



# **US-Alberta Trade: Job Profile by State**

Presentation for the REMI Webinar

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Economic Development Trade**



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- This presentation offers no comments on any policies or programs.



- Background
  - Project background
  - Canada and Alberta overview
- Modelling
  - REMI model(s)
  - Inputs
- Results





# **BACKGROUND**



- Support our trade exposed industries, and clusters
  - In 2015, 1 out 5 jobs in Alberta was in an export exposed industry
- The US is Alberta's main trading partner
  - 88% of Alberta's merchandise exports go to the US
  - Up to 70% of Alberta merchandise imports come from the US
- Proposed policies in the US are expected to change the trade relationship
  - Renegotiation of NAFTA
  - Border Adjustment Tax
  - Softwood lumber



# CANADA'S ECONOMY



- Population in 2016: 36 million
- Economic output: \$1,777 billion (basic prices in 2013 current dollars CAD)
- The contribution to GDP from the five largest sectors was more than 40 percent:
  - Finance and insurance
  - Manufacturing
  - Mining and oil and gas extraction
  - Professional, scientific and technical services and
  - Wholesale trade

Canada's per capita GDP in 2015 was \$55,405 (in 2015 CAD)



## CANADA-US AUTOMOTIVE PRODUCTS AGREEMENT 1965

ABOLISHED IN 2001

- WTO ruled it illegal in 2001.
- Goal was to reduce Canadian production costs and lower vehicle prices for consumers.
- Led to Canada adopting US technical regulations rather than participate in EU development of an international consensus on regulations (considered problematic).

## CANADA-US FREE TRADE AGREEMENT (CUSFTA) 1988

STILL IN PLACE

- Phased out trade restrictions and resulted in increase of cross-border trade.
- Opponents were concerned that it would have very little effect on GDP and erode Canada's sovereignty.
- Some estimate it increased annual profits in Canadian Manufacturing by 1.2%.

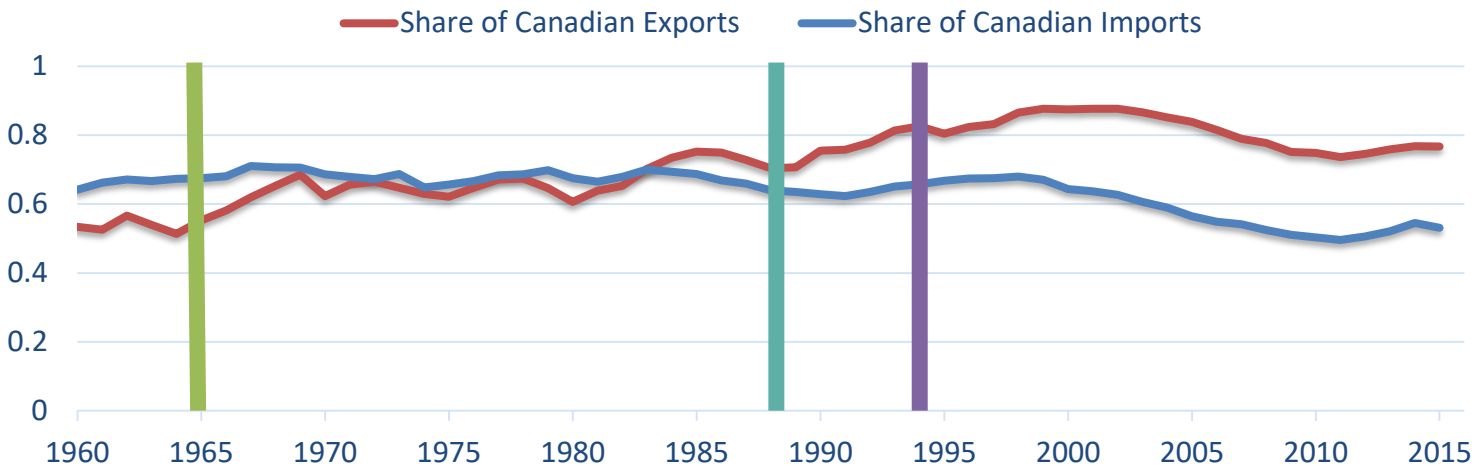
## NORTH AMERICAN FREE TRADE AGREEMENT (NAFTA) 1993

UNDERGOING RENEGOTIATION

- Superseded CUSFTA.
- Largely facilitates long-term investment between the three countries.
- Significantly increased bilateral agricultural flows.
- Led to the creation of a dispute resolution system.



## US Share of Canadian Trade Flows

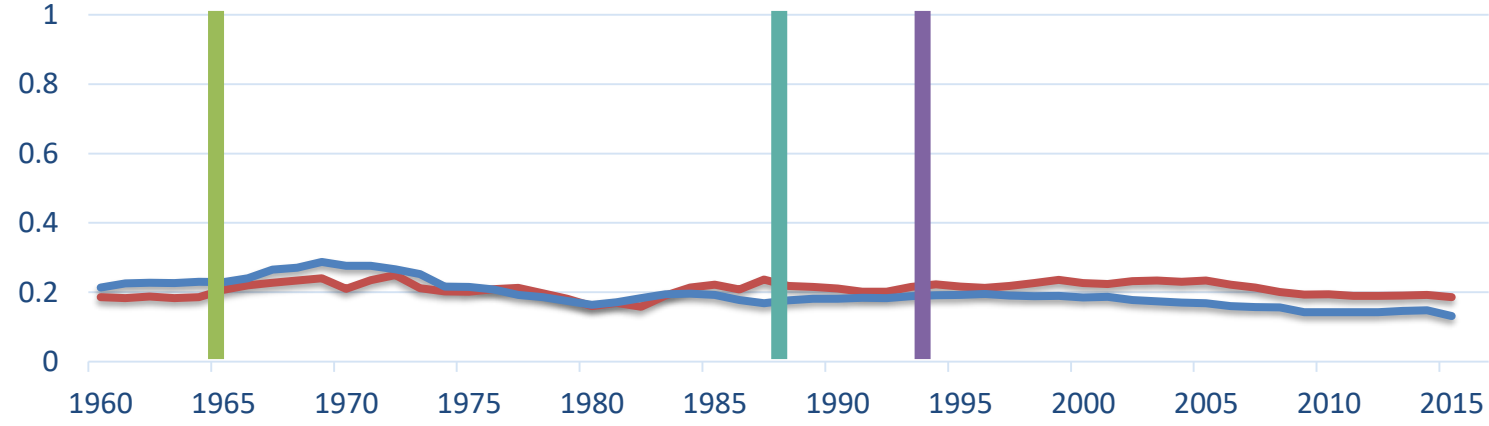


Auto Pact

CUSFTA

NAFTA

## Canadian Share of US Trade Flows



— Share of US Exports — Share of US Imports



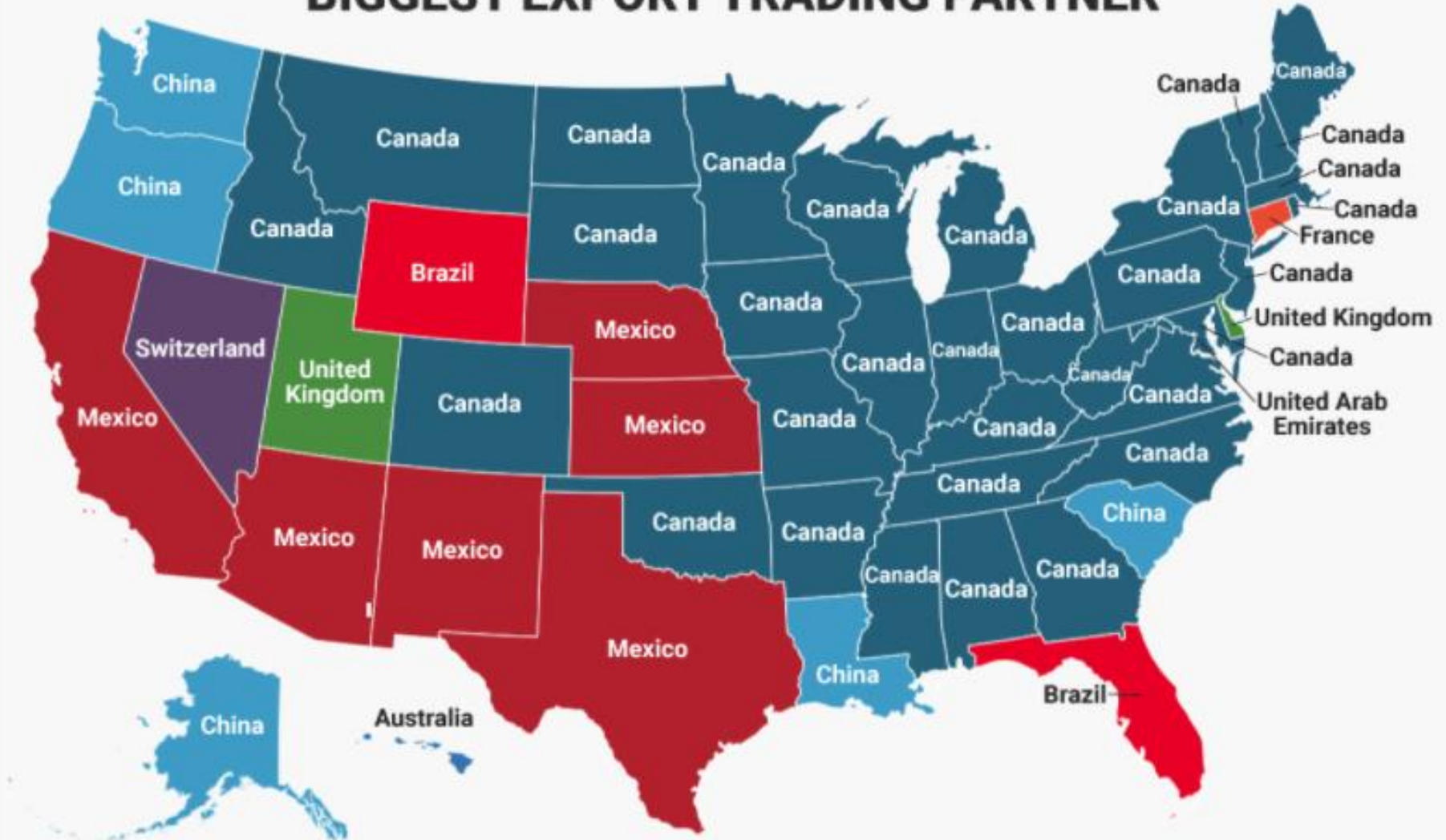
# US TRADE PARTNERS





# US TRADE PARTNERS

## BIGGEST EXPORT TRADING PARTNER



SOURCE: US Census Bureau

BUSINESS INSIDER

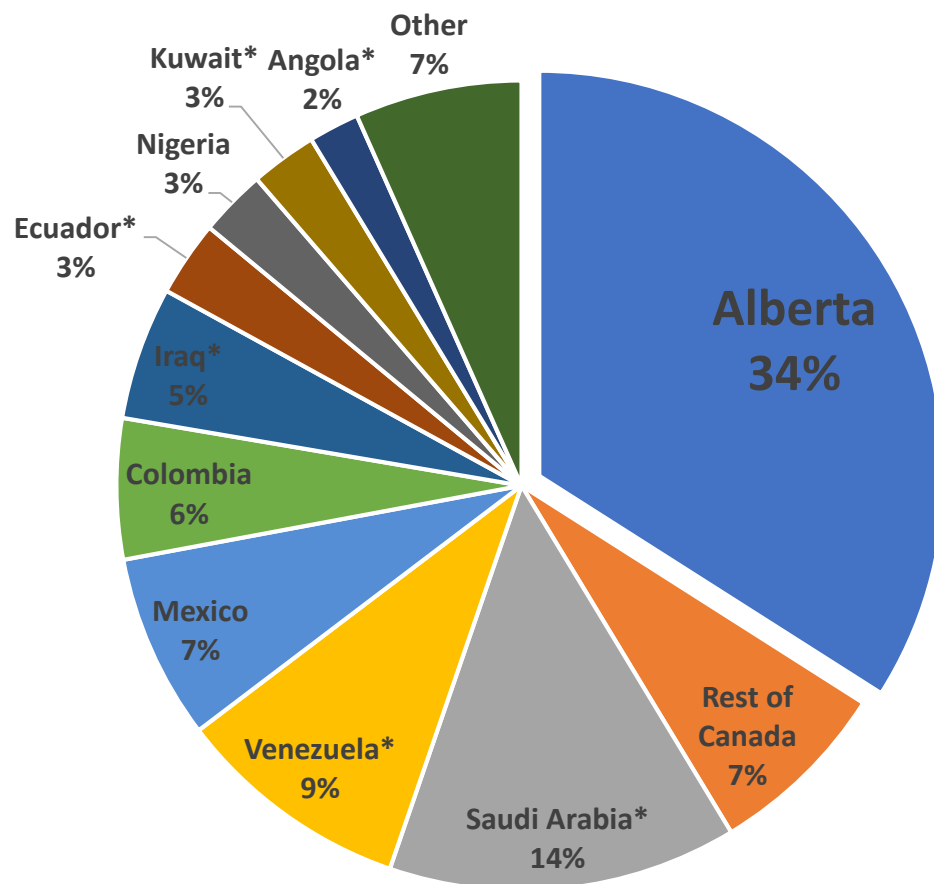




- Population in 2016: 4.3 million
- Economic output: \$330 billion
  - Alberta has the third largest oil resource in the world
  - Alberta's economy shrunk in terms of real GDP growth in 2015 and 2016 due to weak oil and gas prices
- The five largest sectors generated more than 60% to Alberta's GDP:
  - Mining, Oil and Gas extraction
  - Construction
  - Finance and insurance
  - Manufacturing and
  - Government
- Alberta's per capita GDP in 2015 was \$78,100 (in 2015 CAD), the highest in Canada



## SOURCES OF THE U.S. CRUDE OIL IMPORTS IN 2016

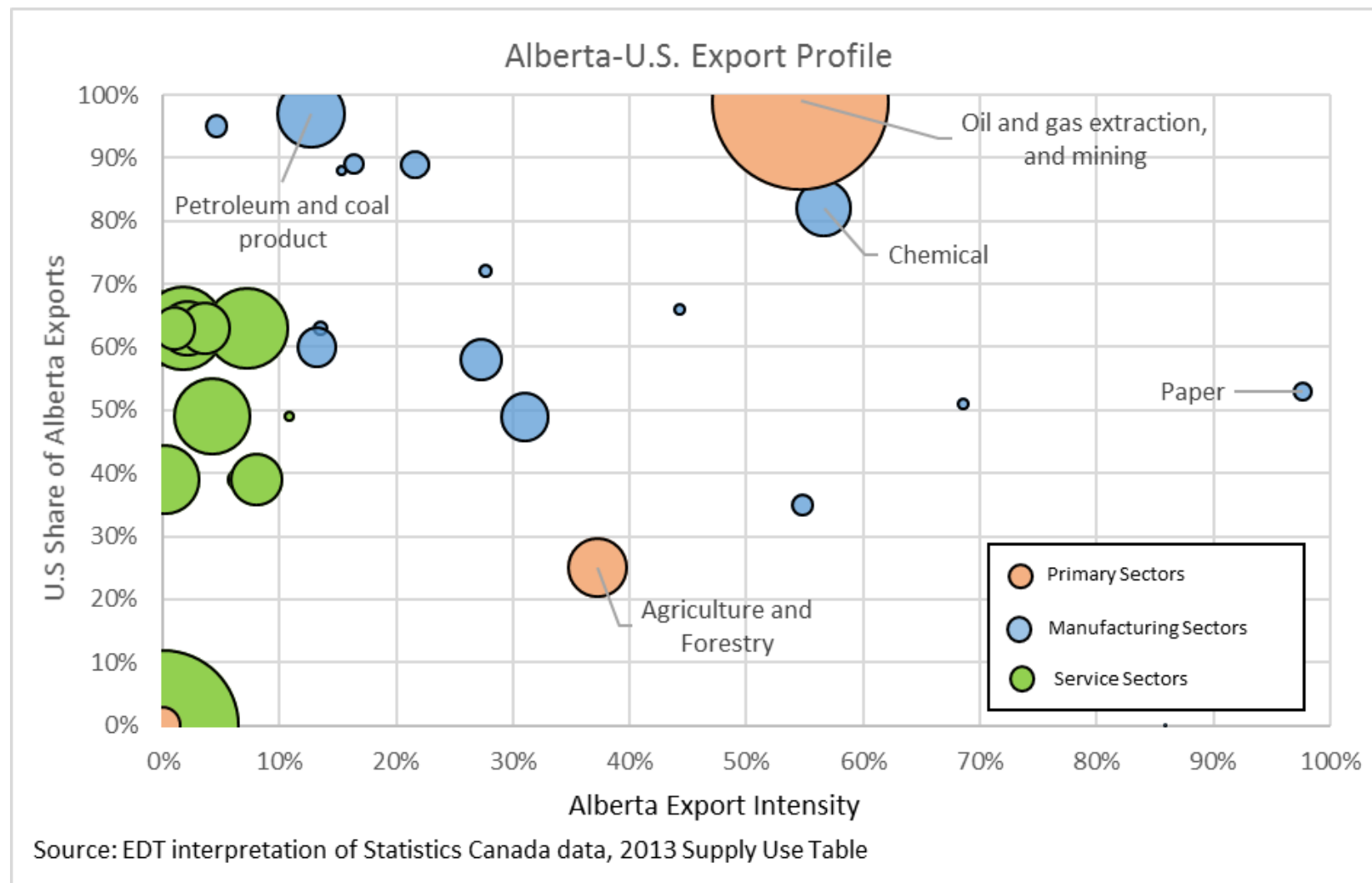


\* OPEC Member

- Canada's share is now greater than the combined imports from the U.S.'s next three largest suppliers: Saudi Arabia (14%), Mexico (7%), and Venezuela (9%).
- Alberta accounts for 80% of Canadian oil production.
- The majority of Alberta's oil is exported to the US.
- The share of US oil imports coming from Alberta has been increasing, rising to 34% in 2016 up from 26% in 2013.
- Albertan oil is priced at WCS, whereas other oil is priced by WTI and BRENT.



- Many sectors in Alberta are trade exposed, with the US being the main trading partner





# MODELLING



- Two regional models are used to estimate the economic contribution, or footprint, of inter regional trade:
  - Alberta and Rest of Canada model
    - Calibrated to the Canadian Supply and Use tables
    - More than 50 industry sectors
  - US 51 region model
    - Calibrated to the U.S. Supply and Use tables
    - More than 60 industry sectors



## Notes:

- Data from Trade Data Online and Statistics Canada's Input-Output tables.
- Input Data was average exports from 2010-2013 mapped to REMI Model industry categories
- Alberta Import data adjusted to estimate the destination basis not point of entry basis
- Developed a rules based methodology that allowed for discretion based on jurisdictional knowledge



## Notes:

- Modelled as a footprint analysis: removed the trade value from the model to see the impact as a reduction in economic activity
  - Some states require reallocation of oil and gas for the model due to high exports.
  - Reallocation was done to nearby states that are part of the supply chain.
- Analysis focuses on the impact of exporting only
- US agriculture jobs were not available from the REMI model. However, the United States Department of Agriculture has a trade multiplier calculator that provided jobs estimates



**Table 3: U.S. economic activity supported by agricultural trade, 2015**

Item	2013 / Total (1,000 jobs)	2014 / Total (1,000 jobs)	2015 / Total (1,000 jobs)	2015 / Bulk (1,000 jobs)	2015 / Nonbulk (1,000 jobs)
<b>Employment generated by agricultural exports</b>	<b>1094</b>	<b>1132</b>	<b>1067</b>	<b>385.3</b>	<b>681.4</b>
Farm	301	324	315	175.6	139.6
Nonfarm	794	808	751	209.6	541.8
Food processing	80	72	66	0.3	66.1
Other manufacturing	331	322	301	33.6	267.1
Services, trade and transportation	383	413	384	175.7	208.6
<b>Employment per billion dollars of agricultural exports</b>	<b>7.580</b>	<b>7.546</b>	<b>8.016</b>	<b>9.087</b>	<b>7.516</b>

Source: U.S. Department of Agriculture, Economic Research Service, Agricultural Trade Multipliers.  
Updated November 2016.

Calculator: <https://data.ers.usda.gov/ATM.aspx>



## Overview

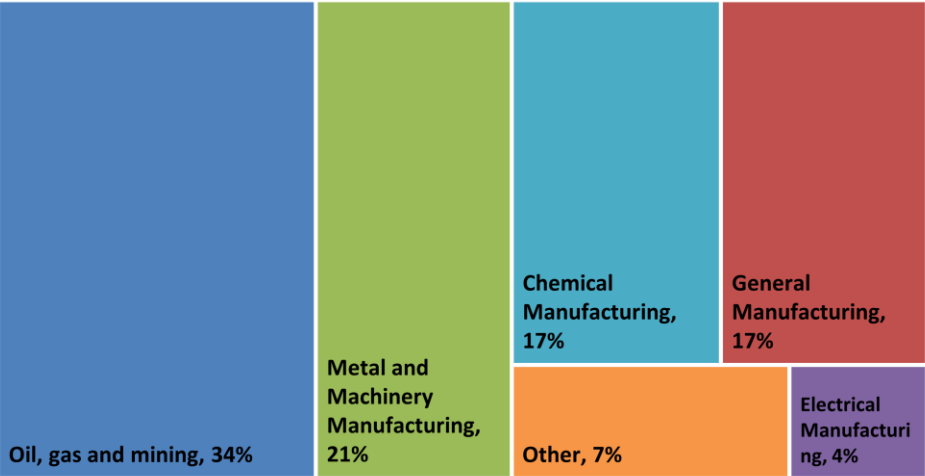
	Alberta to US (\$ million CAD)	US to Alberta (\$ million USD)	Bilateral (\$ million USD)
Total Trade	\$90,090	\$50,960	\$140,158
Top 5 industries	Oil and gas extraction	Primary metal manufacturing	Oil and gas extraction
	Other transportation equipment manufacturing	Computer and electronic product manufacturing	Primary metal manufacturing
	Motor vehicles, bodies and trailers, and parts manufacturing	Fabricated metal product manufacturing	Computer and electronic product manufacturing
	Wood product manufacturing	Printing and related support activities	Other transportation equipment manufacturing
	Textile mills; Textile product mills	Wood product manufacturing	Fabricated metal product manufacturing



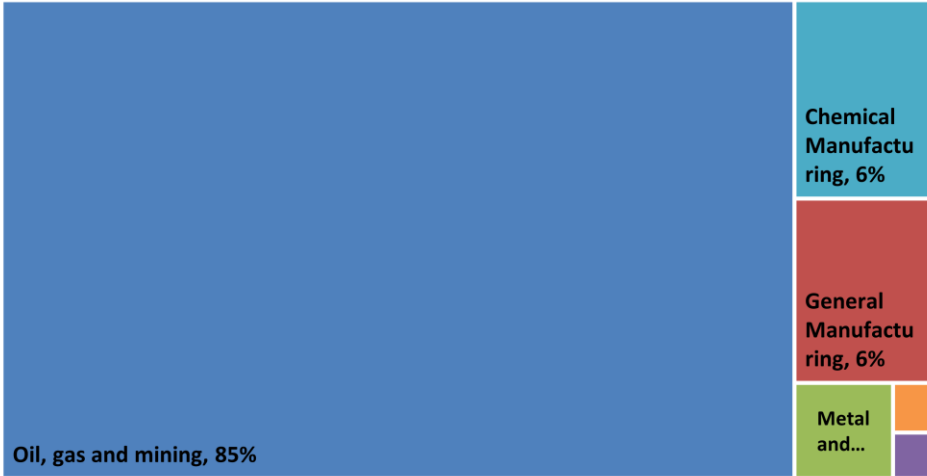
# INDUSTRY BREAKDOWN



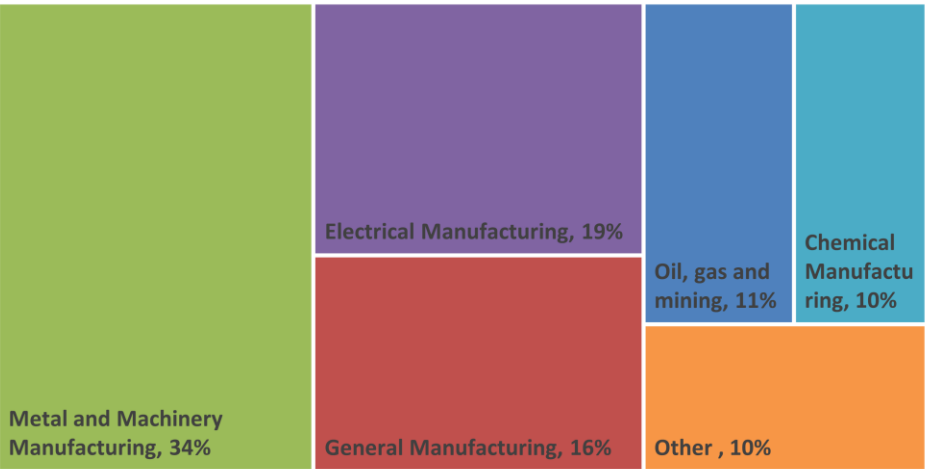
Alberta's Top Exports to Texas



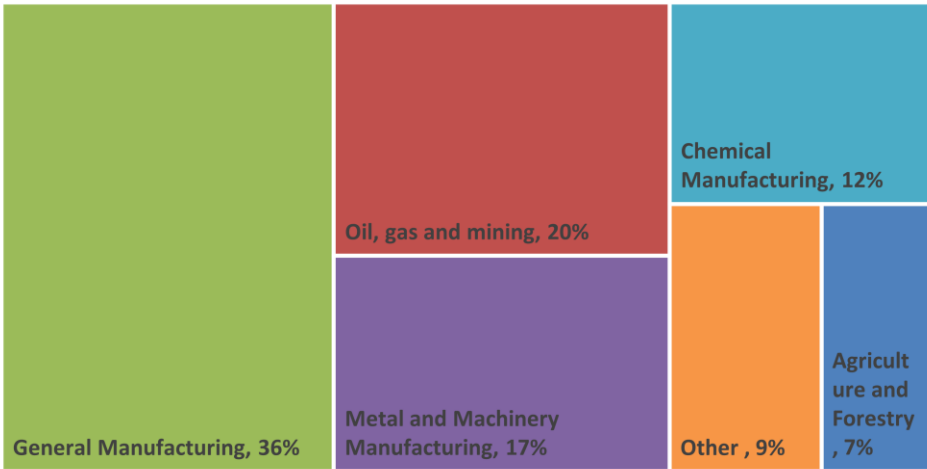
Alberta's Top Exports to Montana



Texas' Top Exports To Alberta

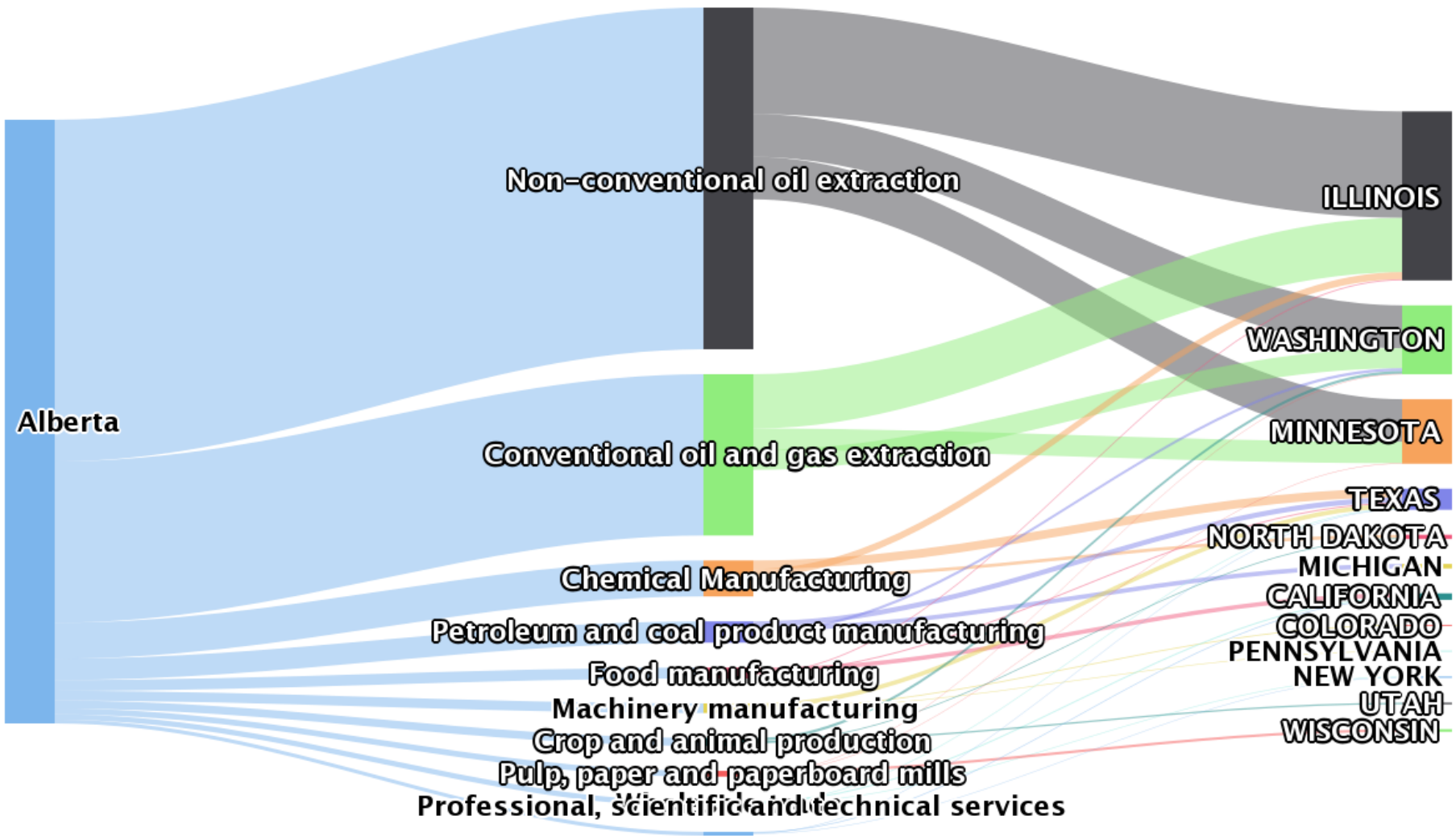


Montana's Top Exports To Alberta













# ALBERTA TOP 10 EXPORTS TO US












Highcharts.com



## Example of inputs for Alberta model

<input checked="" type="checkbox"/>  Alberta Exports to US													
Active	View	Category	Detail	Region	Units	2012	2013	2014	2015	2016	2017	2018	2019
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Crop and animal production	Alberta	2011 National C\$ (M)	0	0	0	-982.04795	-982.04795	-982.04795	-982.04795	-982.04795
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Forestry, fishing, and relat	Alberta	2011 National C\$ (M)	0	0	0	-1.0789315	-1.0789315	-1.0789315	-1.0789315	-1.0789315
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Conventional oil and gas e:	Alberta	2011 National C\$ (M)	0	0	0	-18947.808	-18947.808	-18947.808	-18947.808	-18947.808
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Non-conventional oil extra	Alberta	2011 National C\$ (M)	0	0	0	-44211.552	-44211.552	-44211.552	-44211.552	-44211.552
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Mining and quarrying (exce	Alberta	2011 National C\$ (M)	0	0	0	-199.93826	-199.93826	-199.93826	-199.93826	-199.93826
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Support activities for minin	Alberta	2011 National C\$ (M)	0	0	0	0	0	0	0	0
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Electric power generation,	Alberta	2011 National C\$ (M)	0	0	0	-4.02061	-4.02061	-4.02061	-4.02061	-4.02061

## Example of inputs for US model

<input checked="" type="checkbox"/>  US exports to Alberta										
Active	View	Category	Detail	Region	Units	2015	2016	2017	2018	2019
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Wood product manufacturing -	Alabama	2009 Fixed National \$ (M)	-0.85	-0.85	-0.85	-0.85	-0.85
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Nonmetallic mineral product ma	Alabama	2009 Fixed National \$ (M)	-6.54	-6.54	-6.54	-6.54	-6.54
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Primary metal manufacturing -	Alabama	2009 Fixed National \$ (M)	-80.1	-80.1	-80.1	-80.1	-80.1
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Fabricated metal product manu	Alabama	2009 Fixed National \$ (M)	-22.37	-22.37	-22.37	-22.37	-22.37
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Machinery manufacturing - 33:	Alabama	2009 Fixed National \$ (M)	-28.76	-28.76	-28.76	-28.76	-28.76
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Computer and electronic produ	Alabama	2009 Fixed National \$ (M)	-10.43	-10.43	-10.43	-10.43	-10.43
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Electrical equipment and applia	Alabama	2009 Fixed National \$ (M)	-9.87	-9.87	-9.87	-9.87	-9.87
<input checked="" type="checkbox"/>		Industry Sales (International Exports)	Motor vehicles, bodies and trai	Alabama	2009 Fixed National \$ (M)	-459.71	-459.71	-459.71	-459.71	-459.71



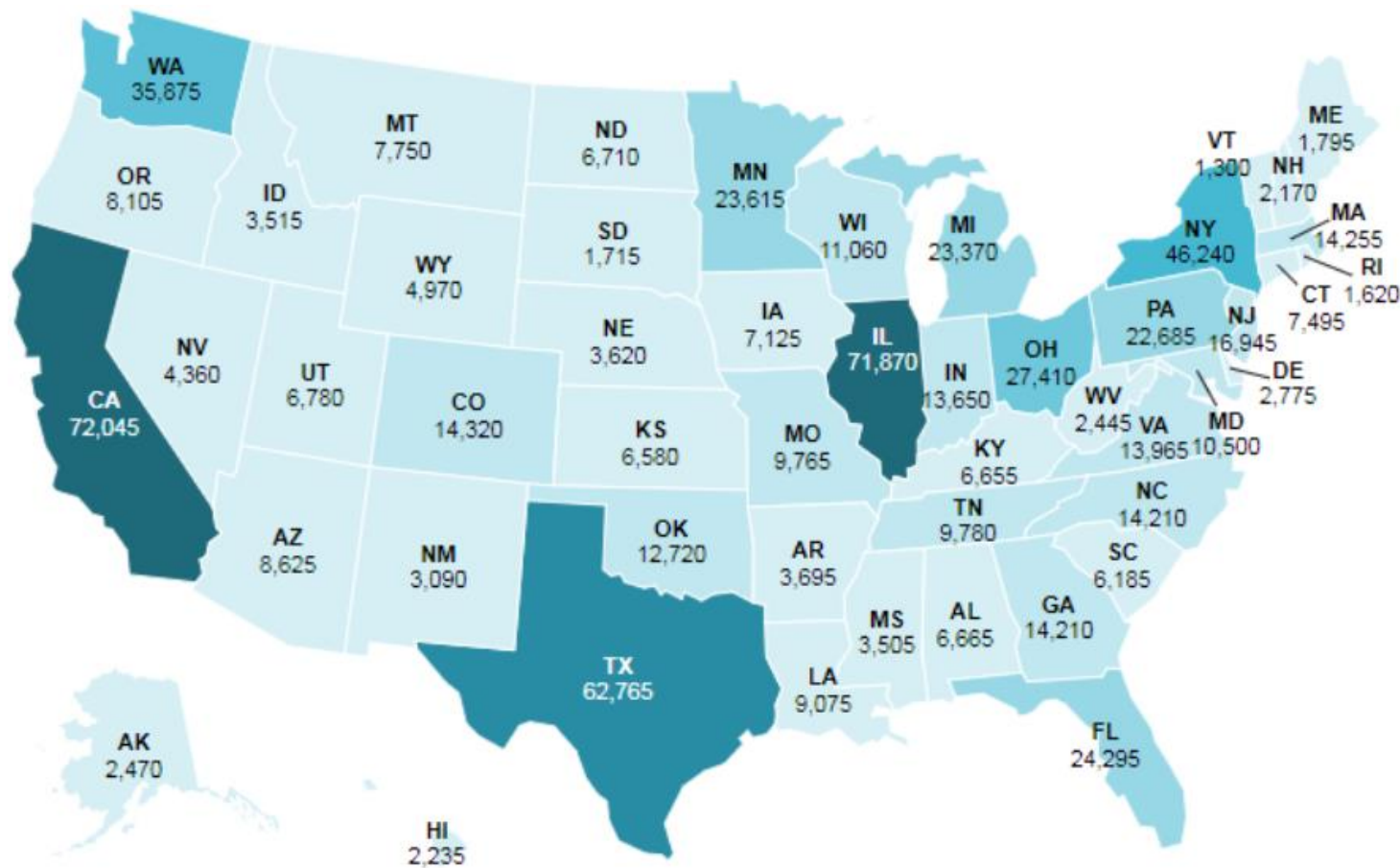
- Trade relationships are often discussed as deficits and surpluses: this shows imports as bad and exports as good.
- Other approaches don't consider trade a zero-sum game – they consider the cross-border value chains as more important indicators.
- Employment as a measure: Meaningful to the local economy; strong linkages between jobs and trade (exports).
- Theoretically, trade openness supports employment in a country



# RESULTS



# TOTAL ALBERTA JOBS SUPPORTED FROM EXPORTS TO THE US (BY STATE)



Top 10:  
California  
Illinois  
Texas  
New York  
Washington  
Ohio  
Florida  
Minnesota  
Michigan  
Pennsylvania

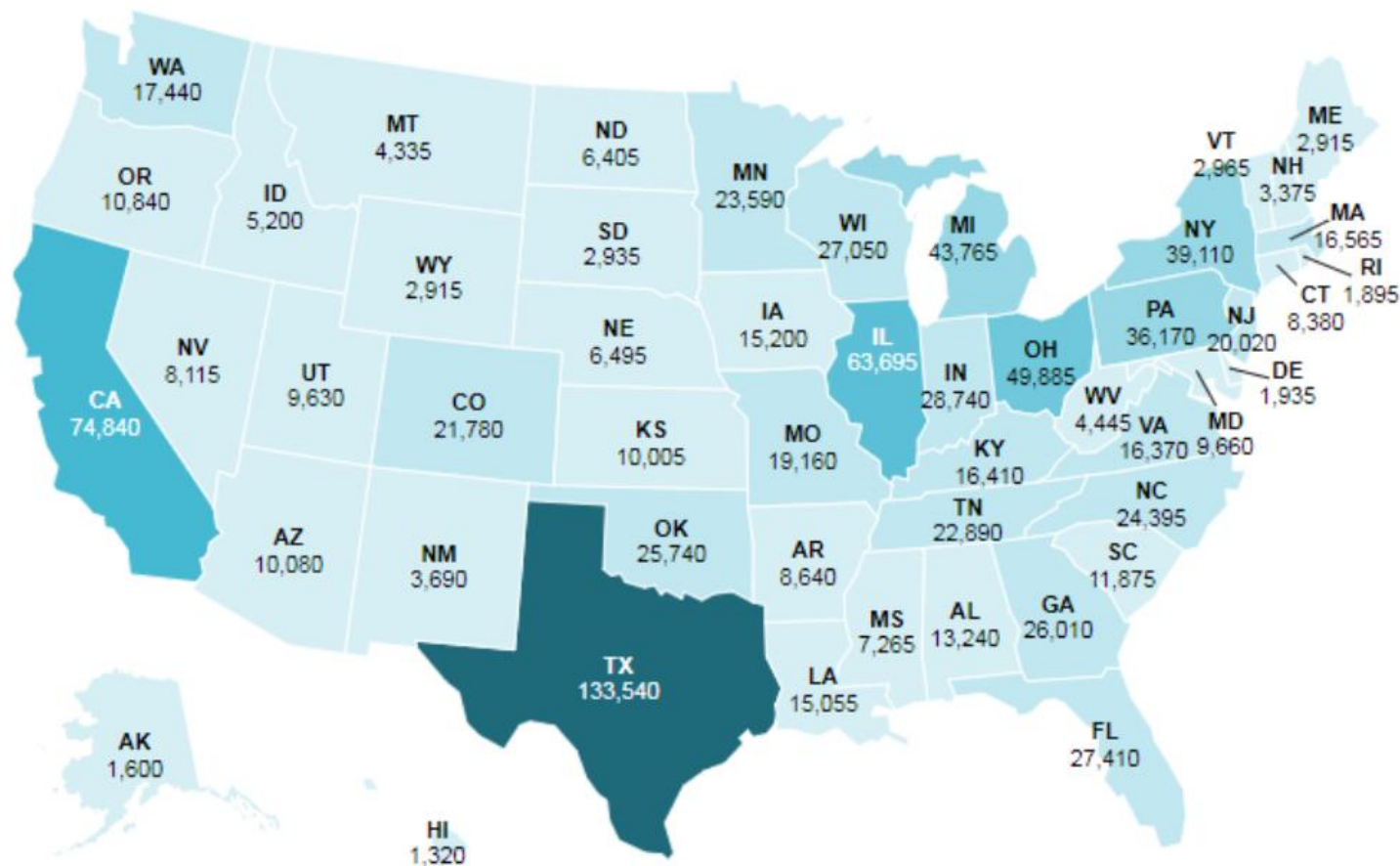
Working Estimates

Source: EDT, Alberta REMI Model

Total Exports: 701,937



# TOTAL US JOBS SUPPORTED FROM EXPORTS TO ALBERTA(BY STATE)



Top 10:  
Texas  
California  
Illinois  
Ohio  
Michigan  
New York  
Pennsylvania  
Indiana  
Florida  
Wisconsin

**Total Jobs: 966,827**

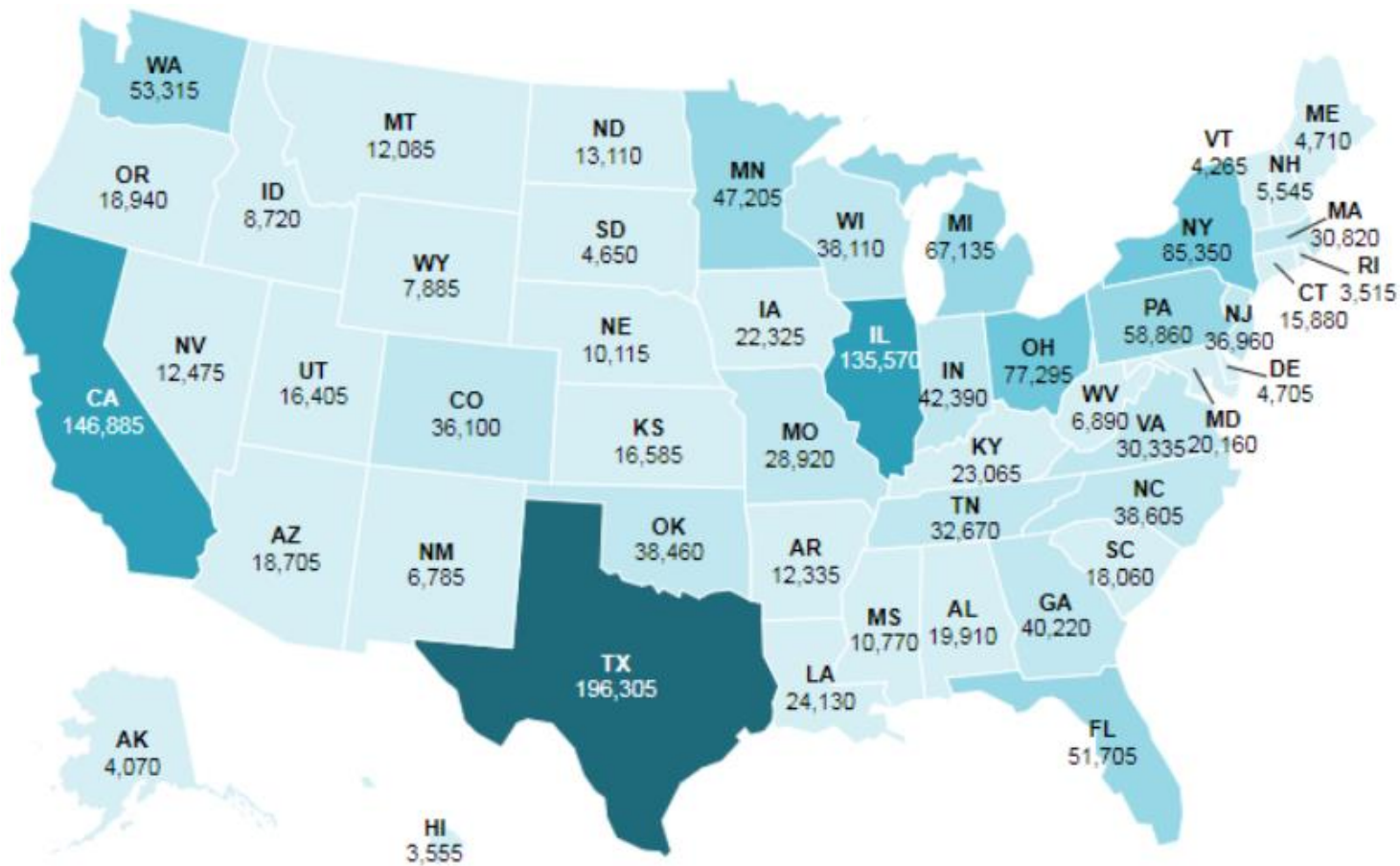
*Working Estimates*

*\$ Millions, USD*

Source: EDT, Alberta REMI Model



# TOTAL JOBS SUPPORTED FROM BILATERAL TRADE



Top 10:  
Texas  
California  
Illinois  
New York  
Ohio  
Michigan  
Pennsylvania  
Washington  
Florida  
Minnesota

**Total Jobs: 1,688,764**

*Working Estimates*

*\$ Millions, USD*

Source: EDT, Alberta REMI Model



## **Laura Adkins-Hackett**

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### **Other products related to this project:**

- Analytical working paper:  
*The Employment Impact of Bilateral Trade between Alberta and the United States*
- Economic Commentary:  
*How Much Does Alberta Import From The U.S.?*

Available by request

Available at:  
<http://www.albertacanada.com/business/statistics/economic-commentaries.aspx>



# APPENDIX



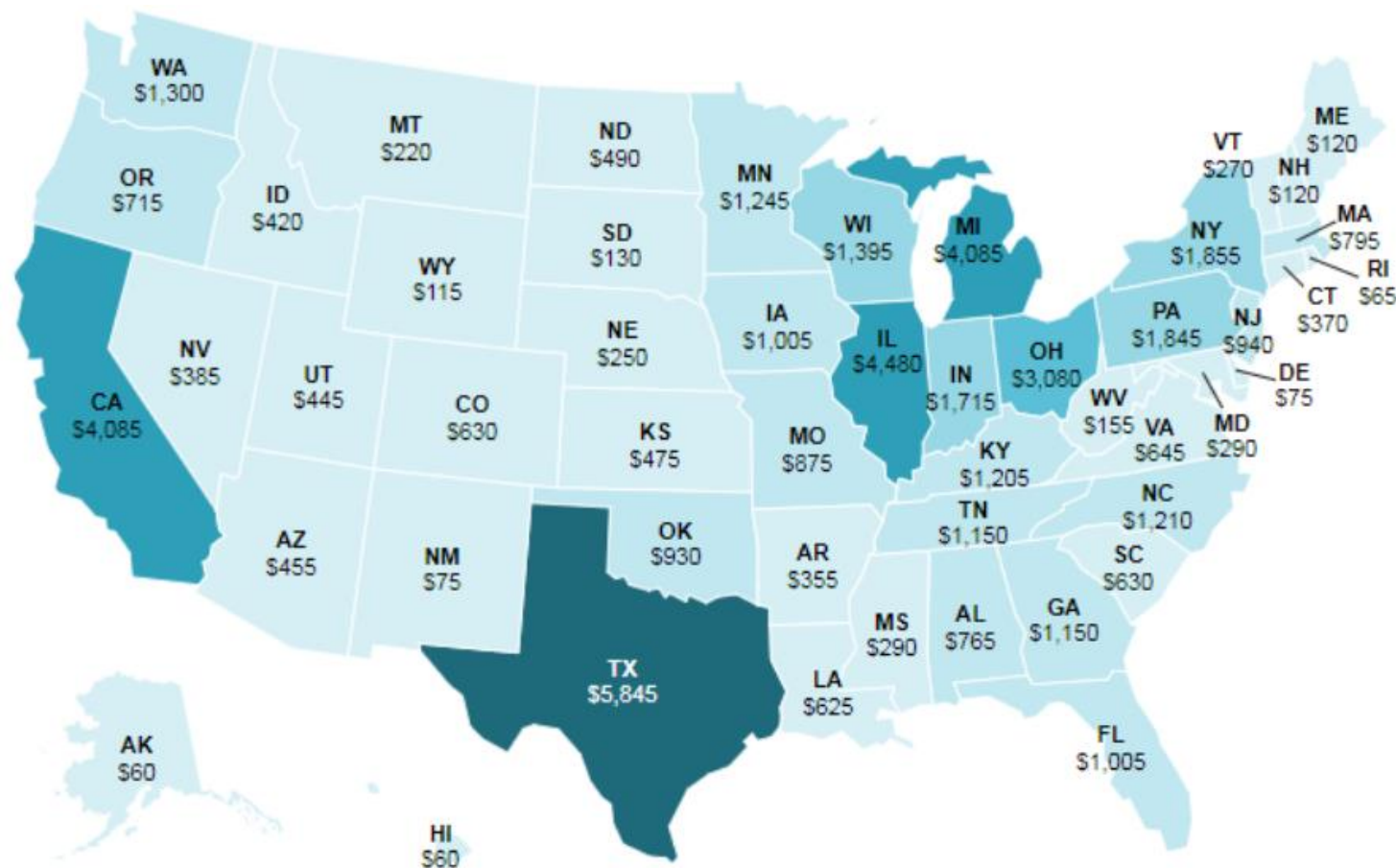


Source: EDT, Alberta REMI Model

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# TOTAL US EXPORTS TO THE ALBERTA (BY STATE)



Top 10:  
Texas  
Illinois  
Michigan  
California  
Ohio  
New York  
Pennsylvania  
Indiana  
Wisconsin  
Washington

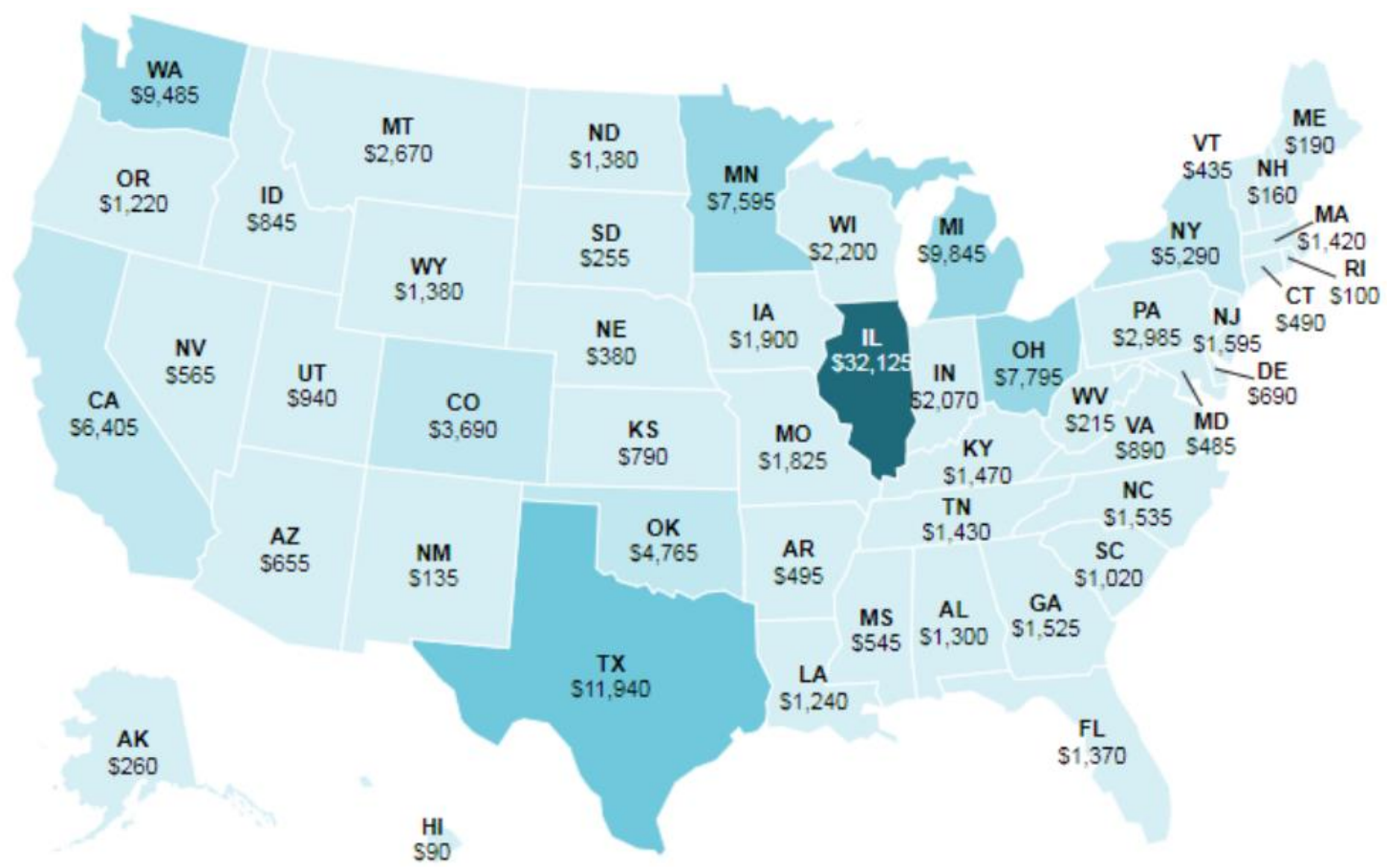
Working Estimates

Source: EDT, Alberta REMI Model

**Total Exports: \$50,960M USD**



# TOTAL BILATERAL EXPORTS (BY STATE)



- Top 10:
- Illinois
  - Texas
  - Michigan
  - Washington
  - Ohio
  - Minnesota
  - California
  - New York
  - Oklahoma
  - Colorado

**Total Exports: \$140,158M USD**

Working Estimates  
Source: EDT, Alberta REMI Model