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
WEAK CANADIAN MFP (A PROXY FOR “DISEMBODIED” INNOVATION) LARGELY EXPLAINS THE PRODUCTIVITY GAP
R&D is concentrated in Manufacturing and some (often related) services

BERD as Percent GDP

Gap relative to US (2006) is due to much higher BERD intensity of US Mfg. sector (9.7% of bus. GDP vs. 4.5%)

Decline from 2000-08 due to reduction in Manufacturing share of Canada’s business economy from 24% to 15%

End of tech boom and decline of telecom equipment sector had major impact in Canada

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

### Firm-centric Innovation Ecosystem

- **Knowledge Generation**
  - Private
  - Public

- **Innovation Ecosystem**
  - Outputs of Innovation Activity
  - Inputs to Innovation Activity

### Logic Map of the Business Innovation Process

- **Factors that Influence**
  - Firm’s Choice of Innovation as Business Strategy

- **Outputs of Innovation Activity**
  - Measured by Growth Accounting Framework

- **Inputs to Innovation Activity**
  - Leading to

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FEW CANADIAN BUSINESS STRATEGIES EMPHASIZE RESEARCH-BASED INNOVATION

Policy has focussed on the supply-side but the problem is on the demand-side.
WHY BUSINESS STRATEGIES DO NOT FOCUS ON INNOVATION

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

Complementary Business Strategies

US: Full-spectrum, end-user-focused innovation strategies
Canada: Truncated, branch-plant innovation 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

NEW MARKETS
More opportunity,
More competition

RESOURCE CHALLENGE
Sustainability,
Substitutes

NEW TECHNOLOGIES
ICT, Nano, Bio,…
Disruption

AGEING POPULATION
Labour shortages,
Productivity necessary

NEW INNOVATION IMPERATIVE

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-focused 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

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

Canada's per capita GDP has fluctuated around 80% of the US level for the past century.
HISTORIC SHIFT IN CANADA’S EXPORT OPPORTUNITY

Projected (Real) GDP Growth in Export Markets: 2013-2018
Average % per annum (Source: IMF 2013)

Destination of Canadian Exports (2012)

Expect tougher competition

The growth opportunity

GDP of these 5 emerging markets projected to exceed US and EU by 2018