Regional benefits from international trade

Impacts of Trade, Supply Chains and Domestic Policies on Inter-regional trade flows in Canadian and U.S. regions March 22, 2017

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OVERVIEW

- Introduction
- U.S. Canada trade
- International trade agreements
- Regional and inter regional impacts





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INTRODUCTION

CANADA'S ECONOMY



- Population in 2016: 36 million
 - Annual growth 1.2 percent
- Real GDP growth '15/'16: 1.2 percent
- 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 \$)

Source: Statistics Canada and Alberta Economic Development and Trade

ALBERTA'S ECONOMY



- Alberta has the third largest oil resource in the world.
- Population in 2016: 4.3 million
 - Population increase 1.8 percent
- Real GDP growth '15/'16: -2.8%
 - 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 percent to Alberta's GDP
- Alberta's per capita GDP in 2015 was \$78,100 (in 2015 CAD\$), the highest of any state or province in North America.

U.S. REGIONS





- Population in 2015:
 - Eastern states: 185 million
 - Western states: 135 million
- Per capita GDP in 2015:
 - Eastern states: \$50,900 (USD)
 - Western states: \$63,500 (USD)
- The five largest sectors contributed in both eastern and western states, to more than 40 to total GDP

ECONOMIC PROJECTIONS



Region	Decadal growth rate ('05 to '15)	2016	2017	2018
Canada	1.7	1.2	1.9	1.9
Alberta	2.6	-2.8	2.6	2.8

U.S.	1.4	1.6	2.2	2.1
Eastern U.S.	1.2	1.8	2.4	2.3
Western U.S.	2.1	2.0	2.7	2.4

- Economic growth is expected to pick up in 2017 and 2018
- Alberta's economy is expected to return to a plus 2.5 percent annualized growth in 2017 and 2018
- All growth rate are annual real GDP growth

U.S. – CANADA TRADE 2015 SNAPSHOT



United States

- U.S. exported more than 280 billions of dollars of merchandise to Canada (value in USD)
- More than **18 percent** of U.S. exports is to Canada
- More than three quarters of the value of exports to Canada is produced by U.S. firms with more than 500 employees
- The largest ports near the Canadian border exchanged goods worth more than 300 billions of dollars. (value in USD)

Canada

- Canadian exported more than 400 billions of dollars of merchandise to the U.S. (value in CAD)
- More than three quarters of Canadian exports is sent to U.S. states
- More than 50 percent of imported goods are from the U.S.
- More than 60 percent of imported services are from the U.S.

INTERNATIONAL TRADE AGREEMENTS

- U.S. Canada Auto Pact of 1965
 - Elicited trade barriers in motor vehicles, and auto parts and components
 - U.S.- Canada auto trade "surged" (Hervey, 1978)
- Canada U.S. Free Trade Agreement in 1989
- Superseded by NAFTA in 1993
 - According to Gould (1998) and Burfisher et al (2001), most of the effects on trade between Canada and the United States was due to the Auto Pact and the Free Trade Agreement
 - Gould (1998): "it is difficult to distinguish any effect of NAFTA on trade between Canada and Mexico or Canada and the United States"

MEASURING BENEFITS FROM TRADE

- Using data from Statistics Canada, Bureau of Economic Analysis, and U.S. Census, it is possible to paint a picture around current trade patterns of goods and services traded across the borders
- Using a dynamic economic model (REMI) calibrated on provincial input output tables (for Canada) and national input output tables (for the U.S.), it is possible to examine inter regional supply chain linkages, and the changing nature of employment across regions
- The simulation model can also be used to measure inter regional impacts of changing economic policies on jobs, production and investment

MEASURING REGIONAL BENEFITS

- Government
- Focus on regional benefits, particularly at the industrial level:
 - However, business participate in supply chains that often cross borders
- Paucity of timely data on trade flows at the regional level:
 - Alberta goods imports are underreported by a factor 2 to 3
 - No data on service imports at the regional level
 - Moreover, customs data reports on imports by customs basis only: "Data limitations prevent us from assessing the impact of imports the same way we assess that of exports. It is not currently possible to measure the total economic activity associated with imports because there are no end-use data on imports available" (USDA ERS, 2015)
- Dearth of cross border regional studies measuring the benefits from trade
 - Few studies have measured international and inter regional benefits from trade
 - No other study in the past has measured the regional benefit of the U.S. Canada trade at the Canadian and U.S. regional level
 - For national studies, see Dixon and Rimmer (2014), Burfisher et al (2001), Gould (1998), Hummels et al (1998), and Hervey (1978)

IMPORTANCE



- Understanding drivers of regional economic performance:
 - For example, exports from Alberta expanded by a factor of 6.6 from 1981 to 2015, while the economy expanded by a factor of 2.2 (measured as value added in basic prices, chained dollars)
 - Firms participate in supply chains that cross regions (borders) and industries
 - Bilateral trade linkages are not captured by the data, and thus not well understood
- The economic benefits of trade agreements "is essentially an empirical issue that must be settled by data analysis" (Burfisher et al, 2001)
- Well paying jobs matters for regional prosperity:
 - Labour compensation is relatively higher in trade exposed industries: there is a positive correlation between average labour income in an industry, and the value of export by that industry, as well as the export intensity (for example, see Riker, 2015)
- Changes in economic policies in one region may have cross border effects
 - Supply chains cross borders
 - Impact on competitiveness



Economic footprint

ECONOMIC FOOTPRINT OF INTER REGIONAL TRADE TO THE CANADIAN AND US REGIONAL ECONOMIES





- Two regional models are used to estimate the economic contribution, or footprint, of inter regional trade:
- Alberta and Rest of Canada model
 - 53 industry sectors (NAICS), 2 regions (Alberta, Rest of Canada)
 - Calibrated to the Canadian Supply and Use tables
 - Input shock values: 2015 trade values of exports, in CAD, to the U.S. from Alberta and rest of Canada
- East and West U.S. model
 - Calibrated to the U.S. Supply and Use tables
 - 70 industry sectors (NAICS), 2 regions (Eastern States, Western States)
 - Input shock values: export values in 2015, in USD, from the U.S. eastern regions and western regions, to Canada and Alberta

REMI PI+ MODEL STRUCTURE:



Abertan

THE ECONOMY THROUGH THE INPUT-OUTPUT TABLES





2015 TRADE SNAPSHOT (INPUT)



EXPORTS Values in millions of dollars	Goods	Services	Total
Canada to US (Canadian current dollars	374,105	56,485	430,590
Alberta to US (Canadian current dollars)	79,926	5,500	85,426
Share of Alberta Exports to the US	21%	9%	19%
IMPORTS			
	Goods	Services	Total
Canada from US (US current dollars)	207,397	53,905	261,302
Alberta from US (US current dollars)	36,626	6,976	43,603
Share of Alberta Imports from the US	18%	12%	17%

- Over 20 percent of national good exports to the U.S. is from Alberta
- Roughly 2/3 of Alberta imports from the U.S. comes from other provinces

PRELIMINARY RESULTS:



- Total jobs footprint is calculated as:
 - Direct impact + indirect impact (jobs supported in upstream industries, and construction) + induced impact = Total impact
- For **Canada and Alberta**, the distribution of results, in terms of jobs are:
 - Direct impact (24%) + Indirect impact (35%) + Induced impacts (41%)
- The total impacts represents:
 - One fifth of all jobs in Canada
 - One third of all jobs in Alberta
- Exports from the U.S. regions to Canada:
 - One quarter of international exports from the eastern states is to Canada
 - One eight of international exports from the western states is to Canada
 - The employment footprint range from approximately **3 percent** (exports only; this study) to **4.5 percent** (exports and imports; and U.S. employment in Canada)
- Exports from the U.S. regions to Alberta:
 - Approximately 46 percent of Alberta imports from the U.S., is from the eastern states
 - U.S. goods and service exports alone accounts for over 420 thousand jobs in the U.S.

TRADE & CLUSTERS



Trade contributes to the growth and strength of clusters

- Clusters are groups of inter-related industries that drive wealth creation primarily through export of goods and services.
- Trade exposed clusters generate higher wages for its workers. Average annual wage in traded clusters are 41% higher than in local clusters.
- The strongest clusters in Alberta are also the top exporting clusters.





- In the U.S., the top 10 exporting industries have an annual compensation of approximately \$94,400, which is about \$30,000 above the average compensation for all industries
- The top 10 exporting industries are:
 - Machinery manufacturing, Motor vehicles, bodies and trailers, and parts manufacturing, Other transportation equipment manufacturing, Chemical manufacturing, Petroleum and coal products manufacturing, Computer and electronic product manufacturing, Food manufacturing, Wholesale trade, Professional, scientific, and technical services, and Fabricated metal product manufacturing
 - Of these 10 industries only compensation in food manufacturing is below the average

NEXT STEPS



- Continue with development of cross sectional time series data on inter regional trade flows, from U.S. regions (industries) to Canadian provinces (industries), in particular:
 - Estimate employment due to Canadian imports in warehousing and transportation sectors
 - Spending by tourists abroad
 - Financial services
 - Exports of U.S. exports from crop and animal production sector to Canada and Alberta
- Model impacts on trade flow from potential changes to U.S> economic policies





• Any questions?

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