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Oil Prices and the Canadian Economy— Events and Impacts

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Chief Statistician of Canada

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Canada



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Moving forward and next steps

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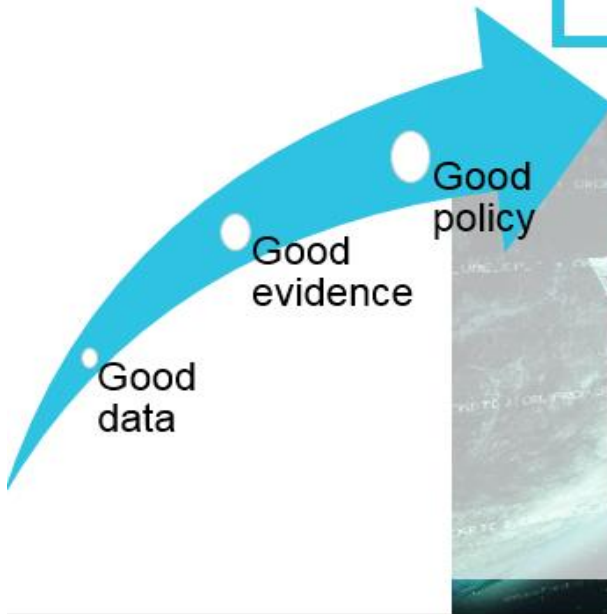


Who we are: Statistics Canada

Connecting quality statistics to Canadians' decision making

Leader in providing quality indicators and supporting responsible use of data

Capacity-building nationwide and government-wide on the use of statistics





EVENTS: PRICES

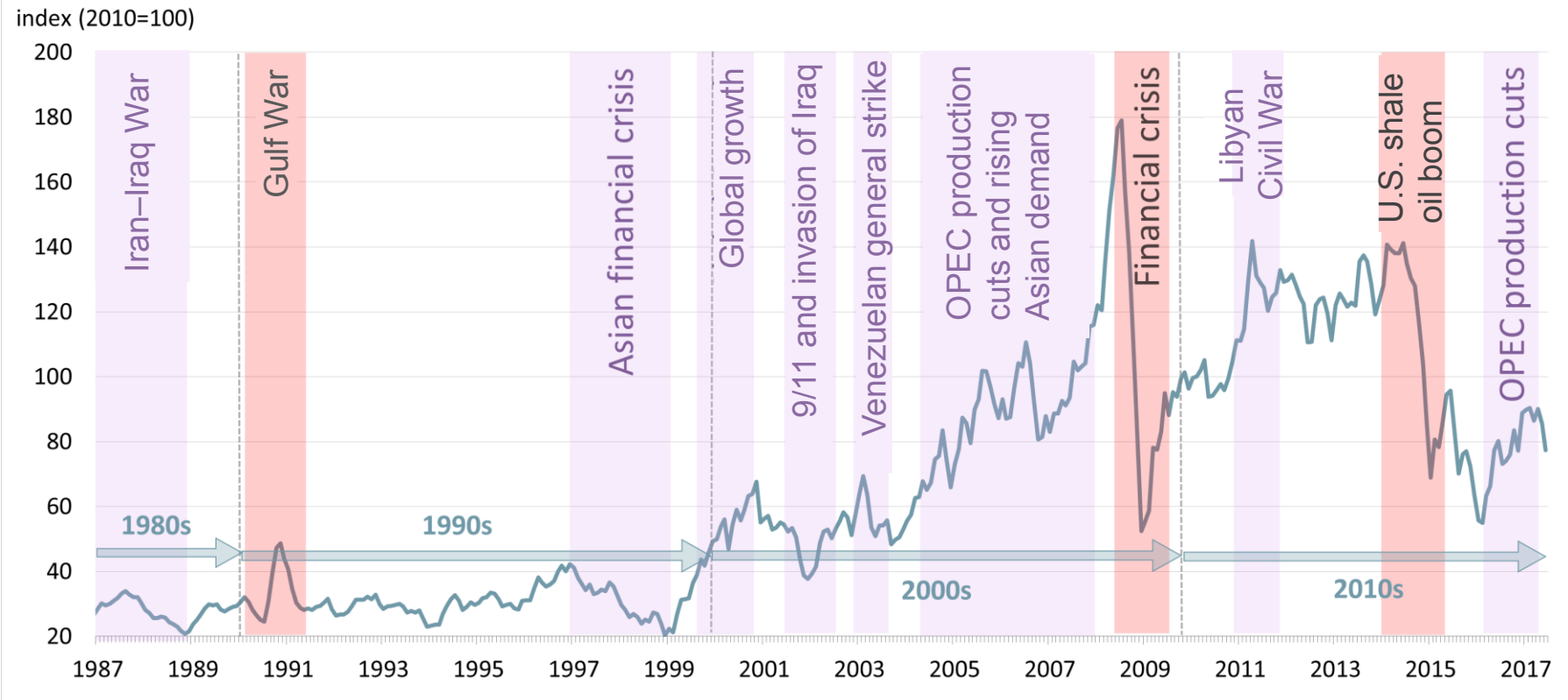
- Movements
- Measures
- Margins





Oil price movements

Raw Materials Price Index (RMPI) conventional crude oil index, Canada, January 1987 to June 2017



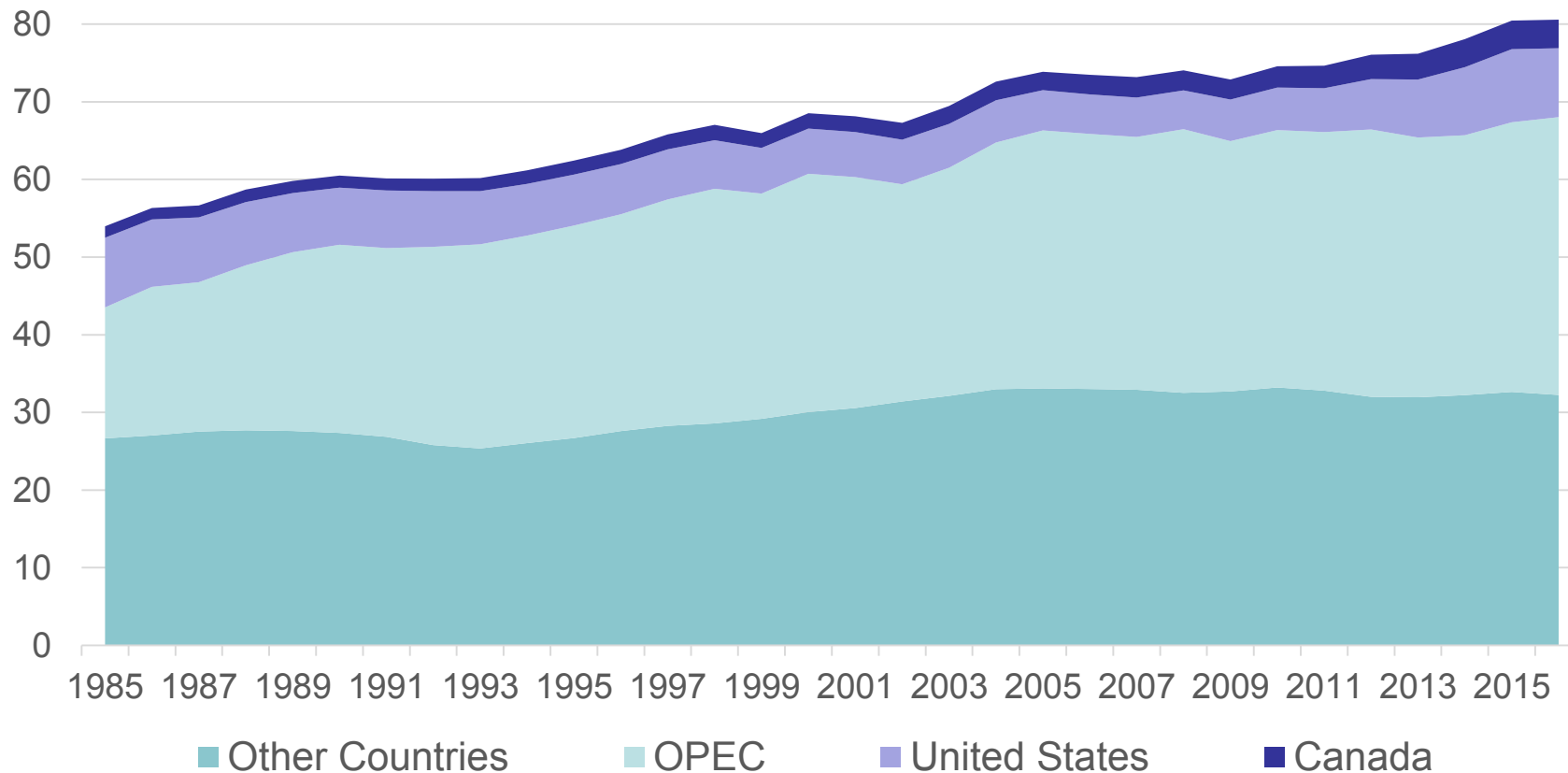
Sources: Raw Materials Price Index, CANSIM table 330-0008; U.S. Department of Energy; Goldman Sachs.



Global production by region

World crude oil production by region, 1985 to 2015

millions of barrels per day

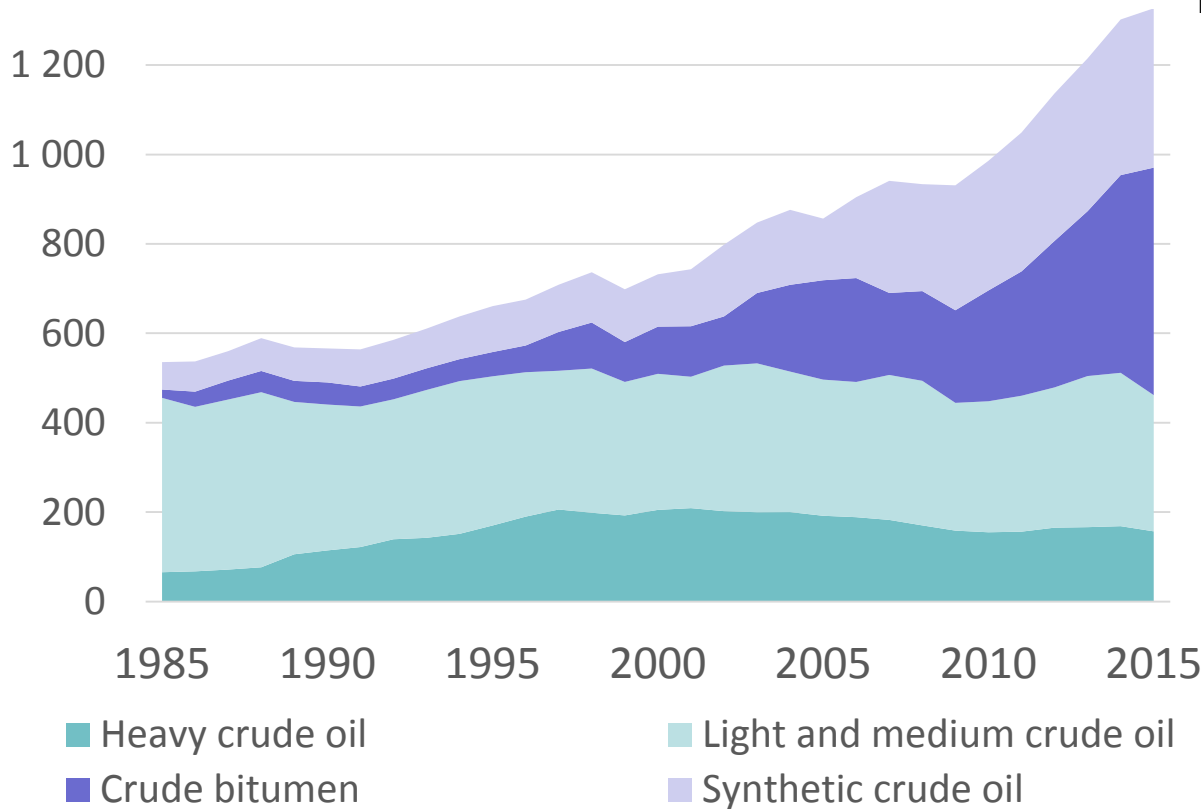


Source: U.S. Energy Information Administration (EIA).

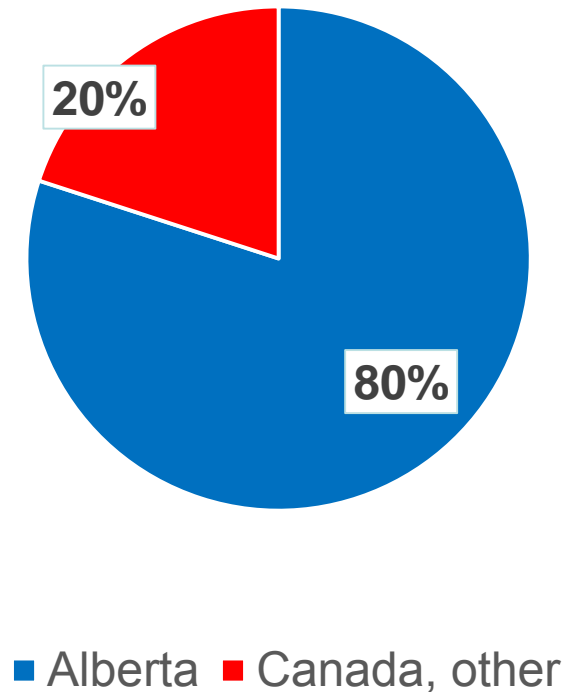
Canadian production by type

Canadian crude oil production by type, 1985 to 2015

millions of barrels



Share of total production, February 2016



Source: Historical supply and disposition of crude oil and equivalent, CANSIM table 126-0001.



Gasoline value chain

Raw Materials Price Index (RMPI)

Industrial Product Price Index (IPPI)

Wholesale Services Price Index (WSPI)

Retail Services Price Index (RSPI)

Consumer Price Index (CPI)



Factors affecting the observed price of crude oil...

- Production
- Shocks
- Market speculation

...affecting production costs...

- Margins: refinery, wholesale and retail
- Transport costs
- Duties and taxes

...affecting consumer prices

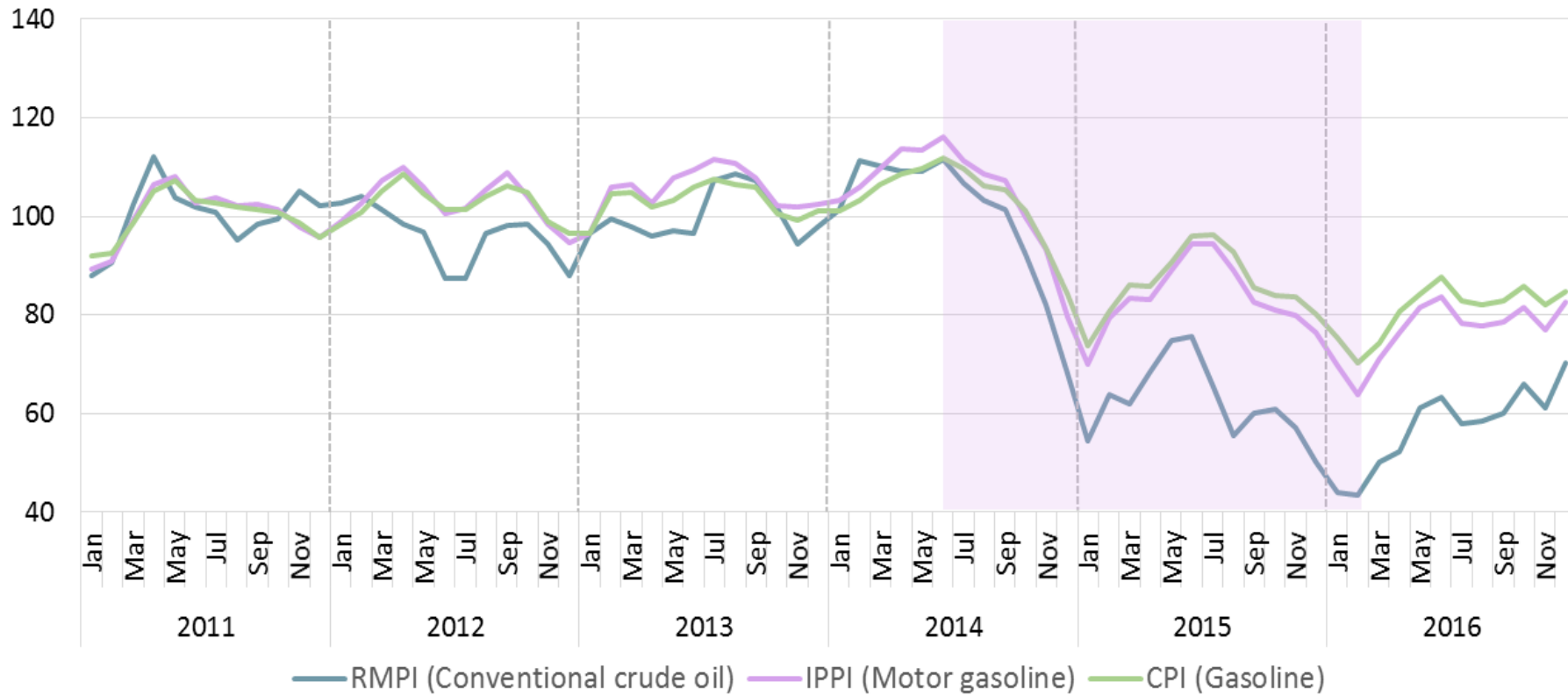
- Seasonality
- Final demand
- Excise taxes



Price of gas falls less than oil

Crude oil and gasoline indexes, Canada, 2011-2016

index (2011=100)

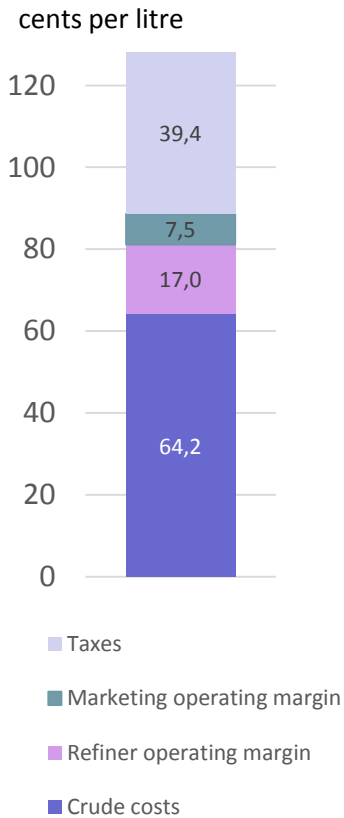


Sources: Raw Materials Price Index, CANSIM table 330-0008; Industrial Product Price Index, CANSIM table 329-0075; Consumer Price Index, CANSIM table 326-0020.



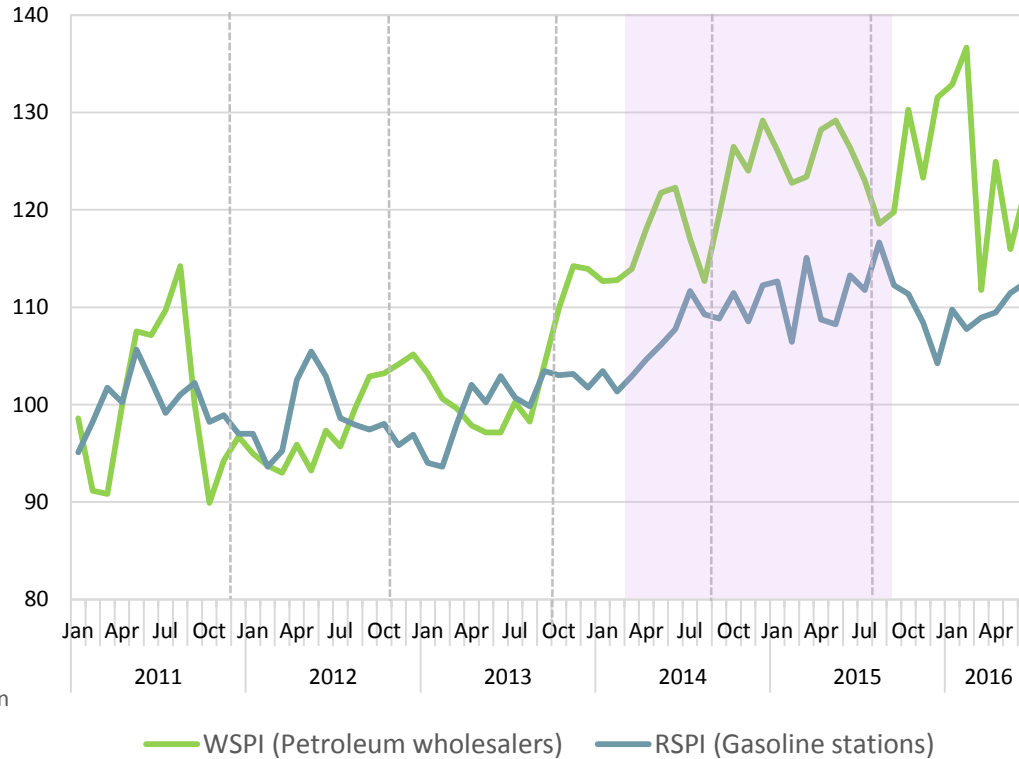
Wholesale and retail margins increase

Gasoline prices, 2013



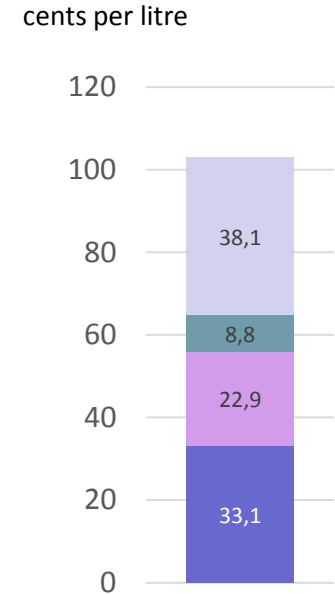
Sources: Natural Resources Canada and Kent Group data.

Gasoline margin indices, Canada, 2011 to 2016
index (2011=100)



Sources: Statistics Canada, Wholesale Services Price Index, CANSIM table 332-0029; Retail Services Price Index, CANSIM table 332-0024.

Gasoline prices, 2016

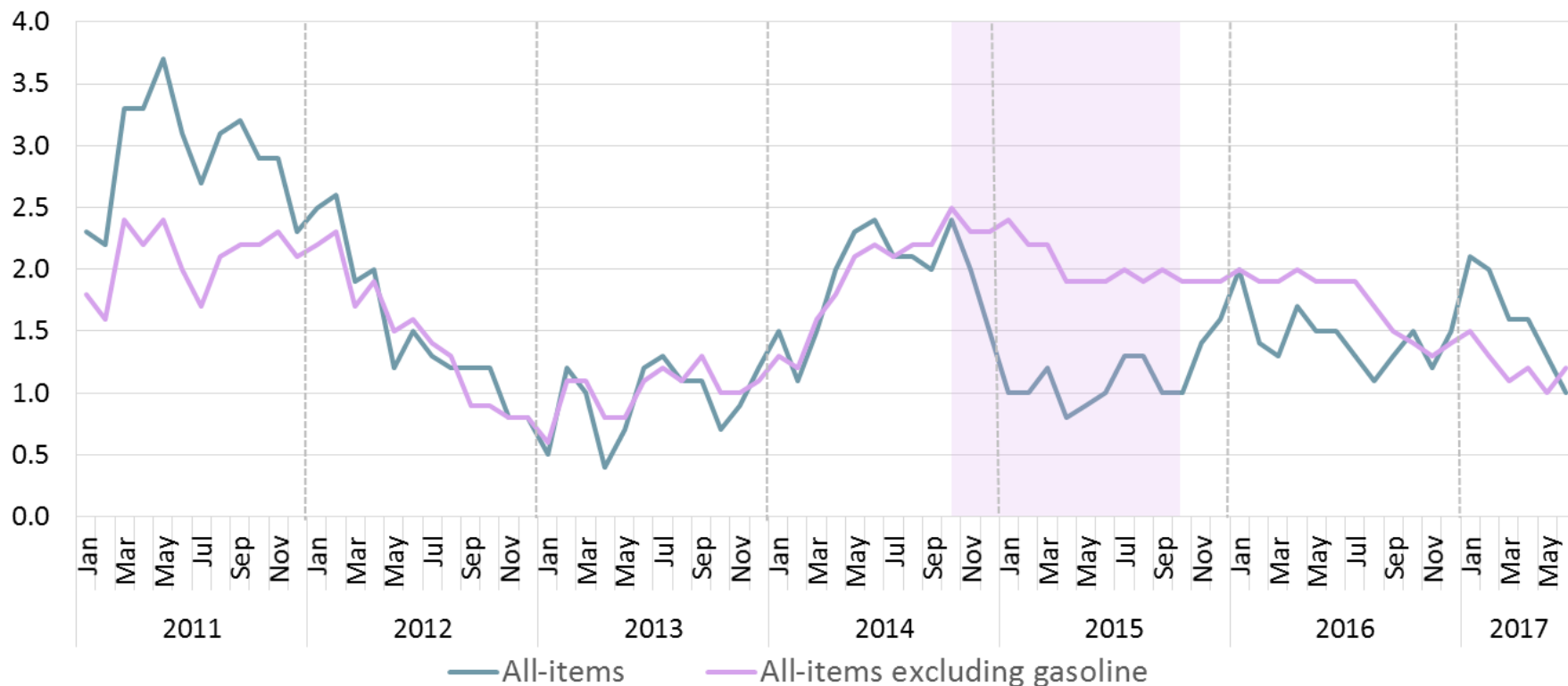


Sources: Natural Resources Canada and Kent Group data.

Effect of price decline on the CPI

The Consumer Price Index (CPI) and the CPI excluding gasoline, Canada, January 2011 to June 2017

12-month % change



Source: Consumer Price Index, CANSIM table 326-0020.



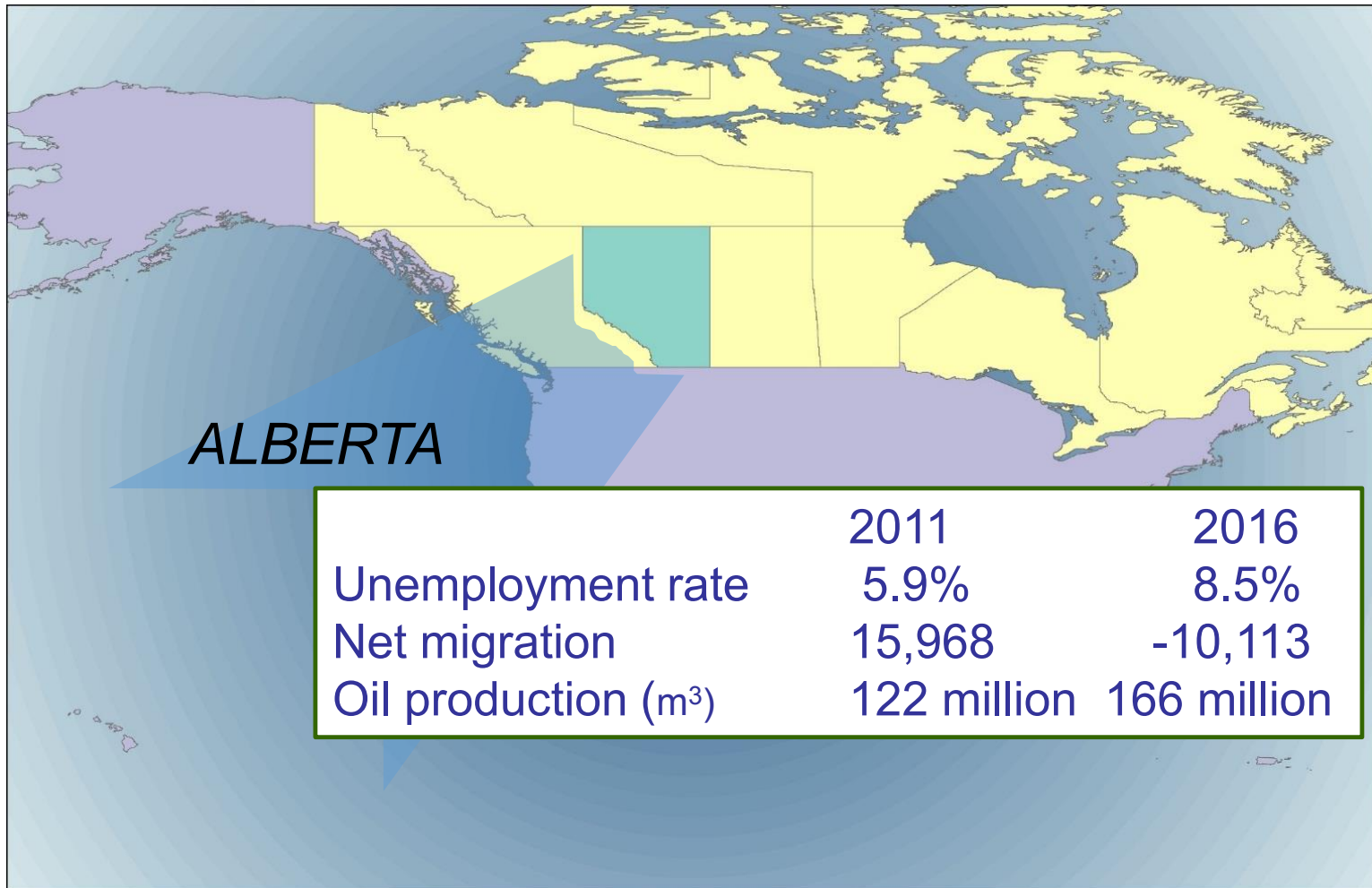
IMPACTS: SELECTED

- Government
- Business
- Consumers





Focus on Alberta, 2011 to 2016



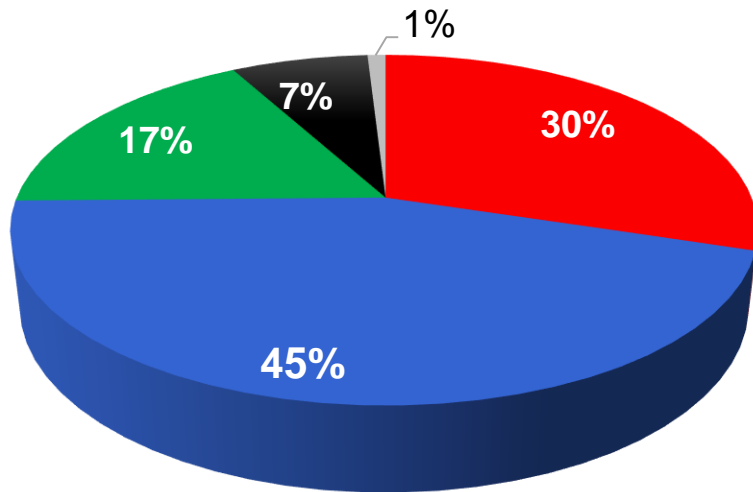
GOVERNMENT SECTOR





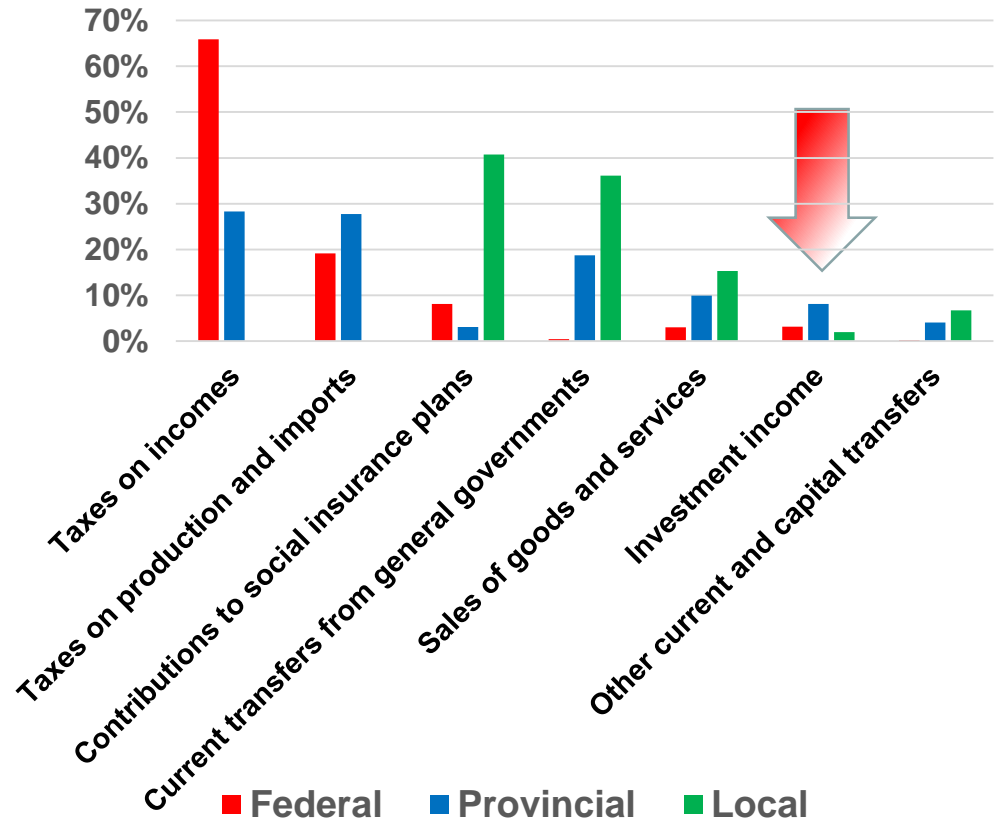
Investment income important to provinces

Government revenues by sector
Average (2010 to 2016)



- Federal (S131)
- Provincial and territorial (S132)
- Local (S133)
- Social security funds (S134)
- Aboriginal (S135)

Revenue by component
Average (2010 to 2016)

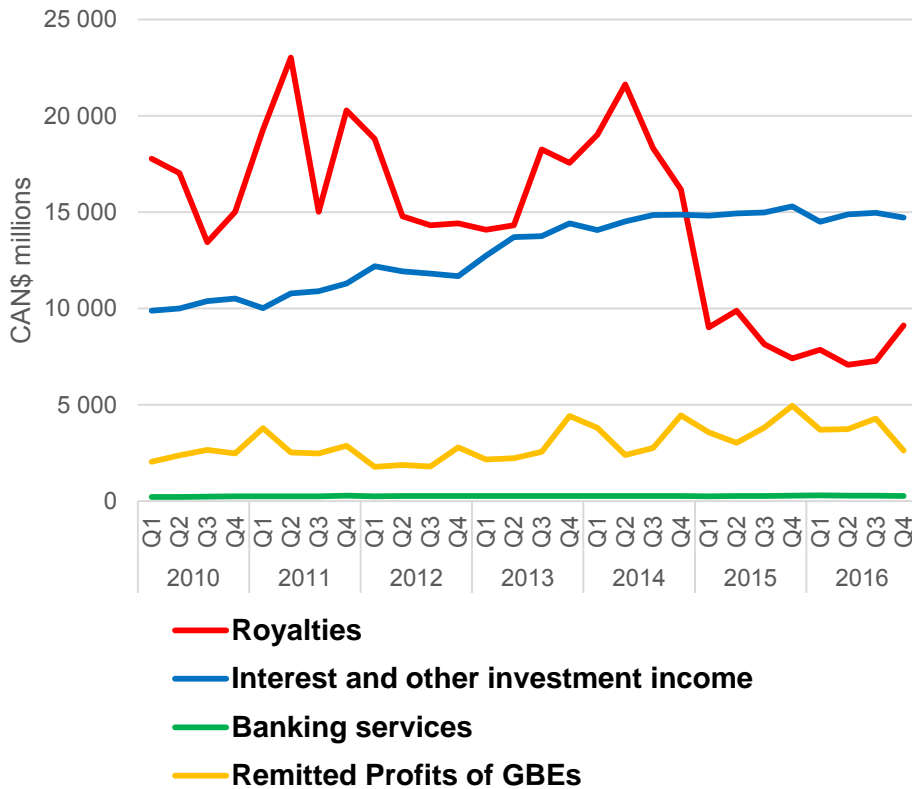


Source: Revenue, expenditure and budgetary balance - General governments, CANSIM table 380-0080.

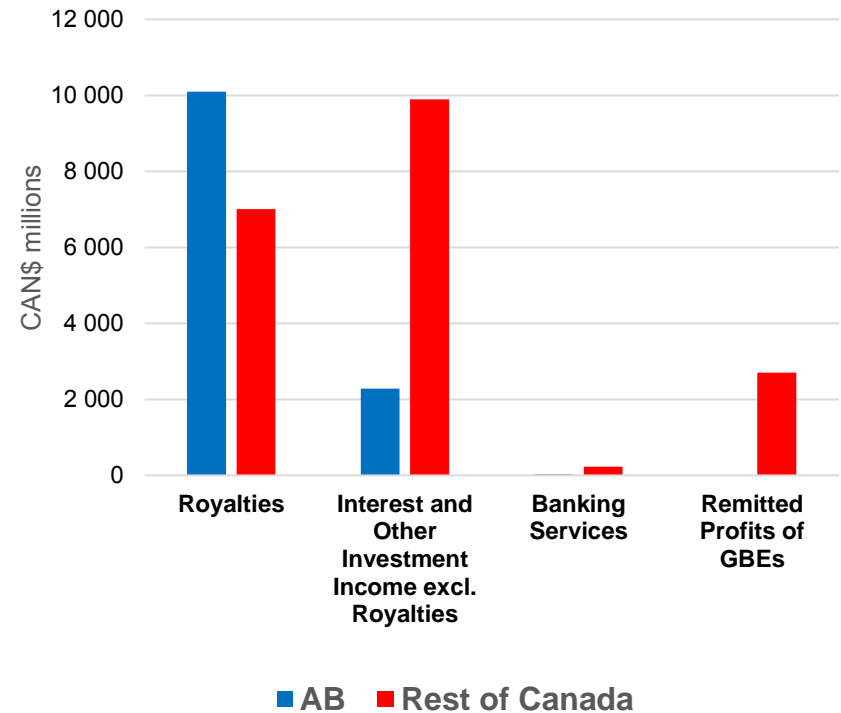


Royalties revenue declines with oil prices

Investment income by component



Alberta's average share, 2010 to 2014

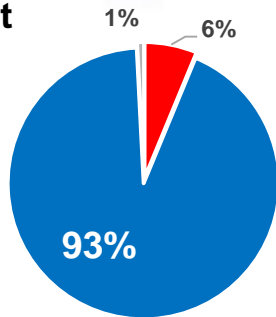


Sources: Revenue, expenditure and budgetary balance - General governments, CANSIM tables 380-0080 and 384-0047.



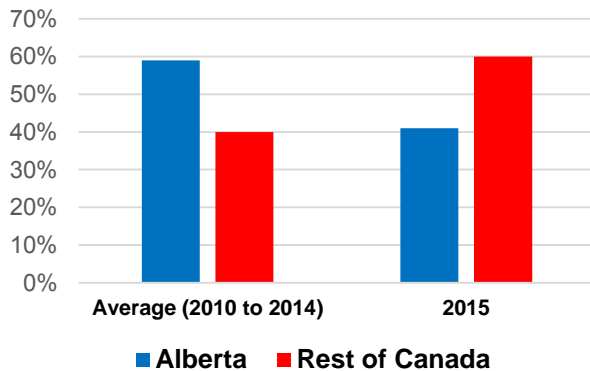
Royalties and provincial revenues decline

Government share



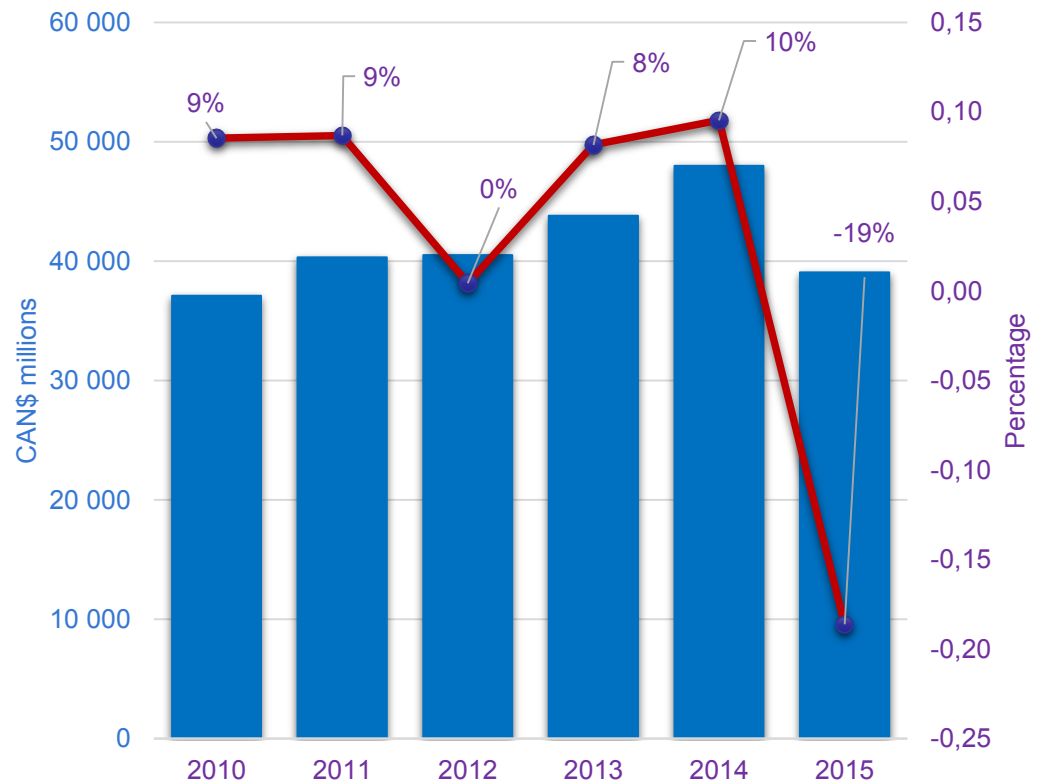
■ Federal ■ Provincial ■ Aboriginal

Alberta's share



■ Alberta ■ Rest of Canada

Alberta revenue and growth rate, 2010 to 2015



Source: Revenue, expenditure and budgetary balance, CANSIM table 384-0047.



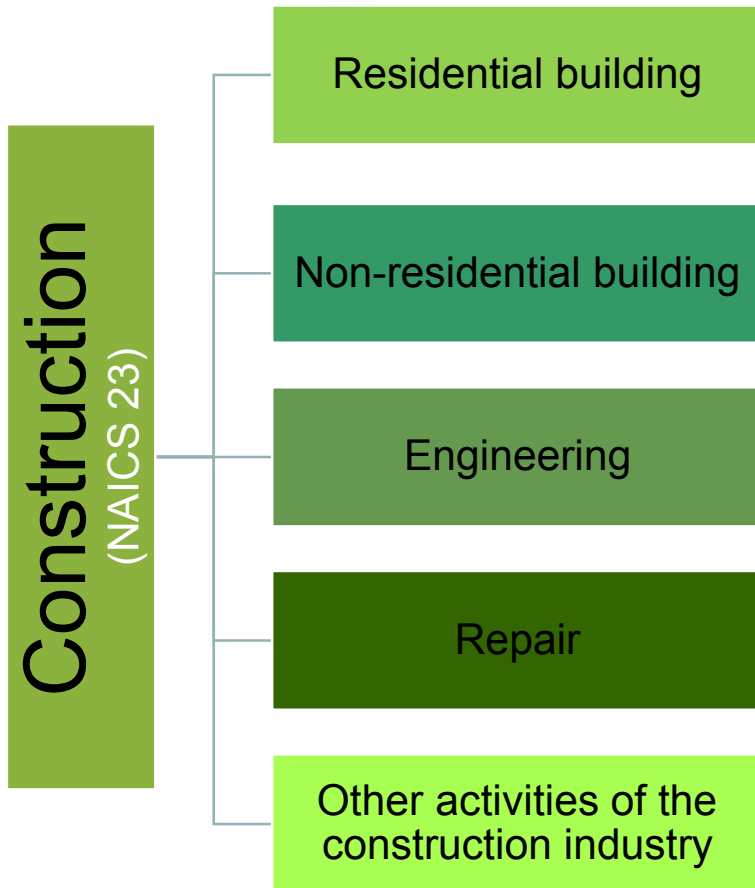
BUSINESS SECTOR

- Construction industry
- Producer prices
- Building permits and housing starts
- Lending by small institutions

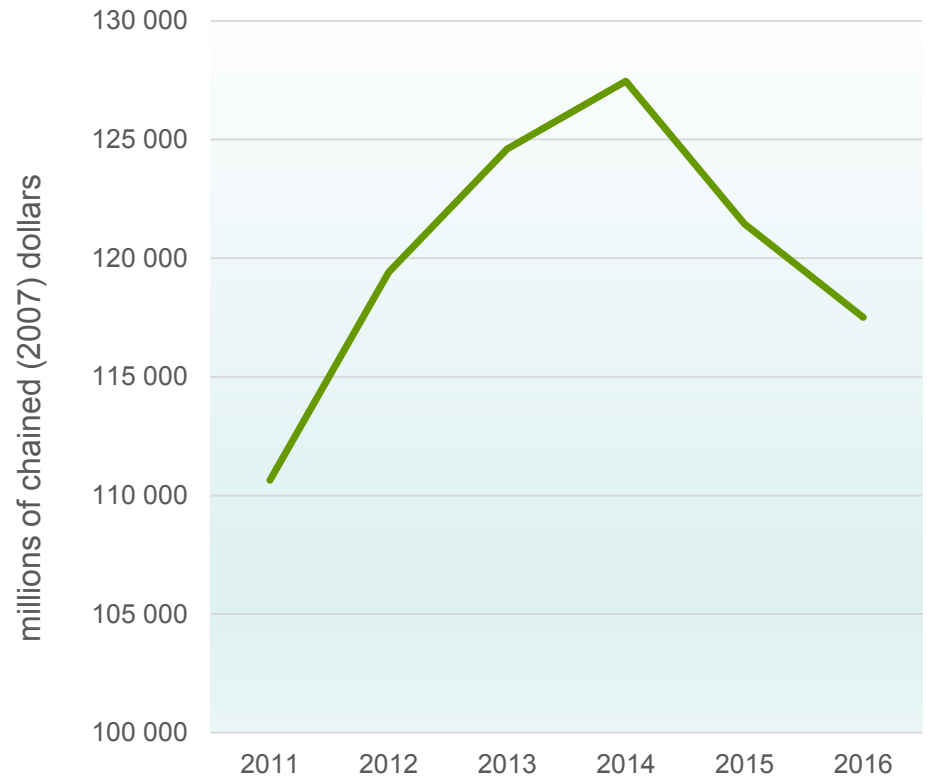




Construction sector (NAICS 23)



Construction-sector real GDP



Sources: CANSIM tables 379-0030 and 379-0031.



Construction-sector output (GDP)

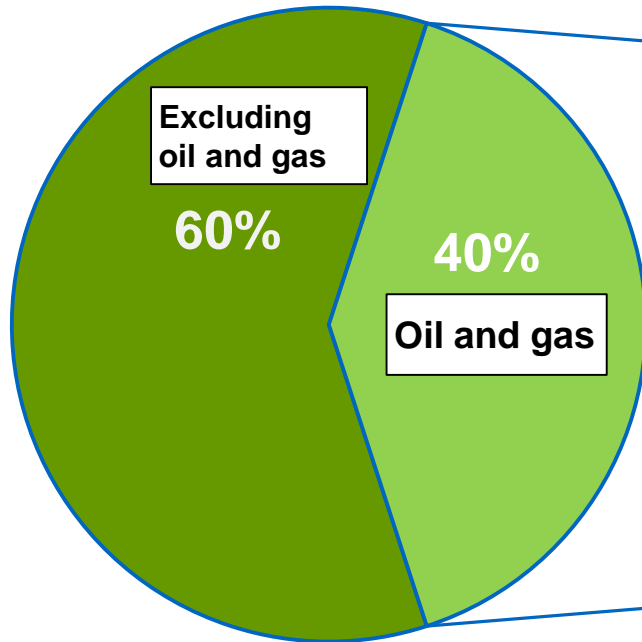
	2011	2012	2013	2014	2015	2016	
	annual % change						% change
Construction	3.9	7.9	4.4	2.4	-4.6	-3.3	
<input type="checkbox"/> Residential building	0.5	8.7	3.9	1.9	2.8	1.5	
<input type="checkbox"/> Non-residential building	1.8	0.5	-2.5	-1.9	-0.5	-2.8	
<input checked="" type="checkbox"/> Engineering	7.8	12.3	6.8	4.5	-15.0	-10.3	
<input type="checkbox"/> Repair	4.1	4.5	6.0	2.3	2.8	1.4	
<input type="checkbox"/> Other activities of the construction industry	7.2	5.9	7.4	3.3	-4.8	-5.1	
							Transportation (23C1) 14.3
							Oil and gas (23C2) - 31.7
							Electric power (23C3) -6.3
							Communication (23C4) 6.2
							Other (23C5) - 7.3

Source: Special compilation, Industry Accounts Division.

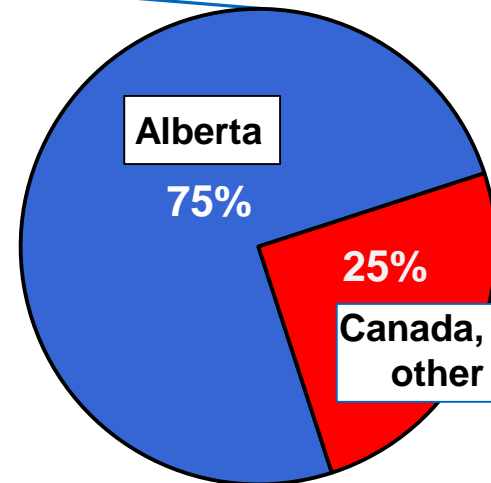


How big is the oil and gas engineering industry?

Engineering construction
Average GDP, 2007 to 2013 (current dollars)



Oil and gas engineering construction



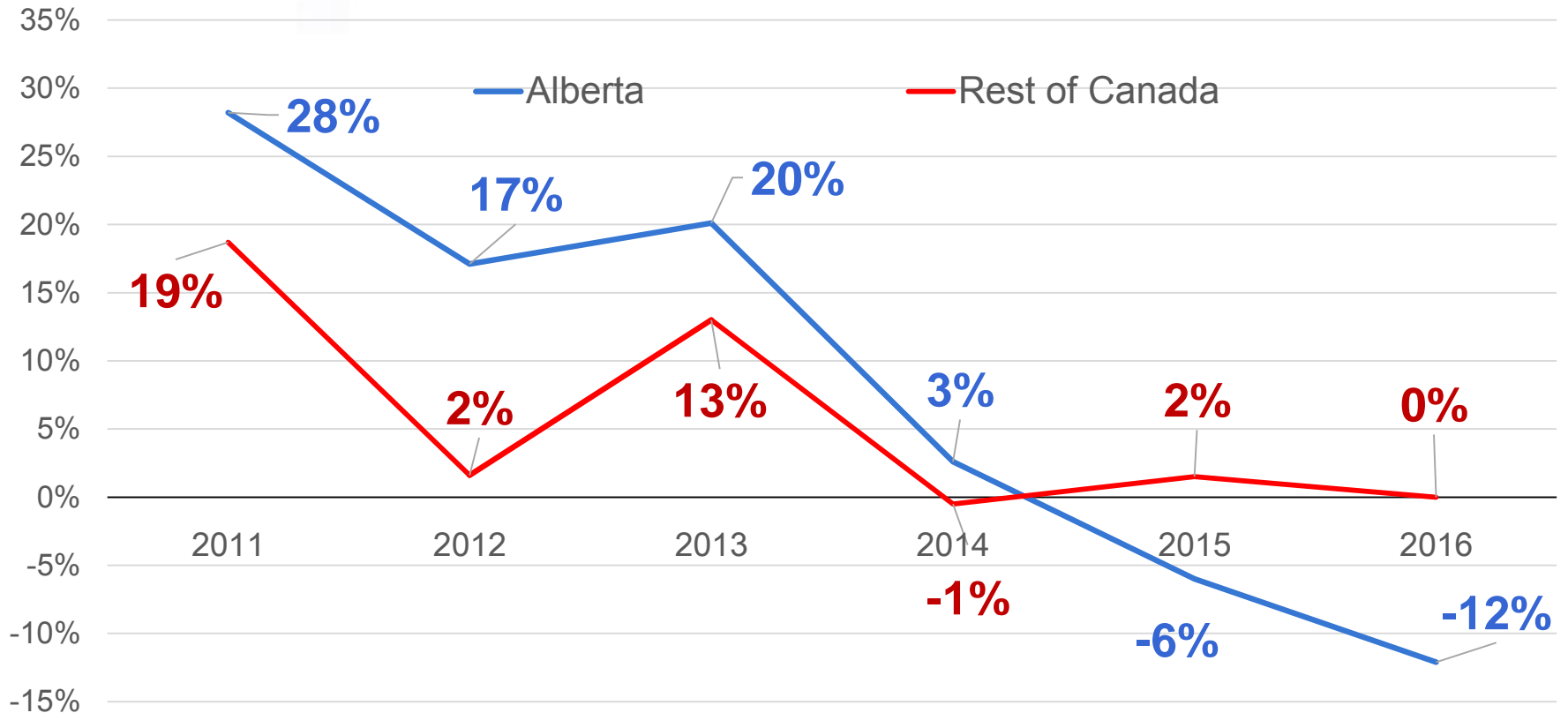
- Engineering construction except oil and gas
- Oil and gas engineering - Alberta
- Oil and gas engineering - Canada, other

Source: CANSIM table 379-0030.



Employment in oil and gas engineering slows

Annual change, 2011 to 2016

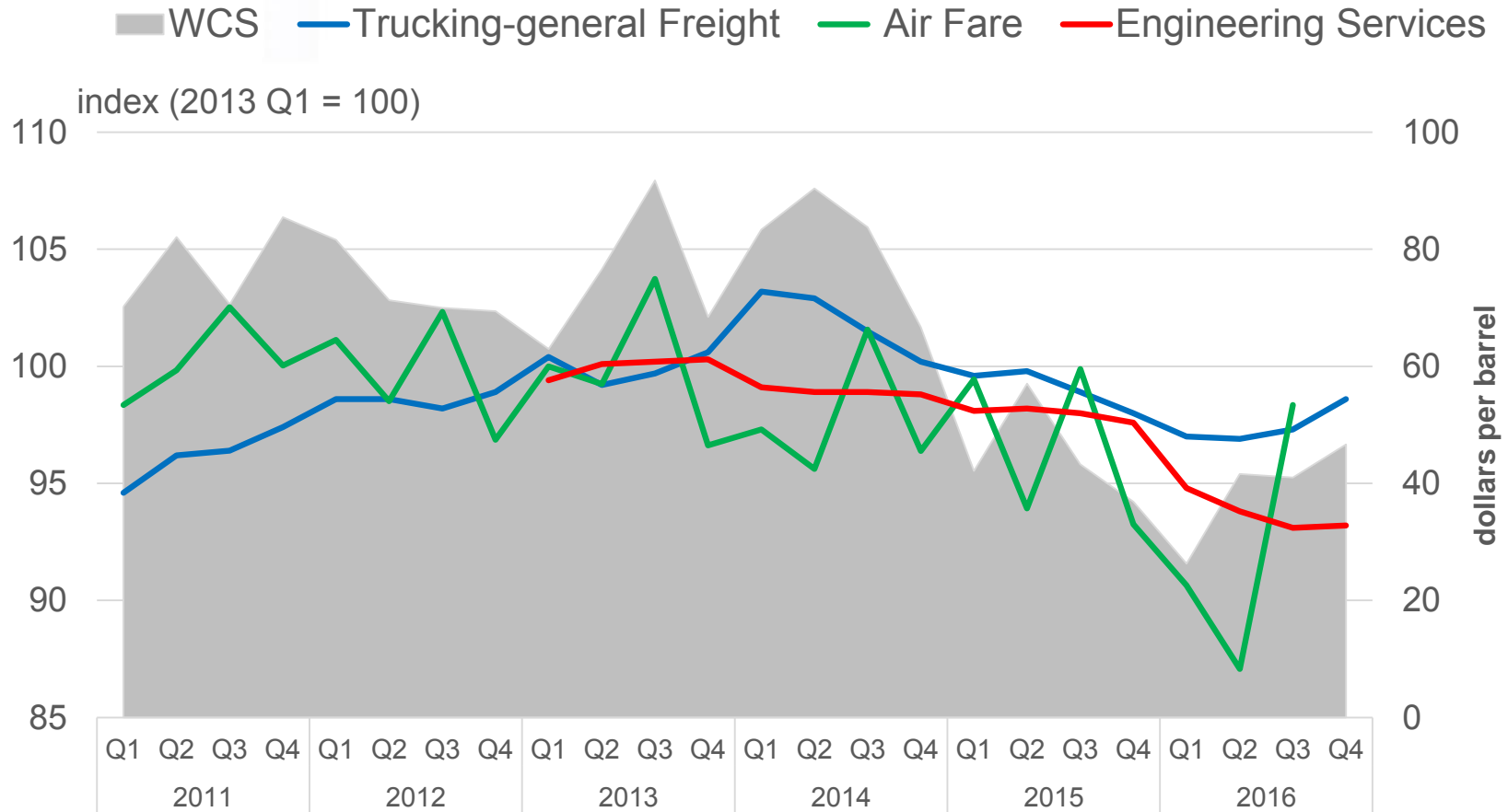


Source: CANSIM table 383-0033.



Impact on other industries

Producer price indices, 2011 to 2016



Sources: CANSIM tables 332-0017 and 401-0041.



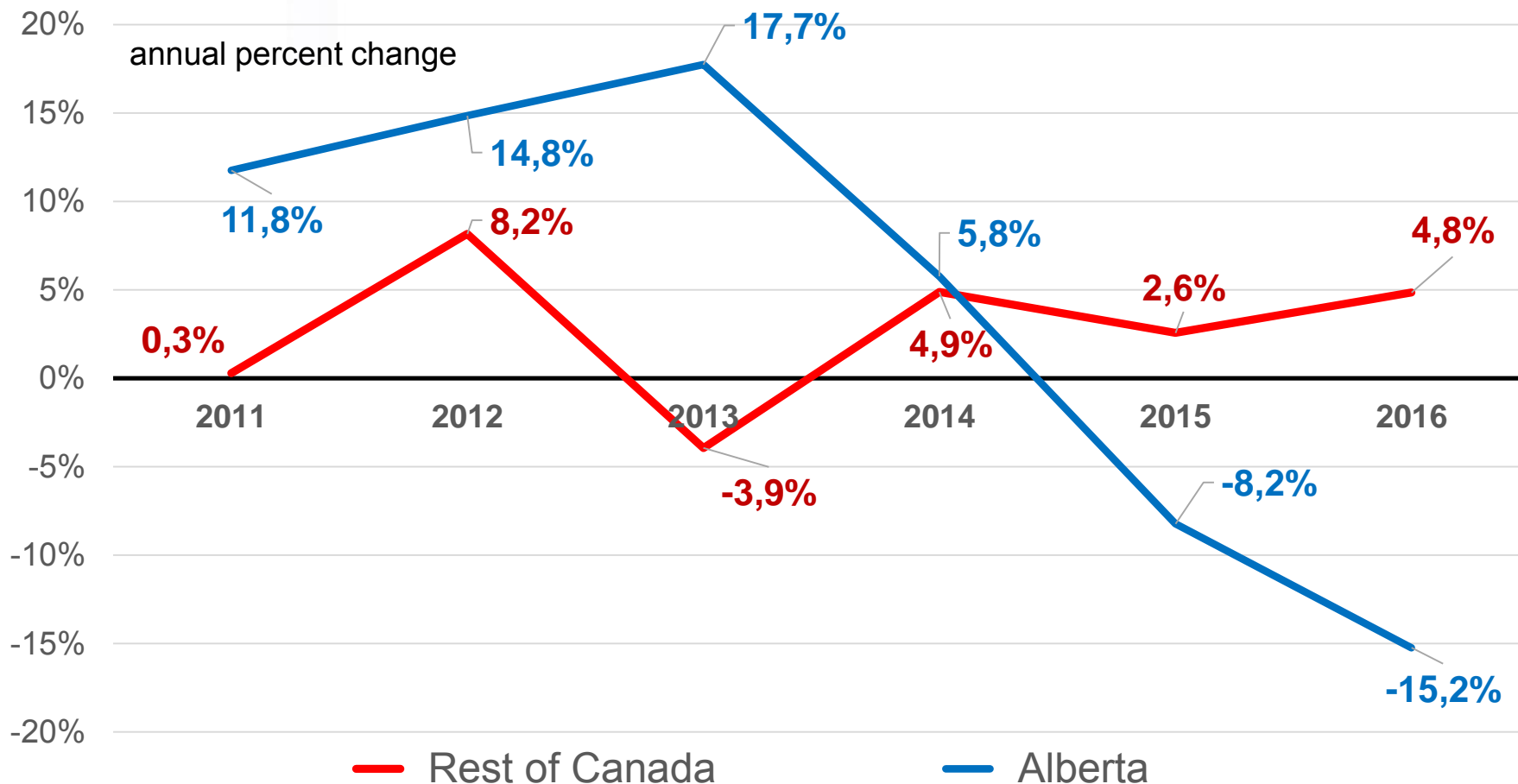
ALBERTA HOUSING INDUSTRY

- Building permits
- Housing starts





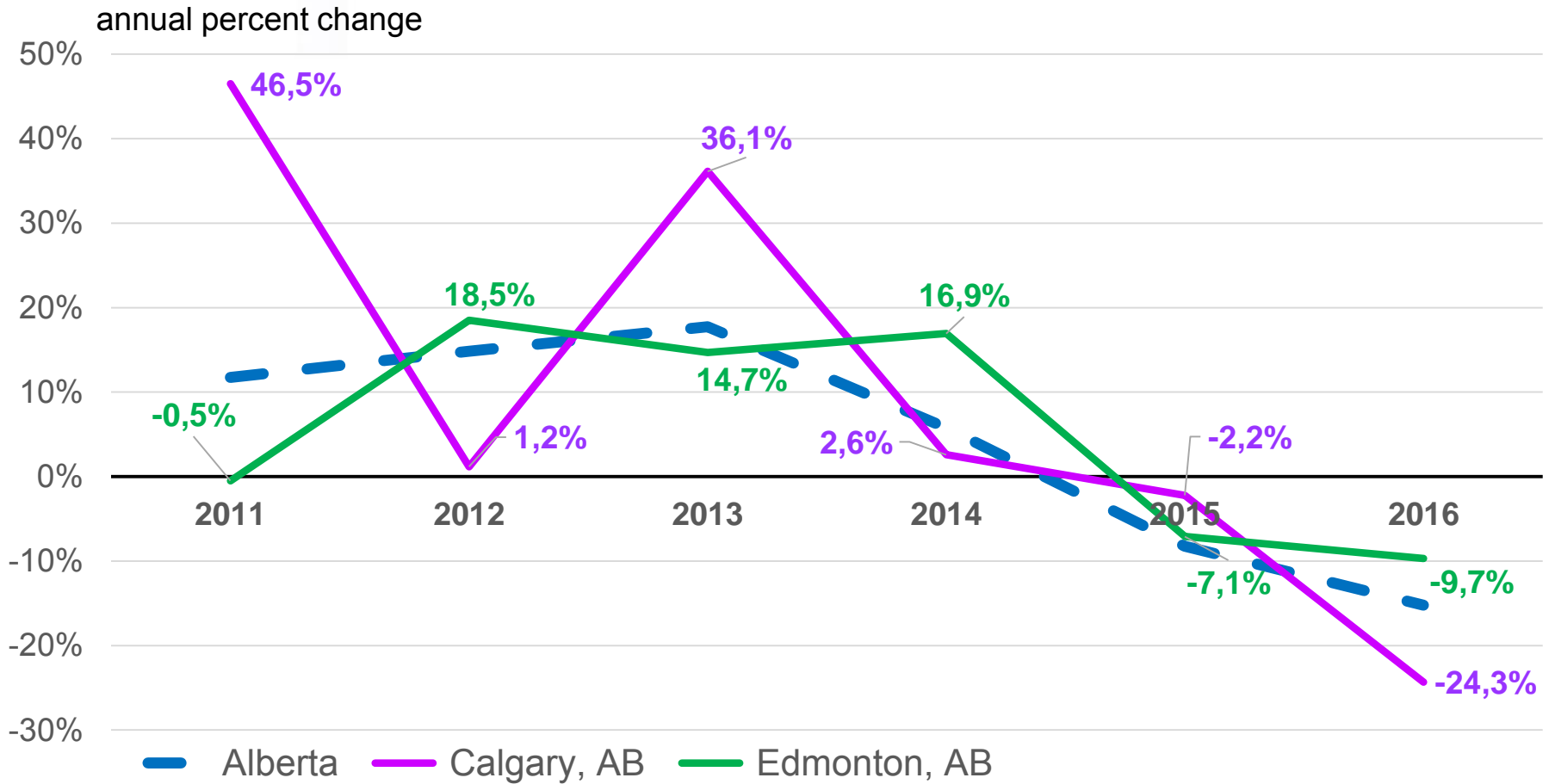
Building permits value, Alberta and Canada



Source: Building permits, CANSIM table 026-0006.



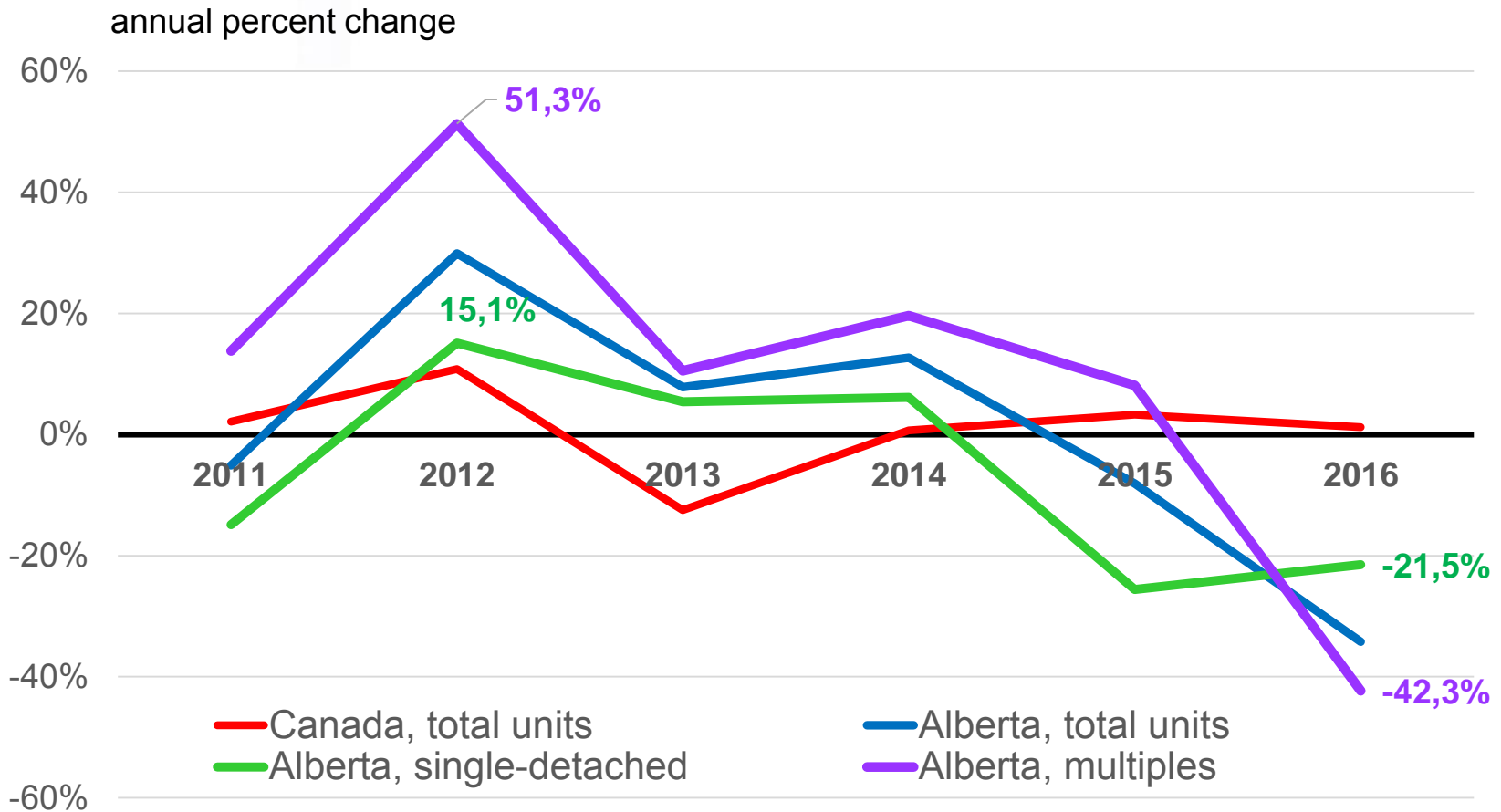
Building permit value, Calgary and Edmonton



Source: Building permits, CANSIM table 026-0006.



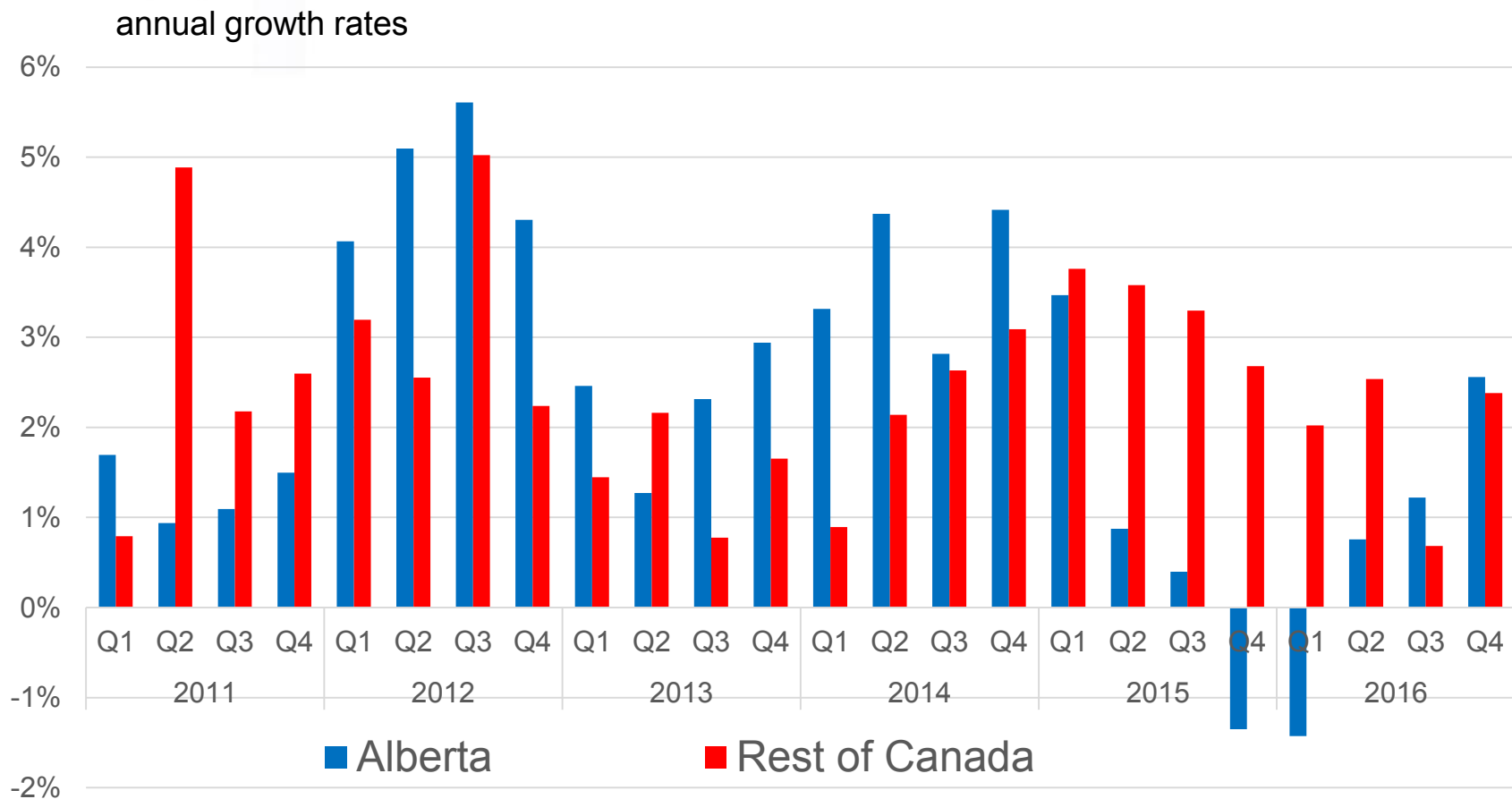
Housing starts by type, Alberta and Canada



Source: CANSIM table 027-0008.



Credit union consumer loans, Alberta and Canada



Source: Industrial Organization and Finance Division.



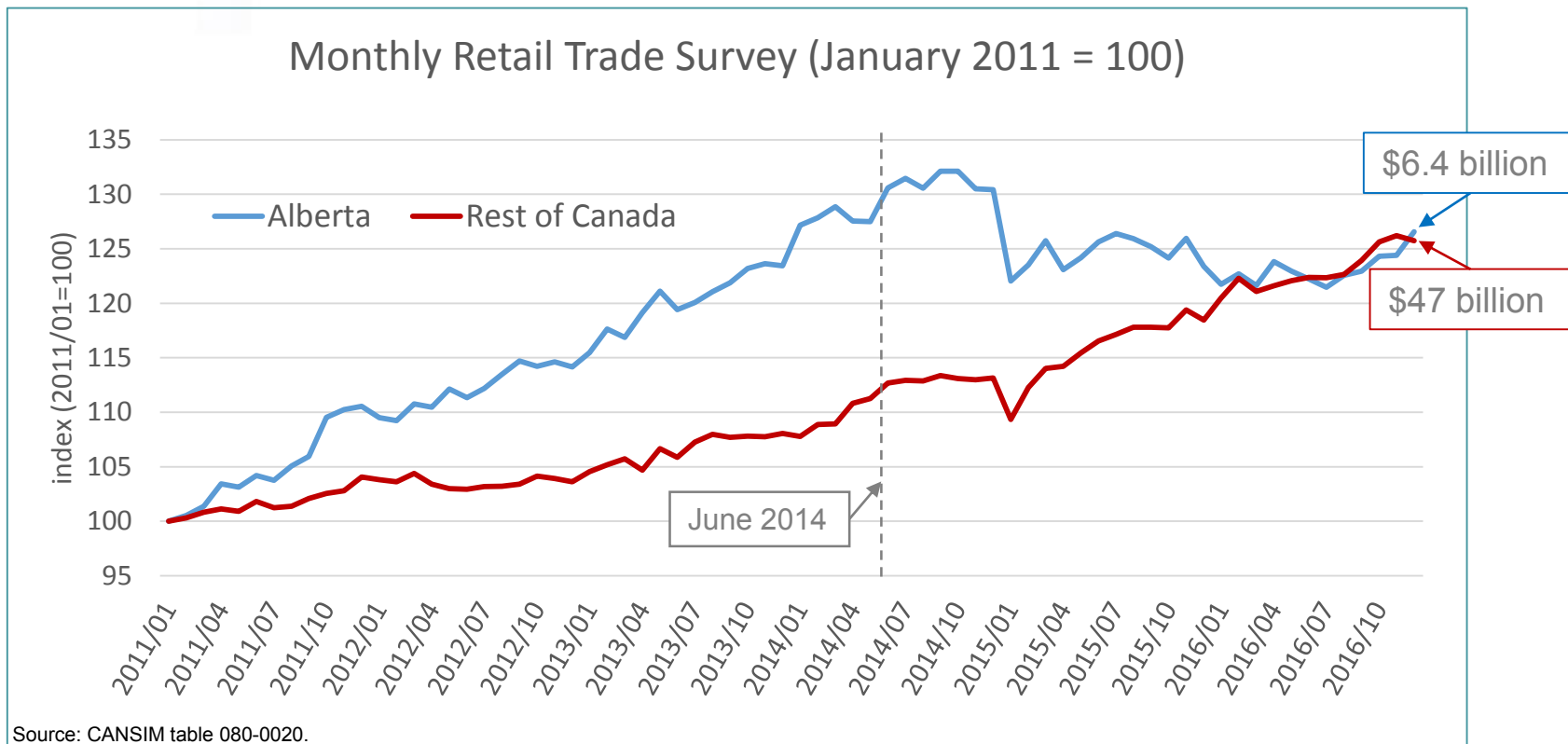
HOUSEHOLD SECTOR

Selected consumer spending



Retail trade, Alberta and Canada

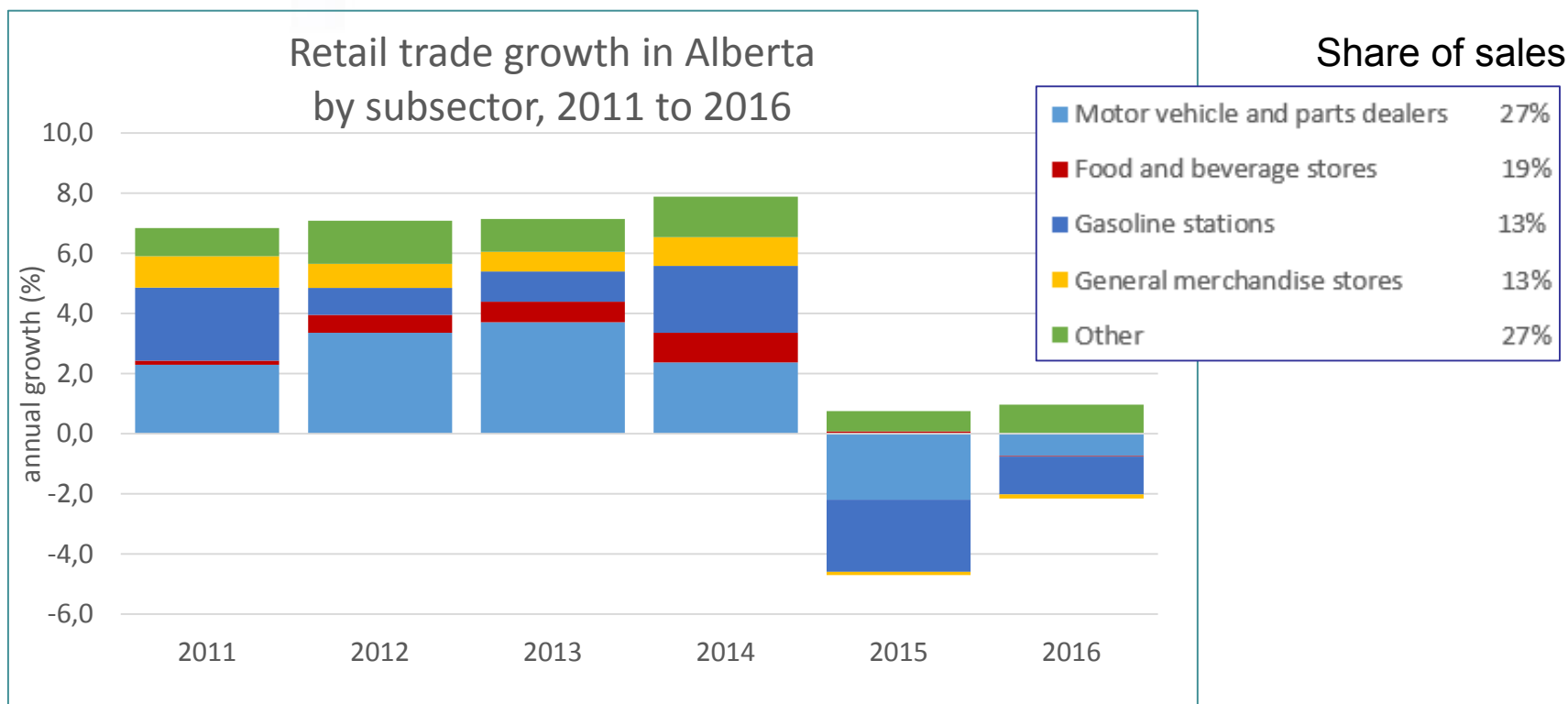
- Spending in Alberta grew faster until October 2014, but then reversed



Alberta	+32%
Other provinces	+13%

-4.2%
+11.2%

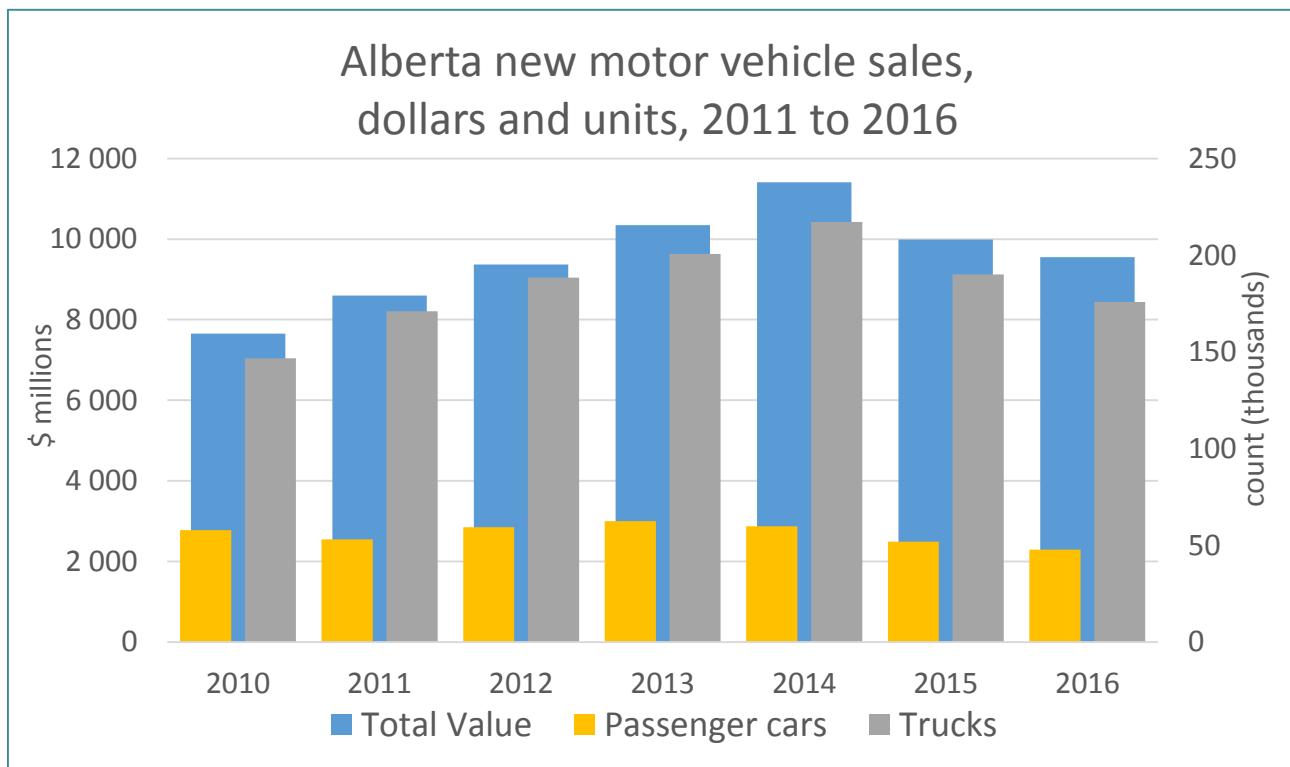
Motor vehicles and gasoline drive changes



Source: CANSIM table 080-0020.

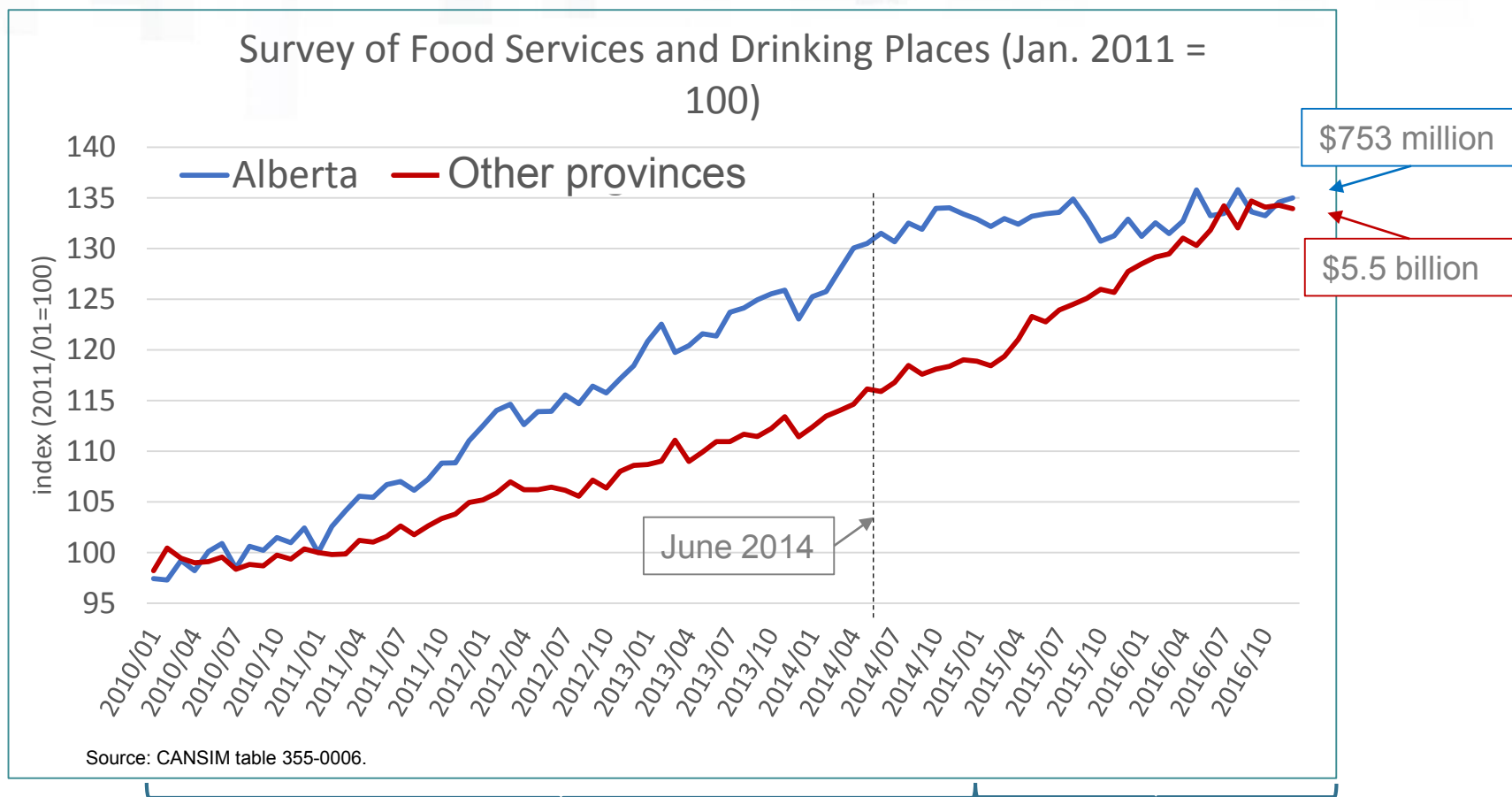
Albertans buying fewer motor vehicles

- The number of cars and trucks sold declined in Alberta in 2015 and 2016, but increased in the rest of the country



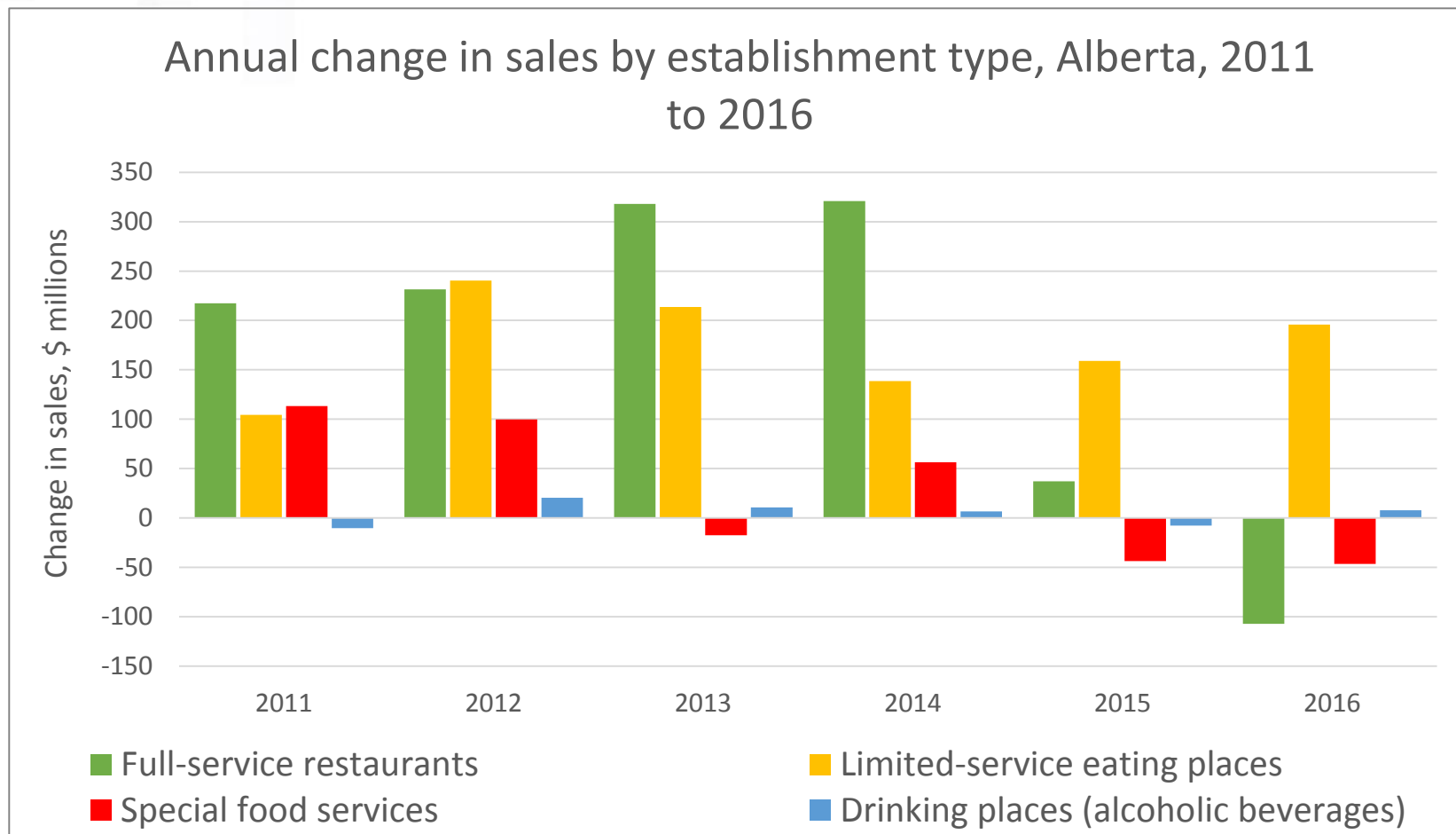
Source: CANSIM table 079-0003.

Restaurant and food services spending



Alberta	+34%	+0.7%
Other provinces	+18%	+13%

Albertans switch to lower-priced restaurants



Source: CANSIM table 355-0006.



SUMMARY

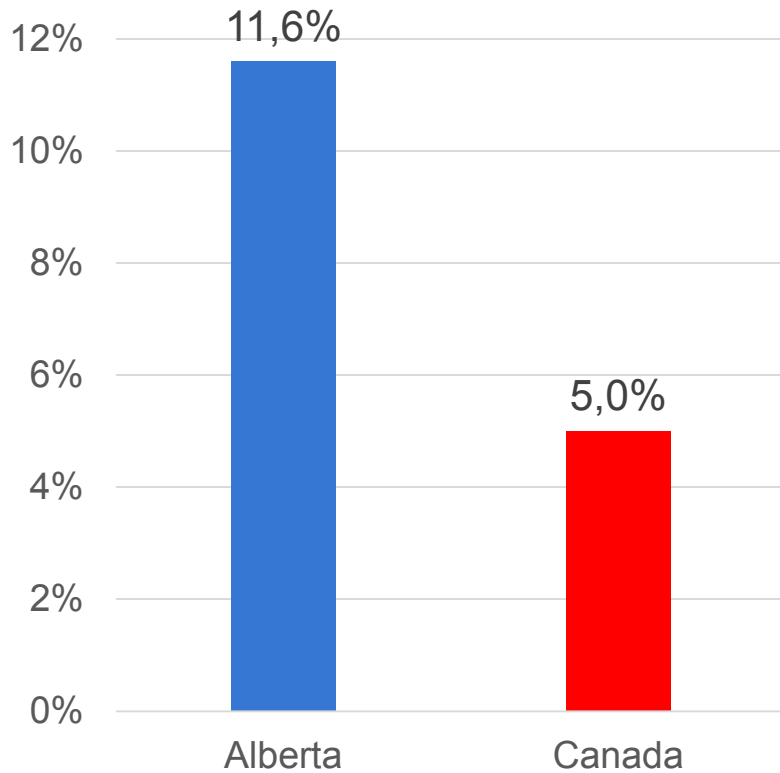
- Moving forward
- Recap
- What's next





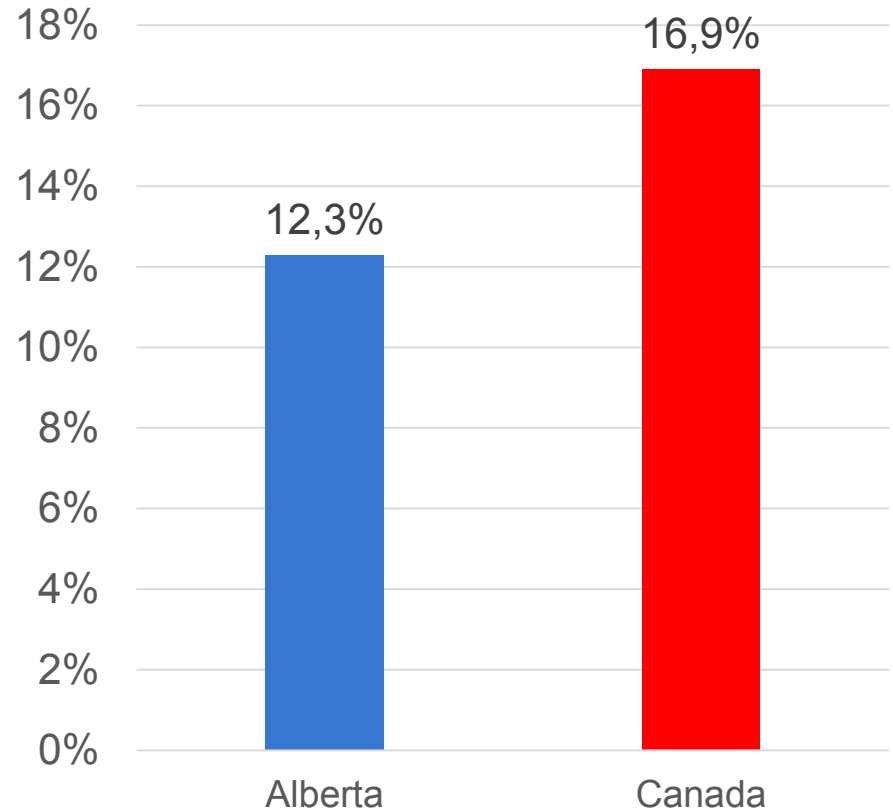
Alberta: Demographic strength...

Population growth, 2011 to 2016



Source: Census of Population.

Population aged 65 and older, 2016

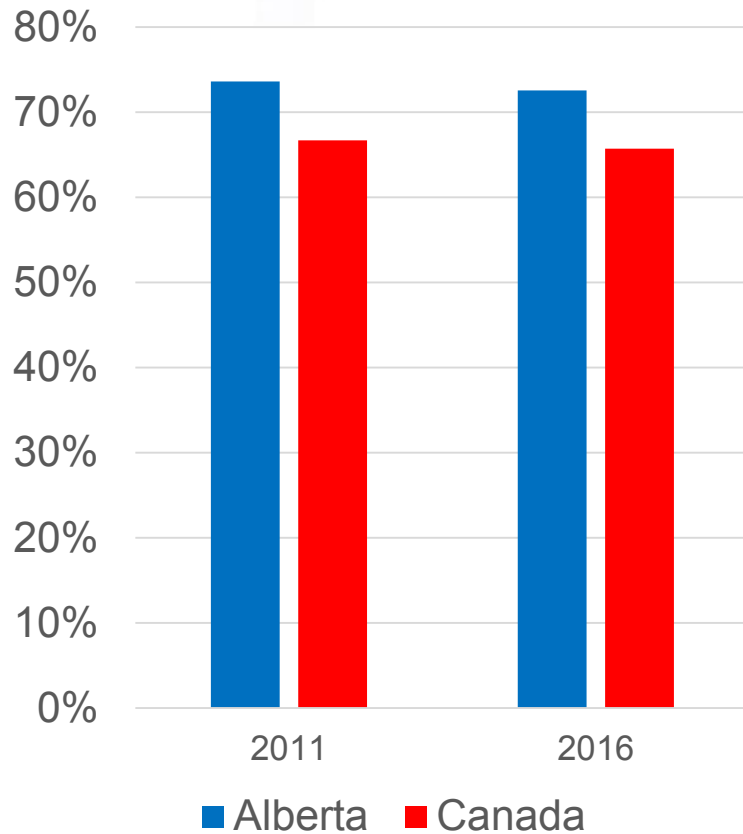


Source: Census of Population.



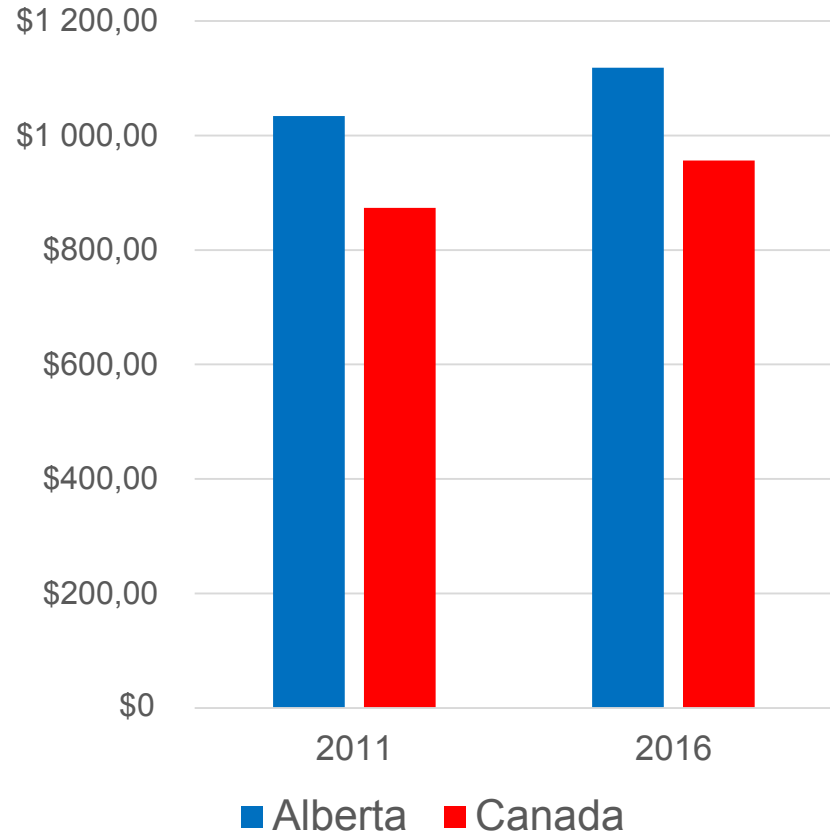
...and labour market resilience

Labour market participation rate



Source: CANSIM table 282-0087.

Average weekly earnings



Source: CANSIM table 281-0026.

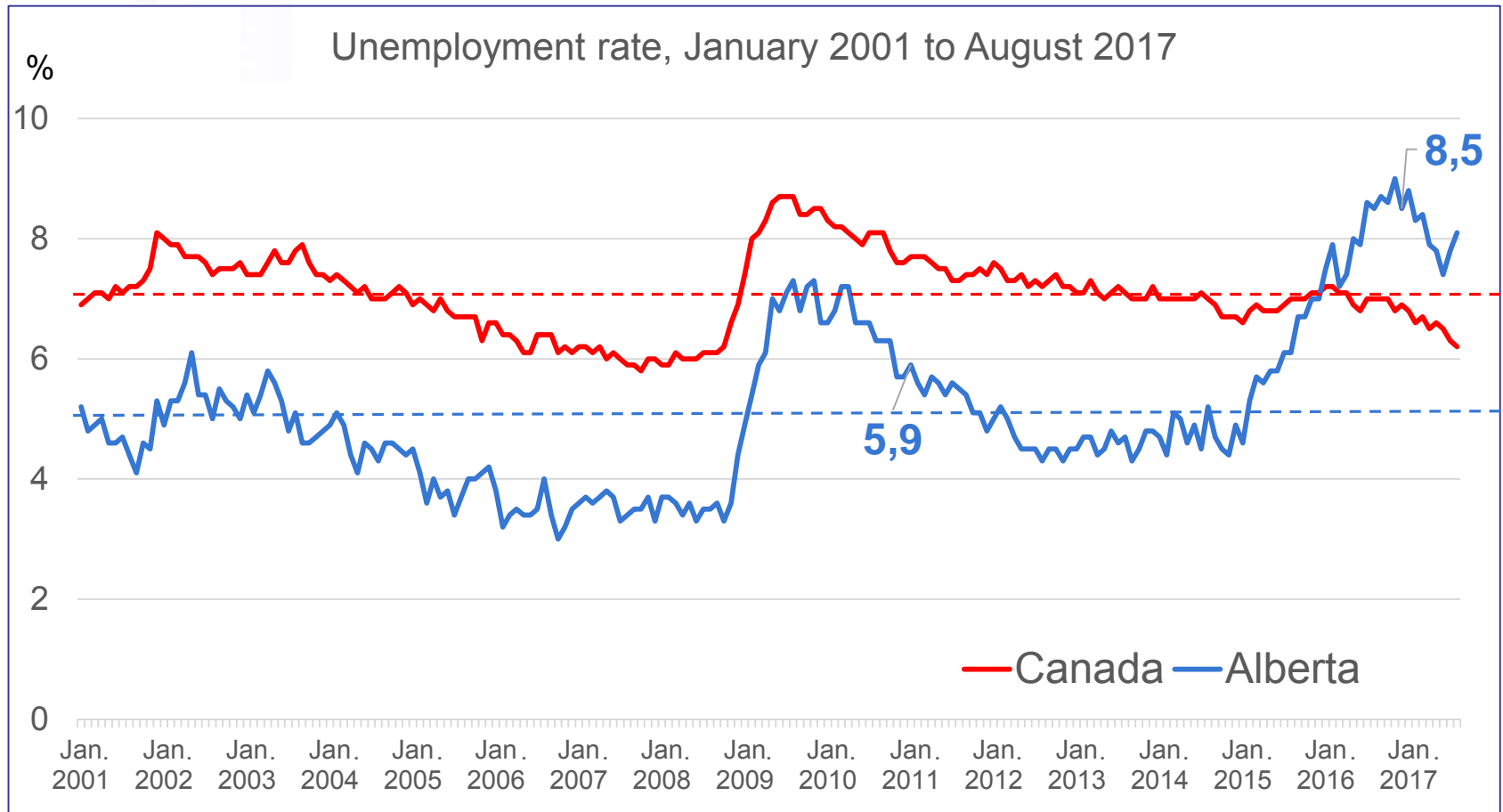


But is it different this time?

The situation has changed.

- A **structural** shock or **cyclical** change?
 - Need to broaden the economic base
- A changing labour market composition?
 - Need to include more Aboriginal peoples
- An adaptation to a lower-carbon world?
 - Need to consider pricing, tax policy, clean technology...

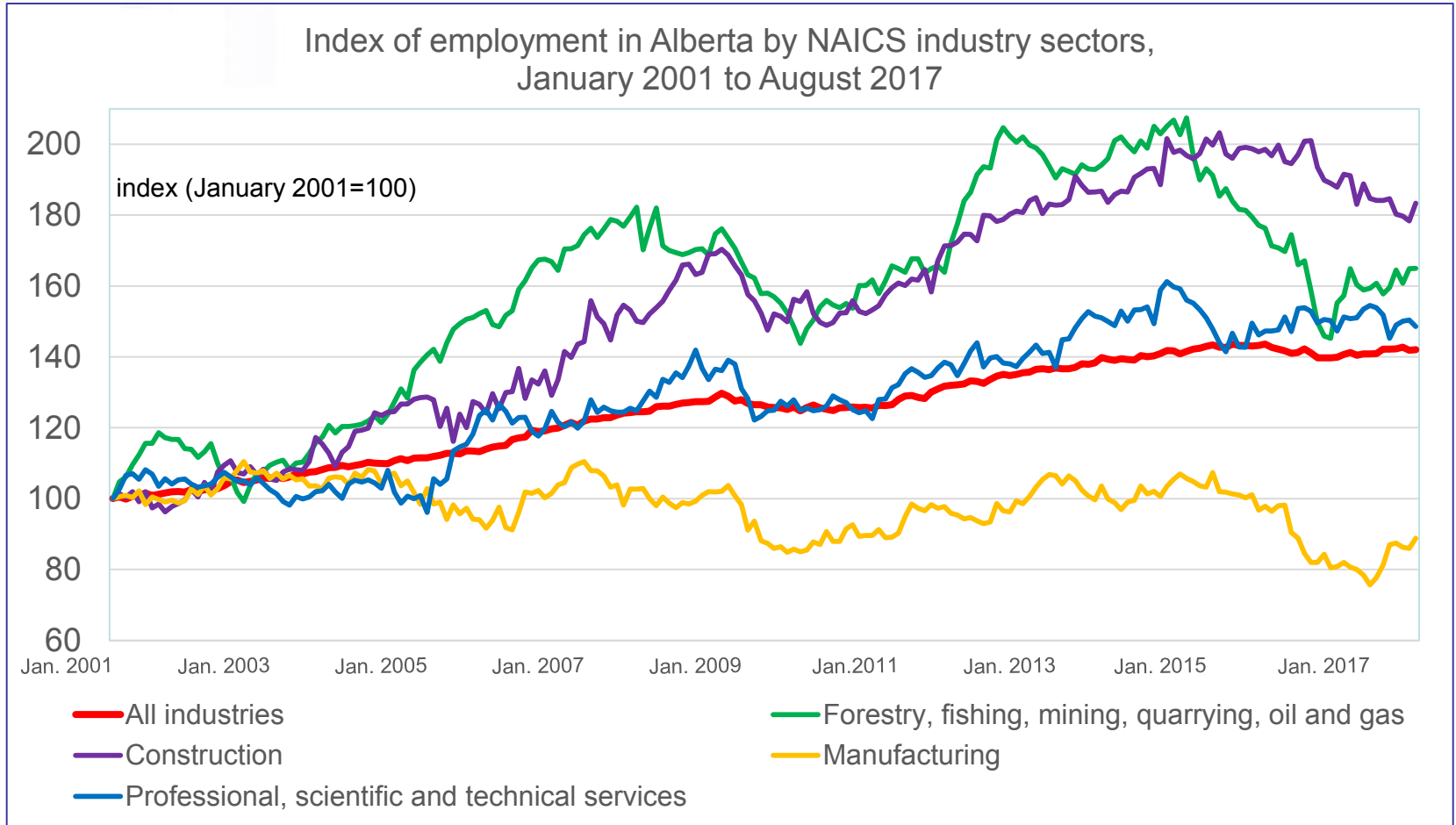
A structural change in Alberta?



Source: CANSIM table 282-0087.



Sectoral changes in Alberta employment

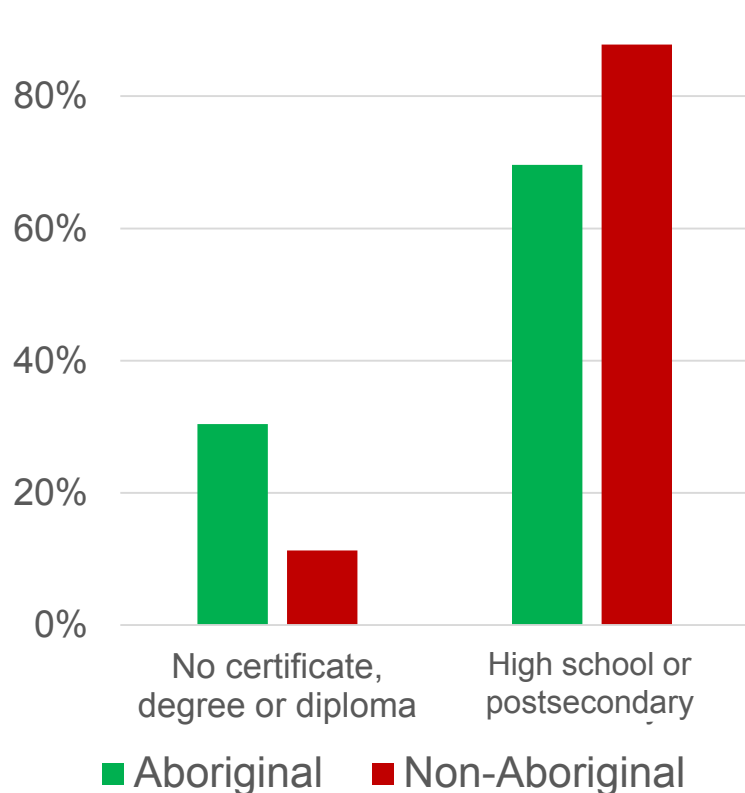


Source: CANSIM table 282-0088.



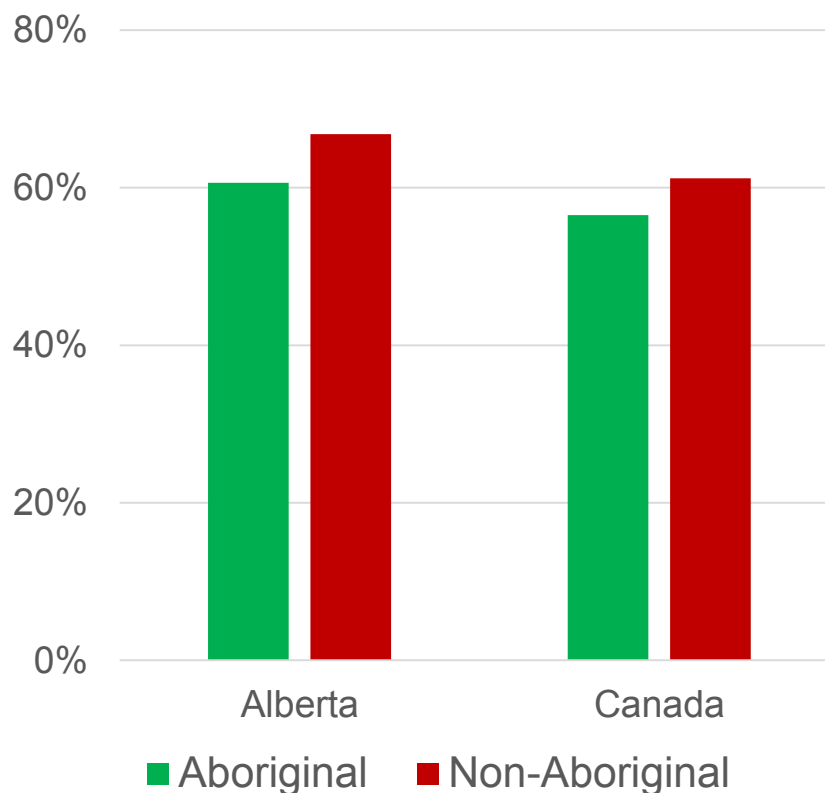
Aboriginal education and employment

Educational attainment by Aboriginal identity, Alberta, 2011



Source: 2011 National Household Survey.

Employment rate (ages 15 and older) by Aboriginal identity, 2016



Source: Labour Force Survey.



Lower carbon = Economic diversification?

Town looks to abandoned gas wells for a new kind of energy

BOB WEBER EDMONTON

An Alberta town is planning to pull a different kind of energy from the abandoned oil and gas wells that ring its outskirts.

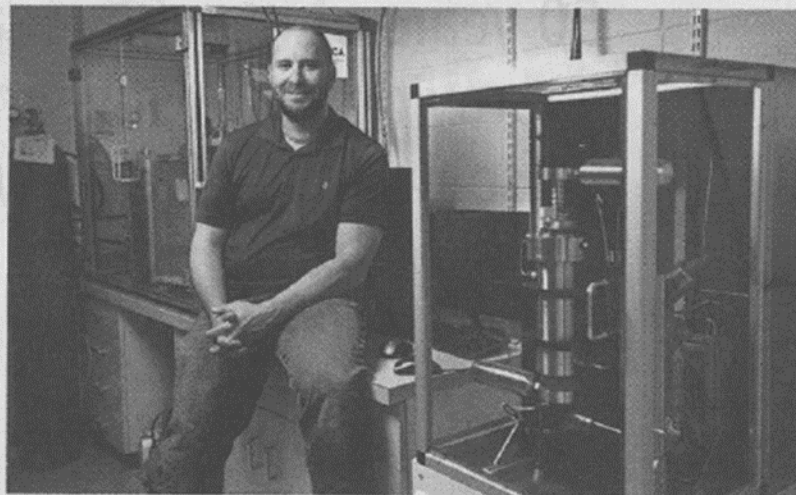
Hinton, west of Edmonton on the edge of the Rocky Mountains, is teaming up with academic researchers and the private sector to install what may be Canada's first geothermal heating system in its downtown core.

And some say it could change the ground rules for industry all over Alberta.

"It would be a huge boon for the economy of this province," said Jonathon Banks, a University of Alberta geologist who is working on the project.

The town and Calgary-based Epoch Energy propose to reopen an abandoned gas well near the community and use heat from the bottom of the hole to warm municipal buildings.

Water five kilometres down simmers at 120 C. It would be pumped topside and used to warm another fluid, which



University of Alberta geologist Jonathan Banks, seen in an Edmonton lab on Tuesday, says geothermal energy 'would be a huge boon' for the province's economy. JASON FRANSON/THE CANADIAN PRESS

would be piped downtown to the networked buildings. The water would then be reinjected.

One study has run the numbers for 12 public buildings, including schools, government offices, the hospital and the RCMP detachment. The \$10.2-million cost would be paid back in 16 years at current natural gas

prices. The town would cut its CO₂ emissions – and associated carbon-tax costs – by 3,795 tonnes a year.

"It makes sense," said Hinton Mayor Rob Mackin. "We were built on resources and this is just an extension of that."

Dr. Banks draws a distinction between ground-source heat

pumps in common use and true geothermal energy. The first, he says, draws on solar energy stored in the top layers of the Earth, while the second uses heat actually generated in the depths.

The geothermal concept is widely used around the world, but Hinton's version has a few wrinkles.

Rocks beneath the town contain tiny pores which hold oil, gas and water. Pump those pores dry, and rocks behave differently. Those differences are well-understood for hydrocarbons, but not water.

"When it's related to oil and gas, we know everything," Dr. Banks said. "When it's related to geothermal, we actually don't know any of this stuff."

Water from that far down is full of salts and other materials such as heavy metals. Will those materials crystallize out at the surface? It's not known.

Questions on pump rates, pipe sizes, flow rates and well spacing all need to be answered.

The town has asked the provincial government for \$1.2-million.

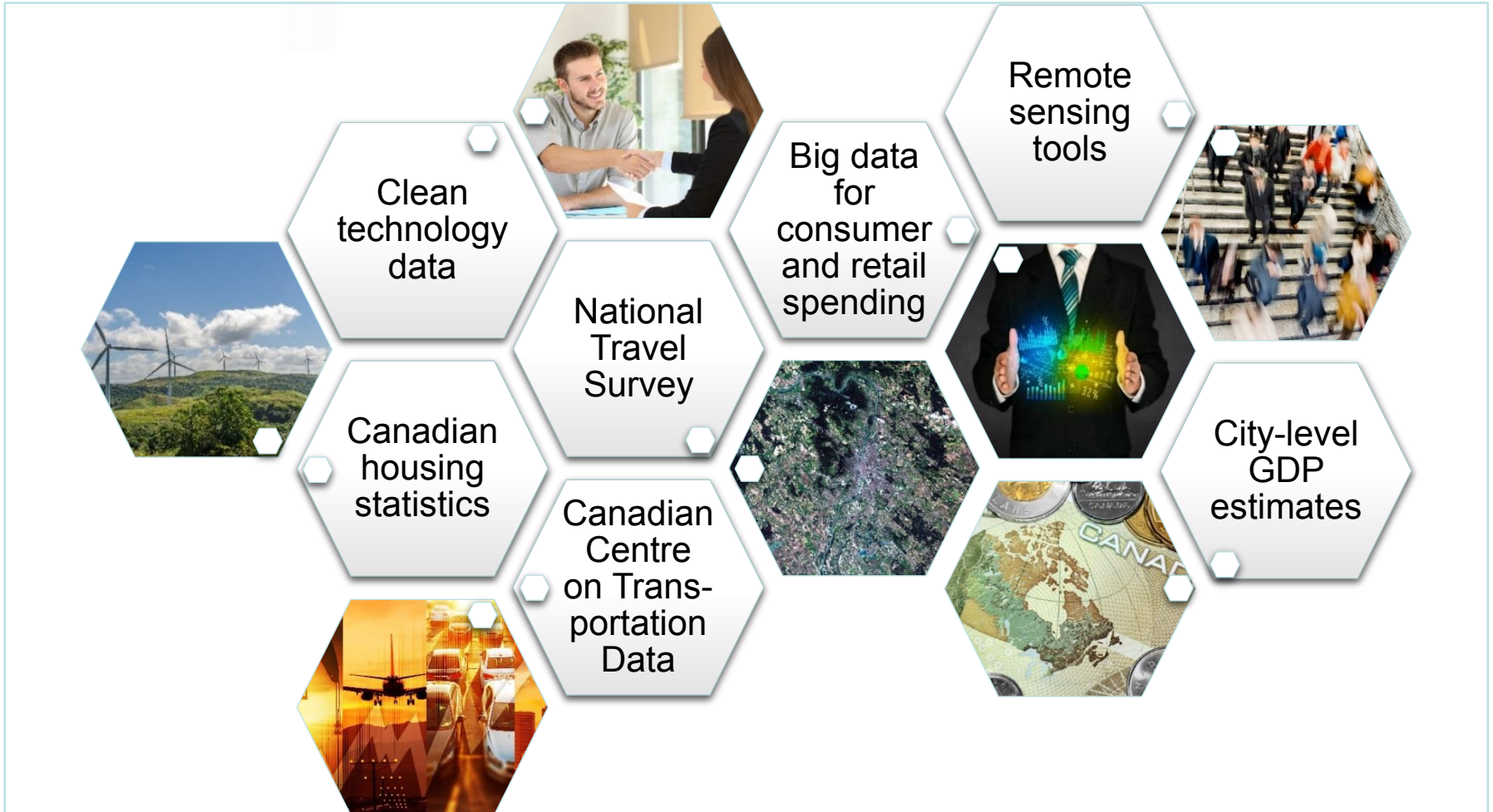


Recap

- Canadians are “price takers” in the global oil market, and, since 2014, gasoline prices have not fallen as far as crude oil prices
- Alberta’s reliance on oil production made it vulnerable to the price decline, with impacts felt in public finance, business and consumer behaviour
- Alberta is poised to recover with its strong demographics and labour market resilience, but there may be some challenges ahead



What's next: Delivering better data





A modern, responsive statistical agency

- Moving beyond a survey-first approach with **new methods** and **integrating data** from a variety of existing sources
- Making our data **easier to access** and use by adopting **new tools** to analyze and visualize data
- Helping more Canadians use data to make **evidence-based decisions**



Thank you!

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