

Science-Matrix

Canadian Business Performance

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Performance was assessed by examining balance of trade in high-tech goods (because of their high value-added)

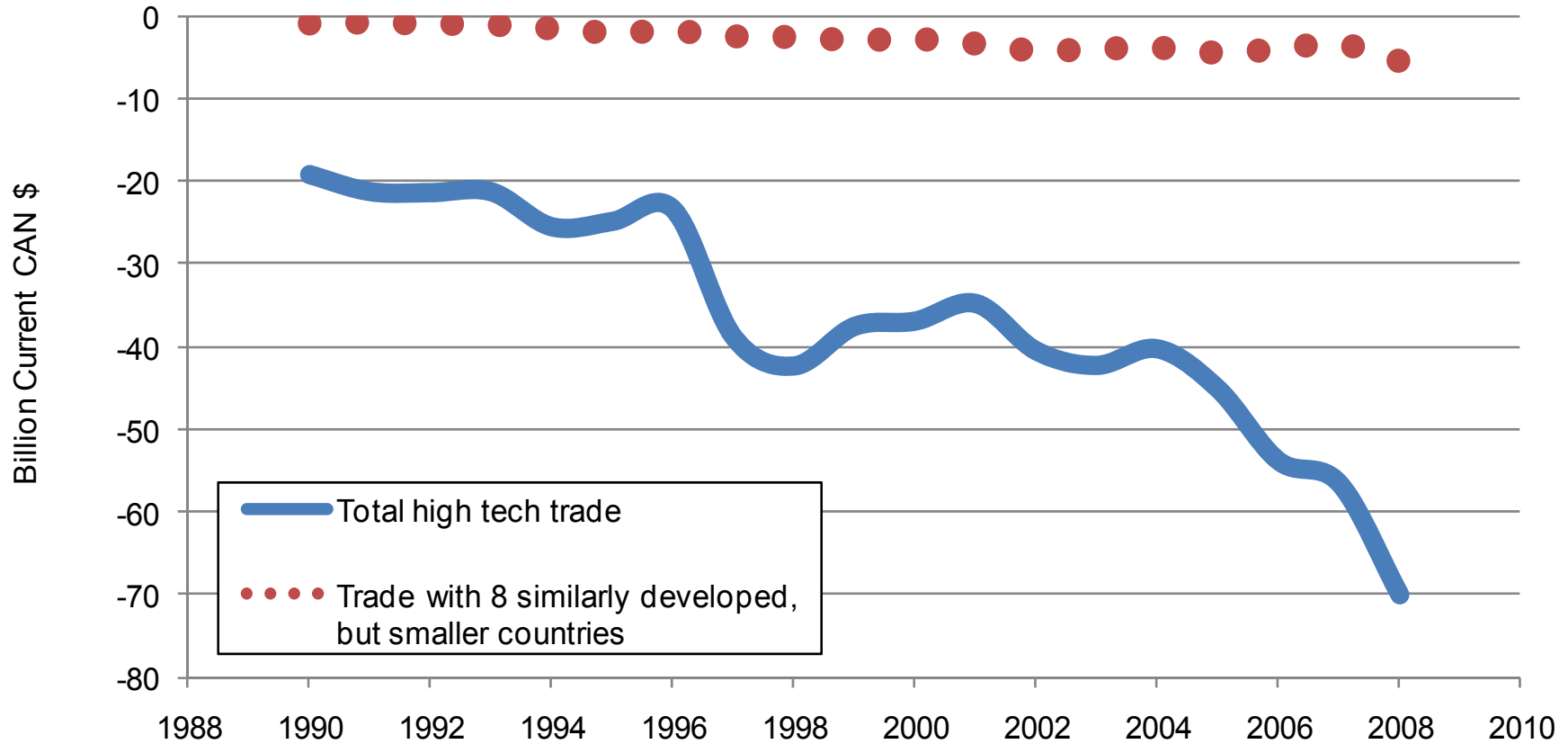
- Difficult to define high-tech goods
 - ➔ OECD definition not as clear-cut as one could wish
- Used Harmonized System Codes to construct a somewhat rough but operational definition:

- **HS 28 - Inorganic Chemicals and Compounds of Precious Metals and Radioactive Elements**
- **HS 29 - Organic Chemicals (Including Vitamins, Alkaloids and Antibiotics)**
- **HS 30 - Pharmaceutical Products**
- **HS 31 - Fertilizers**
- **HS 32 - Tannins, Dyes, Pigments, Paints, Varnishes, Inks, Putty and Other Similar Substances**
- **HS 33 - Essential Oils and Resinoids, Perfumes, Cosmetics and Toilet Preparations**
- **HS 34 - Soap, Washing and Lubricating Preparations, Waxes and Related Articles**
- **HS 35 - Albuminoidal Substances, Modified Starches, Glues and Enzymes**
- **HS 36 - Explosives, Matches and Other Miscellaneous Combustible Preparations**
- **HS 37 - Photographic or Cinematographic Goods**
- **HS 38 - Miscellaneous Chemical Products**
- **HS 39 - Plastics and Articles Thereof**
- **HS 84 - Nuclear Reactors, Boilers, Machinery and Mechanical Appliances**
- **HS 85 - Electrical or Electronic Machinery and Equipment**
- **HS 86 - Rail Transportation (Incl. Tramways and Traffic Signalling Equipment)**
- **HS 87 - Motor Vehicles, Trailers, Bicycles, Motorcycles and Other Similar Vehicles**
- **HS 88 - Aircrafts and Spacecrafts**
- **HS 89 - Ships, Boats and Floating Structures**
- **HS 90 - Optical, Medical, Photographic, Scientific and Technical Instrumentation**
- **HS 91 - Clock and Watches and Parts Thereof**
- **HS 93 - Arms and Ammunitions and Parts Thereof**



Canadian industry presents a lacklustre performance in “high tech” trade

Canada High Tech Trade Balance

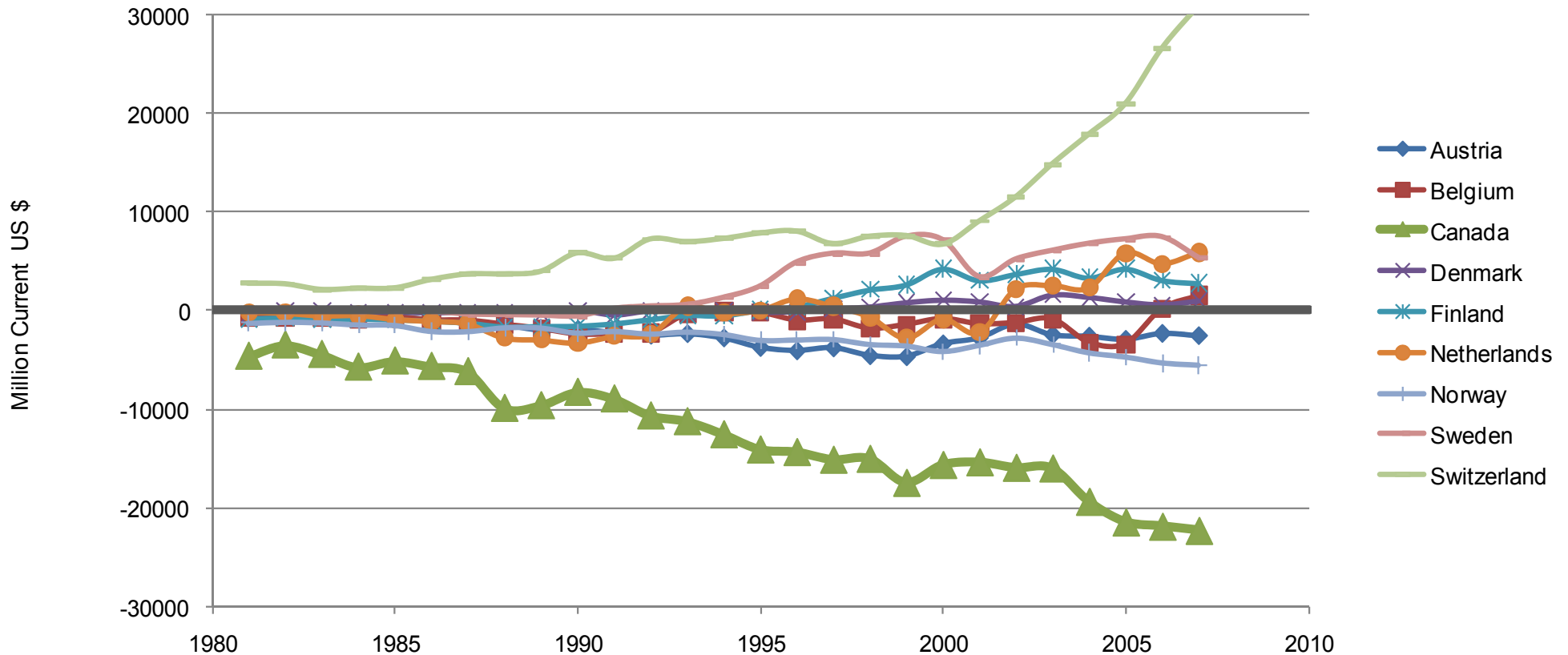


Source: Calculated by Science-Metrix using Industry Canada data



Unlike Canada, comparably developed countries generally have a positive balance of high tech trade

Balance of Trade in Aerospace, Electronics, Office Machinery and Computers, Pharmaceuticals, and Instruments

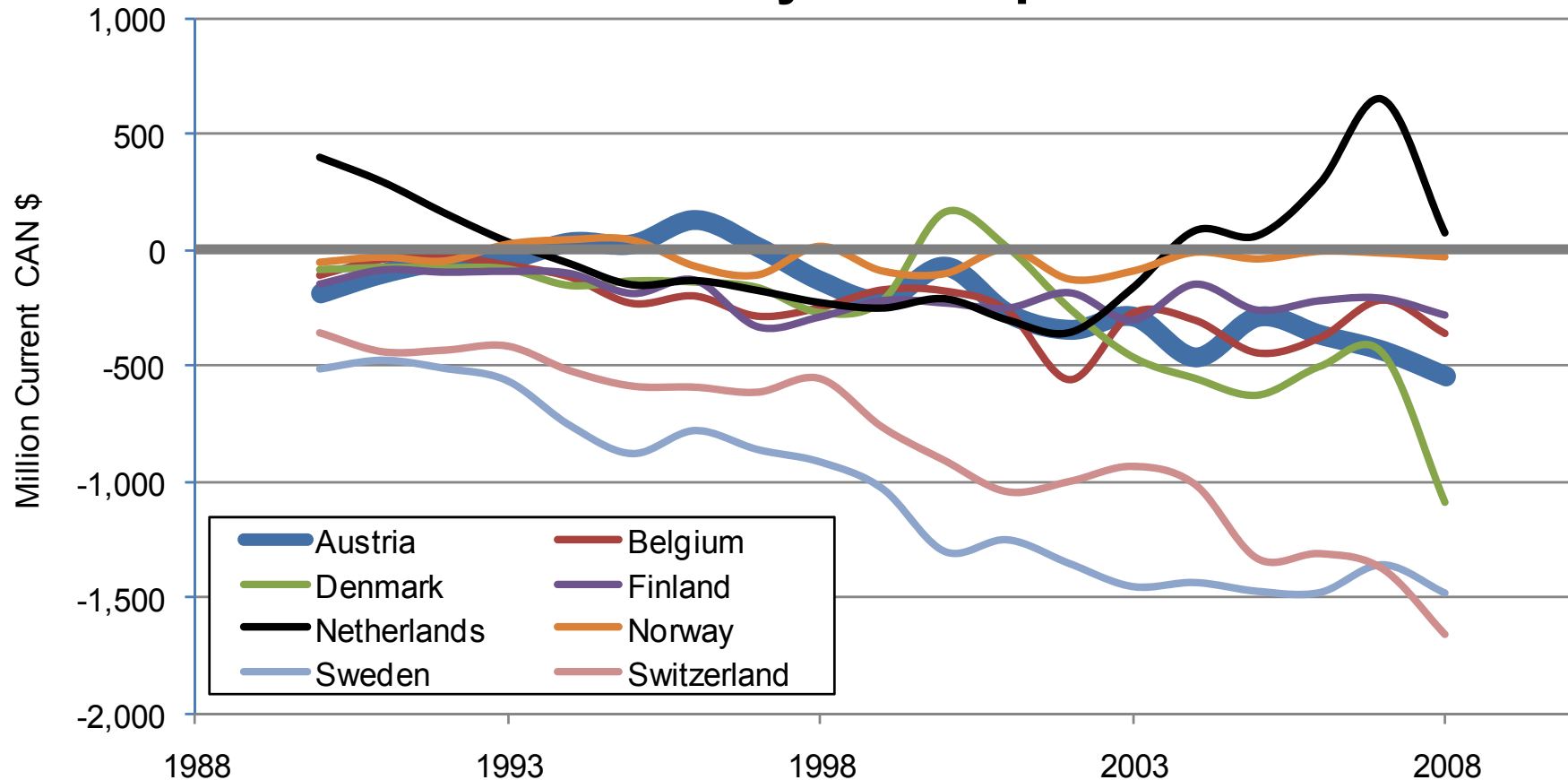


Source: Calculated by Science-Metrix using OECD data



Despite a few exceptions, Canada entertains systematic deficits with other developed countries in high tech trade

Canada High Tech Trade Balance with 8 Similarly Developed Countries



Source: Calculated by Science-Metrix using Industry Canada data



Canadian firms evolve in an environment which is highly favourable to businesses (1 of 2)

Series Title	Austria	Belgium	Canada	Denmark	Finland	Netherlands	Norway	Sweden	Switzerland
Banking & Finance	3.8	4.2	4.6	4.5	4.3	4.5	4.3	4.0	4.6
Access to medium-term finance (5=good)	4.0	4.7	4.9	4.9	4.7	4.9	4.9	4.0	4.9
Banking system openness (5=good)	3.5	3.7	4.0	3.8	4.0	4.3	3.8	4.1	4.5
EIU financing rating (5=good)	3.7	4.1	4.5	4.3	4.5	4.5	4.3	4.1	4.7
Financial regulatory system (5=high quality)	4.0	4.5	4.8	4.7	4.1	4.5	4.1	3.8	4.3
Business Environment	3.7	3.9	4.4	4.3	4.2	4.1	3.8	4.1	4.0
EIU overall business environment rating (5=high)	3.8	3.9	4.3	4.1	4.2	4.2	3.9	4.1	4.2
EIU policy towards private enterprise rating (5=good)	3.9	4.0	4.4	4.4	4.3	4.3	3.8	4.1	4.0
Freedom to compete (5=high)	4.0	4.0	4.0	4.0	4.3	4.0	4.0	4.6	4.0
Government stance towards business (5=open)	4.0	3.9	4.9	4.5	4.0	4.3	4.0	4.0	4.0
Promotion of competition (5=high)	3.4	4.0	4.9	4.1	4.5	4.0	4.0	4.0	3.9
Setting up new businesses (5=low regulation)	3.3	3.4	4.0	4.5	4.1	4.0	3.3	3.7	3.8
Labour	4.0	3.6	3.7	4.1	3.7	4.2	3.2	3.5	4.3
EIU availability of skilled labour rating (5=high)	5.0	5.0	5.0	4.9	4.8	5.0	5.0	5.0	5.0
EIU labour market rating (5=good)	3.3	3.2	3.6	3.6	3.3	3.6	2.9	3.2	3.6
EIU quality of labour force rating (5=high)	3.5	3.8	4.0	4.1	4.0	5.0	3.1	4.0	4.0
Wage regulation (5=low)	3.8	3.0	3.0	4.0	3.3	3.5	3.0	2.8	4.2
Industrial relations (5=good)	5.0	4.0	2.8	3.7	3.5	4.0	2.1	4.0	5.0
Restrictiveness of labour laws (5=low)	3.3	2.8	4.0	4.5	3.2	3.9	3.2	2.1	3.8
Openness (Product)	4.1	4.4	4.3	4.4	4.3	4.7	3.9	4.3	4.0
Access of foreigners to local market (5=good)	4.7	4.3	4.4	4.8	5.0	5.0	4.3	4.0	4.8
EIU foreign trade and exchange regime rating (5=good)	4.5	4.7	4.7	4.3	4.3	4.8	4.0	4.4	4.3
EIU policy environment for foreign investment rating (5=go)	4.1	4.4	4.4	4.5	4.4	4.8	3.7	4.6	4.1
Government policy towards foreign investment (5=good)	4.1	4.7	4.0	4.5	4.0	4.9	3.4	4.4	3.8
Hiring of foreign nationals (5=easy)	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0
Taxation & Fiscal Regime	3.0	2.7	4.1	3.5	3.5	3.6	3.6	2.8	4.2
Corporate tax burden (5=low)	3.1	2.4	2.5	3.5	4.0	3.1	4.0	4.0	4.0
EIU tax regime rating (5=good)	3.1	2.9	3.8	3.4	3.7	3.5	3.5	3.1	4.2
Employers' social security contributions (5=low)	2.0	2.1	4.0	5.0	2.6	3.5	3.0	1.5	4.0
Fairness of tax system (5=good)	4.0	4.0	5.0	4.5	5.0	5.0	5.0	4.0	4.0
Value-added tax (5=low)	3.0	2.0	5.0	1.0	2.0	3.0	2.4	1.2	5.0
Various Indicators	4.1	4.2	4.6	4.4	4.4	4.5	4.2	4.4	4.6
Degree of property rights protection (5=high)	5.0	5.0	5.0	4.7	5.0	5.0	5.0	5.0	5.0
EIU infrastructure rating (5=good)	4.2	4.5	4.7	4.8	4.7	4.5	4.3	4.8	4.6
EIU macroeconomic environment rating (5=high)	4.0	3.9	4.4	4.4	4.5	4.5	4.6	4.4	4.5
EIU market opportunities rating (5=high)	3.3	3.2	3.9	3.0	3.1	3.3	3.3	3.3	2.9
Intellectual property protection (5=high)	5.0	4.8	5.0	5.0	5.0	5.0	4.6	5.0	5.0
Quality of bureaucracy (5=high)	3.8	3.4	4.0	4.0	4.0	4.0	4.0	4.2	5.0
State ownership/control (5=low)	3.7	4.3	5.0	5.0	4.7	4.9	3.4	3.9	4.9

Source: Calculated by Science-Metrix using Economist Intelligence Unit data



Canadian firms evolve in an environment which is highly favourable to businesses (2 of 2)

Business Environment Quality

	Average Score	Product Score	Rank (Average)	Rank (Product)
Switzerland	4.3	20.7	1	1
Netherlands	4.3	20.6	3	2
Canada	4.3	20.6	2	3
Denmark	4.2	20.2	4	4
Finland	4.1	19.9	5	5
Austria	3.8	19.0	8	6
Belgium	3.8	18.9	7	7
Norway	3.8	18.9	9	8
Sweden	3.9	18.8	6	9

Source: Calculated by Science-Metrix using Economist Intelligence Unit data.

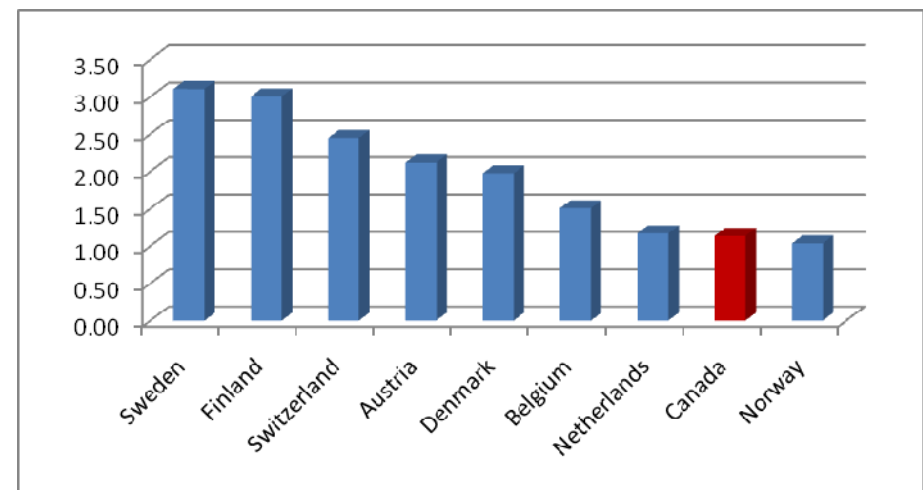


Compared to most of these countries, Canadian firms do not invest as much in R&D

Business Expenditure on R&D (2007)

	GDP (M\$ PPP)	BERD (M\$ PPP)	Expected BERD (scaled as a function of GDP)	BERD Index (scaled as a function of GDP)
Sweden	335,110	8,908	2,868	3.11
Finland	183,519	4,610	1,534	3.01
Switzerland	313,999	6,560	2,681	2.45
Austria	308,599	5,574	2,633	2.12
Denmark	196,349	3,251	1,646	1.98
Belgium	375,830	4,867	3,231	1.51
Netherlands	644,193	6,616	5,657	1.17
Canada	1,303,234	13,359	11,767	1.14
Norway	251,661	2,204	2,130	1.03

Source: Calculated by Science-Metrix using OECD & IMF data

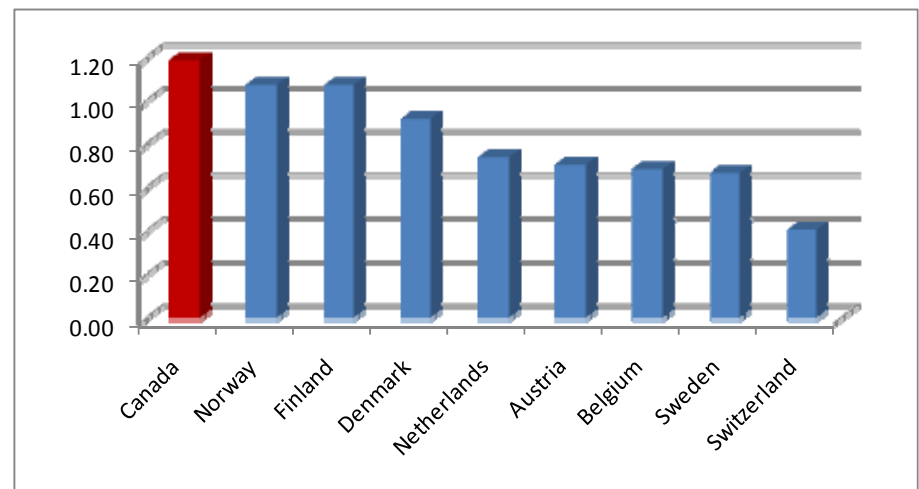


Compared to these countries, Canadian firms employ substantially more researchers per research \$

Business Enterprise Researchers (2004)

	BERD (M\$ PPP)	BE Researchers	Expected Researchers (scaled as a function of BERD)	Researchers Index (scaled as a function of BERD)
Canada	12,442	78,790	66,386	1.19
Norway	1,697	11,063	10,299	1.07
Finland	3,780	23,397	21,781	1.07
Denmark	2,952	15,877	17,284	0.92
Netherlands	5,582	23,247	31,369	0.74
Austria	4,070	16,508	23,344	0.71
Belgium	4,166	16,376	23,855	0.69
Sweden	7,689	28,295	42,323	0.67
Switzerland	5,512	12,640	30,997	0.41

Source: Calculated by Science-Metrix using OECD data

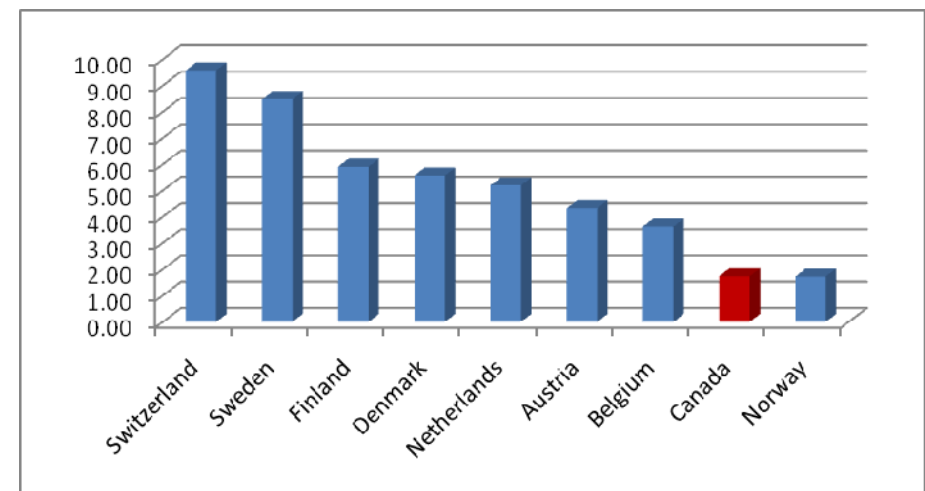


Compared to most of these countries, Canadian firms do not obtain a high number of patents internationally

Triadic Patent Families (2007)

	GDP (M\$ PPP)	Triadic Patent Families	Expected Patents (scaled as a function of GDP)	Patenting Index (scaled as a function of GDP)
Switzerland	313,999	898	94	9.58
Sweden	335,110	851	100	8.49
Finland	183,519	318	54	5.91
Denmark	196,349	322	58	5.57
Netherlands	644,193	1,024	197	5.20
Austria	308,599	400	92	4.34
Belgium	375,830	410	113	3.64
Canada	1,303,234	706	408	1.73
Norway	251,661	128	75	1.72

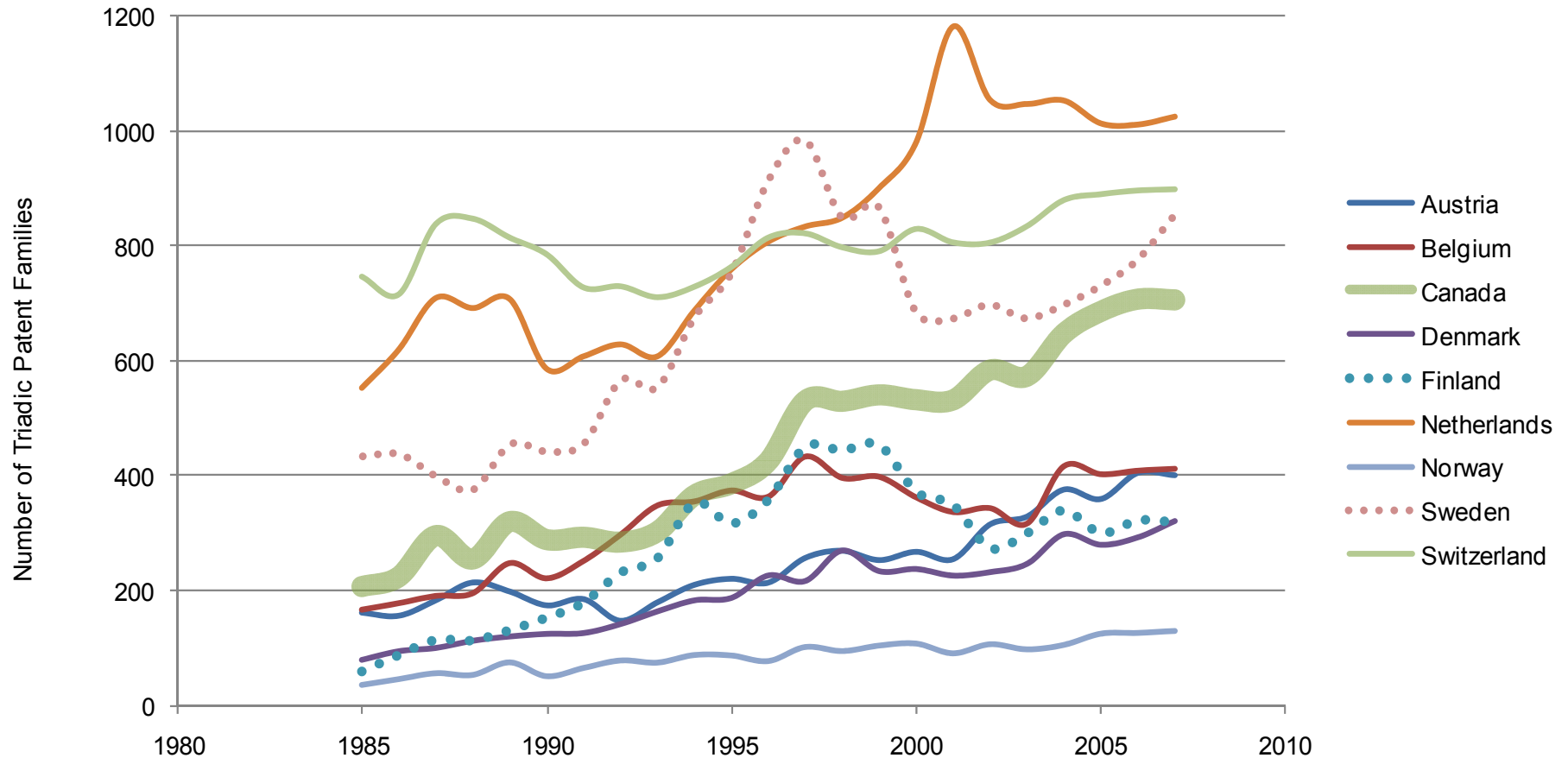
Source: Calculated by Science-Metrix using OECD & IMF data





There is hope, however, as Canada has a strong growth in triadic IP (but still lags behind some of these smaller countries)

Triadic Patent Families per Country, 1985-2007



Source: Calculated by Science-Matrix using OECD data



Diagnosis – the weakest point in the Canadian innovation system is most likely our firms

- Canada has a growing trade deficit in high tech goods
- The meagre performance of our firms is not due to a defective business environment
- Canadian business enterprise expenditures in R&D are below that of most of comparatively developed countries, which generally maintain a positive trade balance in high tech goods, including with Canada
- Canadian firms do not obtain nearly enough patents internationally to create a comparative advantage



Thank you for your attention

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