

# Forest Sector Research in Canada

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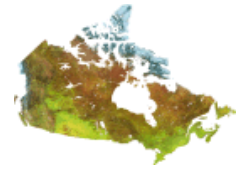




## Outline:

1. **Why do forest-sector research?**
2. **Who is getting this work done in Canada?**
3. **How does this compare with other jurisdictions?**
4. **What is the outlook for forest-sector research in Canada?**
5. **Conclusions.**





## Why Do Forest Sector Research?

Help understand the multiple benefits that society receives from forests (i.e. economic, social, environmental)

- Guide government policies to ensure benefits are maintained
- Inform the public in ways that aid their access to these benefits
- Drive innovations that allow firms to produce products that are better or less expensive (product innovation / process innovation).

**All of these may improve our social-welfare, depends on how much we benefit and how costly the research is ....**



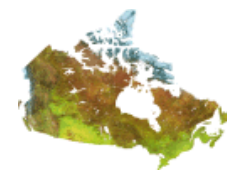


## Why Do Forest Sector Research?

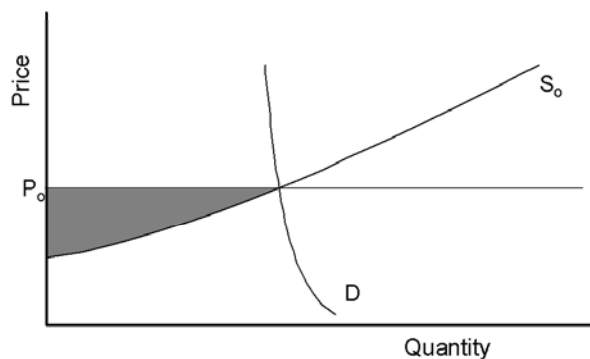
### The net benefits of innovation to a firm depends:

- What is the nature of the product/process improvement?
- How much did the firm have to spend to produce the innovation?
- How applicable is the innovation to other firms? How quickly will the innovation 'diffuse' to these firms?
- How will markets adjust when the innovation is implemented?

**It is important to note that in some cases, consumers are the real winners from innovation.**

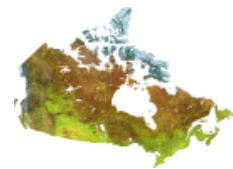


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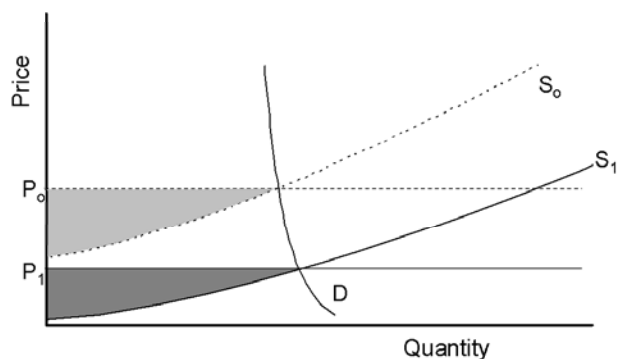


- Innovations that are immediately adopted sector-wide may even leave all producers worse-off.
- Consumers may be the only winners.





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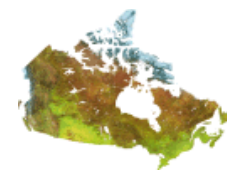


- Innovations that are immediately adopted sector-wide may even leave all producers worse-off.
- Consumers may be the only winners.

Binkley (1995) states that this likely applies to many innovations in Canada's forest sector, and furthermore:

***“Most of these consumers reside outside of Canada, so much of the benefits of Canadian R&D – whether public or private – will tend to flow out of the country unless great care is taken to target R&D strategically.”***

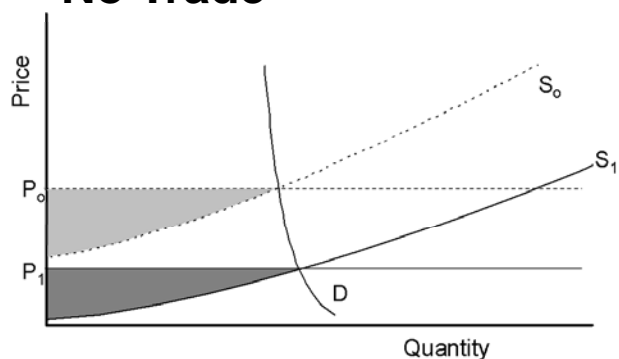




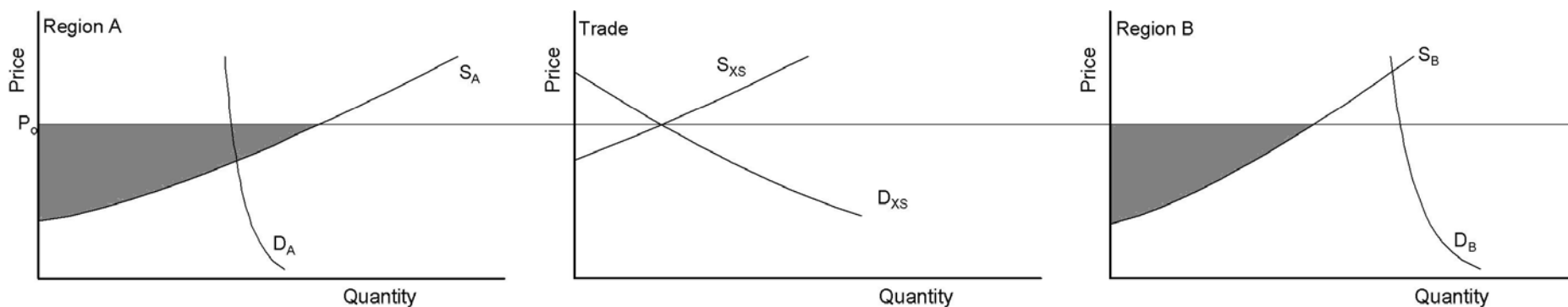
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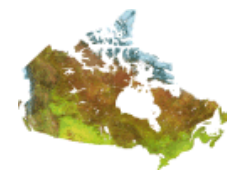
But what happens when innovations improve Canada's competitiveness in export markets?

### No Trade



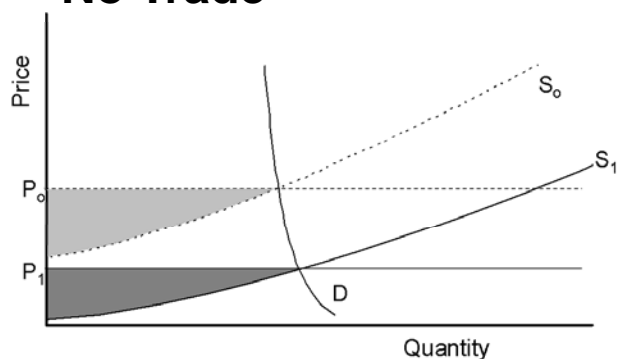
### Trade





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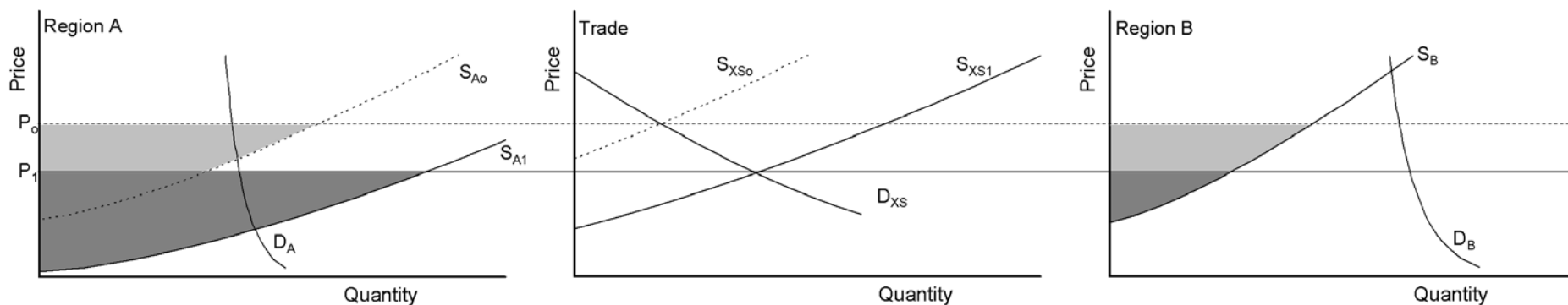
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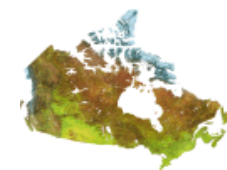
But what happens when innovations improve Canada's competitiveness in export markets?

Even with small changes in quantity, exporters may be able to capture additional market share, resulting in big gains from the innovation.

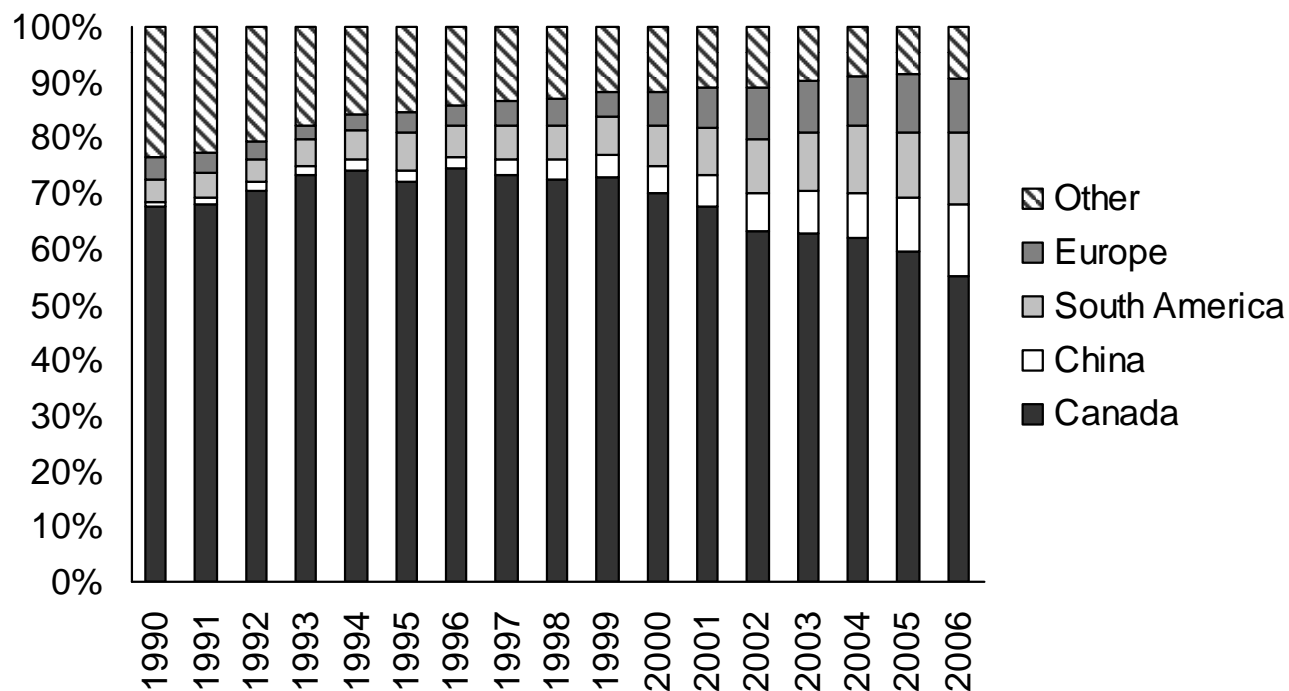
### Trade







## US Solid Wood Imports – Market Share



Source: Industry Canada (2008).





## Why Do Forest Sector Research?

### Canada's forest product firms invest little in R&D – why?

Forest products research:

- large investments,
- long time horizons for payback,
- and uncertain outcomes which are all disincentives for individual firms.

Individual firms may not receive a sufficient share of benefits to justify investing in research individually.





## Why Do Forest Sector Research? Government Research Objectives

- Support decision-making, policy development and regulation
- Development and management of standards
- Enabling economic and social development.
- Research is a public good. There are social benefits that might not otherwise be realized – i.e. public health, safety, environmental benefits to forest innovations.





## Who is Getting this Work Done in Canada?

### Universities

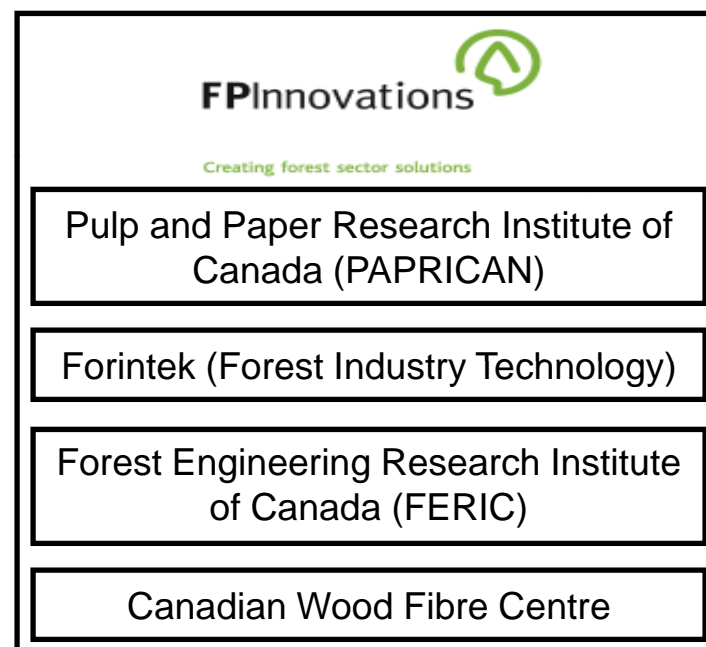
- Forestry Faculties
- Related Disciplines

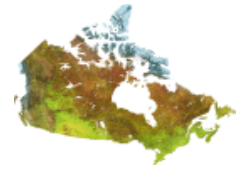
### Private Forest Product Producers

- Equipment Suppliers
- In-House Research

### Government

- Canadian Forest Service
- Provincial Agencies





## Who is Getting this Work Done in Canada?

**Collaboration on larger-scale research projects also occurs.**

**For example:**

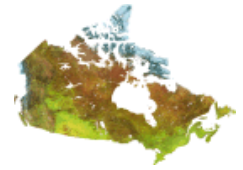
- CFS mountain pine beetle research priorities guided by stakeholders, and research carried out by a variety of institutes and consultants.
- Kiln-drying techniques for coastal western hemlock developed through research supported by the federal and BC government, universities, and coastal forest firms.
- Canada's Model Forest Programme.



# Canadian Forest Service Internal Environmental Scan

## Forest Sector Transformation Strategy

- Canada's traditional forest sector outlook is gloomy
- Competitors have made strategic choices – see Finland
- Product life cycle approach to research – new, growth, mature and declining products

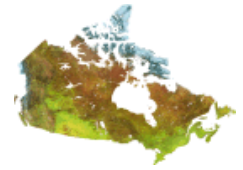


## How does this compare with other jurisdictions?

**Recent research<sup>1</sup> at the University of Minnesota documented trends in forest products research institutes**

- greater autonomy at government research institutes
- multiple sources of income - heavy reliance on public funding
- complex ownership and partnering with other agencies and firms.
- growing number of subsidiaries and joint ventures created in response to rapidly emerging research needs

<sup>1</sup>Ellefson, P., M. Kilgore, K. Skog and C. Risbrudt. 2006. Forest Products Research and Development Organizations in a Worldwide Setting : A Review of Structure, Governance, and Measures of Performance. Dept. of Forestry, College of Natural Resources and Agricultural Experiment Station, University of Minnesota, Staff paper series (University of Minnesota. Dept. of Forest Resources); 187: [4], 187 pages.



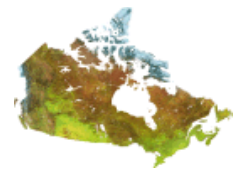
## How does this compare with other jurisdictions?

### For Example:

- Scion (New Zealand)
- Ensis (New Zealand-Australia)
- SKOGFORSK, STFI-PACKFORSK, SP-TRATEK (Sweden).
- Metla, Forest Cluster Ltd., EFI (Finland).







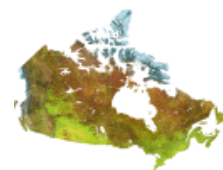
## What is being done to improve forest-sector research capacity in Canada?

- The recent creation of FP Innovations is expected to provide a more stable platform for forest products research.
- Furthermore, the Government of Canada has committed to “*explore new approaches to federally performed S&T*”<sup>1</sup>
- The Independent Panel of Experts on Transferring Federal Non-Regulatory Laboratories<sup>2</sup> was to focus on four key objectives:
  - Increasing the impact of federal investments in research
  - Fostering research excellence
  - Enhancing learning and transfer of knowledge
  - Leverage strengths of government, university and private sector

<sup>1</sup>Industry Canada. 2007. Mobilizing Science and Technology to Canada's Advantage. Policy Branch, Science and Innovation Sector, Industry Canada, Ottawa ON. 103 p.

<sup>2</sup><http://www.tbs-sct.gc.ca/fedlab-labfed/index-eng.asp>

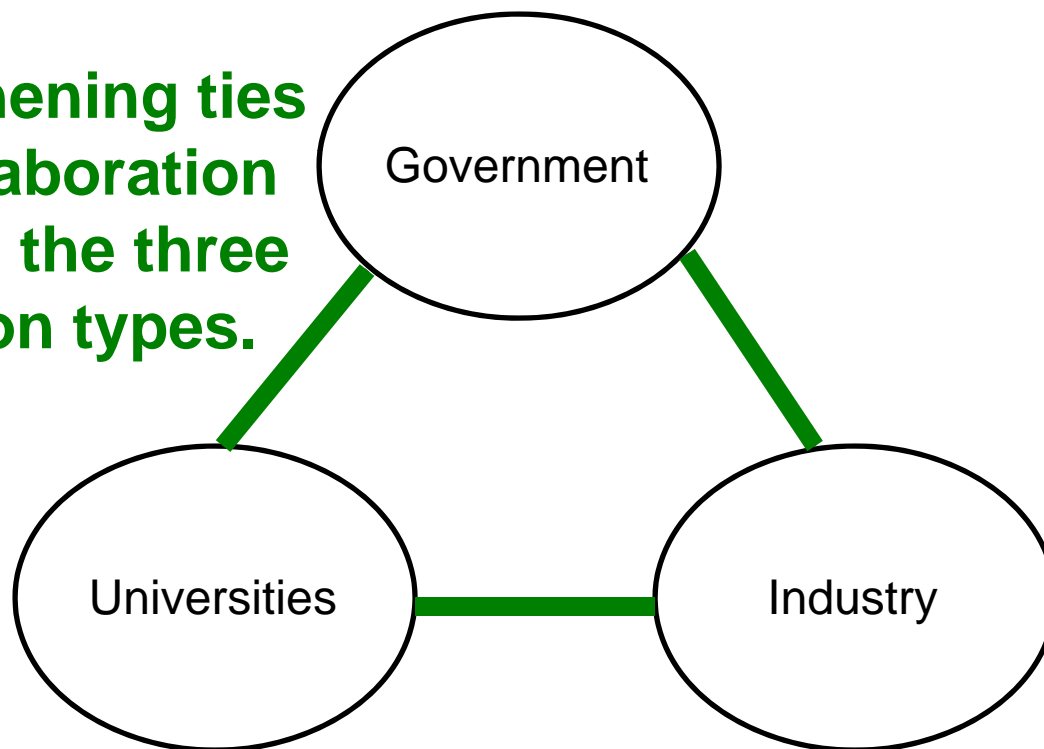


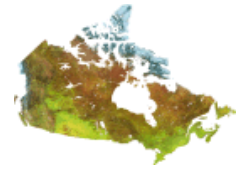


## What is being done to improve forest-sector research capacity in Canada?

This could lead to a number of potential changes, including:

**Strengthening ties and collaboration between the three institution types.**

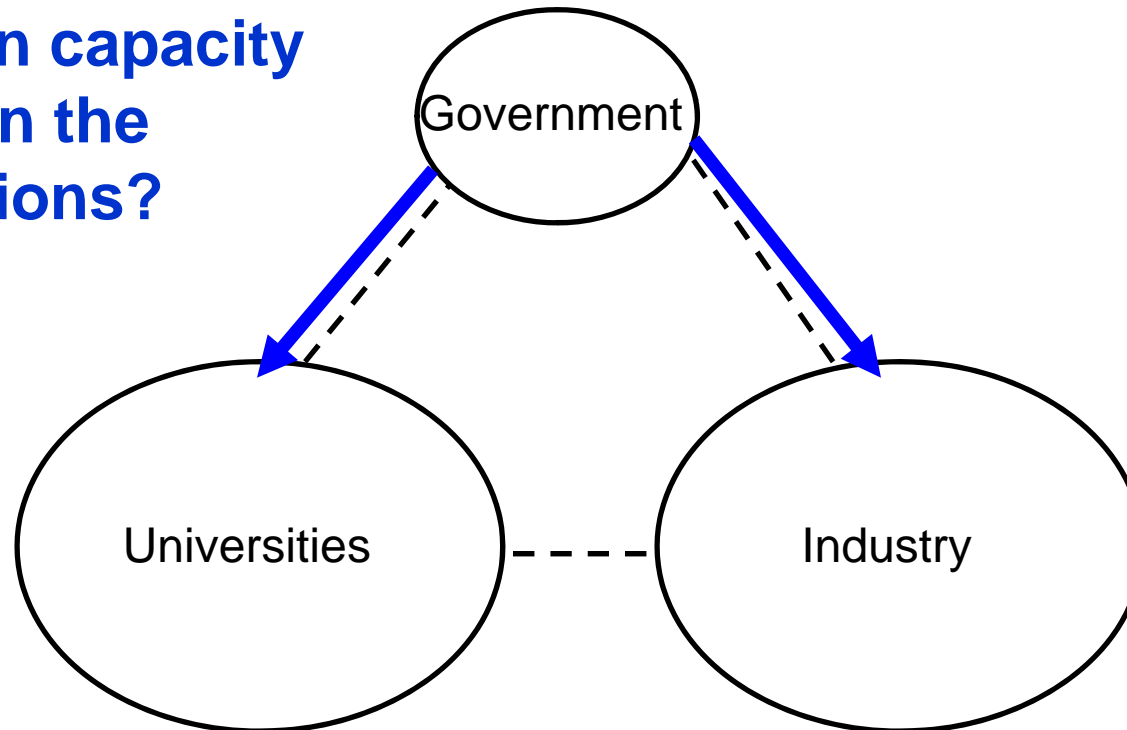




## What is being done to improve forest-sector research capacity in Canada?

This could lead to a number of potential changes, including:

**Shifts in capacity  
between the  
institutions?**





## Conclusions:

- Despite the challenging environment for forest sector research the existing network is contributing research that likely benefits Canada's forest sector and the public at large.
- Research must be strategic – target resources, new products, market share
- Research into innovative products, processes, policies, and the management of forest resources increasingly involves cooperation that may lead to greater long-term stability.
- These trends are consistent with those in other nations.

