Centre for the Study of Living Standards
Centre d'étude des niveaux de vie

"A Detailed Analysis of Productivity Performance in the Canadian Mining and Oil and Gas Extraction Industry"

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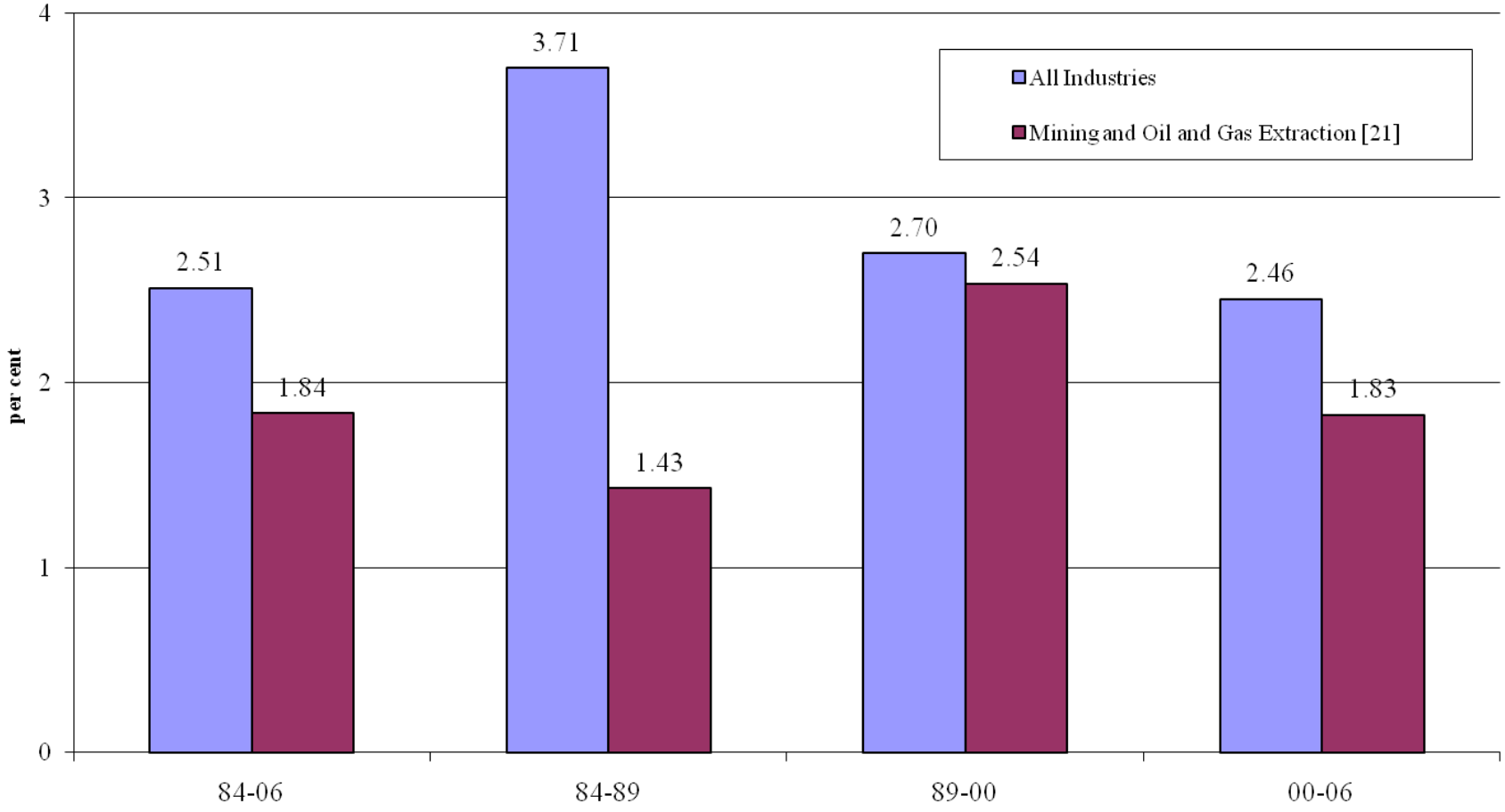
Roadmap

- Importance of the mining and oil and gas sector in Canada
- Causes of falling productivity in the sector
- Comparison of mining and oil and gas labour productivity in Canada and the United States

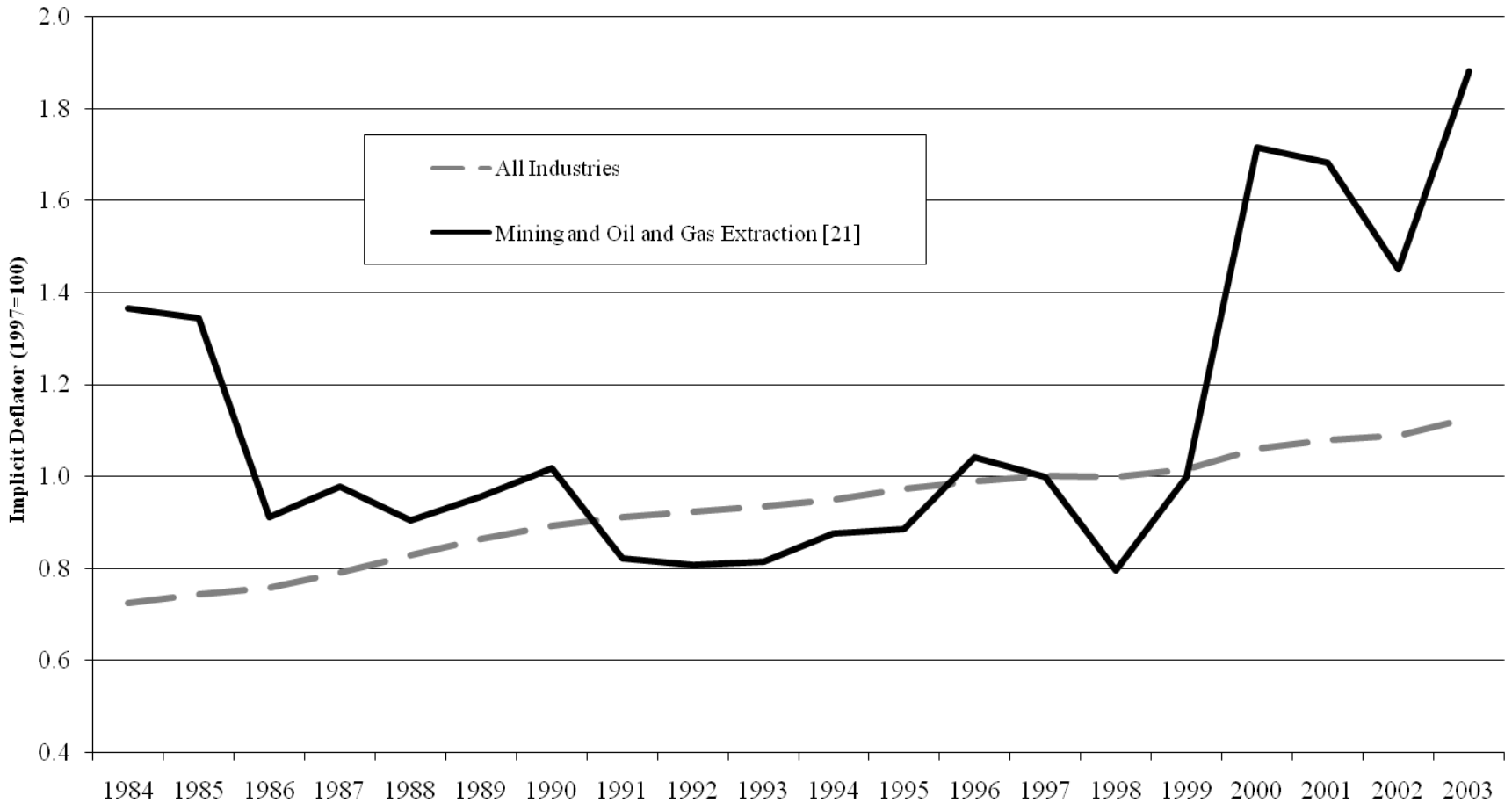
Importance of the Mining and Oil and Gas Sector in Canada

The Importance of the Mining and Oil and Gas Extraction Industry in Canada, 2006						
	Real GDP (millions of 1997 dollars)	% of Mining and Oil and Gas Extraction Industry Real GDP	% of All Industry Real GDP	Employment (thousands of workers)	% of Mining and Oil and Gas Extraction Industry Employment	% of All Industry Employment
Mining and Oil and Gas Extraction	39,584	100.0	3.6	240.6	100.0	1.5
Oil and Gas Extraction	24,465	61.8	2.2	78.7	32.7	0.4
Mining	9,788	24.7	0.9	59.8	24.9	0.8
· Coal Mining	817	2.1	0.1	5.5	2.3	0.1
· Metal Ore Mining	4,609	11.6	0.4	30.2	12.6	0.5
· Non-Metallic Mineral Mining and Quarrying	4,093	10.3	0.4	24.1	10.0	0.1
Support Activities for Mining and Oil and Gas Extraction	5,904	14.9	0.5	97.8	40.7	0.3
Source: Statistics Canada National Accounts and Labour Force Survey						
Note: Oil and Gas Extraction, Mining, and Support Activities for Mining and Oil and Gas Extraction should sum to 100 per cent of industry real GDP and employment. Real GDP is measured as a chained-Fisher index, therefore industry data are not additive, and the real GDP shares will not sum to exactly 100 per cent.						

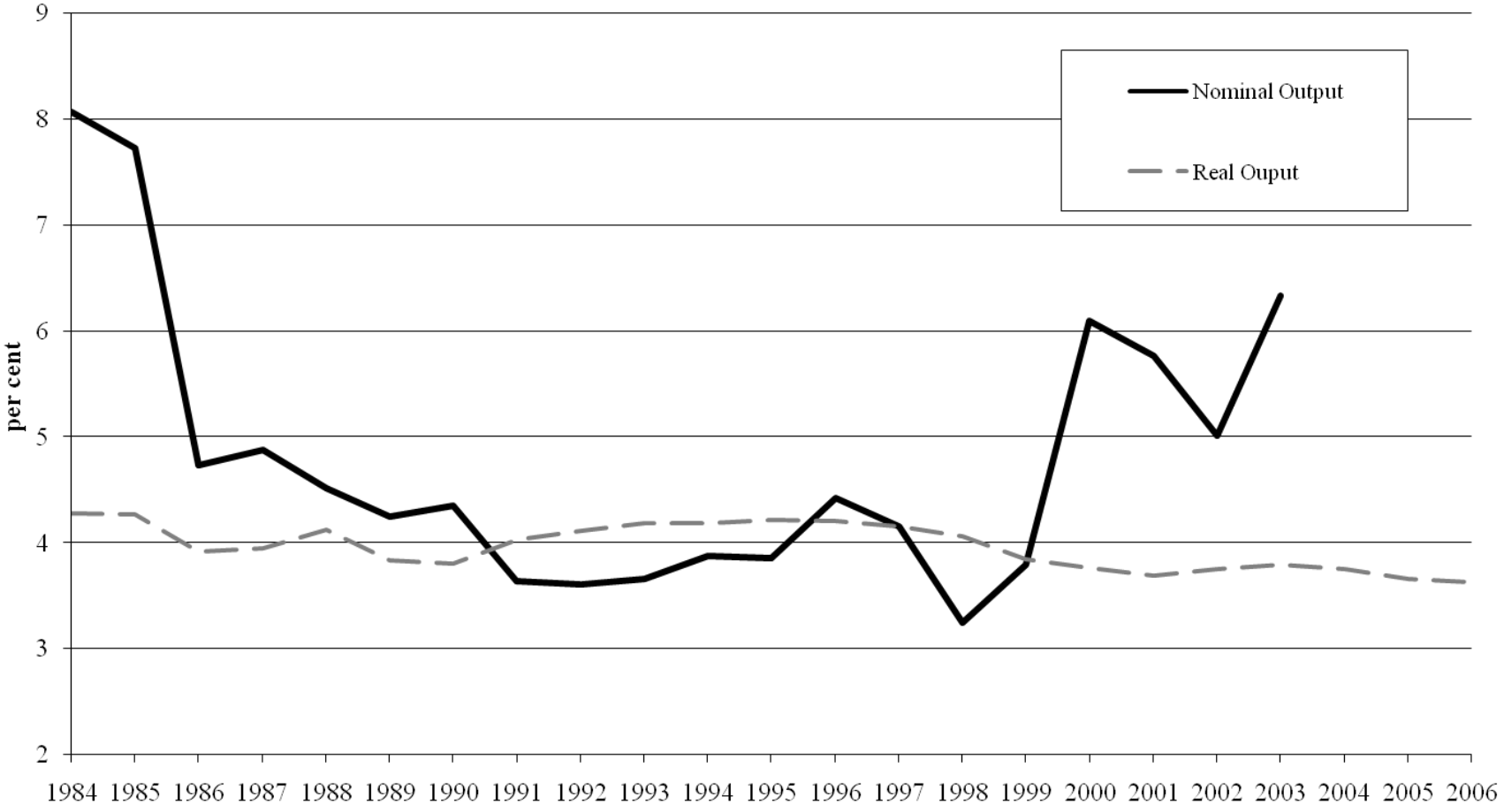
Real GDP in the Mining and Oil and Gas Extraction Industry Relative to the All Industry Average in Canada, 1984-2006 (average annual growth rate)



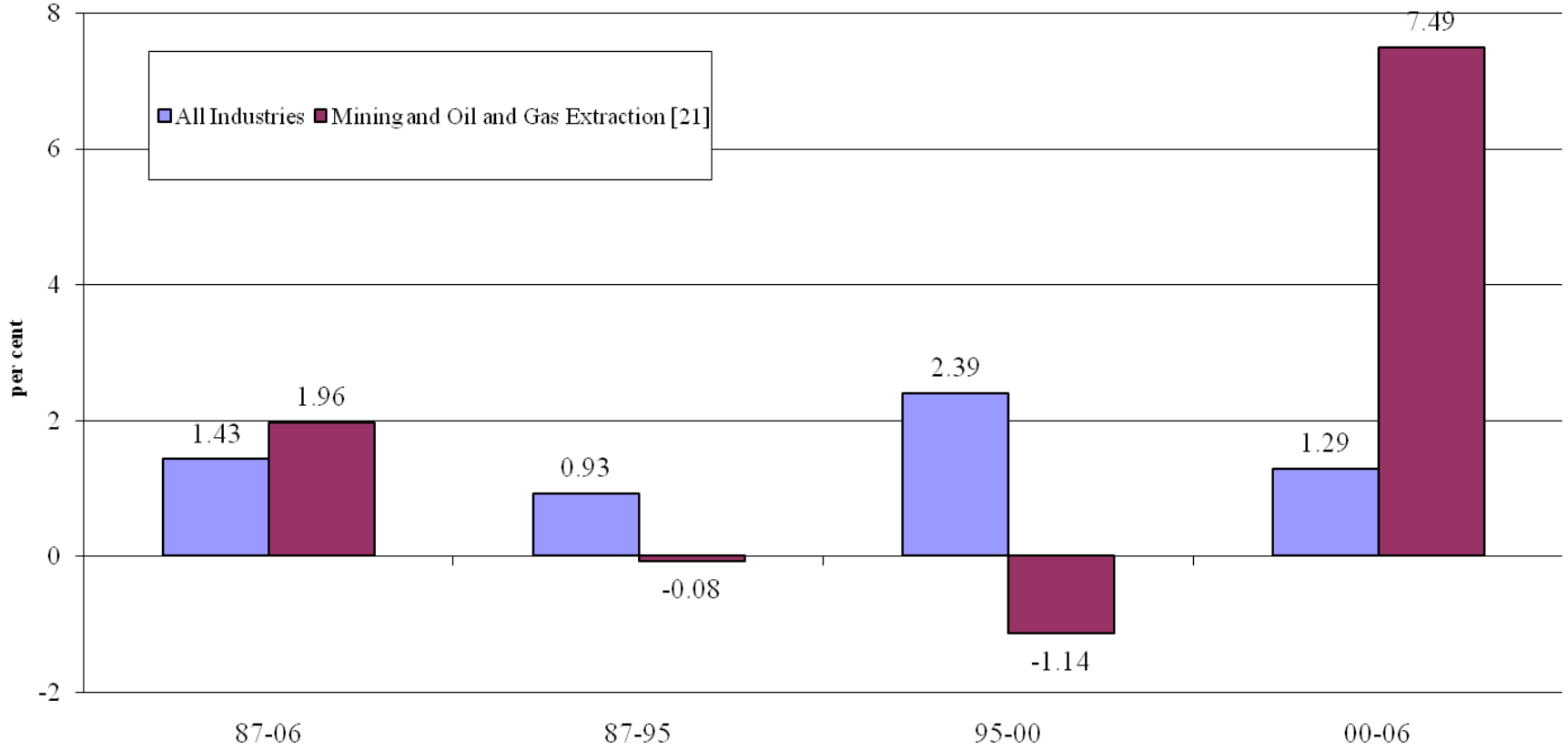
Implicit Deflator for the Mining and Oil and Gas Extraction Industry in Canada, 1984-2003



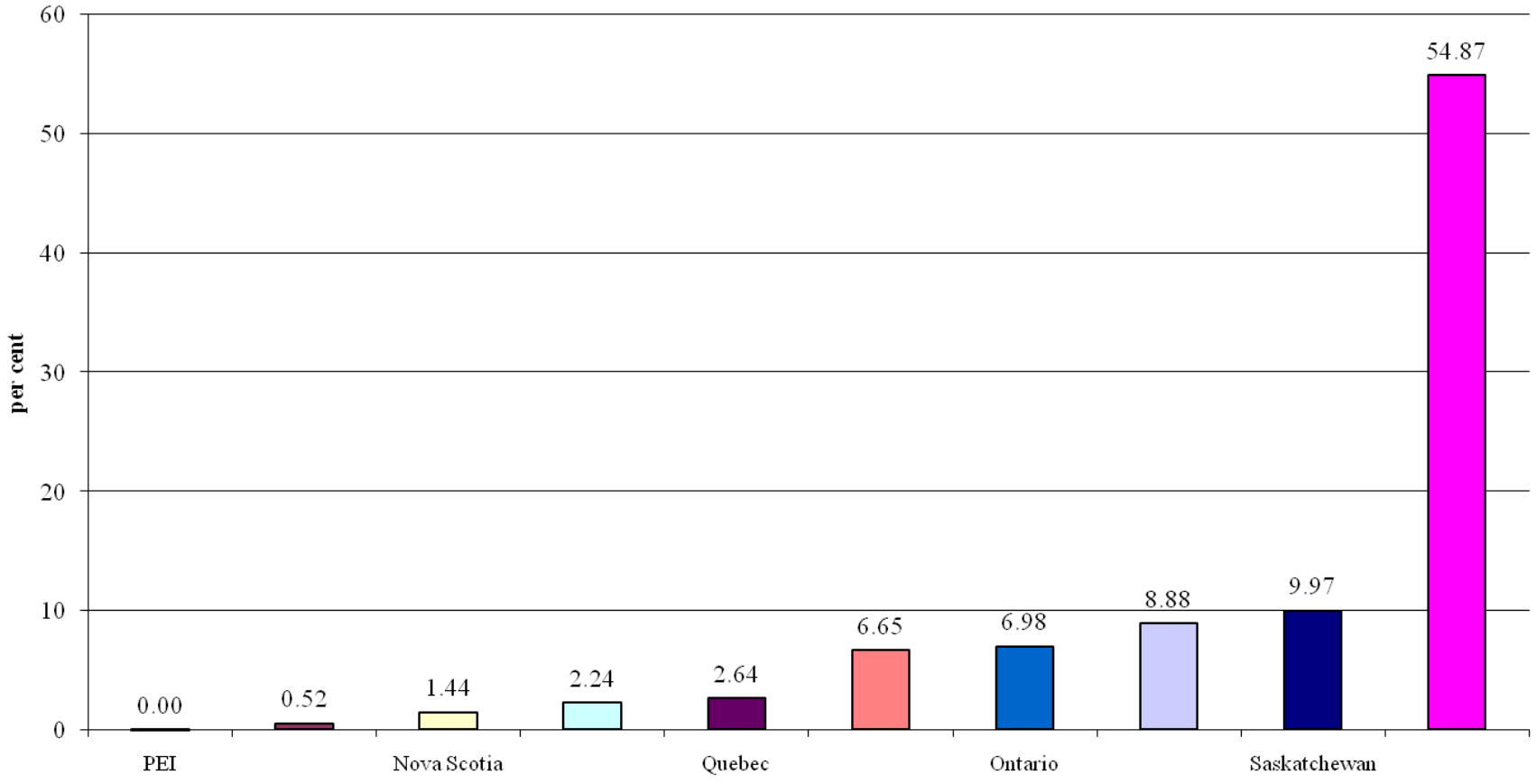
Mining and Oil and Gas Extraction GDP as a Share of All Industry GDP in Canada, 1984-2003



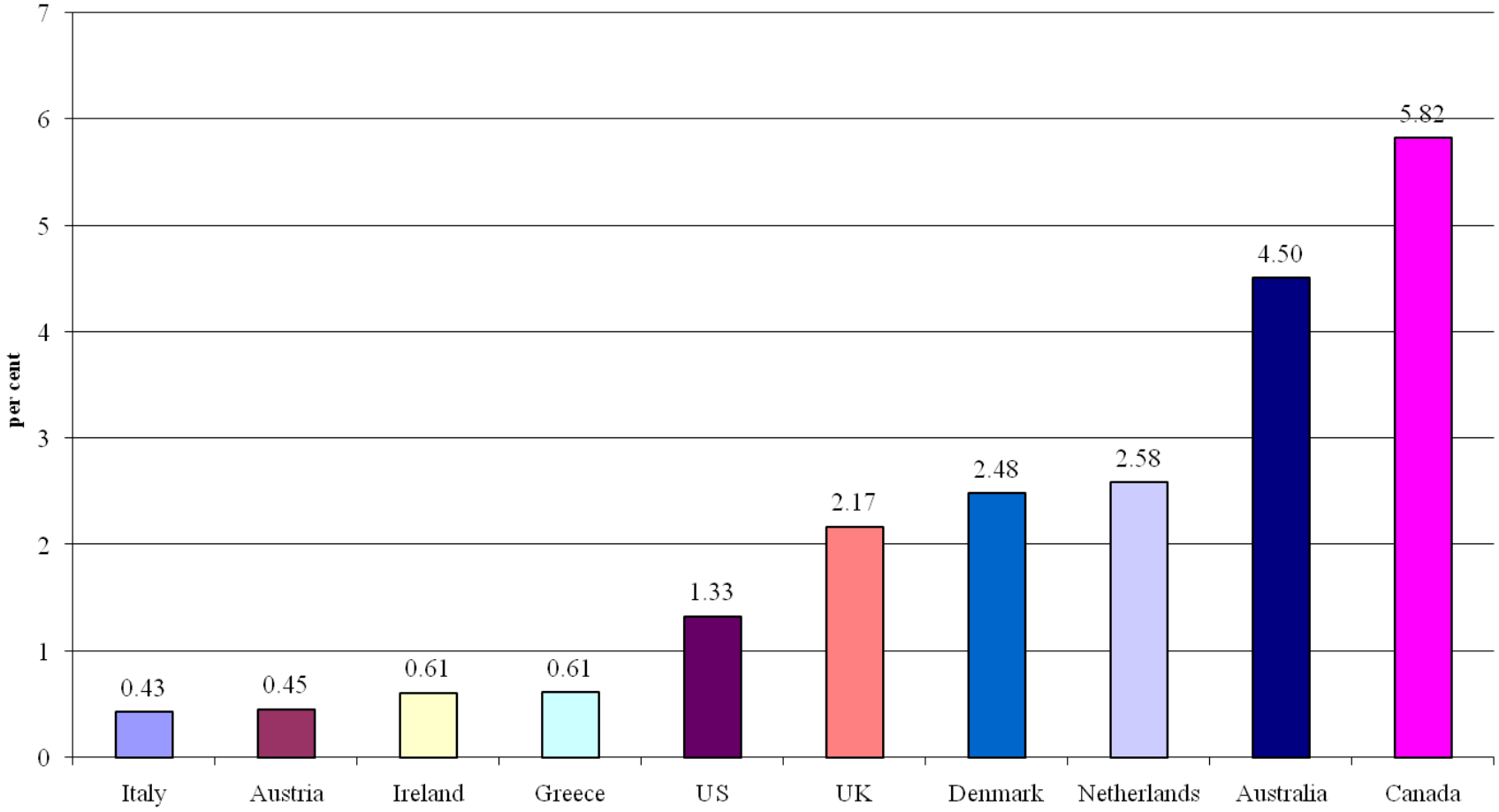
Hours Worked in the Mining and Oil and Gas Extraction Industry Relative to the All Industry Average in Canada, 1987-2006 (average annual growth rate)



Provincial Shares of Mining and Oil and Gas Extraction Real GDP in Canada, 2006 (per cent)

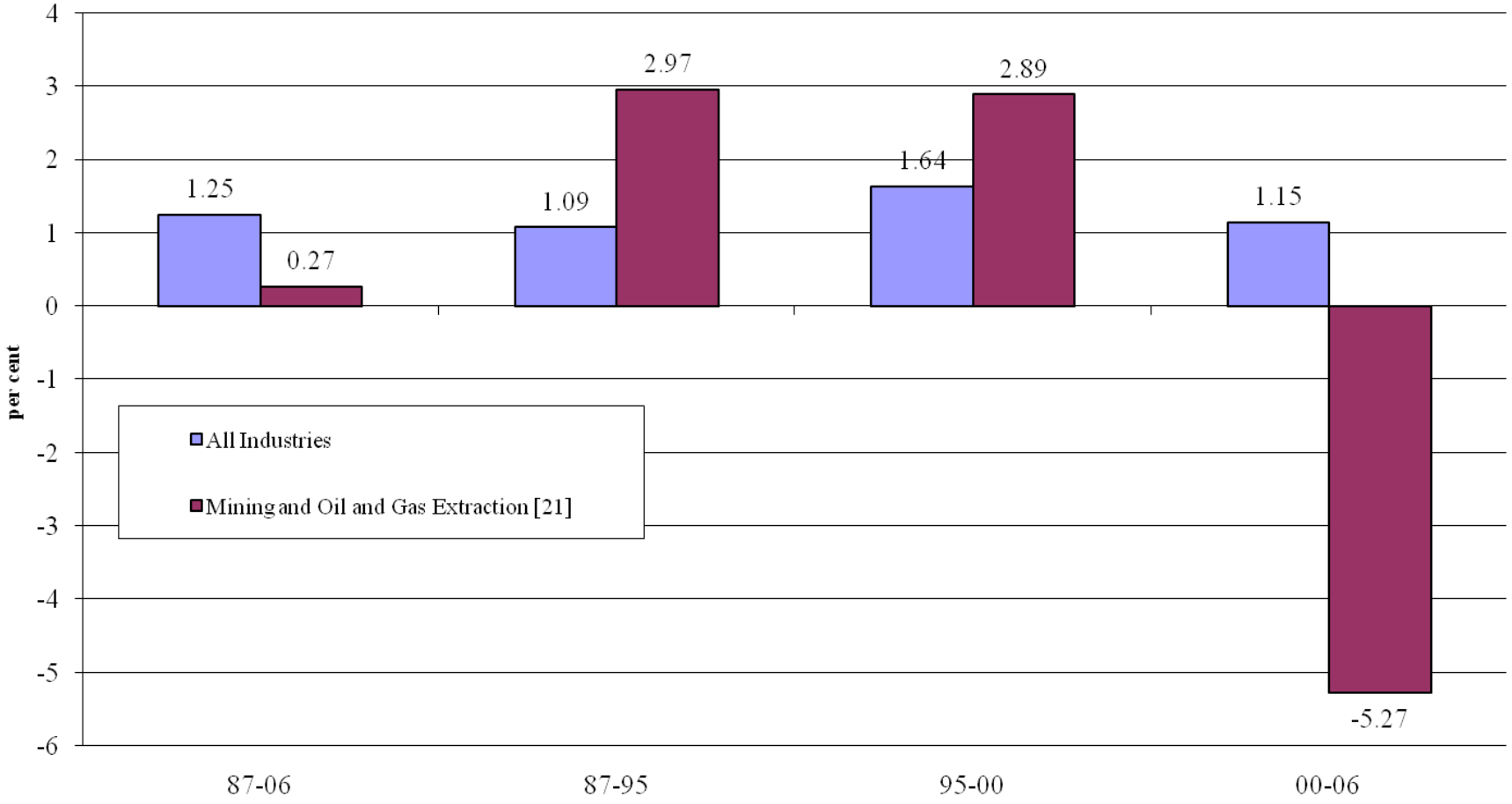


Nominal GDP for the Mining and Oil and Gas Extraction as a Share of All Industry GDP for Selected OECD Countries, 2006



Causes of Falling Productivity in the Sector

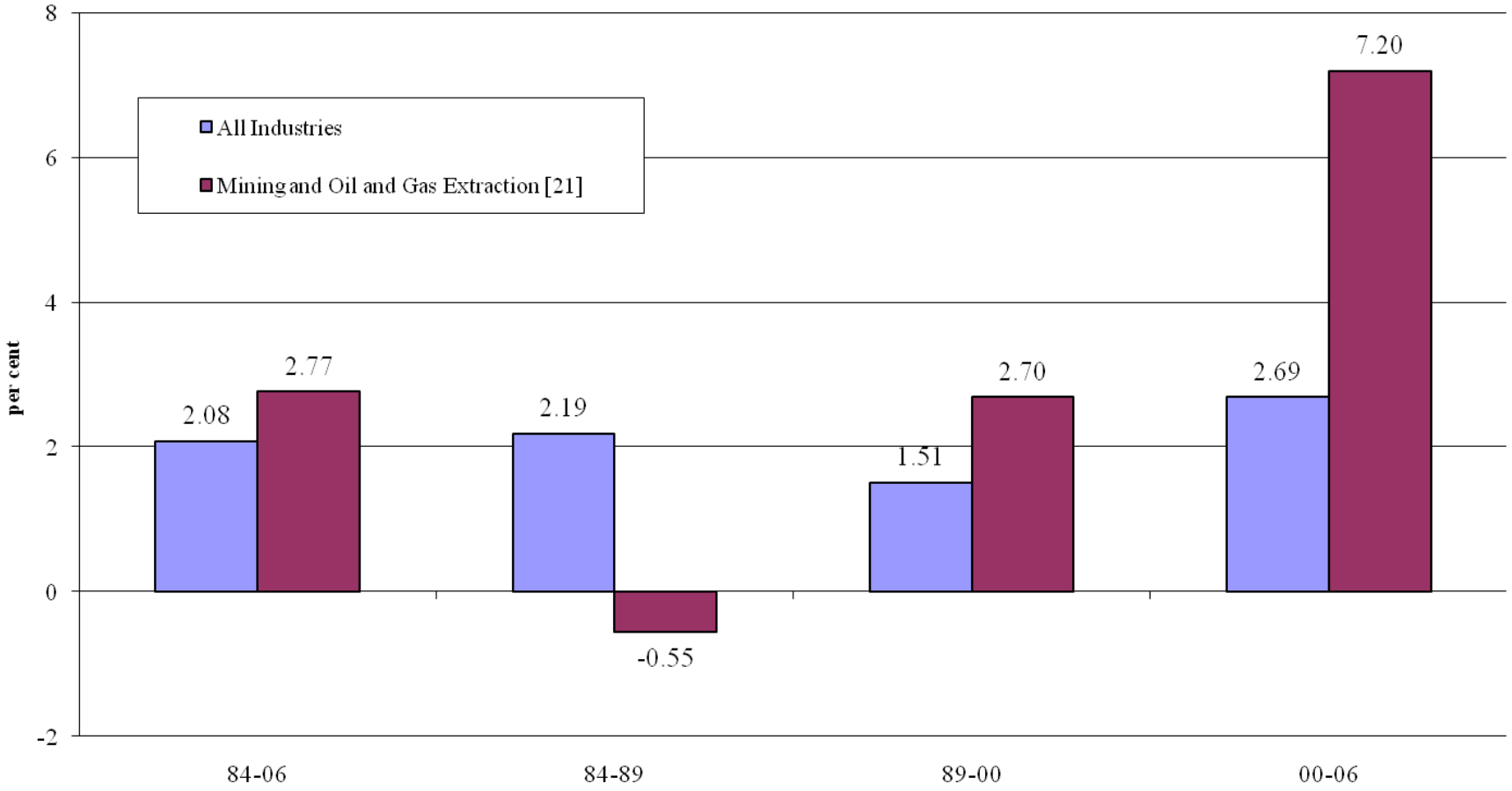
Real GDP per Hour Worked in the Mining and Oil and Gas Extraction Industry in Canada, 1987-2006 (average annual growth rate)



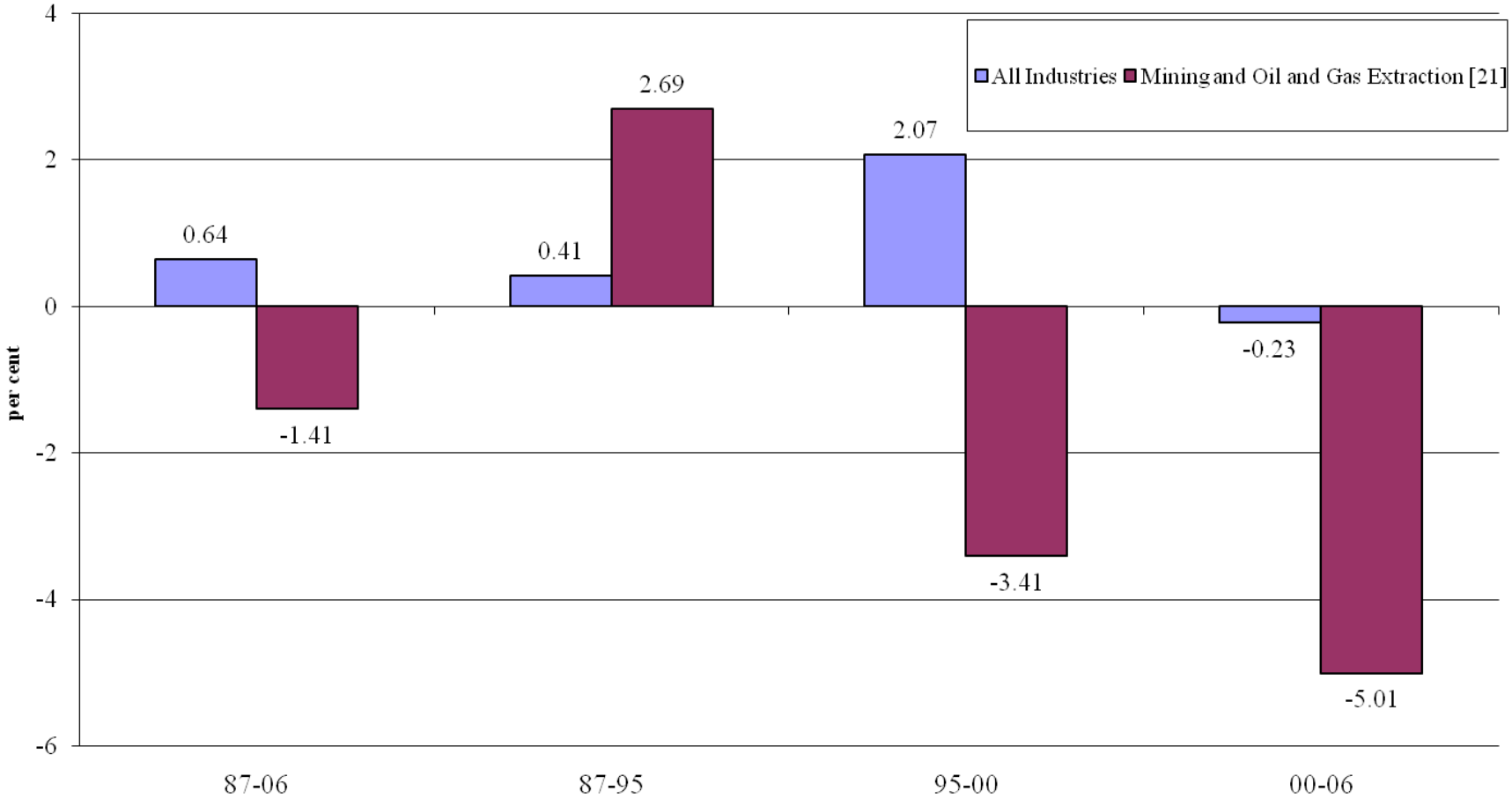
Potential Causes

- Capital Intensity
- High Prices for Energy and Minerals
  - Ricardian Effect/ Price Related Compositional Shift
  - Behavioural Effect
- Compositional Shift Related to the Development of New Mining Industries
- Lagging Innovation and Technological Progress
- Deterioration of the Average Quality of the Workforce
- Greater Environmental Regulation
- Deterioration of Average Quality of Resources Independent of Price Effects
- Other Factors
  - Labour Relations
  - Taxation

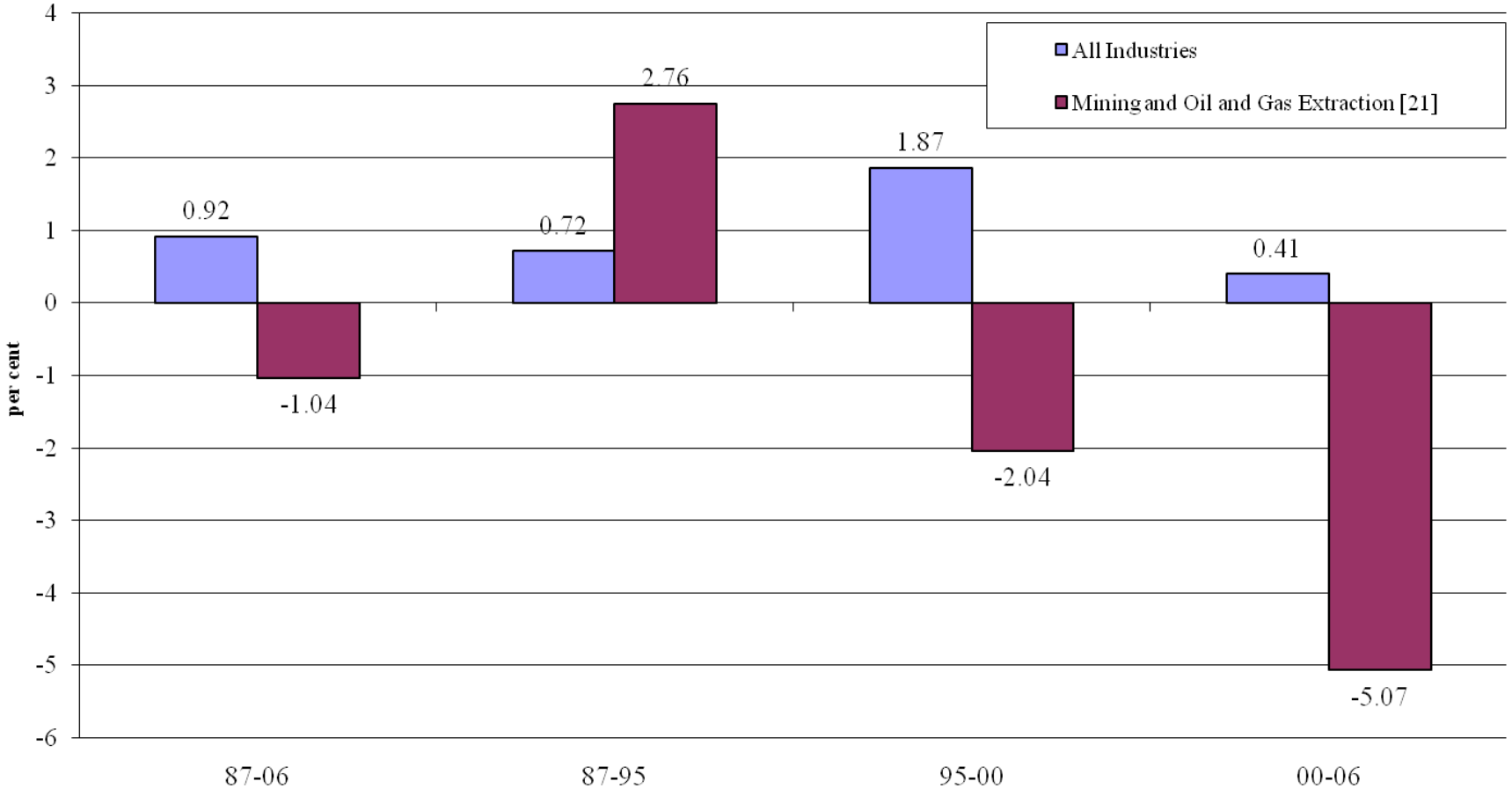
Real Capital Stock in the Mining and Oil and Gas Extraction Industry in Canada, 1984-2006
(average annual growth rate)



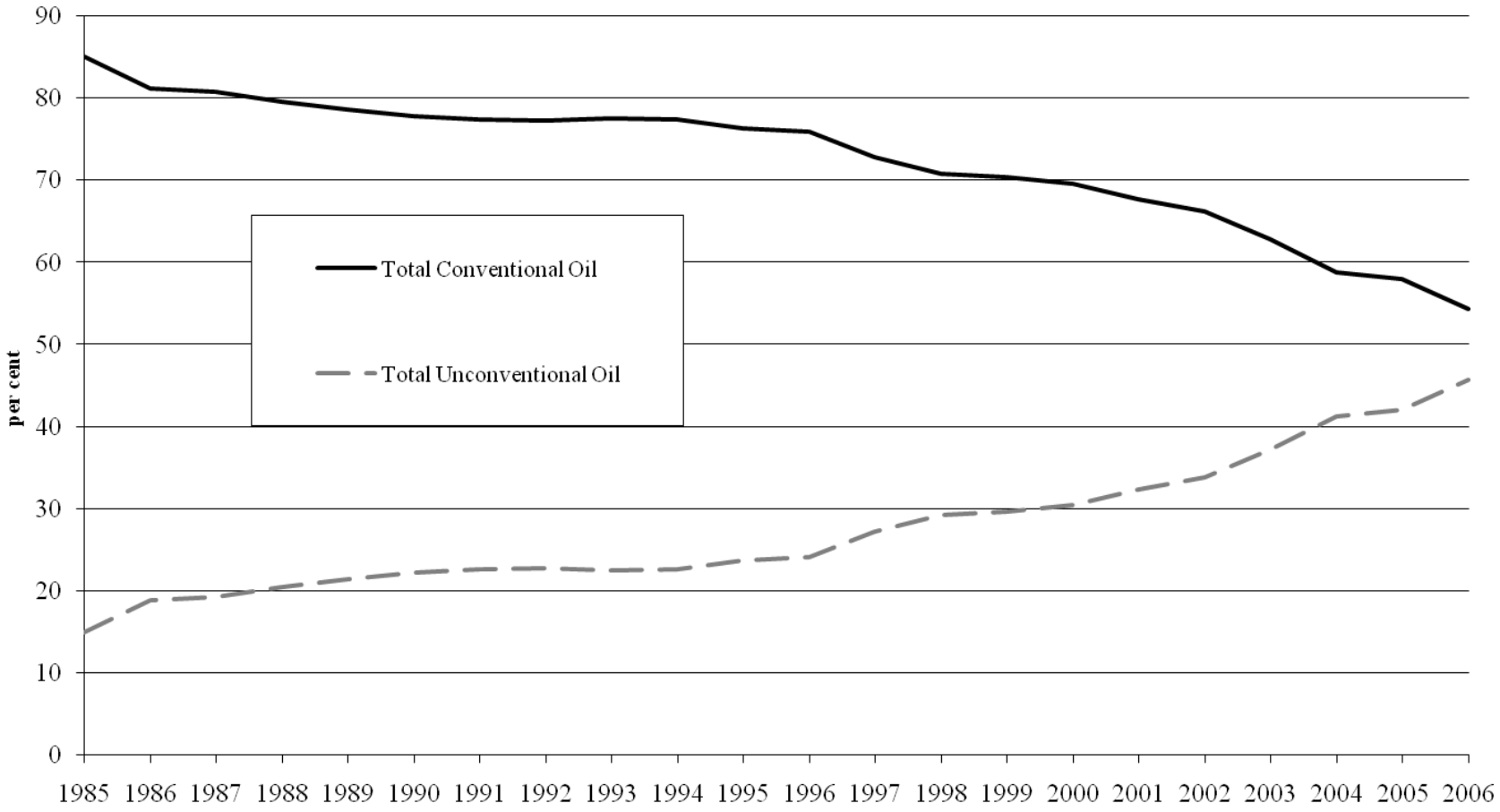
Real GDP per $1,000 of Capital Stock in the Mining and Oil and Gas Extraction Industry in Canada, 1987-2006 (average annual growth rate)



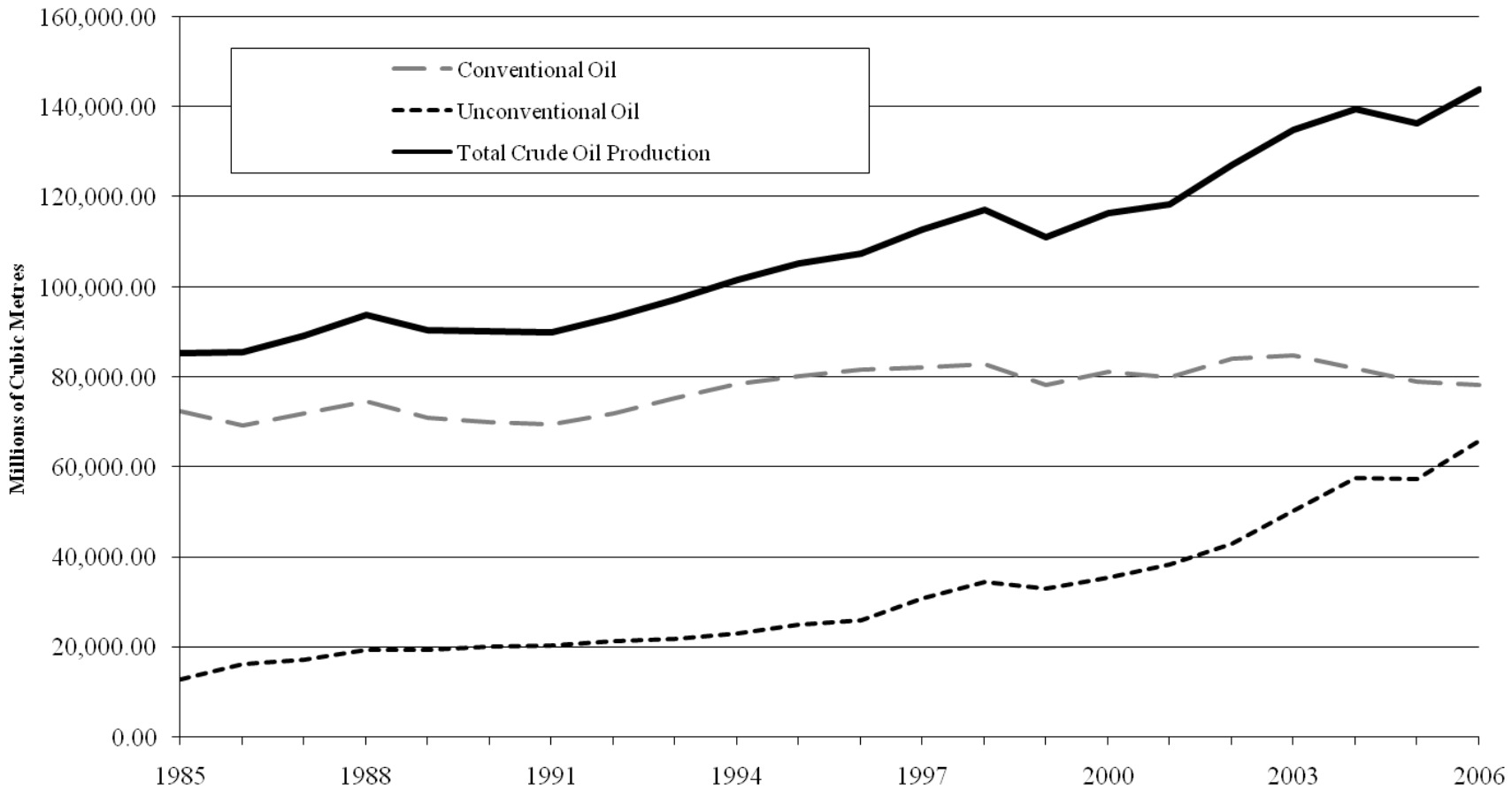
Total Factor Productivity in the Mining and Oil and Gas Extraction Industry in Canada, 1987-2006 (average annual growth rate)



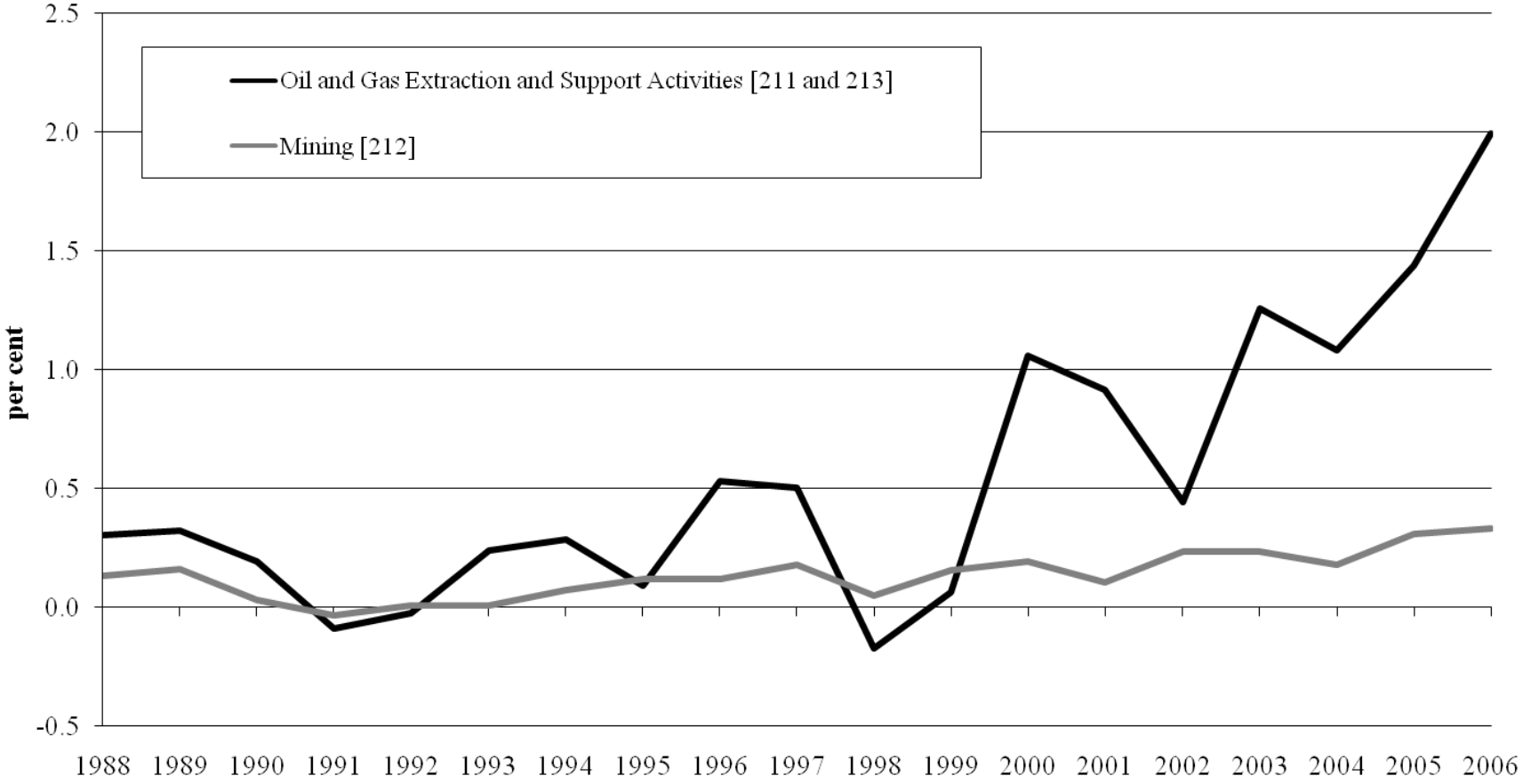
Conventional and Non-Conventional Oil Production as a Percentage of Total Oil Production in Canada, 1985-2006



Volume of Oil Production in Canada, 1985-2006
(millions of cubic metres)

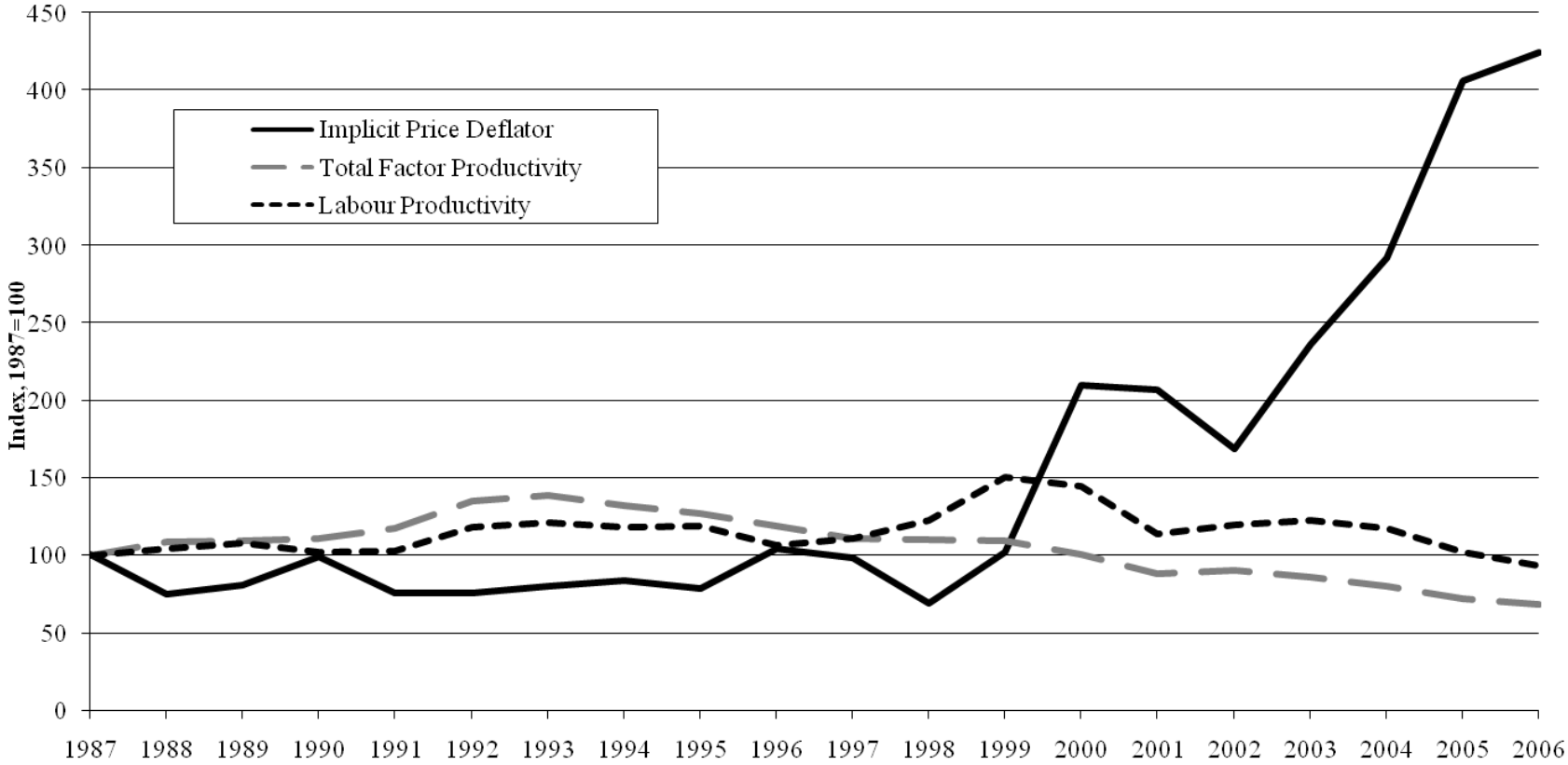


Net Profits in the Mining and Oil and Gas Extraction Industry, Canada, 1988-2006
(as a percentage of total economy nominal GDP)



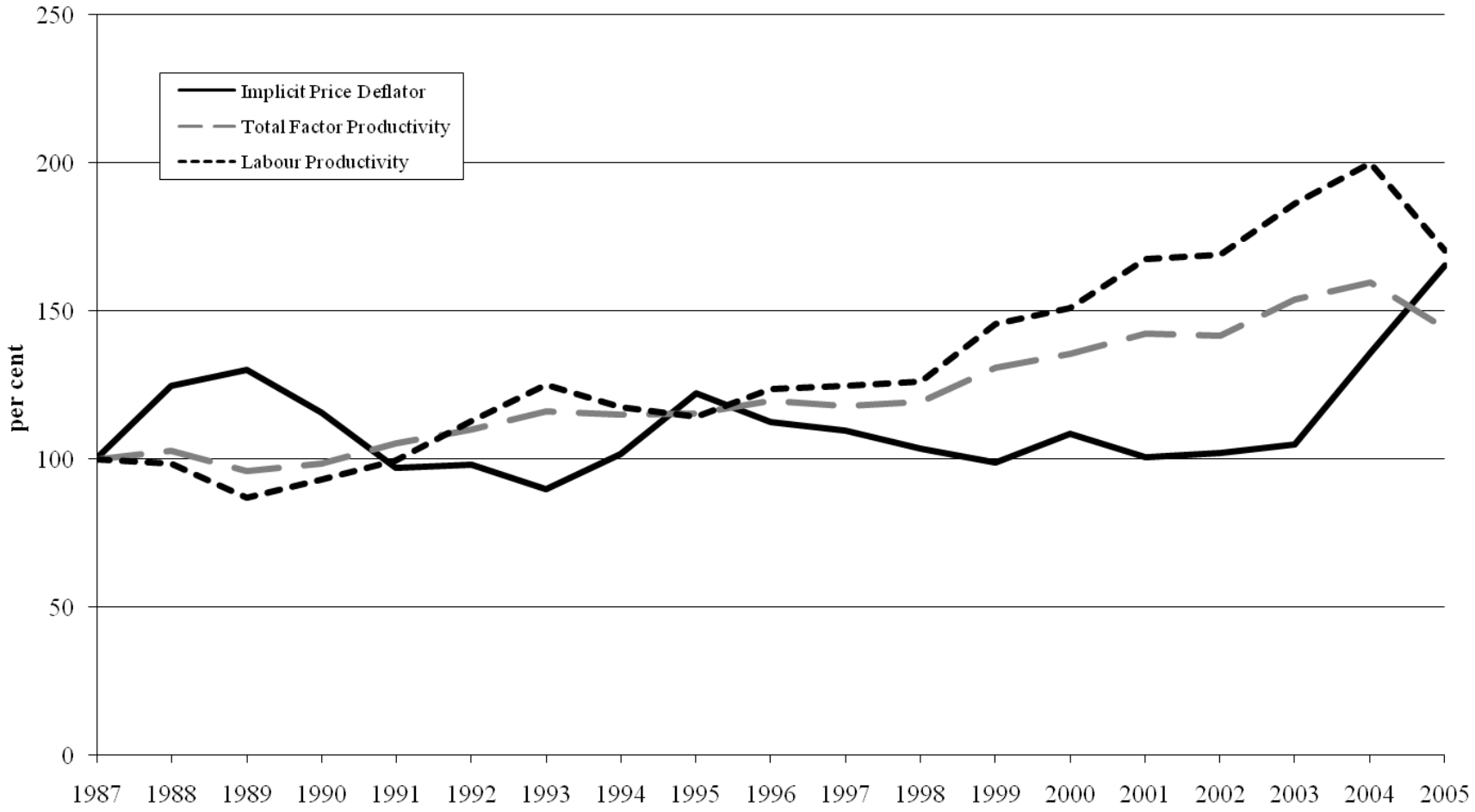
The Contribution of the Mining and Oil and Gas Extraction Industry to Aggregate Labour Productivity Growth, Canada, 1987-2006							
	Average Annual Labour Productivity Growth (per cent)		Average Annual Absolute Contribution Over the Period to Aggregate Labour Productivity Growth (percentage points)				Relative Contribution (per cent)
	Total Economy	Mining and Oil and Gas Extraction	Pure Productivity Growth Effect	Relative Size Change Effect	Interaction Effect	Total Effect	Total Effect
	A	B	C	D	E	F=C+D+E	G=F/A
87-06	1.25	0.27	0.01	0.04	0.00	0.05	4.38
87-96	0.94	2.17	0.11	-0.17	-0.04	-0.09	-9.98
96-00	2.12	4.69	0.21	0.27	0.05	0.55	25.75
00-06	1.15	-5.27	-0.28	1.26	-0.36	0.65	56.84
Contribution to the Post-2000 Productivity Slowdown							
(00-06) -(96-00)	-0.97	-9.96	-0.51	0.99	-0.42	0.10	10.69
Source: Calculated by the Centre for the Study of Living Standards from Table 46.							
Note: Methodology based on Tang and Wang (2004).							

Prices and Productivity in the Oil and Gas Extraction Industry, Canada, 1987-2006 (Index, 1987=100)



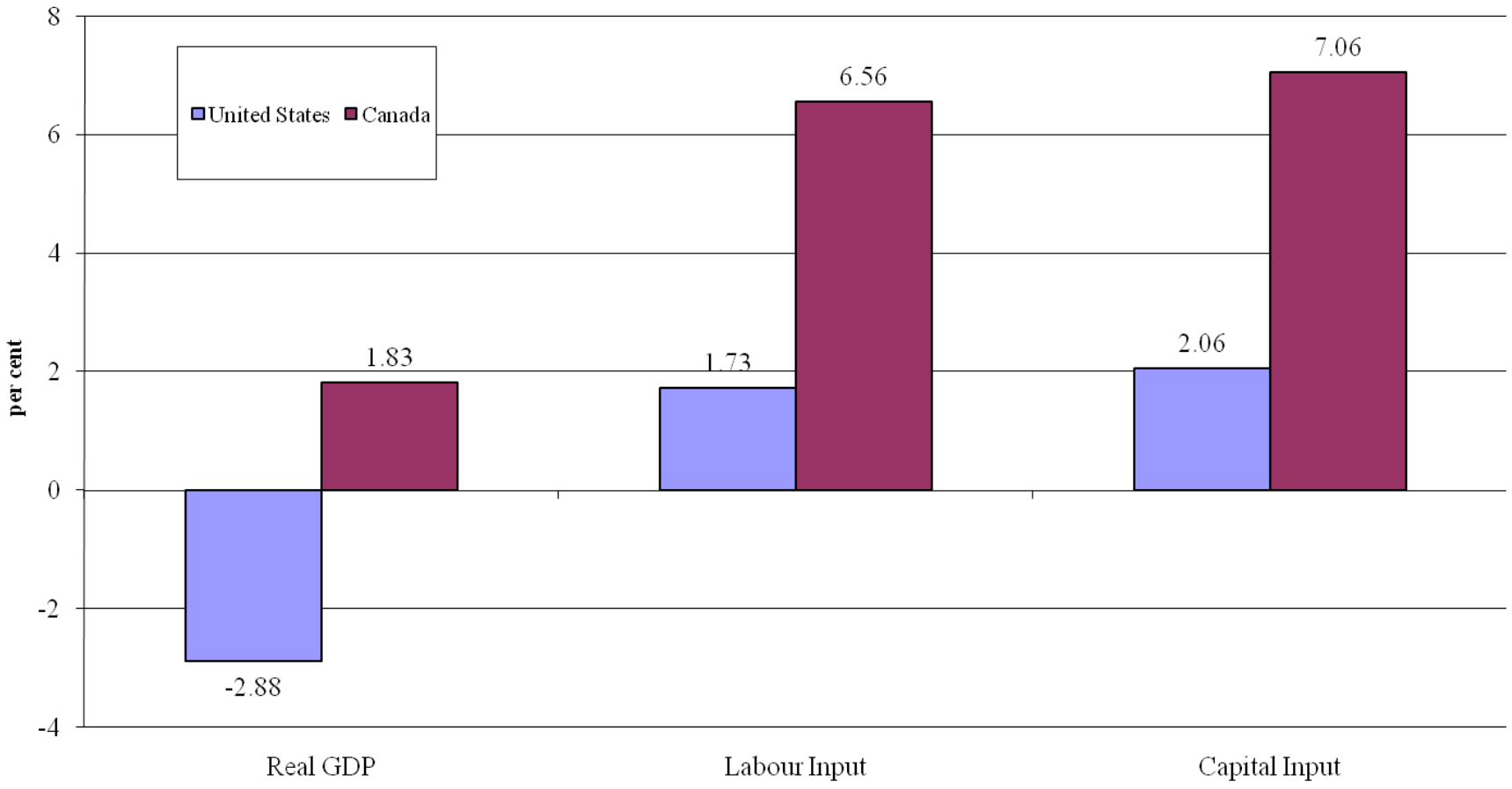
Note: Nominal GDP data is available from CANSIM up to 2003 therefore the Implicit Price Deflator series ends in 2003. For the 2003-2006 period the weights used by the Bank of Canada for Crude Oil and Natural Gas to form the Energy Commodity Price Index were used to weight the growth rate of crude oil prices (West Texas Intermediate Crude Oil, Cushing Oklahoma, USD per barrel) and natural gas prices (Canada, USD per BTU). These growth weights were then applied to the implicit price deflator for the 2003-2006 period. Commodity prices are those reported in the BP Statistical Review of World Energy, 2007 available at http://www.bp.com/productlanding.do?categoryId=6848&contentId=7033471.

Prices and Productivity in the Mining Industry, Canada, 1987-2005 (Index, 1987=100)

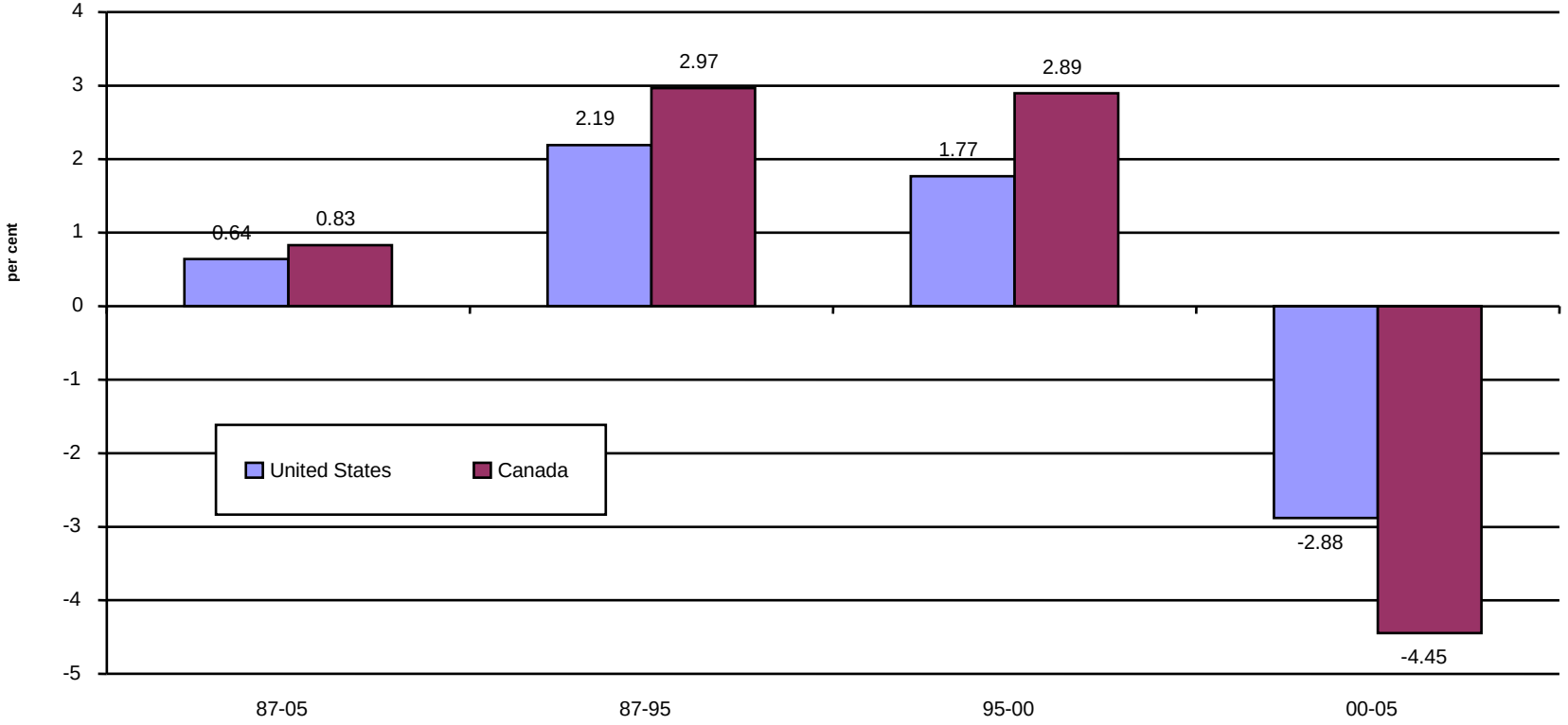


Canada/US Comparison of the Mining and Oil and Gas Labour Productivity Growth

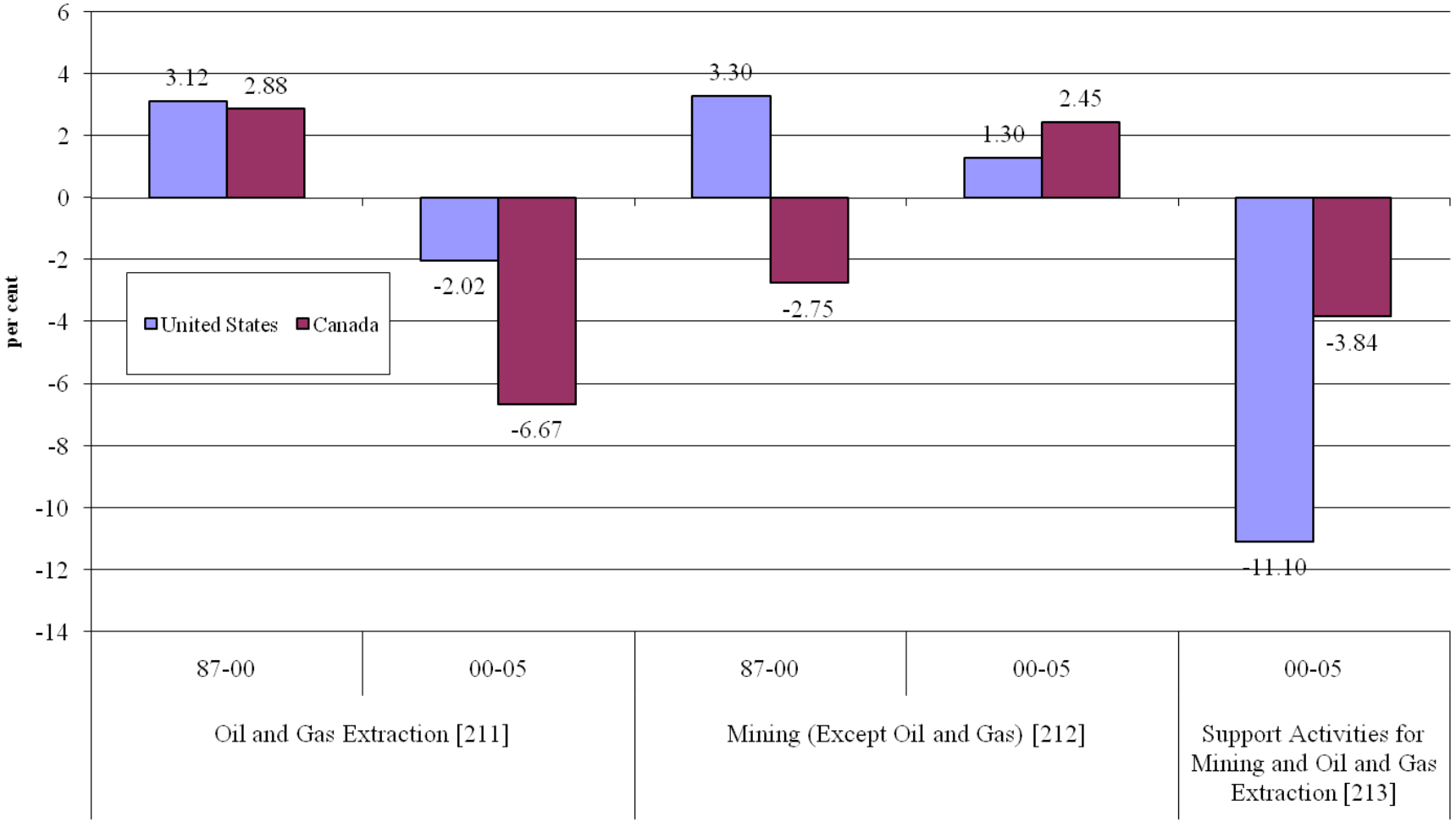
Comparison of the Mining and Oil and Gas Extraction Industry, Canada and the United States, 2000-2005
(average annual growth rate)



Real GDP per Hour Worked in the Mining and Oil and Gas Extraction Industry, Canada and the United States, 1987-2005 (average annual growth rate)



Real GDP per Hour Worked in the Mining and Oil and Gas Extraction Industry, Canada and the United States, 1987-2005 (average annual growth rate)



Thank you

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