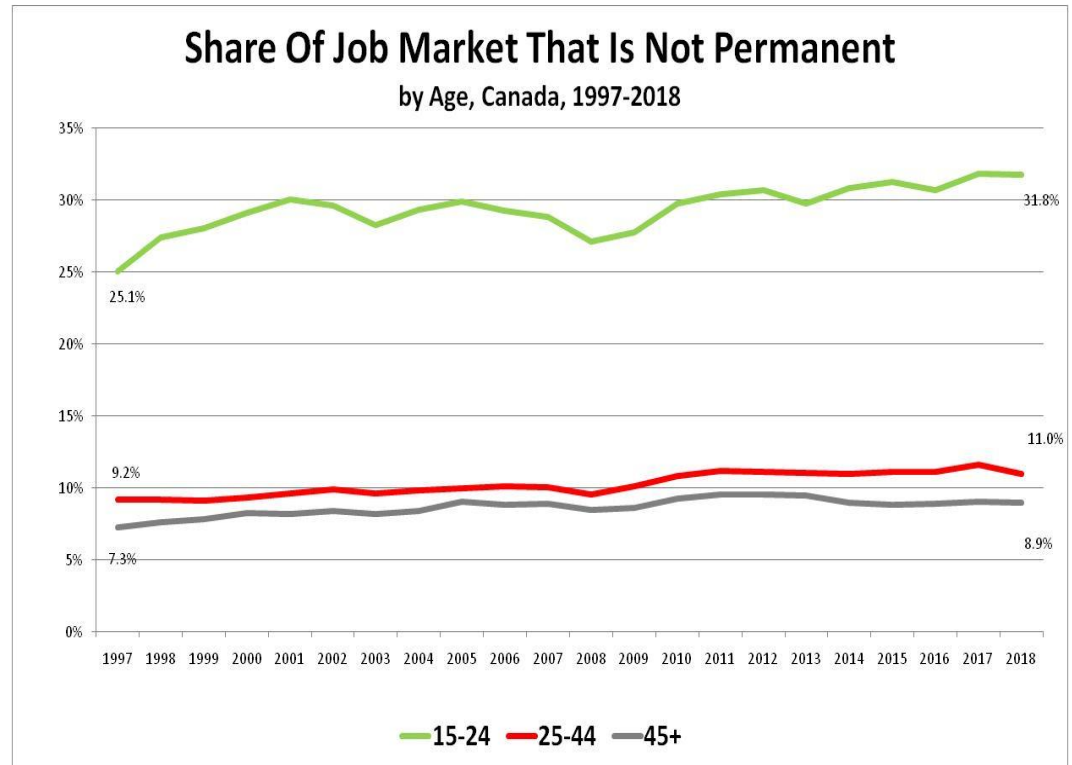
# Is Digital Killing or Creating Jobs?

- Canada punching above its weight
  - OLI (from 4% to 8% of global demand since 2016)
  - Toronto job growth > SF Bay, Washington, Seattle combine overtook NYC
- % of labour market?  
Measurement issues
- Not just #, but quality of work. Contingent/precarious



# Beyond Digital: Contingency – On The Rise?

- Aggregate: little change since 2008 recession
- Age specific changes
- Main job versus all work? Measurement Issues?



# Beyond Digital – The Future Of Work in The Caring Economy

- Population Aging means more care needs
  - Health care
  - Child care and early learning
- Smaller working age population, more life-long learning needs
- Aging worker profiles:  
40% of RNs aged 50+, 49% of doctors aged 50+
- **15%** of the labour market currently provide health, education and child care (2.9M jobs)
- **25% job growth** in health care over last decade, 10% in education
- **Regulated child care market could grow >35%** (est 254K workers in 2016)

# Beyond Digital – The Future Of Work in The [Re] Building Economy

- Public Infrastructure investments over next 10 years >\$500B, ~\$186B federally alone
- Private sector residential needs due to immigration, population aging, relocation
- Unclear demographic profile of skilled trades, many others aging out
- **~15%** of the labour market currently provides construction, repair and maintenance services (just of 3M jobs, 1 M in skilled trades alone)
- **13% job growth** in last decade

# Addressing Known Skills/Labour Shortages

## What balance of strategies will we choose?

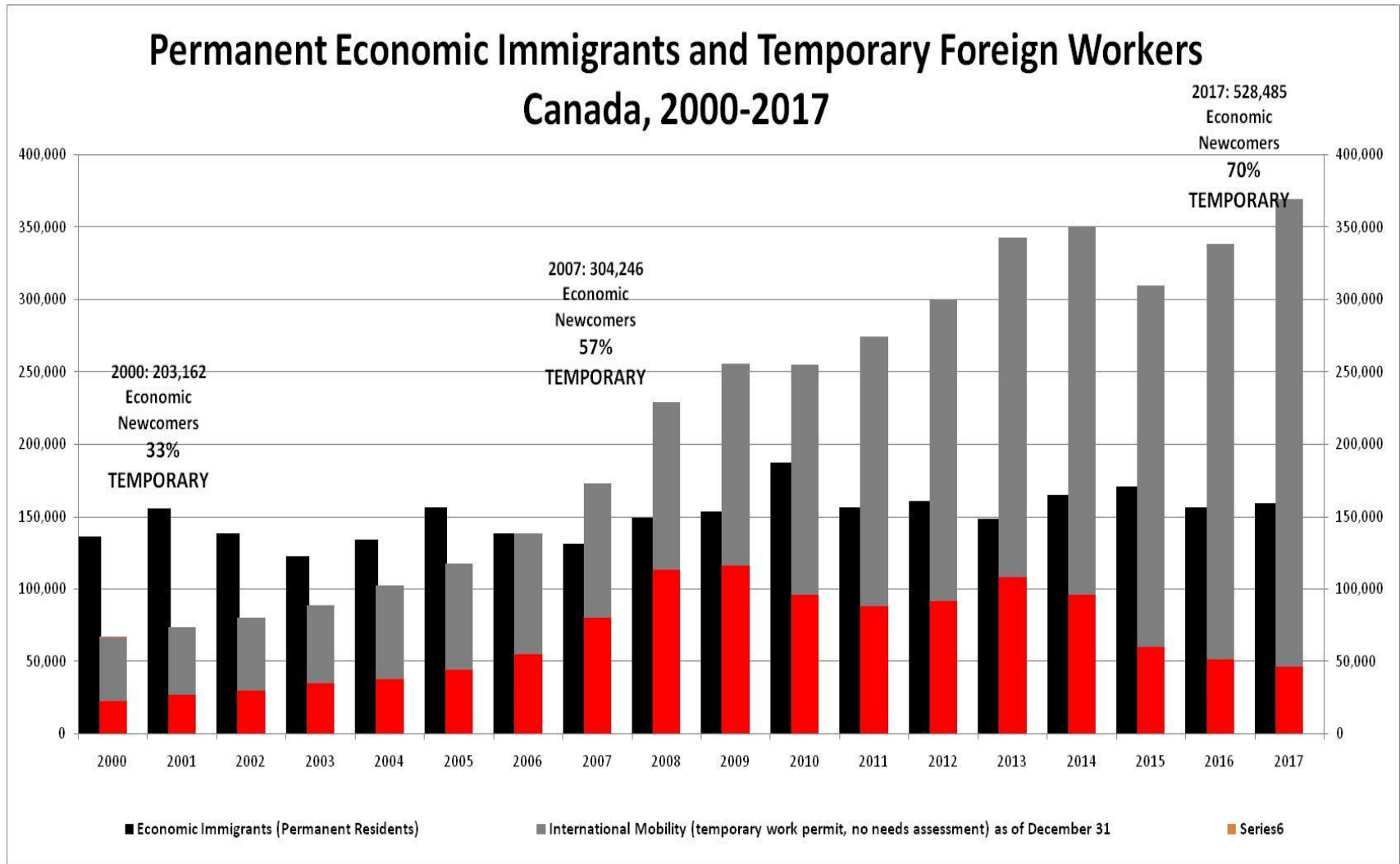
- **Skills Development**

- Youth Strategies
- Reduce un-/underemployment of existing citizens/residents

- **Immigration**

- Permanent Economic Immigration
- Temporary Foreign Workers

# Imported Solutions: Rise of the Temps



# Inclusive Growth: Radical Prescription?

- **Private Sector Strategies**

- Skills and Training
- Collective Bargaining
- Investment (Innovation or Market Share Expansions?)
- Reliance on global vs local markets for production/consumption

- **Public Sector Strategies**

- Supports
- Rules
- Corporate oversight, offsetting concentration
- Direction-setting investments? (Green transition, healthier populations, lifelong learning)

# Inclusive Growth: The Gender Factor

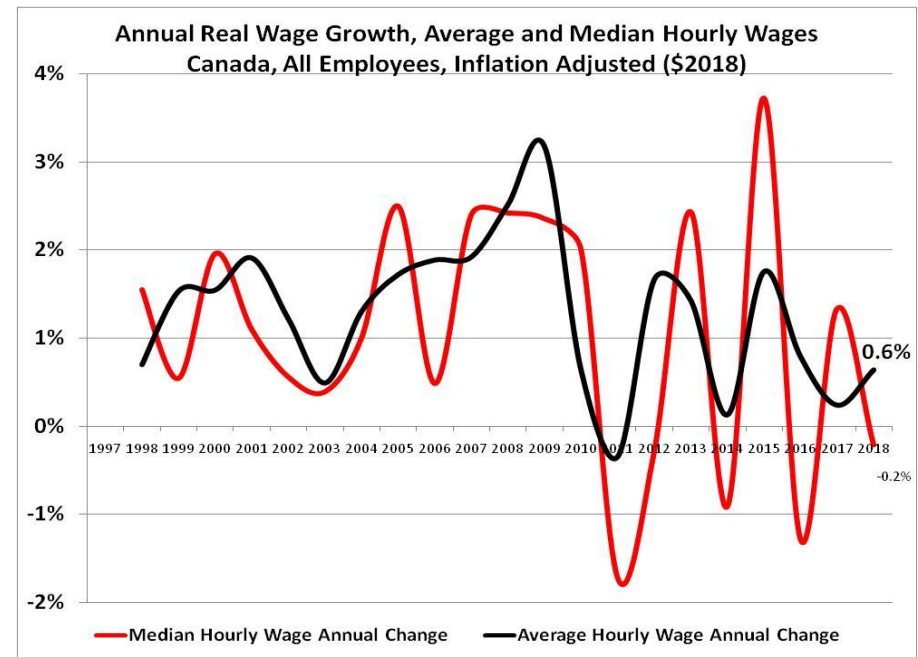
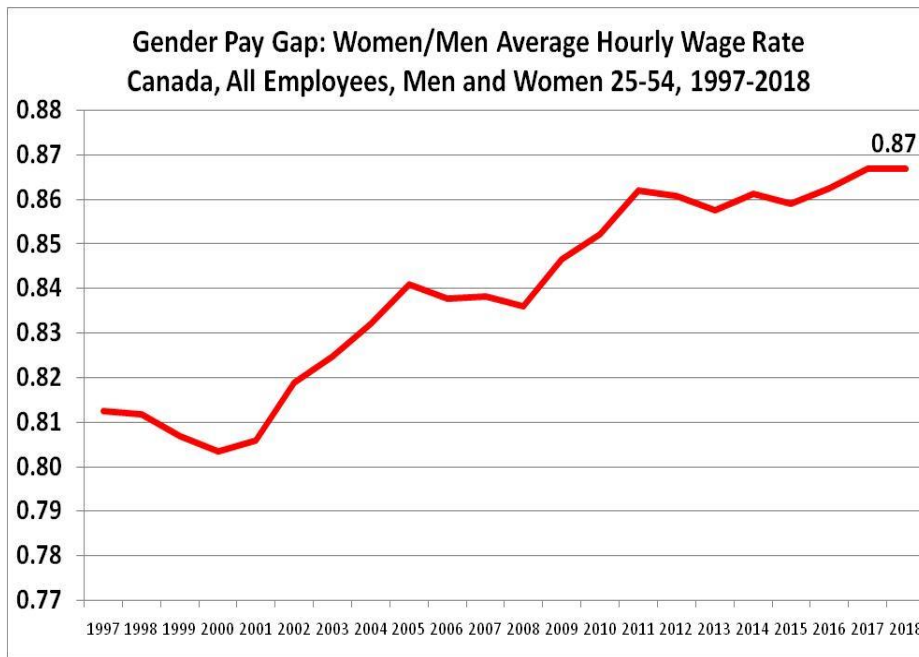
- 2017 McKinsey Report, The Power Of Parity
- \$150B more GDP by 2026 (6% more growth)
- Increase labour force participation rates from 61% to 64%
- Longer working hours
- Better pay

**GBA+ could multiply that (improve human capital development, employment rates, reduce pay disparities)**



# Inclusive Growth: The Wage Factor

- Gender pay gap stalling out around 87 cents
- Boost the economy from the bottom up?



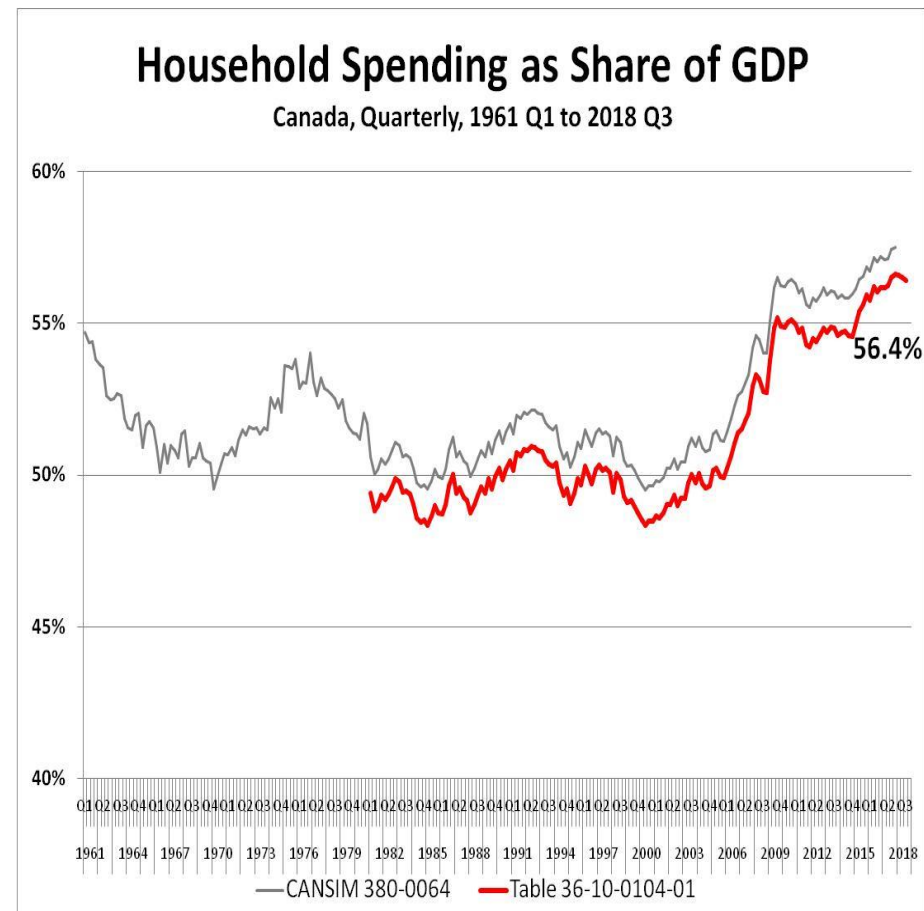
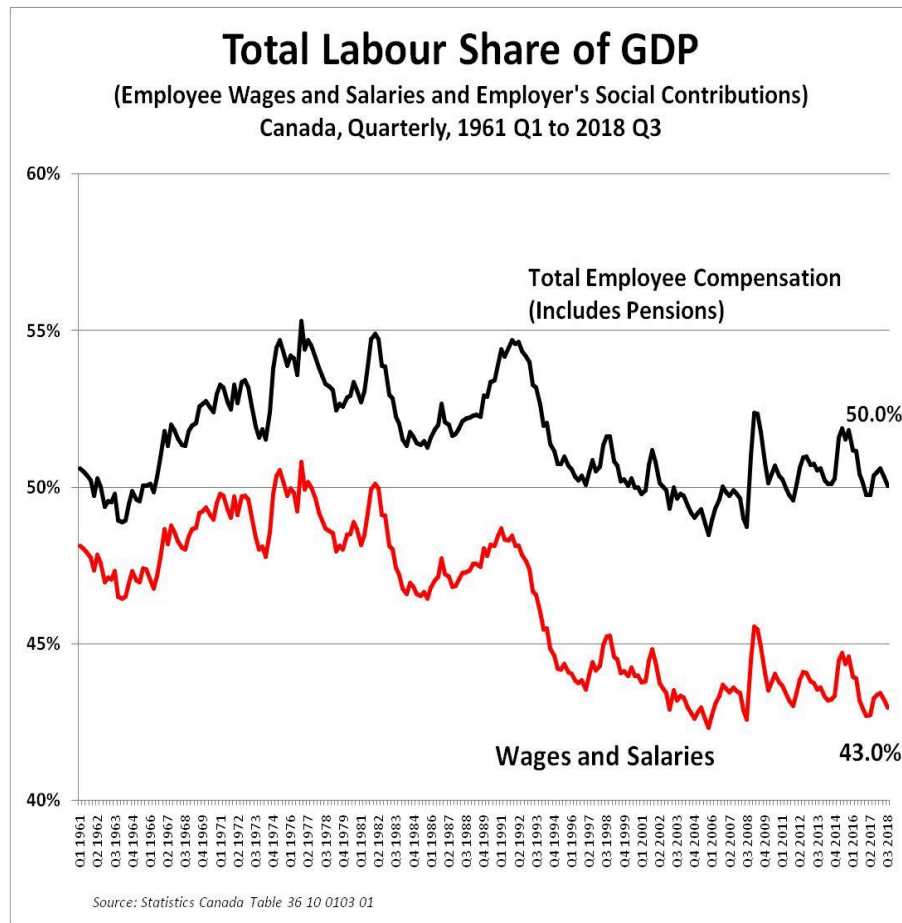
# **Inclusive Growth: The Skill Factor**

- **Skills Upgrading and Life-long learning -- necessary but not sufficient**
- **Schooling: based on a seasonal norm set 100 years ago, because of the importance of agriculture. Update?**
- **Tertiary education: expensive, time-consuming, does not guarantee decent work**
- **Business investment in on-the-job training on the wane (importing the solution is cheaper/easier?)**
- **“Badging”: life-long learning through short-term skills upgrading. Private or public sector driven?**

# Inclusive Growth: Redistribution or Predistribution

- Money? (Is **basic income** the answer?)
- Social wage? affordable and quality **basic services** (ex. housing, education, health care, child care, transit)  
reduce the need for money
- Focus on **full employment/decent work?**

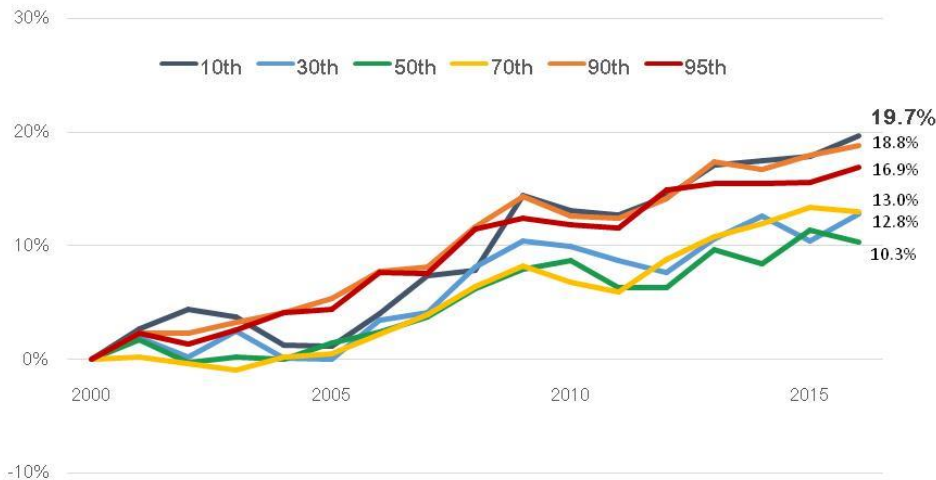
# Inclusive Growth: Wage-Led Growth or Debt-Led Growth?



# Inclusive Growth: Pay Rates or Social Wage?

High-wage earners have consistently seen the fastest wage growth through the 2000s, but the worst-paid earners have also seen important wage growth since the 2008 crisis

Cumulative percent change in real hourly wages by wage percentile, Canada 2000-2016



Source: Statistics Canada, custom tabulations from Labour Force Survey

- Higher quality of life by improved income OR
- More income support OR
- Subsidized rent, education, child care, transit OR
- More publicly funded health care, education, legal services, etc.

# Inclusive Growth:

## Rebalance Bargaining Power Domestically

- **New labour standards** for “grey” workers (neither employee nor independent contractor)
- **Joint employer status** to reduce risk-shifting
- **Improve supports** for all workers and the unemployed
- **Use laws/courts** to exercise sovereignty re worker and human rights, privacy against corporate interests

# **Inclusive Growth:**

## **Rebalance Bargaining Power Internationally**

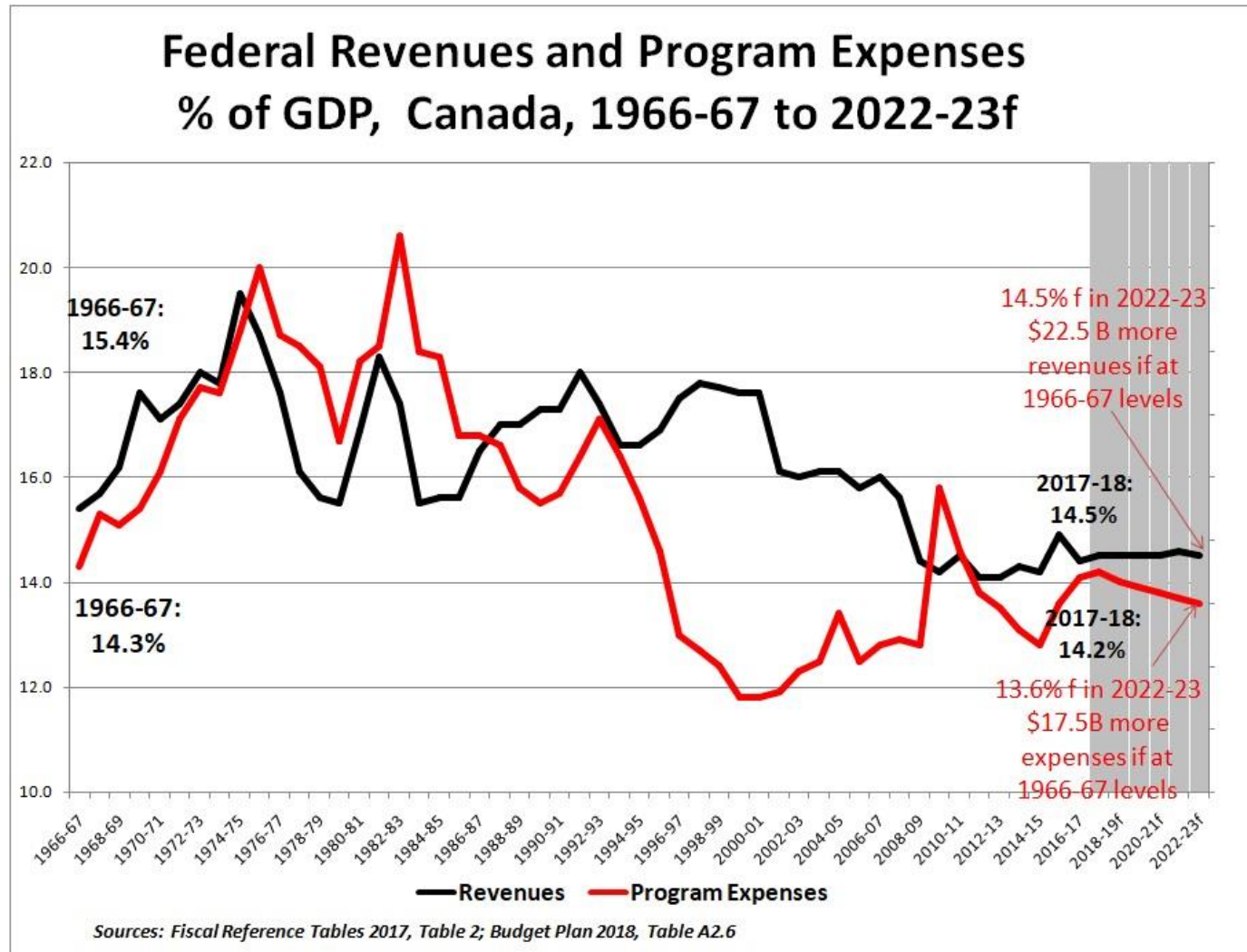
- **Reduce tax avoidance**, develop an internationally coordinated response (OECD BEPS)
- Develop a **21<sup>st</sup>C anti-trust** approach to “natural” monopolies and corporate concentration (Roosevelt Institute)
- Update/craft **trade agreements** to set labour rights as equal to investor rights, regulate supply chains (ETUC, ILO)

# **A Radical New Methodology: Measuring the Meaning of Government**

- **Not how big government is, but what it does**
- **Future of more constrained revenue growth requires more clarity: what do taxpayers get for their taxes?**
- **Analysis of benefits, not just costs (methodologically difficult)**
- **Promise (and limitations) of GBA+ analysis – outcomes-focused; evidence-based; distributional impact; return on investment/value proposition**



# Is This The Right Trendline For The Future?



# **Role of Government:**

## **More Necessary, But More Contested**

- **Bigger Government? Less Revenue Growth?**
- **Aging population, more public services?**
- **Immigration or skills development priority to address predictable labour/skill shortages?**
- **Inclusive Growth = Shifts in bargaining power?**
- **More regulation? (corporate concentration)**
- **More international coordination?**

# Summary

- **Slowth:** Slow growth reshapes labour markets as much as technological change, plus destabilizes capitalism, democracy. Past growth strategies are not enough.
- **Inclusive growth:** A game-changing frame? Only if policy reforms are game-changing re skills, wages, services, immigration, taxation and corporate regulation.
- **Bigger government?** Government's role is growing more obviously important than in the past half century. But bigger government will be a highly contested trend.

**Thank you for your time.**

***Twitter @ArmineYalnizyan***