The Centre for Spatial Economics

Assessing past, present and future economic and demographic change in Canada

The Economic Impact of the Detroit Three Auto Manufacturers in Canada

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Executive Summary

Major studies of the structure of the Canadian economy over the last several decades have highlighted the importance of the automotive industry to this country. The motor vehicle and parts industry employed 219,000 across the country in 2006. The Detroit Three automakers directly employed about 34,100 hourly and salaried workers in 2007 while foreign auto manufacturers employed just under half that number. The size of the auto industry's economic multiplier is often mentioned in media stories about the industry. The multiplier is sufficiently large that growth or contractions in the industry can be readily observed in statistics on the Canadian economy. While the industry is now largely concentrated in Ontario, its impact can, nevertheless, be felt throughout the country.

This report estimates the economic impact – in terms of jobs and GDP – of a major contraction involving one or more of the Detroit Three automakers. Two scenarios are presented: first, what would be the impact of the Detroit Three automakers ceasing operations globally and second, what would be the impact from a 50% reduction in overall Detroit Three employment and production. These scenarios, while extreme, are clearly possible and their ramifications need to be understood.

Table 1

Summary of the Economic Impact of a Reduction in Production by the Detroit Three Automakers in Canada

	100% Reduction Scenario Impacts				50% Reduction Scenario Impacts			
	Difference from the Baseline		Percent Difference from the Baseline		Difference from the Baseline		Percent Difference from the Baseline	
	2009	Average 2010-14	2009	Average 2010-14	2009	Average 2010-14	2009	Average 2010-14
GDP (billions of 2002 dollars)								
Canada	-39.1	-65.3	-2.9%	-4.4%	-19.8	-33.7	-1.4%	-2.3%
Ontario	-39.1	-63.2	-7.2%	-10.6%	-19.8	-33.0	-3.6%	-5.6%
Employment (thousands)								
Canada	-323.1	-581.9	-1.9%	-3.2%	-157.4	-295.7	-0.9%	-1.6%
Ontario	-281.8	-517.2	-4.2%	-7.3%	-141.1	-269.0	-2.1%	-3.8%

The economic consequences of either a partial or total shutdown of the Detroit Three are stark. Either scenario is sufficient to push Ontario into a deep recession while the nation may barely escape one in the 50% Reduction scenario. The initial job losses of between 157,000 and 323,000 (depending on the scenario) quickly rise to between 296,000 and 582,000. The job losses continue to mount after the first year because the weaker economy depresses investment, discourages immigration and puts the breaks on new housing leading to a negative economic spiral that is eventually halted by lower interest rates, a falling Canadian dollar and lower production costs.

As large as these impacts are, it is quite likely that the job losses presented in this analysis are conservative because they ignore any negative impact on exports (outside the auto parts industry) from weaker US and overseas demand arising from the Detroit Three's failure on their economies and depressed commodity prices. The study also ignored possible negative impacts from: retired auto worker pensions, foreign vehicle producers' shut-down due to lack of parts, or an even deeper impact on the auto parts industry.

Introduction

Major studies of the structure of the Canadian economy over the last several decades have highlighted the importance of the automotive industry to this country. The motor vehicle and parts industry employed 219,000 across the country in 2006. The Detroit Three automakers directly employed about 34,100 hourly and salaried workers in 2007 while foreign auto manufacturers employed just under half that number. The size of the auto industry's economic multiplier is often mentioned in media stories about the industry. The multiplier is sufficiently large that growth or contractions in the industry can be readily observed in statistics on the Canadian economy. While the industry is now largely concentrated in Ontario, its impact can, nevertheless, be felt throughout the country.

This report estimates the economic impact – in terms of jobs and GDP – of a major contraction involving one or more of the Detroit Three automakers. Two scenarios are presented: first, what would be the impact of the Detroit Three automakers ceasing operations globally and second, what would be the impact from a 50% reduction in overall Detroit Three employment and production. These scenarios, while extreme, are clearly possible and their ramifications need to be understood.

Assumptions and Methodology

This report reviews two possible futures for the Detroit Three automakers in Canada and their impact on the economy. In the first, 100% Reduction Scenario, it was assumed that the Detroit Three automakers cease production entirely while in the second, 50% Reduction Scenario, it was assumed that mergers and restructuring led to a 50% drop in production by the surviving domestic automakers. Table 2 summarizes the assumptions made in each of these two production scenarios.

Table 2

Economic Impact Assumptions	100% Reduction Scenario	50% Reduction Scenario
Change in Detroit Three Production	-100%	-50%
Change in Foreign Auto ManufacturersProduction	0%	0%
Change in Auto Parts Production	-80%	-40%
Net Change in Detroit Three Dealership Employment	-80%	-30%

The 100% Reduction scenario assumes that the Detroit Three companies cease production entirely. The collapse of these companies is assumed to reduce production by the Canadian automotive parts industry by 80% as many of the companies in this sector are forced into bankruptcy from which few will emerge.

In this scenario, foreign vehicle manufacturers in Canada are assumed to maintain production. These companies use of imported parts should allow them to continue production despite the collapse of the North American parts industry[1]. While it is possible that foreign producers could choose to expand production in Canada, it is by no means assured and so has not been assumed in this study. These companies may expand production in the US, but this still means that Canada will have to import many more vehicles to satisfy demand.

The Detroit Three's automobile dealership network is assumed to close entirely in the 100% Reduction scenario. The net impact on dealership employment, however, is assumed to be less than 100% as some employees and dealerships are taken over by foreign vehicle manufacturers[2].

Table 3[3]

Direct Economic Impacts & Assumptions by Scenario	Canada	Newfoundland & Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
100% Reduction Scenario											
Direct Impact on Motor Vehicle Assembly											
Gross Domestic Product	**9,943**	0	0	0	0	0	9,943	0	0	0	0
Employment	**34.1**	0.0	0.0	0.0	0.0	0.0	34.1	0.0	0.0	0.0	0.0
Assumed Impact on Motor Vehicle Parts Production											
Gross Domestic Product	**7,825**	0	0	0	0	350	7,335	0	0	59	81
Employment	**72.0**	0.0	0.0	0.0	0.0	3.3	67.3	0.0	0.0	0.6	0.8
Assumed Impact on Automotive Dealerships											
Gross Domestic Product	**0**	0	0	0	0	0	0	0	0	0	0
Employment	**52.4**	0.9	0.3	2.0	1.7	10.6	18.8	2.3	3.2	7.4	5.4
50% Reduction Scenario											
Direct Impact on Motor Vehicle Assembly											
Gross Domestic Product	**4,971**	0	0	0	0	0	4,971	0	0	0	0
Employment	**17.1**	0.0	0.0	0.0	0.0	0.0	17.1	0.0	0.0	0.0	0.0
Assumed Impact on Motor Vehicle Parts Production											
Gross Domestic Product	**3,912**	0	0	0	0	175	3,667	0	0	30	41
Employment	**36.0**	0.0	0.0	0.0	0.0	1.7	33.7	0.0	0.0	0.3	0.4
Assumed Impact on Automotive Dealerships											
Gross Domestic Product	**0**	0	0	0	0	0	0	0	0	0	0
Employment	**19.7**	0.3	0.1	0.7	0.6	4.0	7.0	0.9	1.2	2.8	2.0

Gross Domestic Product: millions of 2002 chain weighted dollars
Employment: thousands of workers

In the 50% Reduction scenario, restructuring, the collapse of one of the companies or a possible merger lead to total vehicle production of the surviving companies falling by 50% in Canada. The reduction in activity of the surviving automakers is assumed to reduce production by the Canadian automotive parts industry by 45%.

[1] This assumption means that the foreign produces will not add new or expand existing plants beyond those already announced. It does not mean that production at these plants would be unaffected by the closure of the Detroit Three, they would adjust production to reflect changes in demand due to weaker economic conditions.

[2] Dealership activity also adjusts to reflect changes in demand due to weaker economic conditions on top of the assumed rationalization of dealers following the collapse of the Detroit Three automakers.

[3] The Detroit Three employment figures are provided by the Canadian Vehicle Manufacturers' Association at www.cvma.ca.

Once again, foreign vehicle manufacturers in Canada are assumed to maintain production in the 50% Reduction scenario. Finally, the former Detroit Three's automobile dealership network is assumed to be rationalized leading to a 30% drop in employment.

Table 3 shows the direct economic impact on employment and GDP of these two scenarios. The direct impact involves the 34,100 people working for the Detroit Three automakers in Canada. In the 100% Reduction scenario all these jobs are lost while in the 50% Reduction scenario just 17,000 remain.

The table also shows the assumed impacts on the auto parts industry and the auto dealership network. These impacts are felt throughout the country but are largely centred in Ontario. The impact on GDP generated by automotive dealerships is assumed to be zero despite the reduction in employment and incomes. This is because households and businesses are assumed to purchase the same number of vehicles from the remaining dealerships. The productivity, and profitability, of the remaining dealerships, therefore, rises to offset the losses from the closed dealerships.

The economic impact of each of the production scenarios was estimated using the C_4SE's Provincial Economic Modeling System. The C_4SE's Provincial Modeling System is a dynamic multi-sector regional economic model of the country. It includes a bottom-up set of macroeconomic models for the provinces, the territories and the rest of the world. The national model links economic activity in one region with activity in the other regions through trade. The provincial models include detailed income and expenditure categories and demographic and labour market information. The purpose of the modeling system is to produce medium- to long-term projections of the provincial economies and conduct simulation studies that require industry and demographic detail.

The economic impacts of each production scenario are expressed in terms of their difference (or percent difference) relative to the baseline scenario. The baseline scenario is the C4SE's June 2008 outlook for the Canadian economy and is predicated on the Detroit Three automakers continuing to produce vehicles in Canada. The 100% Reduction and 50% Reduction scenarios represent alternate future paths for the economy. The difference between these paths and the baseline scenario represents the impacts of changes in Detroit Three production on the economy. It is important for the reader to note that the measures in the tables only show the difference in outcomes relative to the baseline and **not** the actual level or growth of economic activity. The reader should also note that the impacts reported at a particular point in time represent the change in the economy relative to the baseline economy at that time and are not a cumulative or discounted impact.

The economic impacts estimated by this analysis are likely to understate the true economic impact for several reasons despite the possibility that foreign vehicle producers could expand production in Canada. The first reason is that a permanent contraction of the motor vehicle industry would negatively impact the US and, indeed, the global economy reducing the demand for Canadian exports from all industries[4]. Weaker global economic conditions will also depress commodity prices (which are assumed to be remain the same) which will affect the economic performance of resource-rich provinces. Second, the bankruptcy of any of the Detroit automakers may have serious implications for their pension funds and the incomes of retirees. This study

[4] This study captures the expected impact on Canadian auto parts manufacturers' exports through the assumption that 80% of the industry collapses in the 100% Reduction scenario and 40% in the 50% Reduction scenario.

assumes that retirees and their pensions are preserved. And third, some observers have suggested that more than 80% of the parts industry would vanish in the event of the failure of all three Detroit companies and that this would lead to – at the very least – a temporary disruption of production for the foreign automakers in North America.

Economic Impact of the 100% Reduction Scenario

The economic implications of a complete shutdown of the Detroit Three's production are staggering. If production ceases at the start of 2009, employment in Canada would contract by 323,100 with 281,800 of those losses coming from Ontario (see Table 4)[5]. In that year, Ontario would lose over 4% of all jobs in the province. In terms of GDP, the losses are proportionally higher because of the high value of goods produced by workers in the automotive sector.

The economic losses continue to mount over the following five years. Employment in Ontario falls by more than 517,000 a year – a 7.3% decline from baseline levels – while nationally, employment collapses by about 580,000 workers a year.

Almost a third of the employment losses in the first year are in the manufacturing sector with the wholesale and retail trade sector placing a relatively close second. The job losses, however, become more widespread in subsequent years. Proportionally, the construction sector contracts the most sharply with employment declining almost 9% each year. This sector is affected by a decline in new construction activity by business and a slump in new housing construction.

The general implications for Canada's economy are provided in Table 5. Real per capita income and disposable income contract sharply in the first year and do not recover over the next five years. Net immigration to Canada slows by over 200,000 people a year between 2010 and 2014 leaving Canada's population 2.5% below its level in the baseline scenario. Slower population growth helps limit the increase in the unemployment rate to 0.5% a year following the 1.5% increase in the rate in 2009. Reduced incomes and fewer people lead to a severe downturn in residential construction activity with new housing starts sliding by 70,000 units a year.

The weakness of the economy reduces wage gains and lowers CPI inflation. Interest rates fall sharply and the Canadian dollar depreciates versus the U.S. dollar. The loss of the Detroit Three leads to an immediate deterioration of the trade balance in both real and nominal terms. Over the next five years the real trade balance improves slightly as exports react to lower domestic production costs (proxied by unit labour costs[6]) and the lower Canadian dollar and imports are slashed by the drop in domestic economic activity and the impact of the Canadian dollar on import prices. The nominal trade balance, however, remains below baseline levels because the

[5] It is worth noting that the job impacts from this analysis are greater than the often quoted 7 jobs for every vehicle assembly worker. The principal cause of this difference is the assumed 80% reduction in the parts industry. This impact is larger than would be expected for general expansions or contractions in the industry and reflects the systemic failure of the parts industry following the closure of the Detroit Three. The total employment impact continues to rise over time because the weaker economy depresses investment, discourages immigration and puts the breaks on new housing leading to negative economic spiral that is eventually halted by lower interest rates, a falling Canadian dollar and lower production costs.

[6] Unit labour costs measure the cost of labour required to produce a unit of real GDP and, although they exclude the cost of materials and capital, are often used to provide an indication of trends in overall production costs.

change in the value of the Canadian dollar boosts the cost of imports and depresses the value of exports.

Table 4

Impact of the 100% Reduction Scenario on GDP and Employment by Province & Industry Sector	Difference from the Baseline		Percent Difference from the Baseline	
	2009	Average 2010-14	2009	Average 2010-14
GDP Impact by Province (billions of 2002 dollars):				
Canada	-39.1	-65.3	-2.9%	-4.4%
Newfoundland & Labrador	0.0	0.1	0.1%	0.7%
Prince Edward Island	0.0	0.0	-0.1%	-0.4%
Nova Scotia	0.0	-0.1	0.0%	-0.4%
New Brunswick	-0.1	-0.1	-0.2%	-0.5%
Quebec	-0.6	-2.3	-0.2%	-0.8%
Ontario	-39.1	-63.2	-7.2%	-10.6%
Manitoba	0.0	-0.1	-0.1%	-0.3%
Saskatchewan	0.1	0.2	0.1%	0.4%
Alberta	-0.1	0.0	0.0%	0.0%
British Columbia	0.7	0.3	0.4%	0.2%
Employment Impact by Province (thousands):				
Canada	-323.1	-581.9	-1.9%	-3.2%
Newfoundland & Labrador	-0.5	1.3	-0.2%	0.6%
Prince Edward Island	-0.6	-1.2	-0.8%	-1.6%
Nova Scotia	-3.0	-6.3	-0.7%	-1.4%
New Brunswick	-2.8	-3.3	-0.8%	-0.8%
Quebec	-20.0	-46.3	-0.5%	-1.2%
Ontario	-281.8	-517.2	-4.2%	-7.3%
Manitoba	-3.3	-4.1	-0.5%	-0.6%
Saskatchewan	-2.1	0.5	-0.4%	0.1%
Alberta	-6.1	0.1	-0.3%	0.0%
British Columbia	-2.8	-5.4	-0.1%	-0.2%
Employment Impact by Industry (thousands):				
Agriculture	-1.3	1.1	-0.4%	0.3%
Other Primary	-0.3	1.7	-0.1%	0.5%
Manufacturing	-106.1	-105.2	-5.5%	-5.3%
Utilities	-2.2	-3.5	-1.6%	-2.4%
Construction	-12.5	-106.4	-1.0%	-8.8%
Transportation & Warehousing	-8.3	-11.1	-1.0%	-1.3%
Wholesale & Retail Trade	-86.9	-117.4	-3.1%	-4.0%
Finance, Insurance & Real Estate	-25.8	-42.6	-2.4%	-3.8%
Information & Professional Services	-44.1	-62.1	-1.6%	-2.2%
Accomodation & Food Services	-8.2	-13.4	-0.7%	-1.1%
Education Services	-8.1	-39.3	-0.7%	-3.1%
Health & Social Services	-8.3	-45.4	-0.4%	-2.1%
Other Services	-8.8	-18.0	-1.2%	-2.3%
Government Services	-2.3	-20.0	-0.3%	-2.1%

Federal and provincial governments face a challenging fiscal environment. Tax revenues are slashed while employment insurance and social assistance payments rise. At the federal level, any projected surplus evaporates as net borrowing rises by $13 billion a year while at the provincial level net borrowing rises by about $4 billion a year.

The depreciation of the dollar, lower interest rates, and lower production costs eventually help the economy to partially recover (over the following five years, 2015 to 2019) but the loss of the Detroit Three leaves a permanent dent in Canada's economy in terms of jobs and output.

Table 5

Impact of the 100% Reduction Scenario on Selected Indicators *percent difference from the baseline except where indicated*	2009	Average 2010-14
Economic Performance		
Real per capita GDP	-2.7%	-2.0%
Real per capita Disposable Income	-3.2%	-5.2%
Labour Productivity	-1.0%	-1.2%
Demographics, Labour & Housing		
Population	-0.3%	-2.5%
Net Immigration (difference in thousands)	-94.4	-213.3
Unemployment Rate (difference)	1.2	0.5
Housing Starts (difference in thousands)	-8.1	-70.4
External & Government Balances		
Real Trade Balance (difference in $2002 billions)	-25.4	7.0
Nominal Trade Balance (difference in $ billions)	-28.3	-11.2
Federal Net Lending (difference in $ billions)	-13.2	-13.1
Provincial Net Lending (difference in $ billions)	-3.8	-4.0
Wages & Prices		
Consumer Price Index	-1.0%	-1.9%
Wage Rate	-1.6%	-4.4%
Unit Labour Costs	0.0%	-3.0%
Financial Markets		
3-Month T-Bill Rate (difference in basis points)	-219	-122
10-Year GOC Bond Rate (difference in basis points)	-219	-122
Exchange Rate (difference in US cents)	-1.9	-2.7

Economic Impact of the 50% Reduction Scenario

The economic implications of a partial shutdown of the Detroit Three's production are also severe. A 50% reduction in production in 2009 would lead to employment in Canada falling by 157,400 with 141,100 of those losses coming from Ontario (see Table 6). In that year, Ontario would lose over 2% of all jobs in the province. In terms of GDP, the losses are proportionally higher because of the high value of goods produced by workers in the automotive sector.

The economic losses rise sharply over the next five years. Employment in Ontario falls by about 269,000 a year – a 3.8% decline from baseline levels – while nationally, employment collapses by about 296,000 workers a year.

Just over a third of the first year employment losses are in the manufacturing sector but significant job losses also occur in the wholesale and retail trade sector, information and professional services, and finance, insurance and real estate. Nearly all sectors experience significant job losses over the next five years. Again, the construction sector experiences the largest proportional losses with employment levels nearly 5% lower than in the baseline each year. This sector is affected by a decline in new construction activity by business and a slump in new housing construction.

The general implications for Canada's economy are provided in Table 7. The trends are similar to those observed in the 100% Reduction scenario. The rise in federal net borrowing in this scenario is about $7 billion a year and about $2 billon a year for the provinces. Once again the economy partially recovers after 2014 – helped by the depreciation of the dollar, lower interest rates, and lower production costs – but the decline of the Detroit Three permanently reduces employment and output in Canada.

Table 6

Impact of 50% Reduction Scenario on GDP and Employment by Province & Industry Sector	Difference from the Baseline		Percent Difference from the Baseline	
	2009	Average 2010-14	2009	Average 2010-14
GDP Impact by Province (billions of 2002 dollars):				
Canada	-19.8	-33.7	-1.4%	-2.3%
Newfoundland & Labrador	0.0	0.1	0.1%	0.4%
Prince Edward Island	0.0	0.0	0.0%	-0.2%
Nova Scotia	0.0	0.0	0.0%	-0.2%
New Brunswick	0.0	-0.1	-0.1%	-0.2%
Quebec	-0.3	-1.0	-0.1%	-0.4%
Ontario	-19.8	-33.0	-3.6%	-5.6%
Manitoba	0.0	-0.1	0.0%	-0.1%
Saskatchewan	0.0	0.1	0.1%	0.2%
Alberta	0.0	0.1	0.0%	0.0%
British Columbia	0.3	0.3	0.2%	0.1%
Employment Impact by Province (thousands):				
Canada	-157.4	-295.7	-0.9%	-1.6%
Newfoundland & Labrador	-0.1	0.9	0.0%	0.4%
Prince Edward Island	-0.2	-0.5	-0.3%	-0.7%
Nova Scotia	-1.2	-2.9	-0.3%	-0.6%
New Brunswick	-1.1	-1.5	-0.3%	-0.4%
Quebec	-8.7	-21.5	-0.2%	-0.5%
Ontario	-141.1	-269.0	-2.1%	-3.8%
Manitoba	-1.4	-1.8	-0.2%	-0.3%
Saskatchewan	-0.7	0.7	-0.1%	0.1%
Alberta	-2.1	1.4	-0.1%	0.1%
British Columbia	-0.7	-1.4	0.0%	-0.1%
Employment Impact by Industry (thousands):				
Agriculture	-0.7	0.5	-0.2%	0.1%
Other Primary	-0.2	0.7	-0.1%	0.2%
Manufacturing	-55.2	-55.3	-2.8%	-2.8%
Utilities	-1.1	-1.8	-0.8%	-1.3%
Construction	-6.0	-57.6	-0.5%	-4.8%
Transportation & Warehousing	-4.2	-5.9	-0.5%	-0.7%
Wholesale & Retail Trade	-36.9	-53.0	-1.3%	-1.8%
Finance, Insurance & Real Estate	-12.9	-22.1	-1.2%	-2.0%
Information & Professional Services	-22.4	-32.3	-0.8%	-1.1%
Accomodation & Food Services	-4.1	-6.8	-0.4%	-0.6%
Education Services	-4.0	-19.9	-0.3%	-1.6%
Health & Social Services	-4.0	-22.8	-0.2%	-1.1%
Other Services	-4.4	-9.3	-0.6%	-1.2%
Government Services	-1.1	-10.1	-0.1%	-1.1%

Table 7

Impact of the 50% Reduction Scenario on Selected Indicators *percent difference from the baseline except where indicated*	**2009**	**Average 2010-14**
Economic Performance		
Real per capita GDP	-1.2%	-1.0%
Real per capita Disposable Income	-1.5%	-2.8%
Labour Productivity	-0.5%	-0.6%
Demographics, Labour & Housing		
Population	-0.1%	-1.2%
Net Immigration (difference in thousands)	-46.0	-109.6
Unemployment Rate (difference)	0.6	0.2
Housing Starts (difference in thousands)	-3.7	-38.9
External & Government Balances		
Real Trade Balance (difference in $2002 billions)	-13.2	3.9
Nominal Trade Balance (difference in $ billions)	-14.8	-5.9
Federal Net Lending (difference in $ billions)	-6.8	-7.4
Provincial Net Lending (difference in $ billions)	-2.0	-2.3
Wages & Prices		
Consumer Price Index	-0.5%	-1.1%
Wage Rate	-0.8%	-2.4%
Unit Labour Costs	0.0%	-1.5%
Financial Markets		
3-Month T-Bill Rate (difference in basis points)	-110	-66
10-Year GOC Bond Rate (difference in basis points)	-110	-66
Exchange Rate (difference in US cents)	-1.0	-1.4

Summary

The economic consequences of either a partial or total shutdown of the Detroit Three are stark. Either scenario is sufficient to push Ontario into a deep recession while the nation may barely escape one in the 50% Reduction scenario. The initial job losses of between 157,000 and 323,000 (depending on the scenario) quickly rise to between 296,000 and 582,000. The job losses continue to mount after the first year because the weaker economy depresses investment, discourages immigration and puts the breaks on new housing leading to a negative economic spiral that is eventually halted by lower interest rates, a falling Canadian dollar and lower production costs.

As large as these impacts are, it is quite likely that the job losses presented in this analysis are conservative because they ignore any negative impact on exports (outside the auto parts industry) from weaker US and overseas demand arising from the Detroit Three's failure on their economies and depressed commodity prices. The study also ignored possible negative impacts from: retired auto worker pensions, foreign vehicle producers' shut-down due to lack of parts, or an even deeper impact on the auto parts industry.