

An Overview of Canada's Productivity Performance

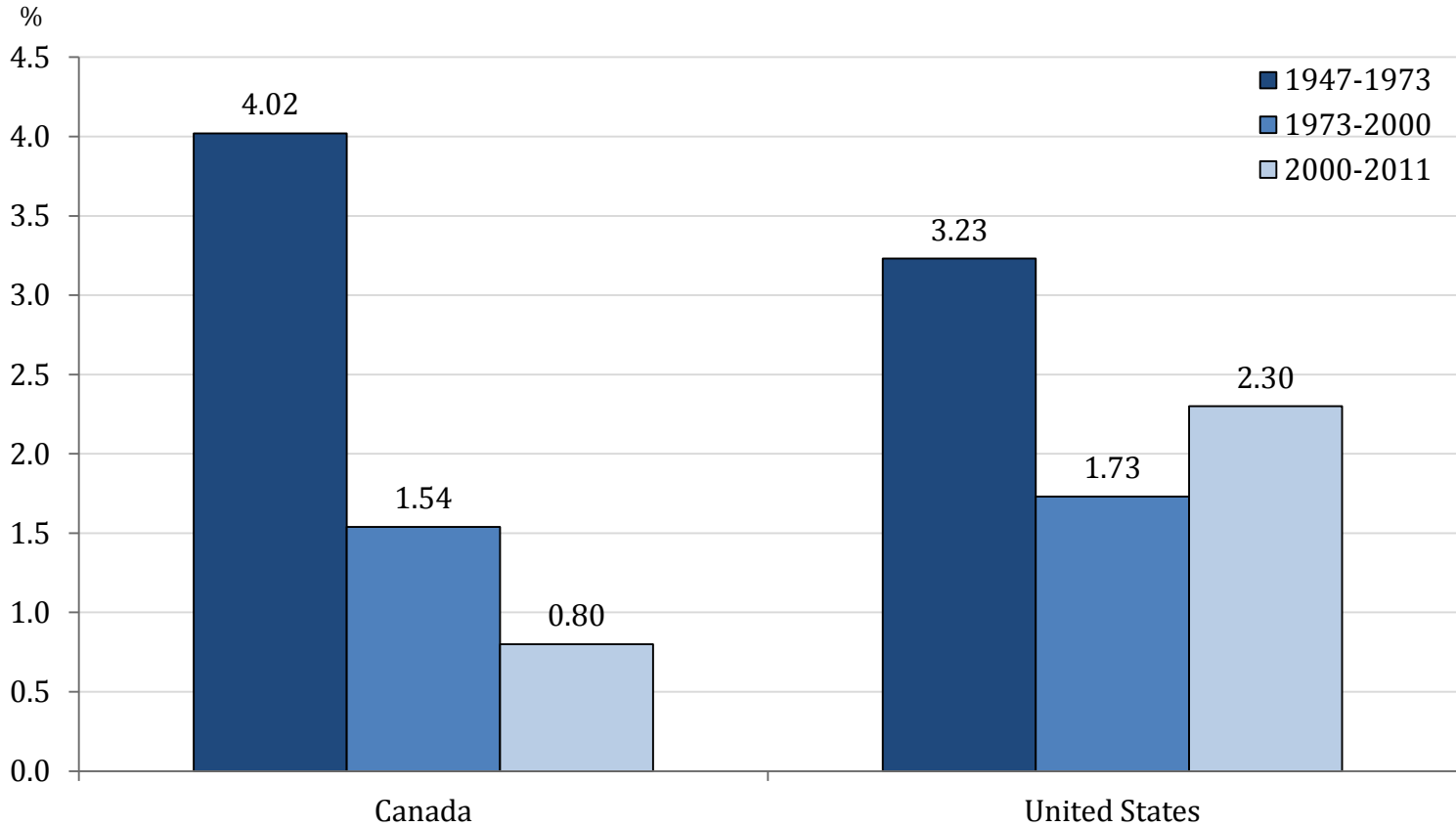
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Workshop on Research Methods to Study Productivity
Determinants Within Firms and the Role of Policy
Ottawa, ON
November 1, 2012

Real Output per Hour Growth, Business Sector, Canada and the United States, Per Cent 1947-2010

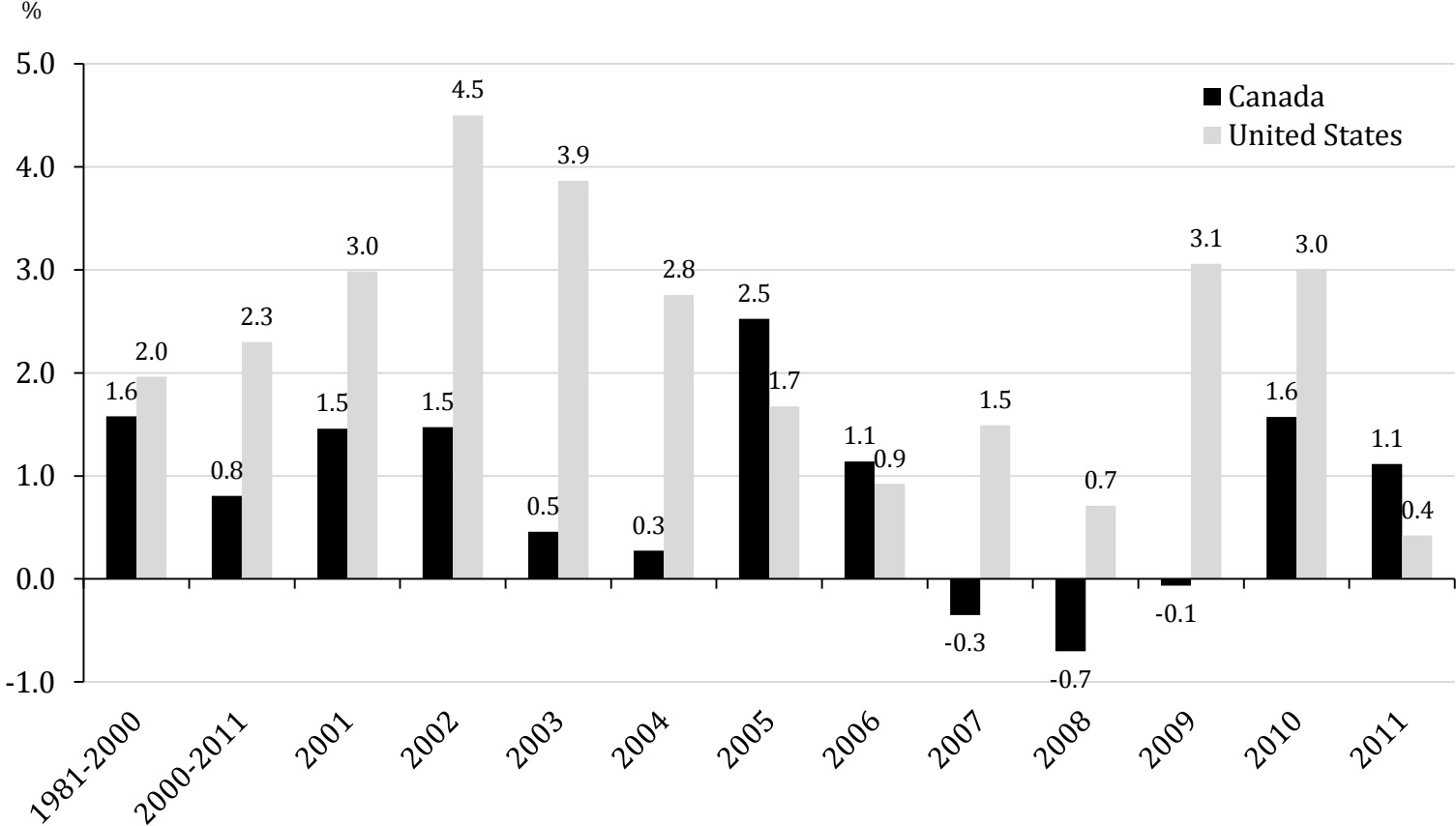
(average annual growth rates)



Source: CSLS Aggregate Income and Productivity Trends: Canada vs United States Database, based on data from Statistics Canada and the U.S. Bureau of Labor Statistics.

Business Sector Output per Hour Growth in Canada and the United States, 1981-2011

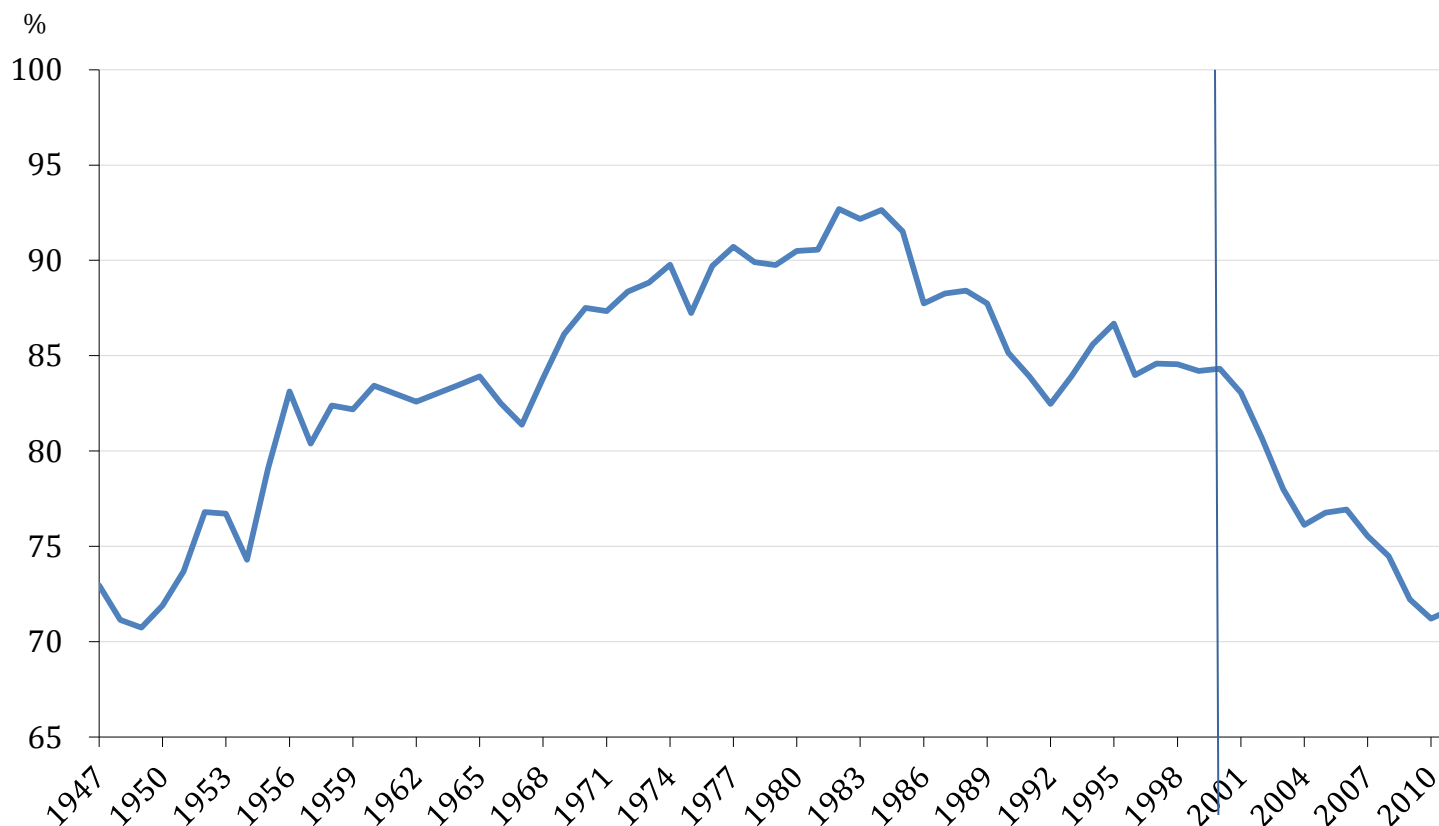
(average annual growth rates and annual rates of change, per cent)



Source: CSLIS Aggregate Income and Productivity Trends: Canada vs United States Database, based on data from Statistics Canada and the U.S. Bureau of Labor Statistics.

Relative Labour Productivity Levels (GDP per Hour) in the Business Sector in Canada, 1947-2011, US=100

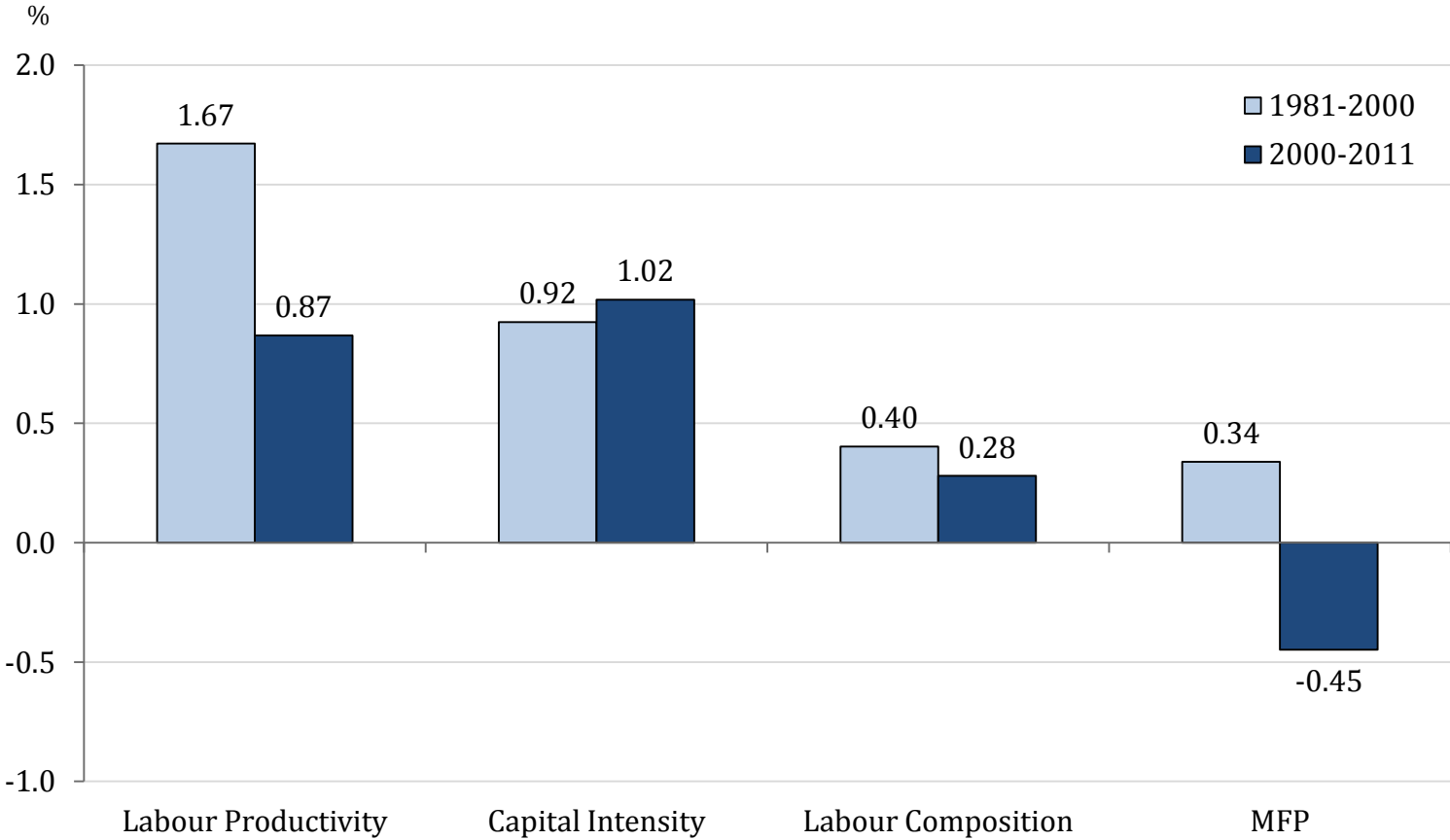
(Canada as % of the United States)



Note: Calculations based on the 1999 benchmark for the business sector of Canada's output per hour at 84.2 per cent that of the United States from Statistics Canada (2008) "Relative Multifactor Productivity Levels in Canada and the United States: A Sectoral Analysis," Catalogue no. 15-206-X, no. 019, July, p.32.

Source: CSLS Aggregate Income and Productivity Trends: Canada vs United States Database, based on data from Statistics Canada and the U.S. Bureau of Labor Statistics.

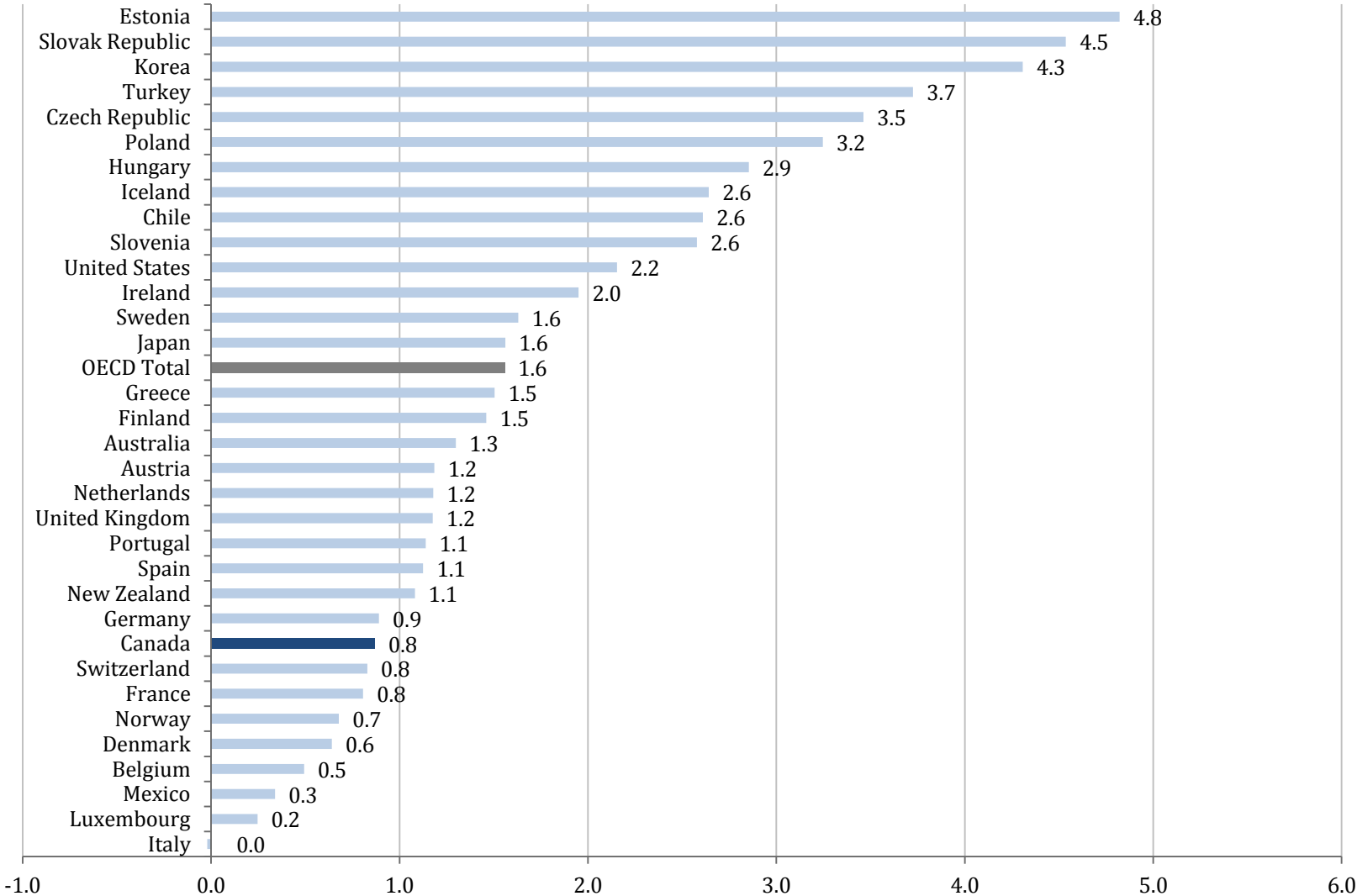
Percentage Point Contribution to Labour Productivity Growth by the Source of Labour Productivity Growth in Canada, Business Sector, 1981-2000 and 2000-2011



Source: CSLS calculations based on Statistics Canada data, Canadian Productivity Accounts, CANSIM Table 383-0021.

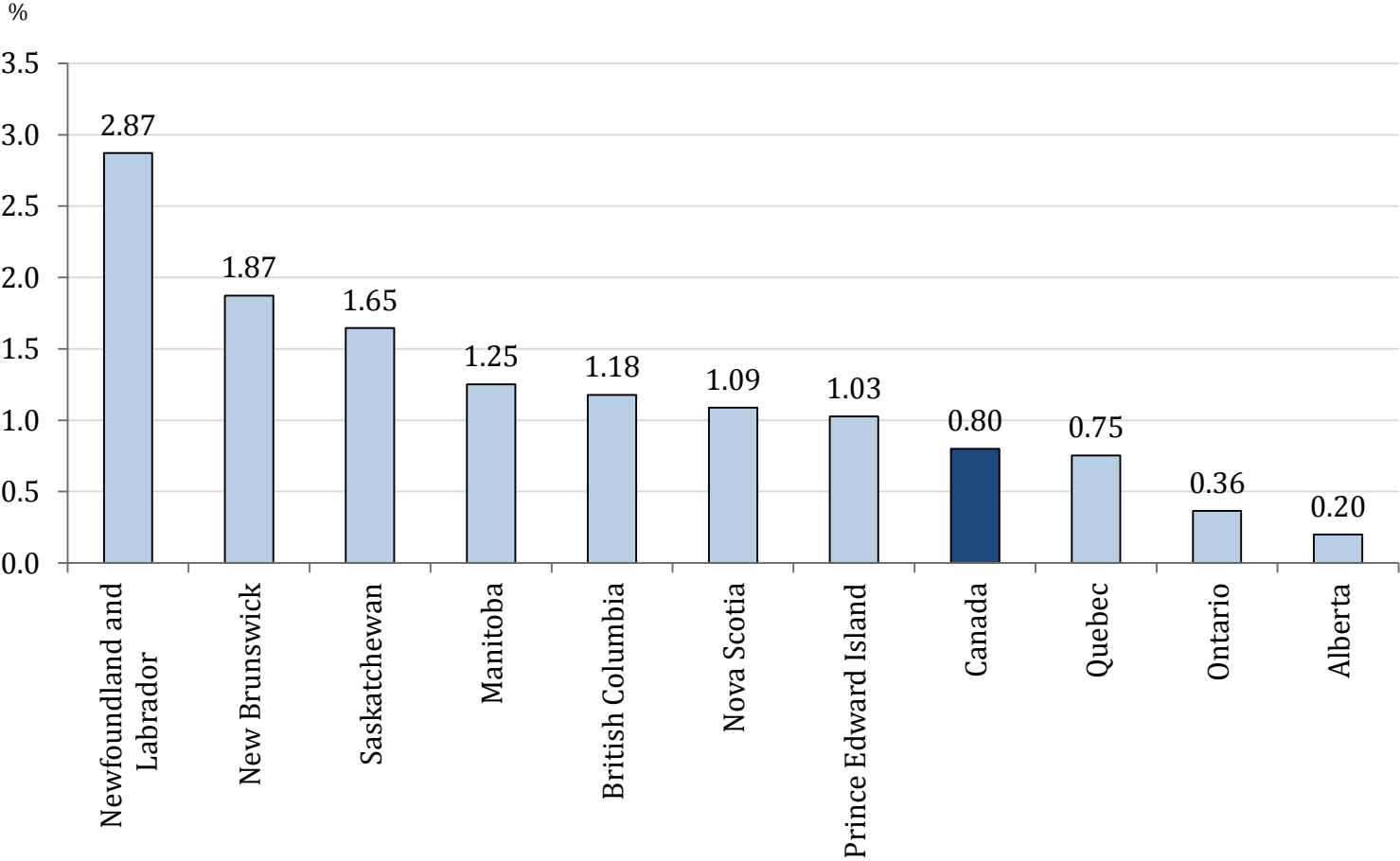
Real GDP per Hour Worked Growth in OECD Countries, 2000-2010

(compound annual growth rates, per cent)



Business Sector Labour Productivity Growth by Province, 2000-2011

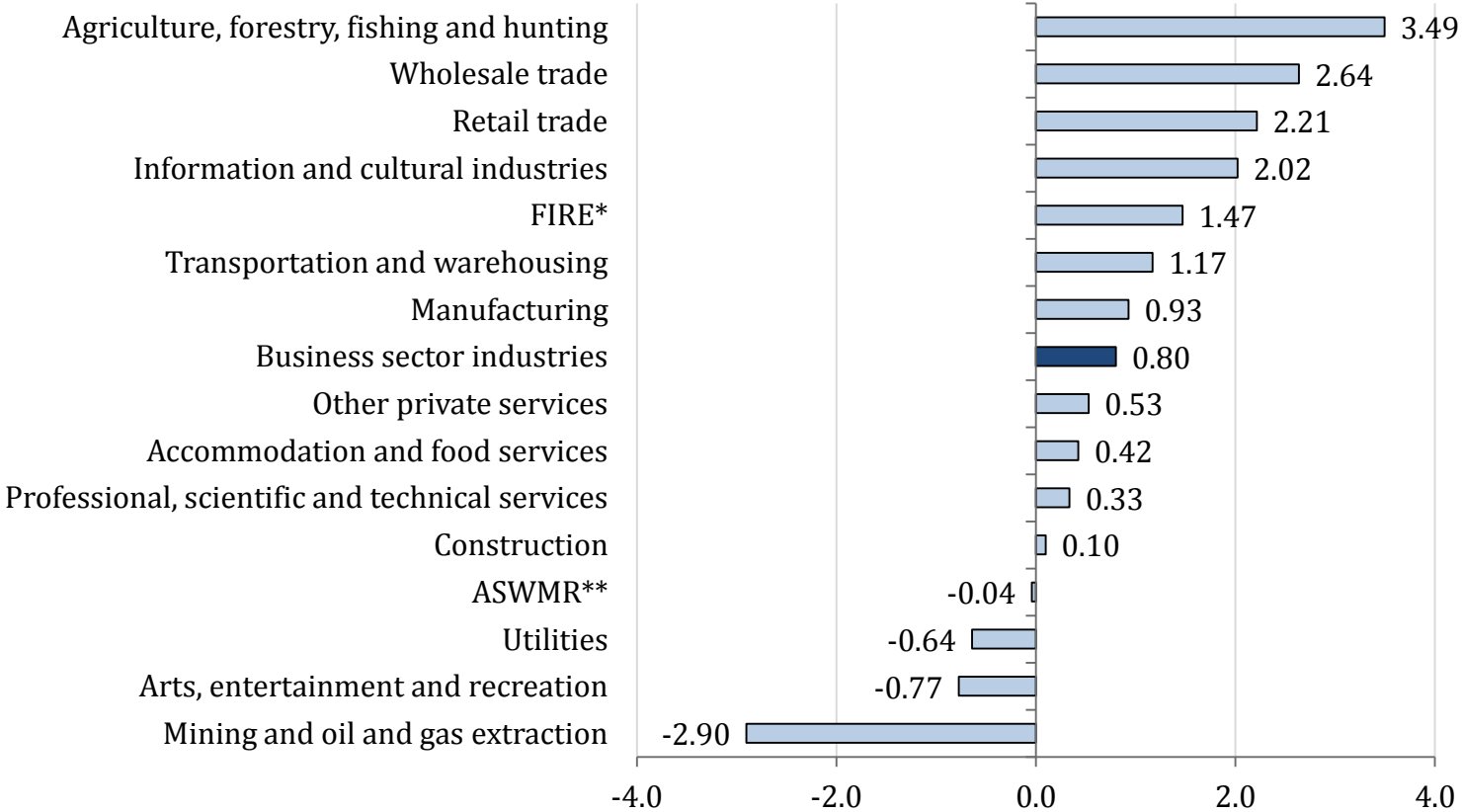
(compound annual growth rates, per cent)



Source: CSLS calculations based on Statistics Canada data, Canadian Productivity Accounts, CANSIM Table 383-0011.

Labour Productivity Growth by Industry in Canada, 2000-2011

(compound annual growth rates, per cent)

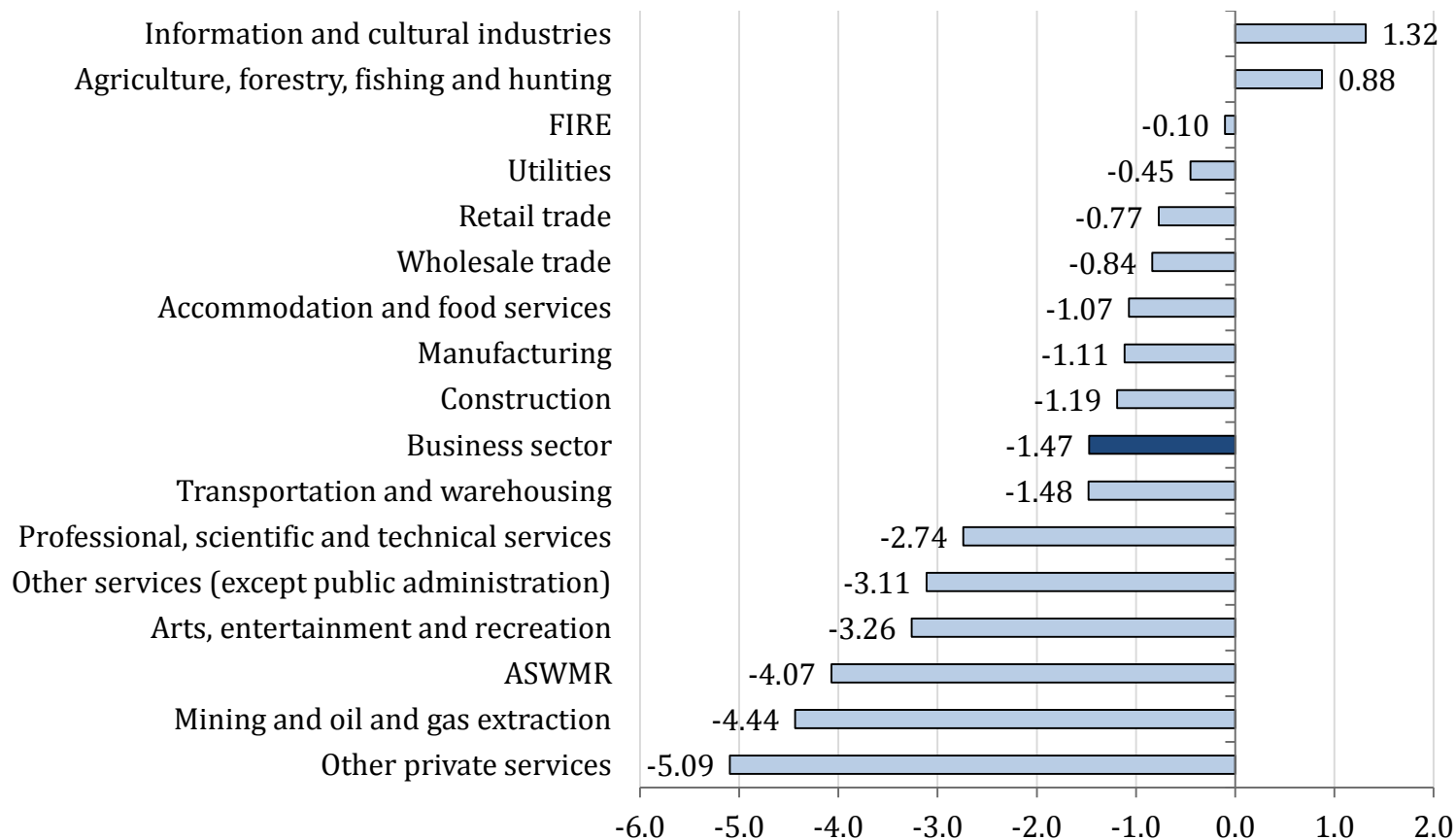


*FIRE – Finance, Insurance, Real Estate, Rental and Leasing ** ASWMR - Administrative and Support, Waste Management and Remediation Services

Source: CSLS calculations based on Statistics Canada data, Canadian Productivity Accounts, CANSIM Table 383-0011.

Capital Productivity Growth by Industry in Canada, 2000-2011

(compound annual growth rates, per cent)

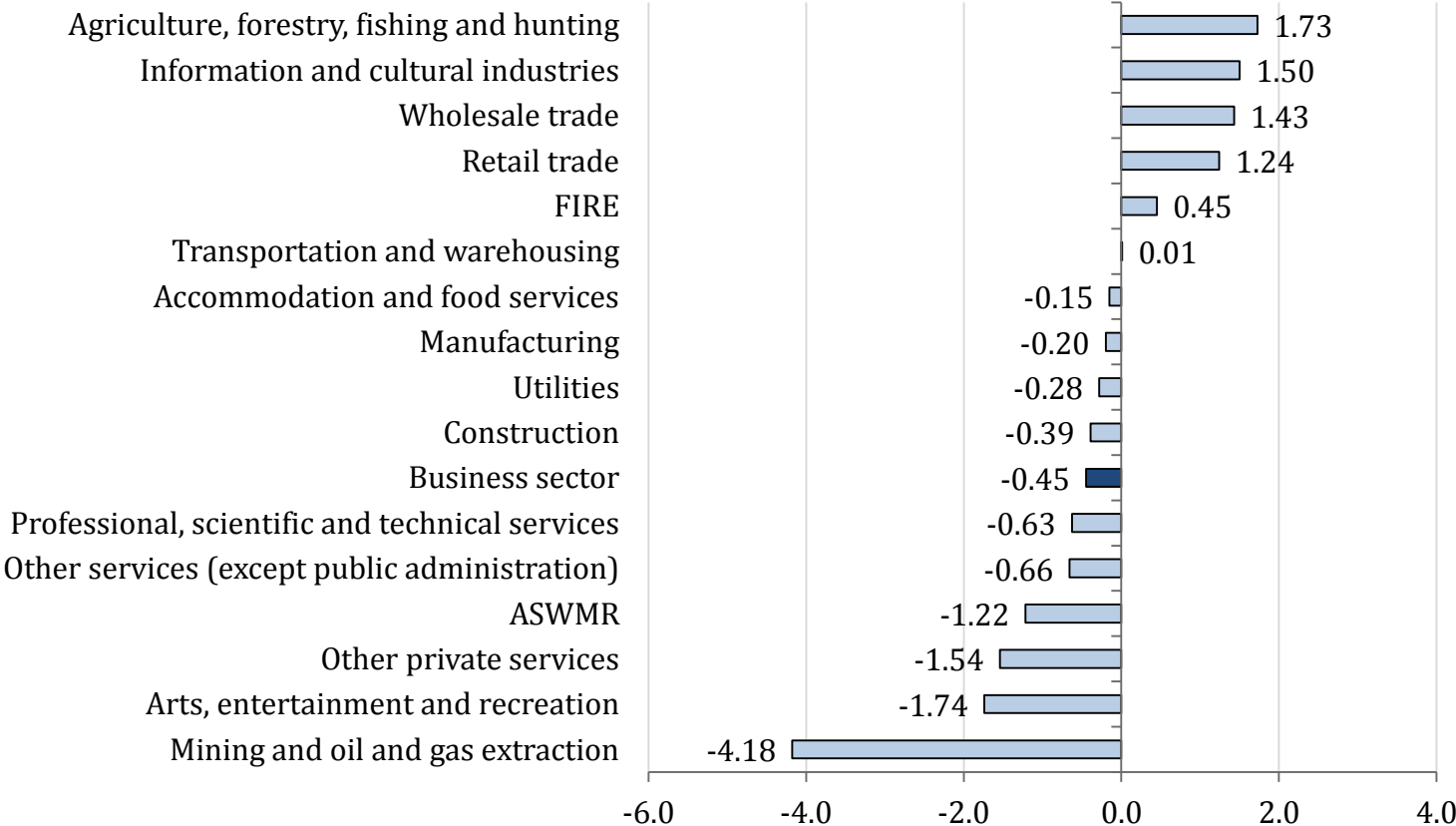


*FIRE – Finance, Insurance, Real Estate, Rental and Leasing ** ASWMR - Administrative and Support, Waste Management and Remediation Services

Source: CSLS calculations based on Statistics Canada data, Canadian Productivity Accounts, CANSIM Table 383-0011.

Multifactor Productivity Growth by Industry in Canada, 2000-2011

(compound annual growth rates, per cent)

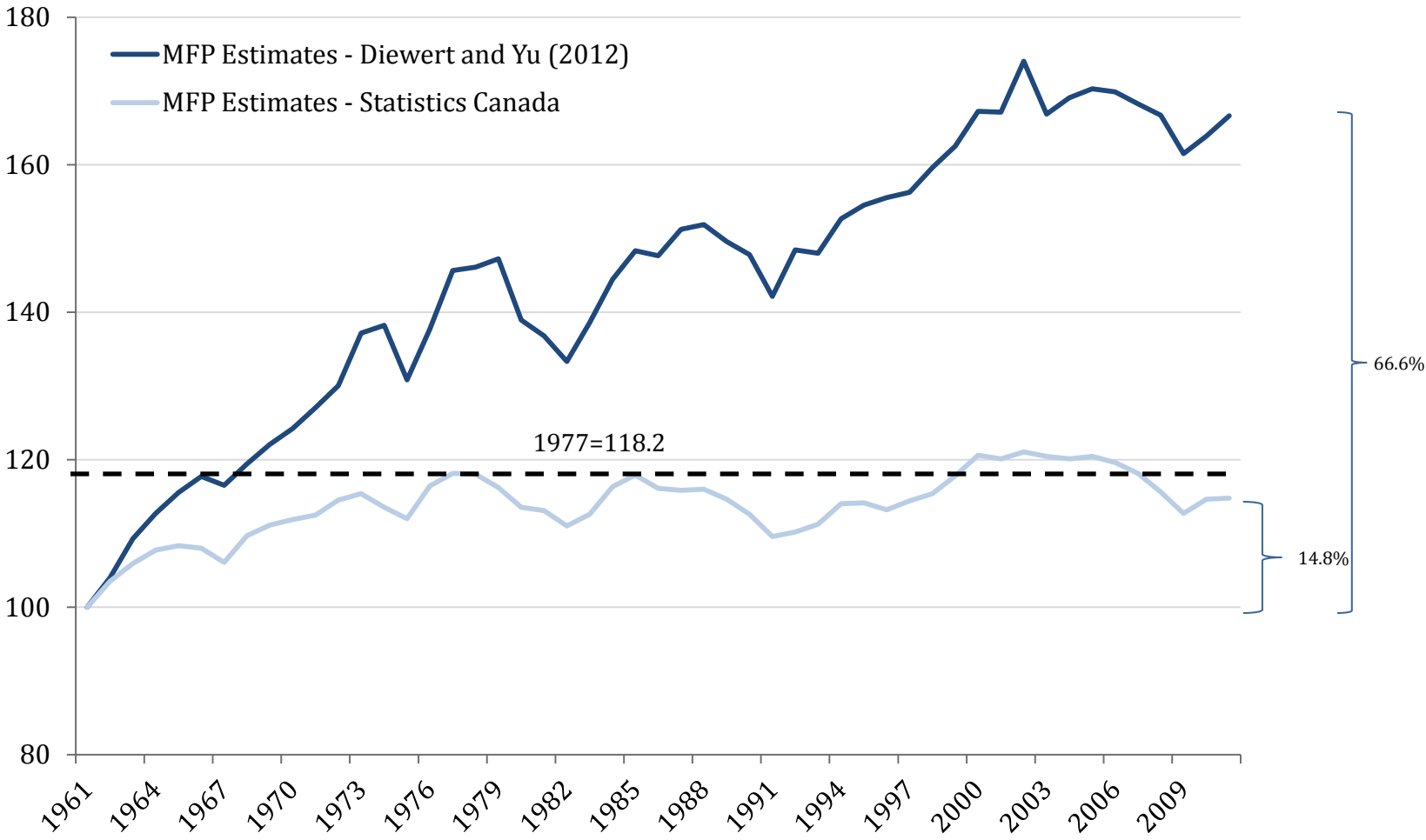


*FIRE – Finance, Insurance, Real Estate, Rental and Leasing ** ASWMR - Administrative and Support, Waste Management and Remediation Services

Source: CSLS calculations based on Statistics Canada data, Canadian Productivity Accounts, CANSIM Table 383-0011.

MFP Growth in Canada, Comparison between Diewert and Yu (2012) and Statistics Canada, 1961-2011

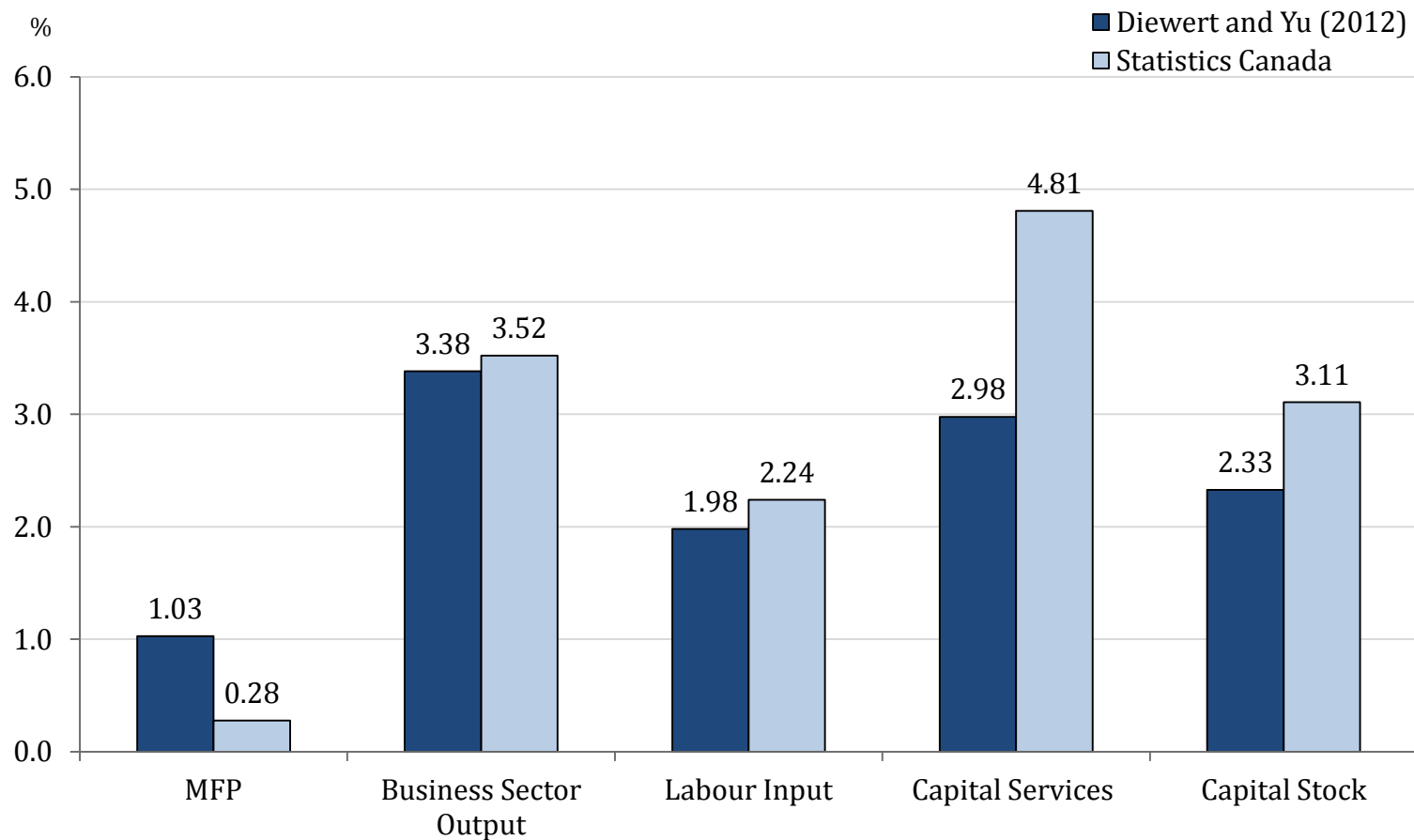
(index, 1961=100)



Source: Diewert and Yu (2012) and Statistics Canada, Canadian Productivity Accounts (CANSIM Table 383-0021).

MFP Growth in Canada, Comparison between Diewert and Yu (2012) and Statistics Canada, 1961-2011 (2)

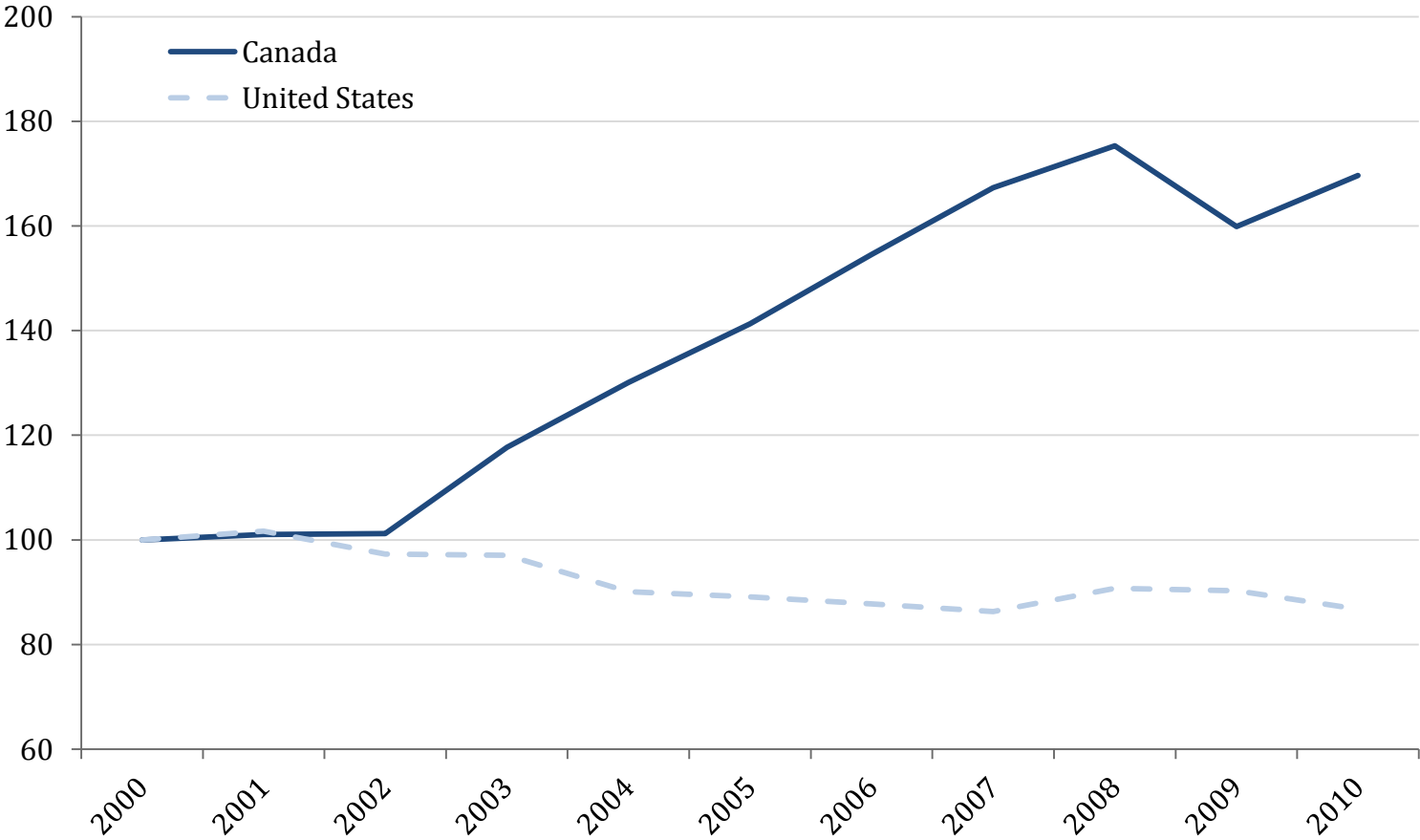
(compound annual growth rates, per cent)



Source: Diewert and Yu (2012) and Statistics Canada, Canadian Productivity Accounts (CANSIM Table 383-0021).

Unit Labour Cost in the Manufacturing Sector (US\$), Canada-U.S. Comparison, 2000-2010

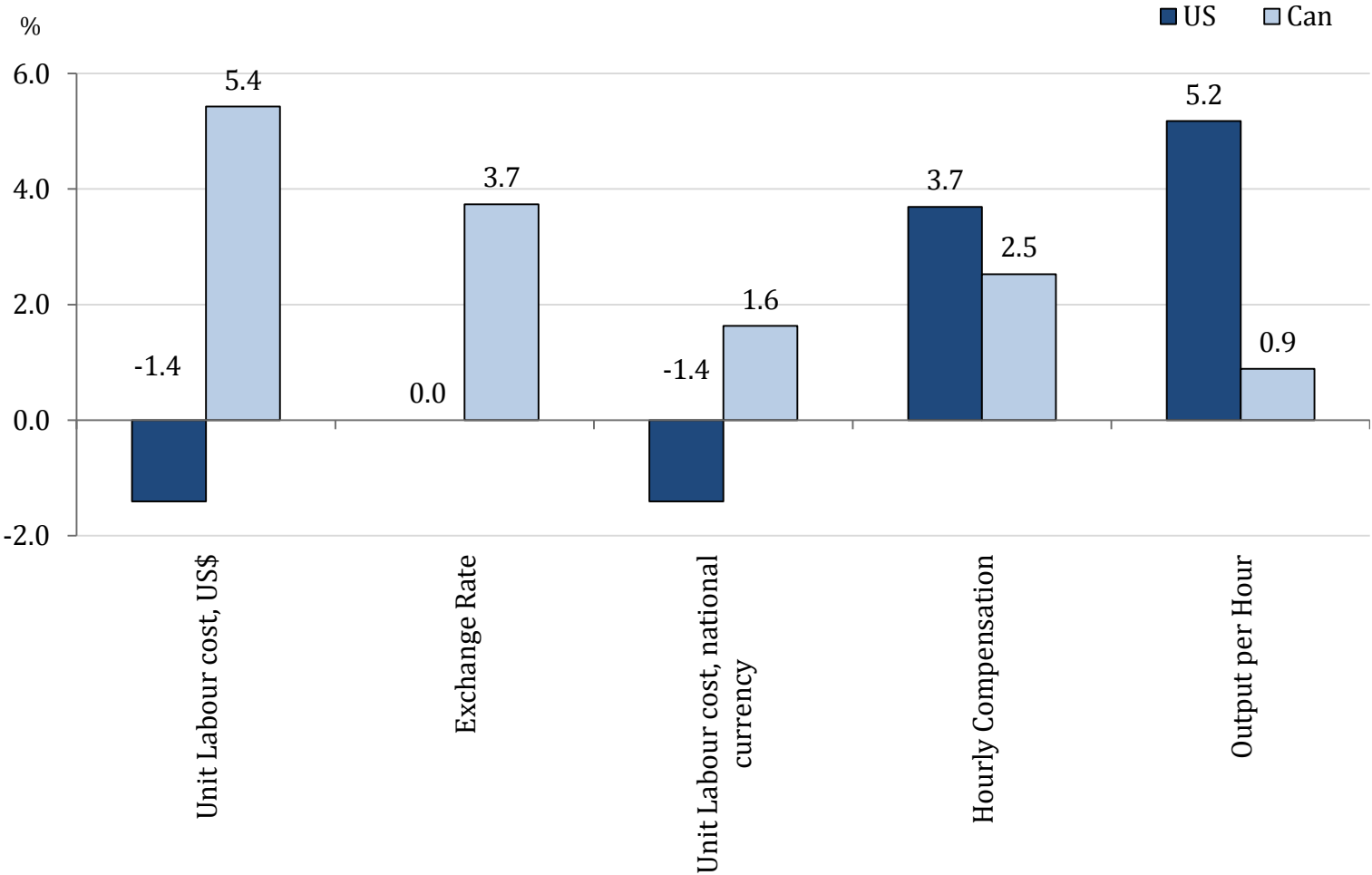
(Index, 2000=100)



Source: U.S. Bureau of Labor Statistics, International Labor Comparisons.

Unit Labour Cost in the Manufacturing Sector (US\$), Canada-U.S. Comparison, 2000-2010

(compound annual growth rates, per cent)



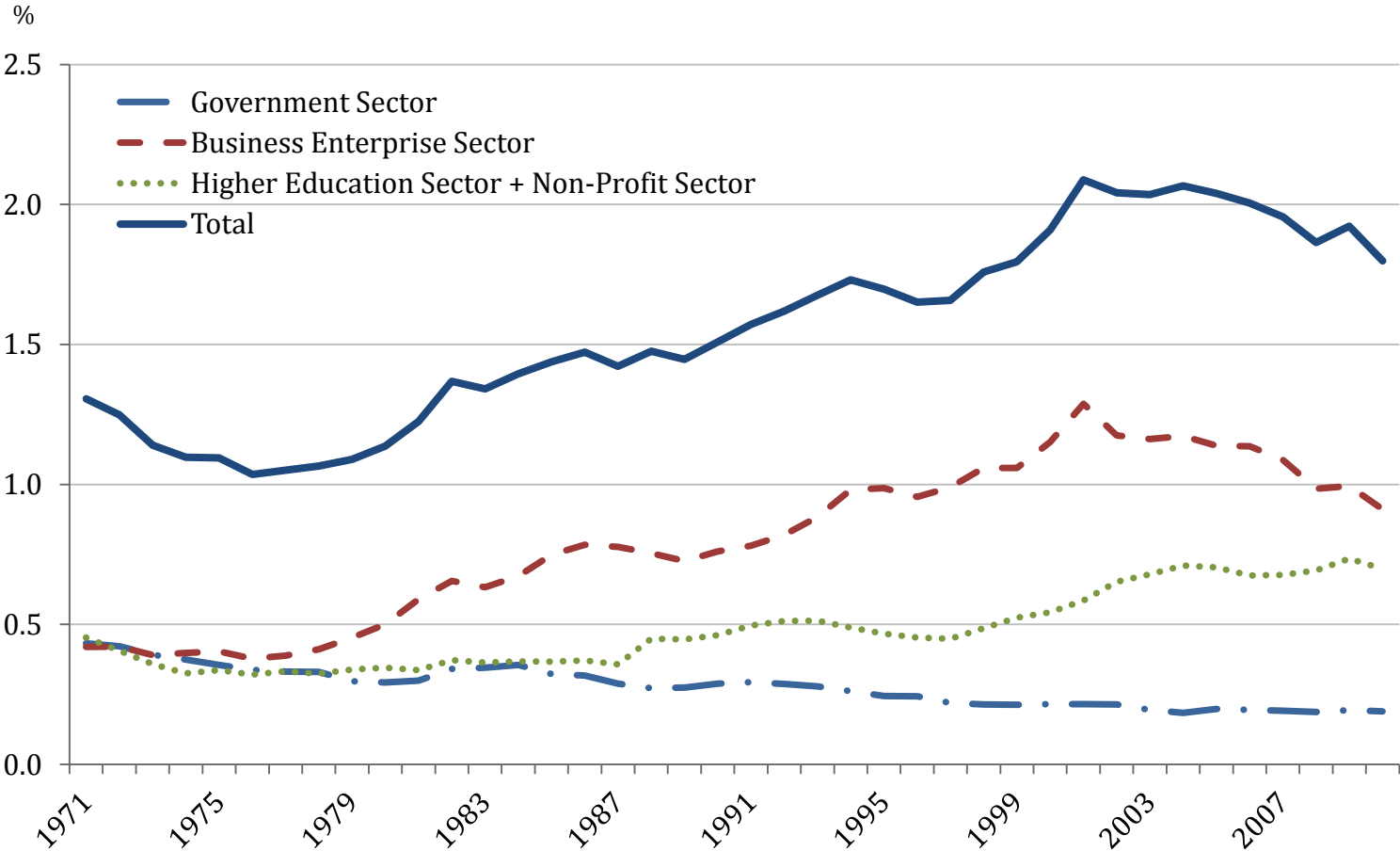
Source: U.S. Bureau of Labor Statistics, International Labor Comparisons.

Productivity Drivers in Canada

- **Rate of technical progress**, determined by the rate of discovery of new product and process innovations and the pace of the diffusion of those innovations
- **Investment in physical capital** such as machinery and equipment and structures. It is estimated that 80 per cent of technical change is embodied in new capital equipment.
- **Quality of the workforce**, including the average level of educational attainment, training, and experience.
- **Quantity and quality of the natural resource base.**
- **Industrial structure and intersectoral shifts** since the aggregate level of labour productivity is a weighted average of industry labour productivity levels.
- **Macro-economic environment or aggregate demand conditions** defined by the size of the output gap and relationship between actual and potential output growth.
- **Microeconomic policy environment**, broadly defined as the policies that affect the behavior at the firm level including trade policy, tax policy, industrial policy, competition policy, and policies on privatization, intellectual property, regulation, and foreign ownership.

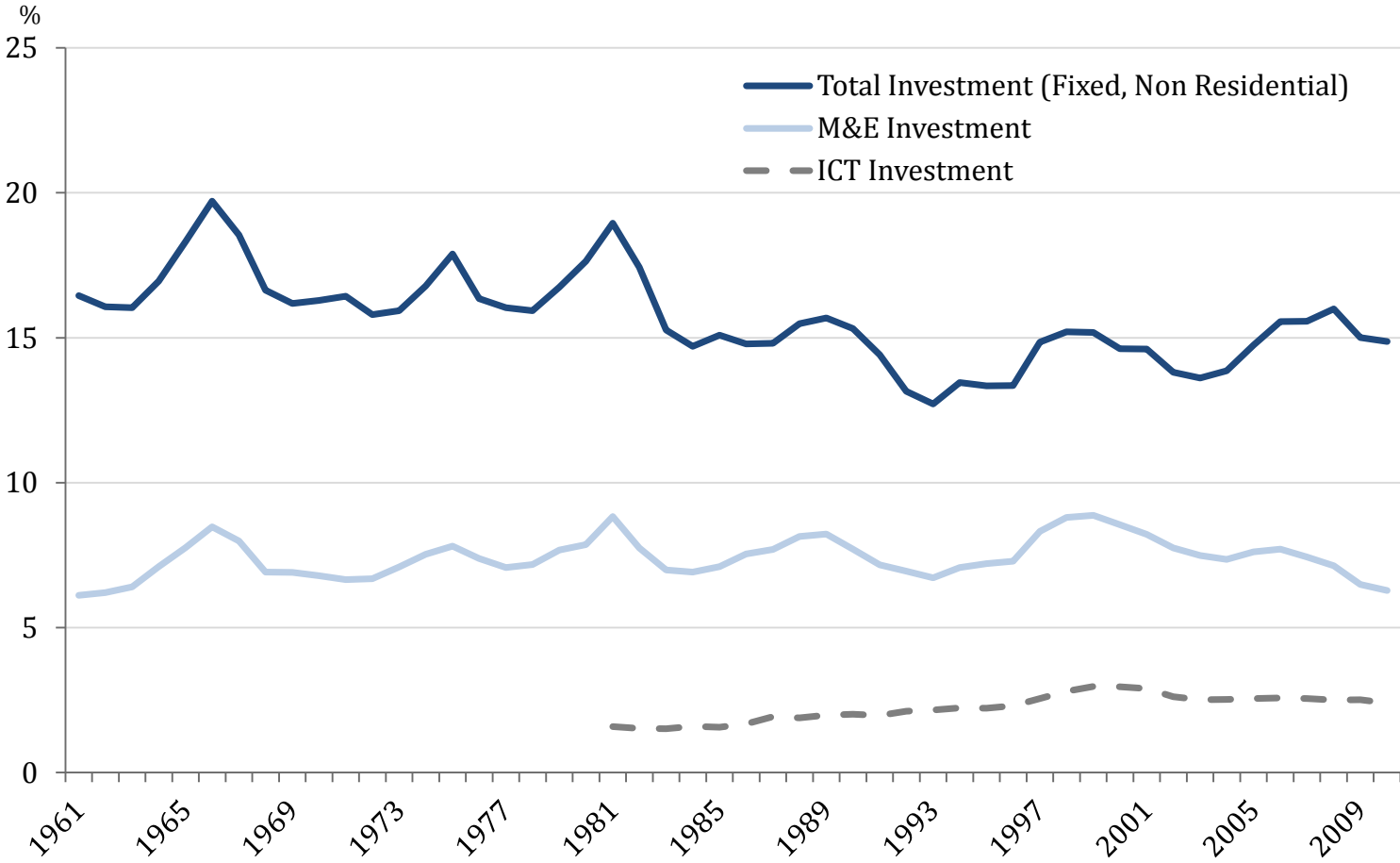
R&D Spending in Canada as a Share of GDP, 1971-2010

(per cent)



Total Economy Nominal Investment (Fixed, Non-Res), 1961-2010

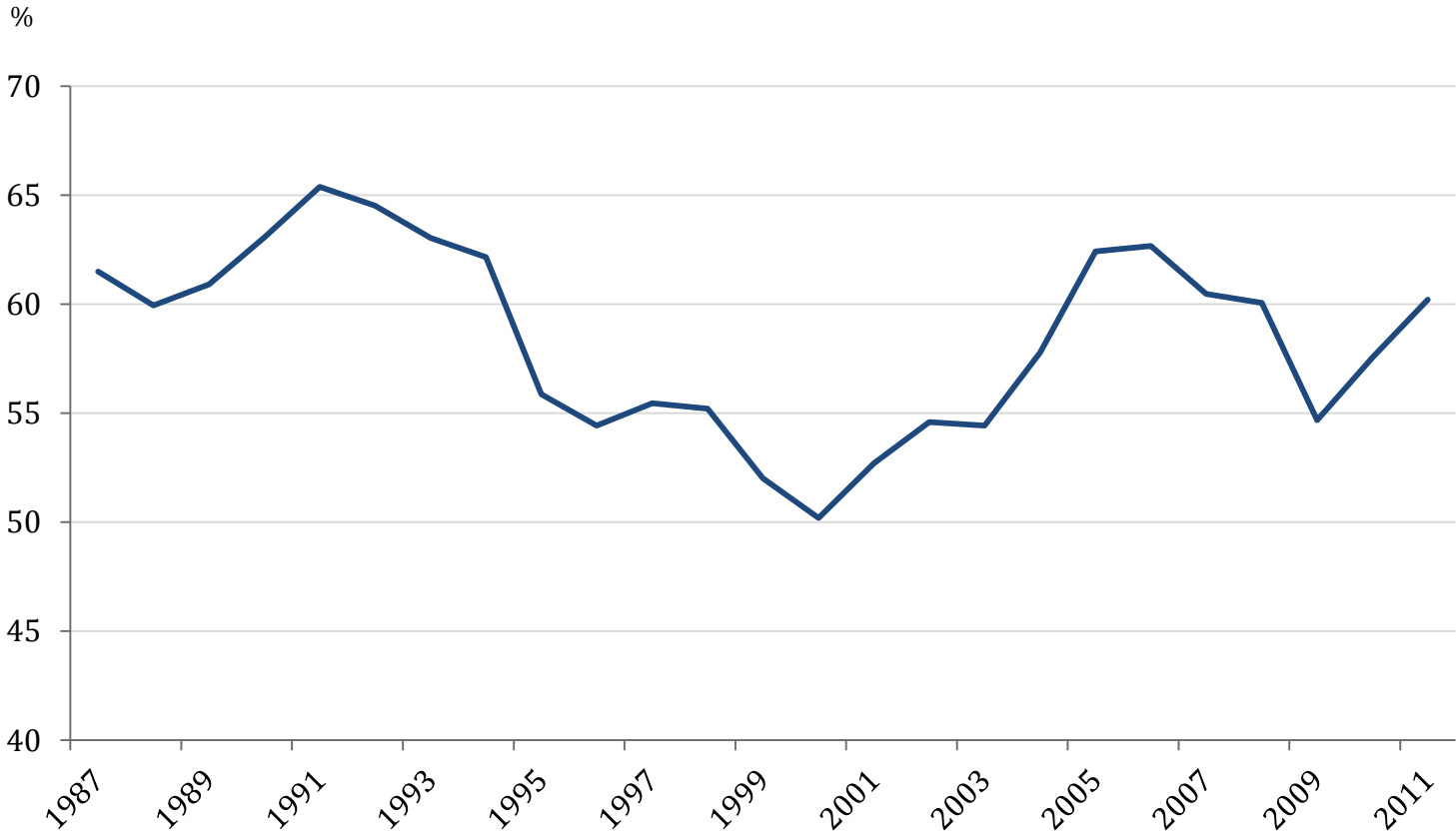
(as a share of nominal GDP)



Source: CSLS calculations based on Statistics Canada data.

Canada-U.S. ICT Investment per Worker Gap, 1987-2011

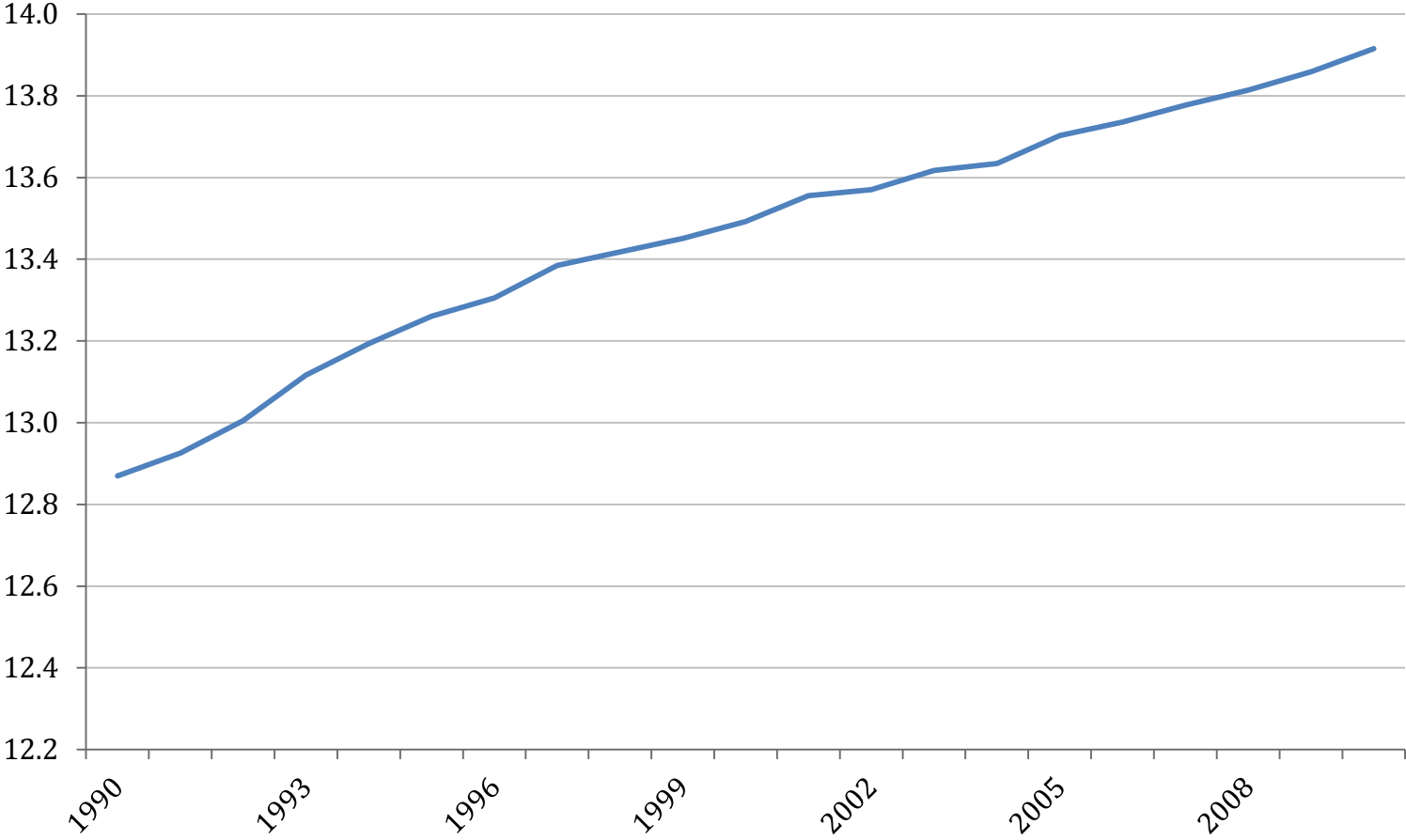
(Nominal ICT investment per worker in Canada as a share of the U.S., PPP adjusted)



Source: CSLS ICT Investment and Capital Stock Trends: Canada vs United States Database.

Educational Attainment, 1990-2010

(average years of schooling)



Source: CSLS calculations based on Statistics Canada data.

Public Policies to Foster Productivity Growth in Canada

Innovation

Weaknesses

- Very weak technical progress, as implied by the poor performance of total factor productivity growth
- Low business sector R&D intensity
- Weak linkages between university research and business innovation

Policy Responses

- Generous tax incentives for business R&D
- Increased government support for higher education R&D
- Exhortation for better university-business technological partnerships

Public Policies to Foster Productivity Growth in Canada (2)

Investment

Weaknesses

- Low share of machinery and equipment investment in GDP
- Low share of ICT investment in GDP
- Long-term decline in public investment as a share of GDP

Policy Responses

- Introduction of the HST in Ontario and P.E.I. to reduce the marginal effective tax rate (METR) on investment
- Reduction in the statutory federal corporate tax rate
- Special incentives for ICT investment
- Increased infrastructure spending

Public Policies to Foster Productivity Growth in Canada (3)

Human Capital

Strengths

- Highest proportion of the population with a post-second education among OECD countries
- High PISA scores for high school students
- World class research universities

Weaknesses

- Relatively low proportion of the population with graduate degrees
- Low completion rate for apprenticeship programs
- Underutilization of the human capital of recent immigrants
- Low levels of human capital of Aboriginal Canadians
- Poor literacy skills for a significant proportion of the workforce

Policy Responses

- Better recognition of foreign credentials
- Greater emphasis on high school completion with an increase in the age of compulsory schooling to 18 in Ontario and New Brunswick

Public Policies to Foster Productivity Growth in Canada (4)

Macro-economic Framework Policies

- Stable inflation through inflation targeting
- Low debt/GDP and deficit/GDP ratios by international standards
- Improved fiscal position in the medium term due to recovery and spending cuts

Public Policies to Foster Productivity Growth in Canada (5)

Microeconomic Framework Policies

- Market-oriented approach to framework policies as evidenced by privatization of Crown corporations, deregulation of certain sectors (e.g., telecommunications) and apparent easing of foreign ownership restrictions
- Canada already one of the most market-oriented economies in the world
- Still some interprovincial barriers to trade (e.g. provincial procurement policies) and labour mobility (recognition of professional credentials)
- Still foreign ownership rules in certain sectors
- Marketing boards with controls on domestic production and imports are the most important barrier to international trade