

# **PARADOX LOST**

## **Explaining Canada's Innovation Weakness**

A Synthesis Report from the Council of Canadian Academies

**Presentation by Peter Nicholson**

**Workshop on Firms and the Productivity Puzzle  
Rotman School of Management**

**25 October, 2013**

# SYNTHESIS OF CCA STUDIES ON RESEARCH & INNOVATION

Principal conclusions from seven expert panel assessments (2006-13)

- ❑ **Canadian academic research, overall, is strong and well-regarded internationally**
  
- ❑ **Canadian business innovation is weak by international standards and is the primary cause of our weak productivity growth**

**NO SURPRISE...BUT GREATER ANALYTICAL DEPTH IS REQUIRED**

# THE CONCLUSIONS RAISE PARADOXES

- ❑ **Why hasn't Canada's research strength yielded more business innovation?**
- ❑ **If innovation improves competitiveness, why aren't Canadian business strategies more focussed on innovation?**
- ❑ **Why has Canada prospered despite chronically weak business innovation?**

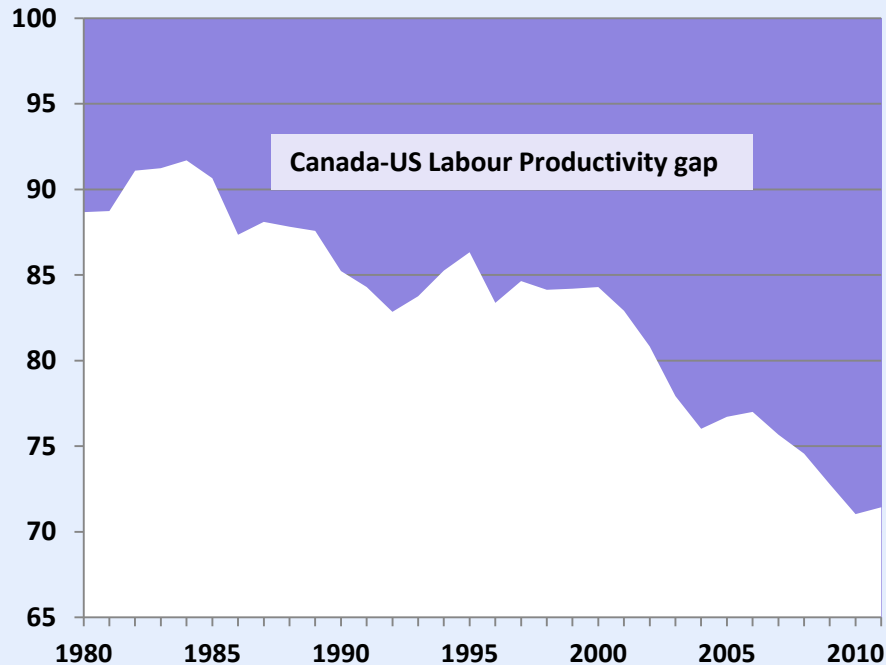
**THE PARADOXES HAVE PERSISTED, SO THEIR ROOTS ARE STRUCTURAL**

# “PARADOX LOST”

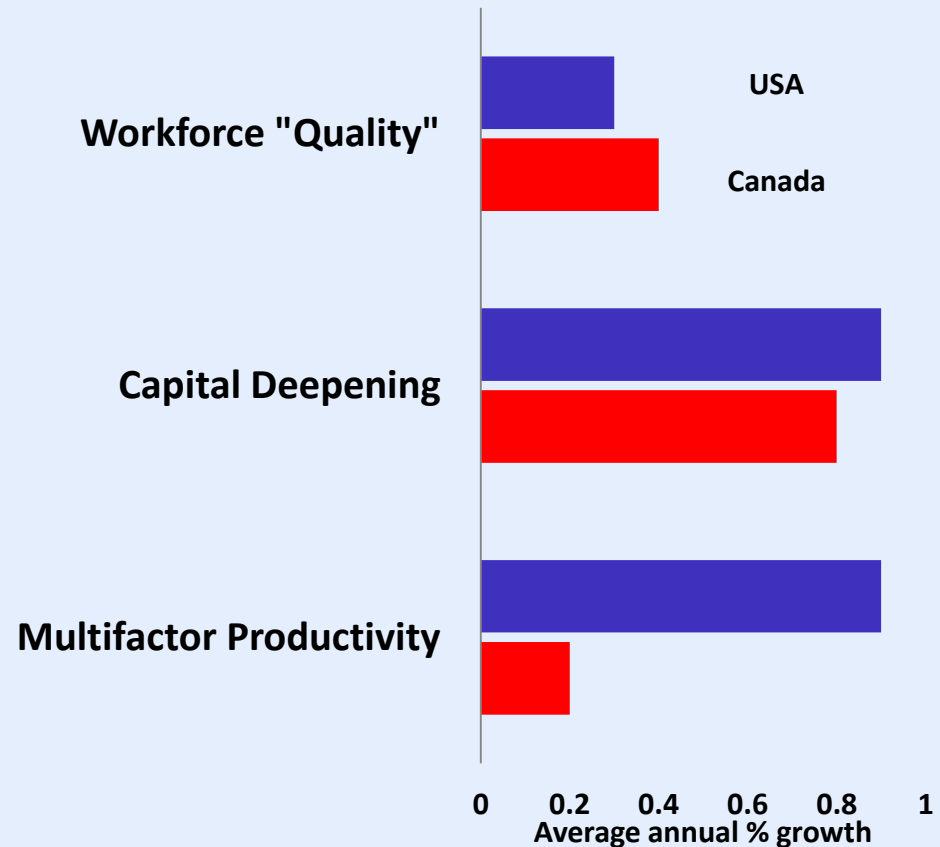
- ❑ The evidence for Canada’s weak business innovation --Productivity and R&D
- ❑ Why strong research does not (necessarily) result in strong innovation
- ❑ Why (most) Canadian business strategies have *always* been light on innovation
- ❑ Why Canada has nevertheless prospered in its “low innovation equilibrium”
- ❑ Will conditions change enough to change business behaviour
- ❑ Summary and Conclusions

# ANALYZING CANADA'S BUSINESS PRODUCTIVITY GAP

## Labour Productivity: Canada as % of US



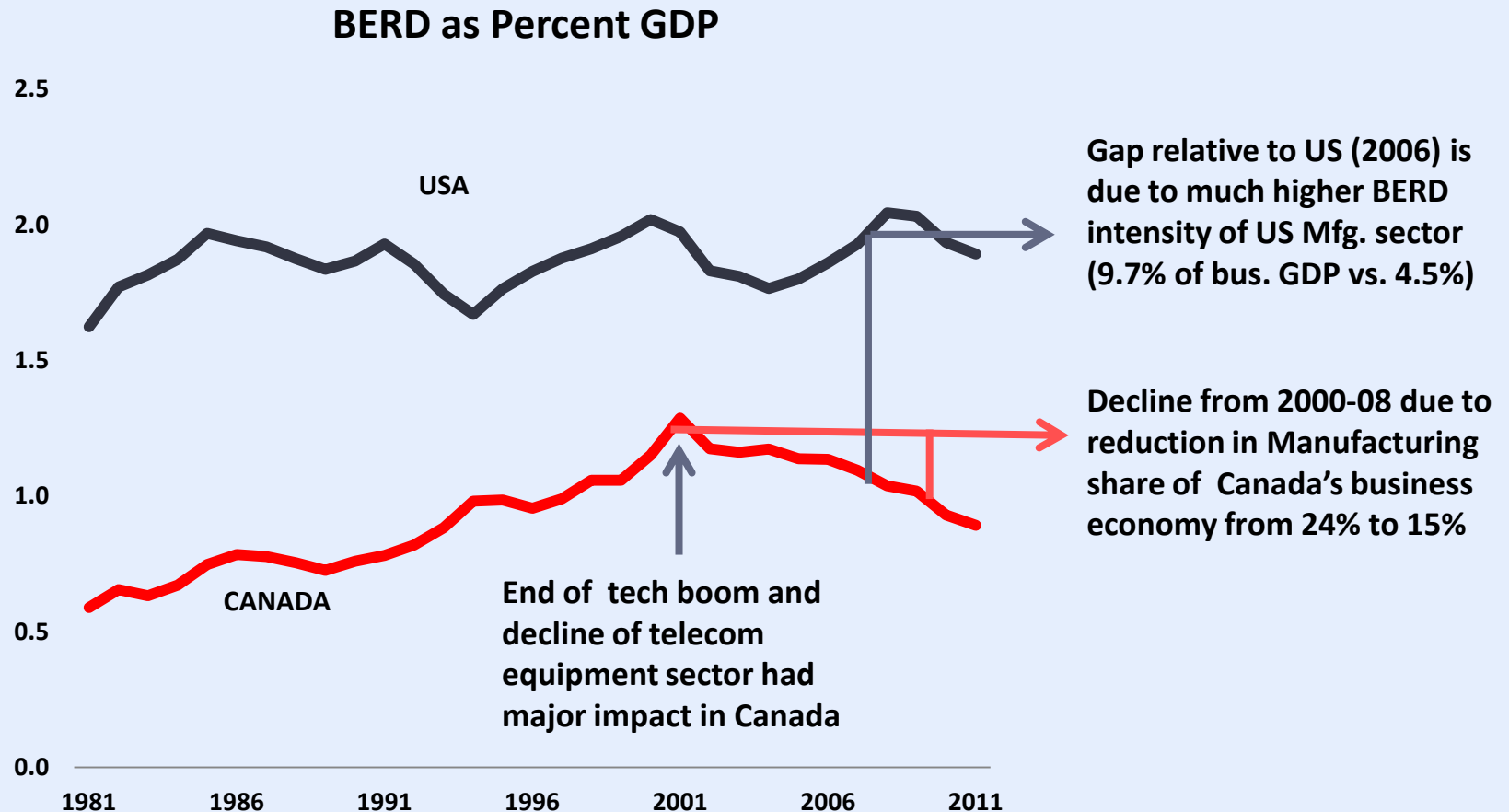
## Components of Productivity Growth 1980-2011



**WEAK CANADIAN MFP (A PROXY FOR "DISEMBODIED" INNOVATION)  
LARGELY EXPLAINS THE PRODUCTIVITY GAP**

# EXPLAINING CANADA'S BUSINESS R&D "GAPS"

R&D is concentrated in Manufacturing and some (often related) services



**CROSS-COUNTRY AND SECTOR ANALYSES ARE SUBJECT TO DATA INCONSISTENCIES**

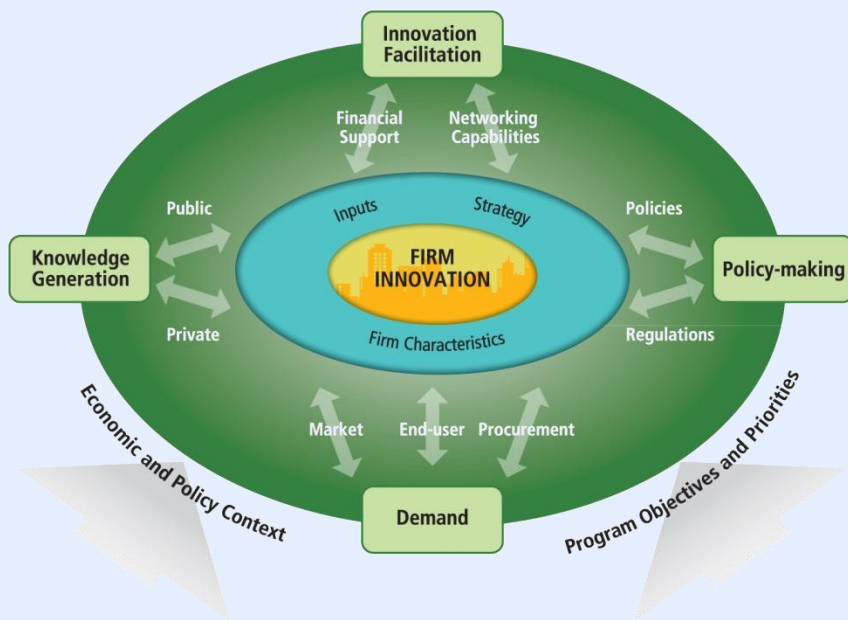
# STRONG RESEARCH DOESN'T GUARANTEE INNOVATION

The “linear”, research-push model of innovation rarely applies

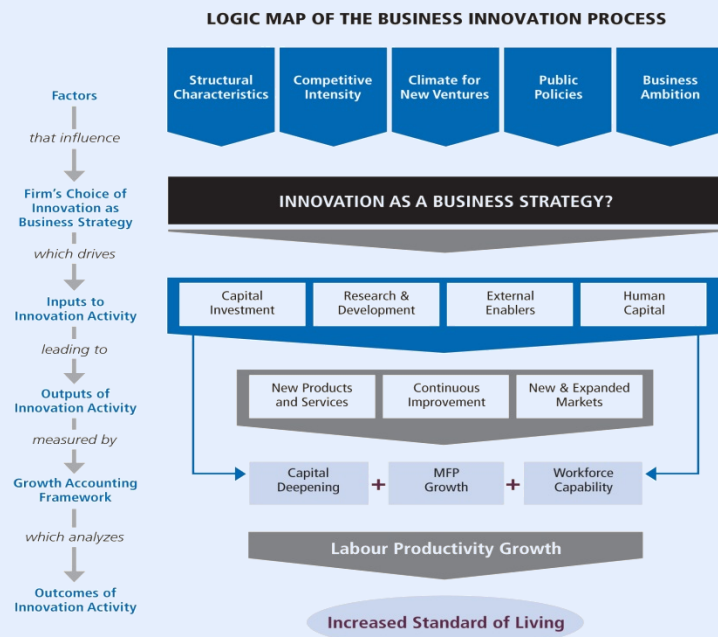


Policy has focussed on the supply-side but the problem is on the demand-side

## Firm-centric Innovation Ecosystem



## Logic Map of the Business Innovation Process



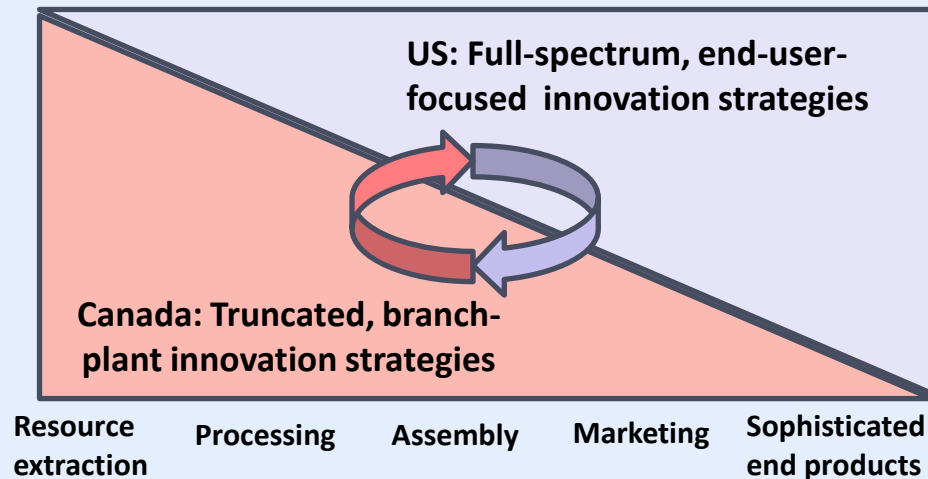
FEW CANADIAN BUSINESS STRATEGIES EMPHASIZE RESEARCH-BASED INNOVATION

# WHY BUSINESS STRATEGIES DO NOT FOCUS ON INNOVATION



- ❑ Canada has benefited from unique adjacency to the 20<sup>th</sup> century's technological and economic leader
- ❑ Canadian industry thus carved a profitable niche in integrated, U.S.-dominated value networks

## Complementary Business Strategies



**EASIER AND CHEAPER TO GET "INNOVATION" FROM THE U.S.**



# A PROFITABLE LOW-INNOVATION EQUILIBRIUM

From the Lamontagne Report on Science Policy (1970)

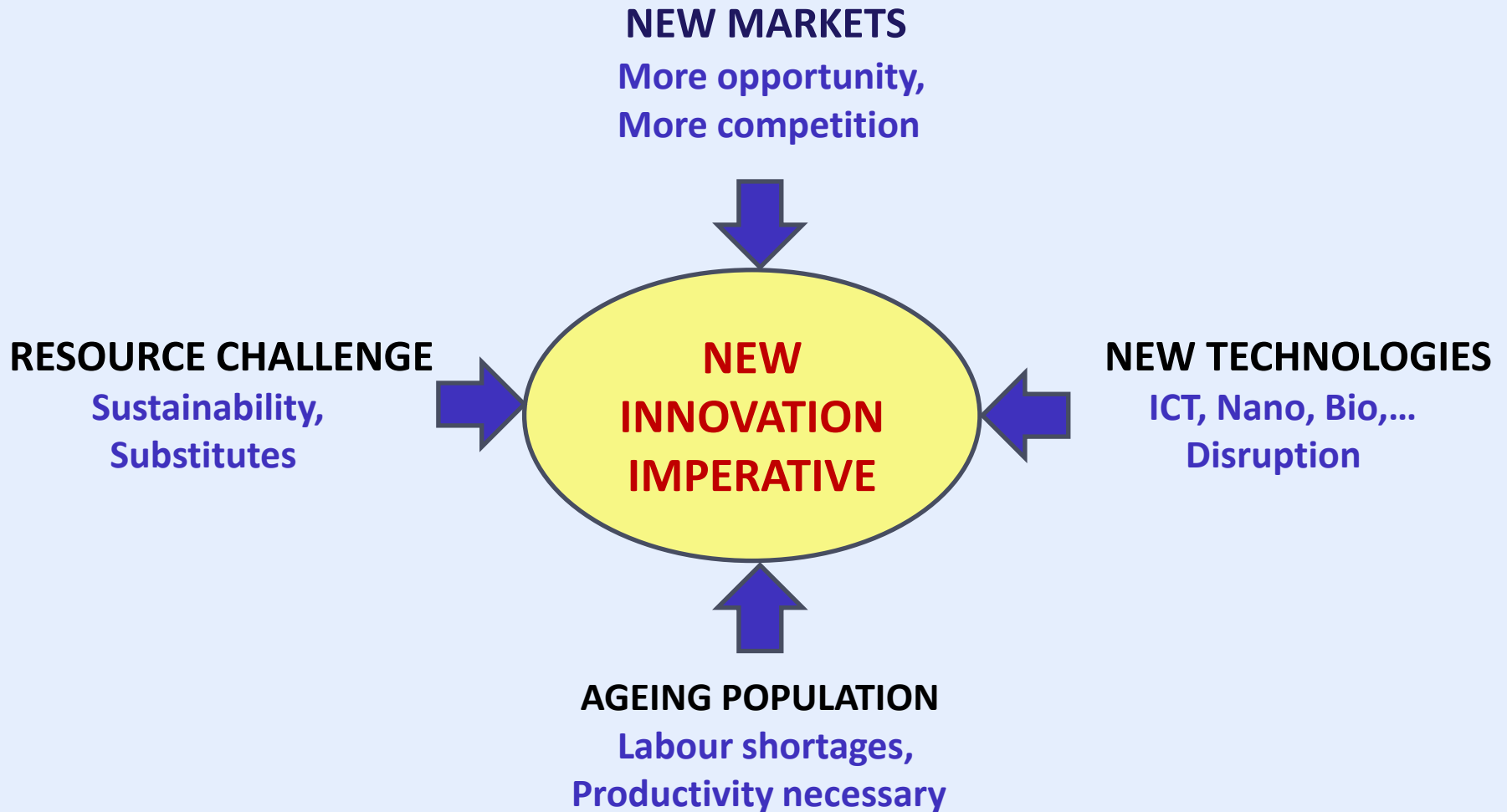
*“Since 1916...the main objective of Canadian science policy has been to promote technological innovation in industry....Almost every decade since the 1920s has witnessed renewed attempts by successive Canadian governments to achieve it, but on the whole they have all failed”*

Canadian business has been as innovative as it has needed to be.

- Corporate profit margins, in aggregate, have long matched or exceeded those in the US ... So where is the motivation to change?
- Strong job growth has offset the impact on per capita GDP of poor productivity, and a weak \$C made productivity growth less urgent
- As the \$C strengthened since 2002, putting heavy pressure on manufacturers, a commodity boom has mitigated the *overall* impact, despite regional strains

**BUSINESS STRATEGY WILL NOT CHANGE UNLESS THE SUCCESS FACTORS CHANGE**

# DISRUPTING THE LOW-INNOVATION EQUILIBRIUM



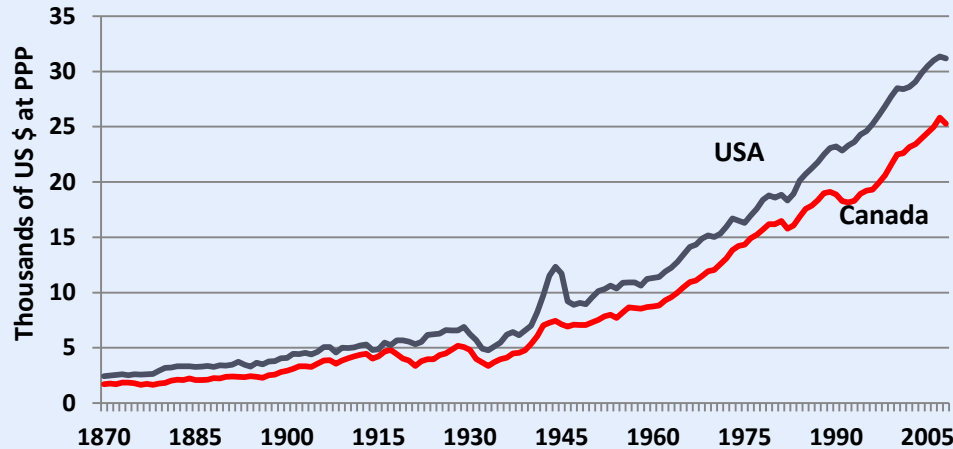
**BUT... SHOCKS ARE USUALLY NEEDED TO CHANGE ENTRENCHED BEHAVIOUR**

# SUMMARY AND CONCLUSIONS

- ❑ The business innovation “problem” in Canada has a pedigree as old as the country itself.
- ❑ History shows that Canadian business has profitably adapted to its low-innovation equilibrium and behaviour will not change unless competitive conditions change.
- ❑ Conditions are in fact changing in ways that require innovative responses from businesses to compete and survive.
- ❑ A new public policy approach is needed to encourage and complement the required business transition to innovation-focussed strategies.
- ❑ In broad terms innovation policy should:
  - Address the innovation “ecosystem” from a firm-centered perspective
  - Place much greater emphasis on innovation *demand-pull* (e.g. competition, procurement, trade, regulatory standards)
  - Sustain Canada’s research strengths which continue to be needed to support business innovation.

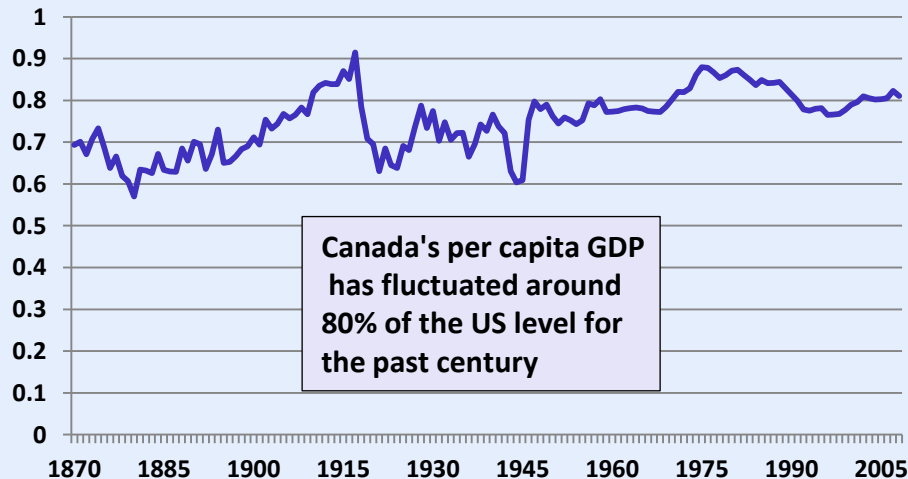
# ANNEX: CANADA & US: JOINED AT THE HIP

## GDP PER CAPITA: 1870-2005



Moreover; strong terms of trade (on average) have boosted the growth of Canada's Gross National Income above that of its GDP.

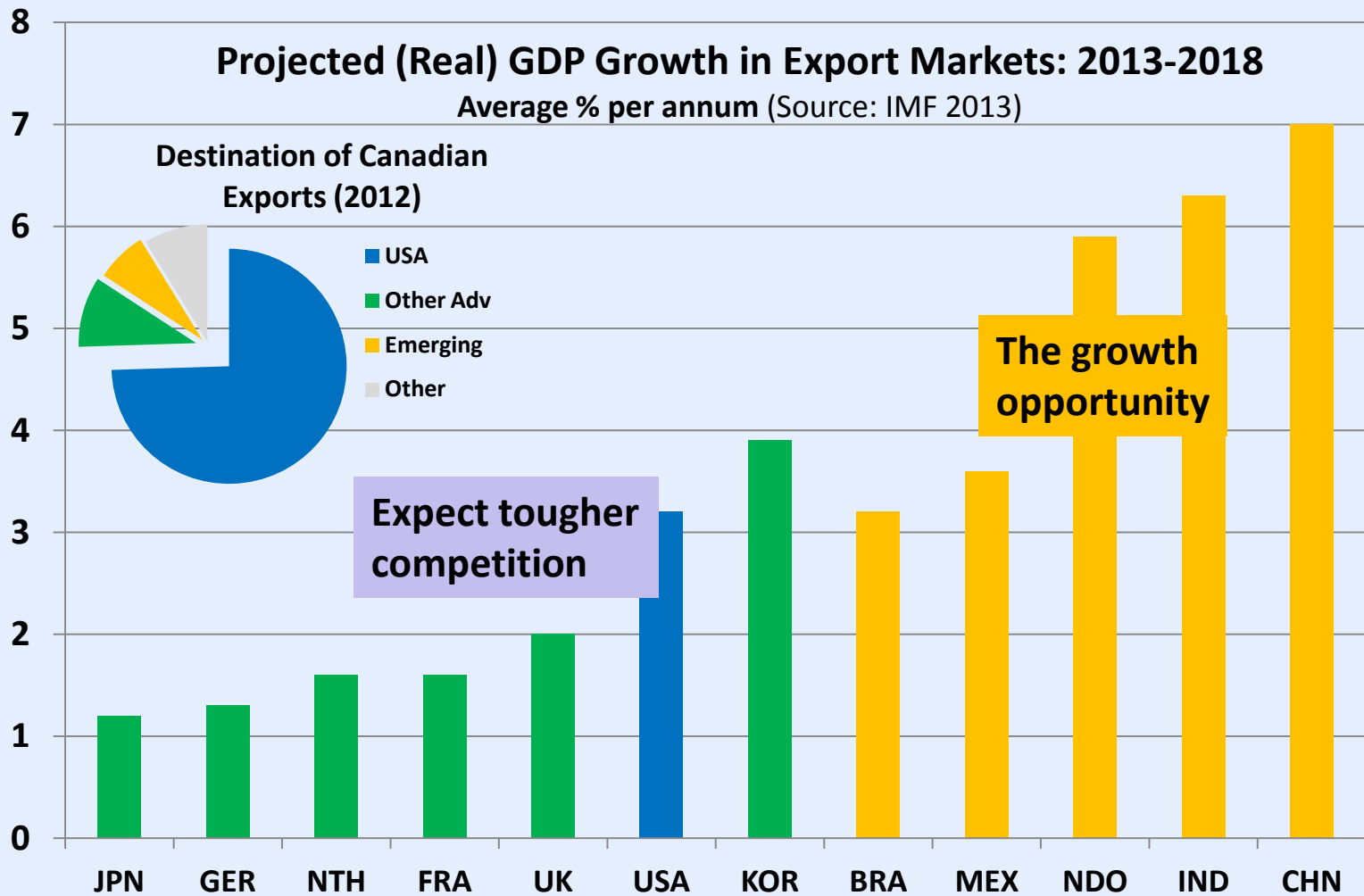
## GDP PER CAPITA: CANADA AS % US



Canada's per capita GDP has fluctuated around 80% of the US level for the past century

Since about 2000 Canada's weak labour productivity growth has been offset by strong job growth

# HISTORIC SHIFT IN CANADA'S EXPORT OPPORTUNITY



**GDP OF THESE 5 EMERGING MARKETS PROJECTED TO EXCEED US AND EU BY 2018**