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Canada's Automotive Industry: Recession, Restructuring, and Future Prospects

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Introduction

For much of the twentieth century, Canada was unique in that it consistently ranked among the world's top vehicle-producing nations despite not having an indigenous original equipment manufacturer (OEM). In Canada, the automotive industry is geographically concentrated in Southern Ontario, the nation's most populous region, where virtually all vehicle production and the majority of parts and component manufacturing take place. Canada's automotive industry is also highly integrated with the automotive industry of the US Great Lakes states, notably with Michigan, Ohio, and Indiana. In fact, partly due to this high level of industry integration, academics, beginning with Garreau (1982), and policy-makers alike characterize Southern Ontario and the US Great Lakes states as a cross-border region (see also Holmes and Kumar 1995; Courchene 2001; Brunet-Jailly 2006; Rutherford and Holmes 2013).

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Canada's automotive industry grew between the early 1960s and the late 1990s. This was the result of several factors. First, the 1965 Canada-US Automotive Products Trade Agreement (better known as the Auto Pact) required US-based automakers to maintain specific Canadian sales-toproduction ratios and value-added levels in exchange for duty-free trade in vehicles and automotive parts (Anastakis 2005). This provided the basis for integrated cross-border production networks and industry growth until the late 1970s. Industry growth slowed beginning in the late 1970s due to the growing competition from Asian and European imports and the recession of the early 1980s. However, Canada's automotive industry grew rapidly in the late 1980s following the implementation of public policies to incent the construction of new vehicle assembly plants by Honda, Toyota, Hyundai, and AMC-Renault and by a joint venture between General Motors and Suzuki (Mordue 2010; Anastakis 2013). Industry growth continued throughout the 1990s, as investment increased due to high demand for vehicles in the US, Canadian labor cost and productivity advantages, and the low value of Canadian currency relative to the US dollar. Toyota and Honda built additional assembly plants in the late 1990s, and annual vehicle production exceeded three million units at its peak in 1999 (OICA 2018).

Canada's automotive industry began to contract in the early 2000s. This occurred as a result of a World Trade Organization (WTO) ruling that struck down the Auto Pact in 2001 on the grounds that it favored US-based OEMs over Toyota and Honda, the appreciation of the Canadian dollar, increased competition for automotive investment from lower wage regions (namely the southern US and Mexico), and the diffusion of high-performance work systems to those regions, all of which undermined the Canadian competitive advantages (Mordue and Sweeney 2017a). GM, DaimlerChrysler, and Ford each closed a Canadian assembly plant between 2002 and 2004. Canadian vehicle production, automotive parts manufacturing, and automotive industry employment contracted substantially prior to, during, and immediately following the recession of 2008-2009 (despite Toyota building a new assembly plant that came online in 2008). GM and Ford each closed an additional assembly plant and several large powertrain and parts manufacturing facilities during this time. Furthermore, over 200 independent automotive

parts manufacturing establishments were closed, a disproportionate amount of which belonged to the large US-owned suppliers (Sweeney and Mordue 2017). In response to these challenges, the governments of Canada and Ontario provided funding through several programs in order to assist GM and Chrysler through bankruptcy and to incentivize capital expenditures in the existing facilities by OEMs and parts makers alike.

Canada's automotive industry experienced a modest recovery following the recession of 2008-2009. Annual vehicle production stabilized at over 2.3 million units between 2012 and 2016, although it fell below 2.1 million units in 2017. While no OEM has closed a Canadian assembly plant since 2011, and each has invested in their existing facilities, most often with the support of government incentives, Canada has received virtually no Greenfield investment since prior to the recession and capital expenditures, which averaged over C\$3.5 billion annually between the mid-1990s and mid-2000s and averaged less than C\$2 billion annually since 2008. Moreover, GM decreased production across their Canadian assembly plants in 2017; in that year, the company's Oshawa, Ontario assembly complex, which produced nearly one million vehicles in 1999, assembled fewer than 90,000 vehicles. There are also concerns that new (e.g. Comprehensive and Progressive Agreement for Trans-Pacific Partnership [CPTPP]) and revised (e.g. North American Free Trade Agreement [NAFTA]) trade agreements could potentially reduce the economic contributions of the industry and exacerbate a growing trade deficit (see Stanford 2014; Holmes 2015; Carey and Holmes 2017; Sweeney and Holmes 2017).

The remainder of this chapter explores the restructuring of Canada's automotive industry in more detail. The first section examines production, employment, and industry structure. The second section examines Canada's trade in automotive products and its changing position within North America and the global automotive industry. The third section examines employment relations and collective bargaining. The fourth section examines the role of public policy in supporting Canada's automotive industry. This is followed by a conclusion that comments on the future prospects for Canada's automotive industry.

Production, Employment, and Industry Structure

After several decades of consistent growth, Canadian vehicle production eclipsed three million units in 1999 (Fig. 3.1). At this time, six OEMs (DaimlerChrysler, Ford, GM, Honda, Suzuki, and Toyota) employed nearly 59,000 people in fourteen vehicle assembly plants and fourteen parts and components manufacturing facilities (Table 3.1). All of these facilities were located in Southern Ontario save for a GM assembly plant in Québec and a Toyota wheel manufacturing facility in British Columbia. At this time, GM employed over 20,000 people, Ford employed over 15,000, and DaimlerChrysler employed over 13,000, while Honda and Toyota each employed fewer than 4000.

Over the next decade, Canadian vehicle production decreased nearly every year, reaching a 25-year low of fewer than 1.5 million units in 2009. Between 1999 and 2012, Toyota built an additional assembly plant and Honda built an engine manufacturing facility; however, GM and Ford each closed two assembly plants and DaimlerChrysler closed one.

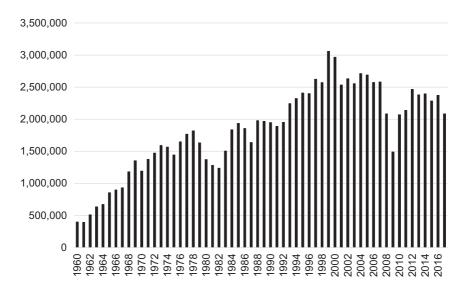


Fig. 3.1 Canadian motor vehicle production, 1960–2017

Table 3.1 OEM plants and employment, 1999, 2009, and 2016

Assembly plants GM [®] 5 Ford 3			2009			2016		
_ - 1 - 1 - 1	 <u>~</u>		Assembly	Parts		Assembly	Parts	
GM ^a 5 Ford 3	plants	Employees plants	plants	plants	Employe	Employees plants	plants	Employees
Ford 3	9	20,624	3	æ	9834	3	_	7819
	9	15,282	2	2	6104	_	2	6891
FCA 3	_	13,750	2	_	7550	2	-	8928
Toyota 2	_	3692	3	_	6209	٣	_	8654
Honda 2	0	3500	2	_	3800	2	_	4200
Total 15	14	58,847	12	∞	33,497	11	9	36,492

ancludes CAMI Assembly, which was once a GM-Suzuki joint venture (now wholly owned by GM)

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Moreover, GM and Ford each closed or divested several powertrain and parts manufacturing facilities. Currently, five OEMs (Fiat-Chrysler, Ford, GM, Honda, and Toyota) operate eleven assembly plants and six parts and components manufacturing facilities in Canada. In 2017, these plants built over two million vehicles—over two-thirds of which were SUVs or minivans—and employed over 37,000 people.

Canada has a well-established independent automotive parts and components manufacturing industry, most of which is located in close proximity to the Canadian assembly plants and to the Ontario-Michigan border. Over 900 establishments supply OEMs or higher tier suppliers with parts, components, and value-added services (e.g. sub-assembly, metal treating). Together, these establishments employ over 100,000 people (Sweeney and Mordue 2017). The majority of these establishments are concentrated in several medium-sized Ontario cities (e.g. Windsor, London, Kitchener-Waterloo, Cambridge, Guelph), in Toronto's western and northern suburbs, and in the Eastern Townships region of Québec. Figure 3.2 illustrates automotive industry employment and the location of OEM production facilities in Southern Ontario.

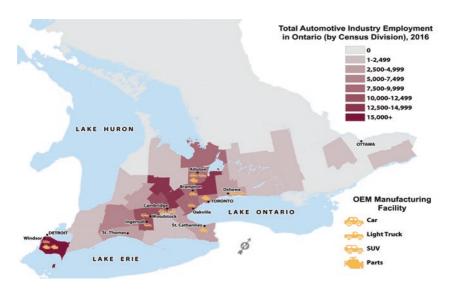


Fig. 3.2 Ontario automotive industry employment and assembly plants, 2016. Reproduced with permission from APRC Inc

The composition of independent automotive parts, components, and value-added service suppliers is diverse. Magna, which is headquartered in Toronto's northern suburbs, is Canada's largest independent parts and components manufacturer, employing more people than the next two largest automotive employers (Fiat-Chrysler and Toyota, respectively) combined. Magna's Canadian production facilities are engaged in several segments of the automotive supply chain, including seating, metal stampings, bodies and frames, closures, engine and powertrain components, and plastics. Other large Canadian-owned suppliers include Linamar, which produces engine and powertrain components; Martinrea, which produces metal stampings, fluid handling components, and welded assemblies; Woodbridge Foam, which produces seating and interior foam parts; and Multimatic, which produces closures, metal stampings, and suspension components. Multimatic also assembles the Ford GT near its Toronto area headquarters. In total, these and other Canadian-owned suppliers employ just over half of the Canadian independent automotive parts and component manufacturing workforce (Sweeney and Mordue 2017).

Canada is also home to the networks of foreign-owned independent automotive parts and component manufacturers. Historically, large US-owned firms played an important role in the Canadian automotive supply chain. These firms provided parts and components primarily to the assembly plants in Canada and the US Great Lakes states, and helped US-owned OEMs satisfy Canadian value-added production requirements stipulated by the Auto Pact (Anastakis 2005). Prior to the economic crisis of 2008-2009, US-owned firms employed over a third of Canada's independent automotive parts manufacturing workforce. However, the economic contributions of US-owned automotive parts and components suppliers diminished due to a series of bankruptcies (e.g. Collins and Aikman, Oxford Automotive), acquisitions by European or Asian firms (e.g. TRW, Johnson Controls), the end of the Auto Pact, and the closure of several GM and Ford assembly plants in Canada. While some large globally competitive US-owned suppliers (e.g. Flex-n-Gate, Cooper-Standard) maintain a large production footprint in Canada, others (e.g. Dana, Lear) closed their largest Canadian production facilities and employed only a fraction of the people than they did in the early 2000s. Currently, US-owned suppliers employ less than fifteen percent of the Canadian independent automotive parts and components manufacturing workforce (Sweeney and Mordue 2017).

Japanese-owned automotive parts and components suppliers have increased their production and employment in nominal and proportional terms since the late 1990s (Mordue and Sweeney 2017b). These firms, which supply Toyota and Honda primarily, include Toyoda Gosei, Toyota Boshoku, Denso, Aisin Seiki, and TS Tech. Together they employ approximately twenty percent of Canada's independent automotive parts manufacturing workforce. The increasingly prominent position of Japanese-owned suppliers relative to US-owned suppliers is indicative of broader shifts in the composition of Canada's automotive industry.

The majority of the remainder of Canada's independent automotive parts and components manufacturing suppliers are German- (e.g. ZF Friedrichshafen, Brose), French- (e.g. Valeo, Faurecia), Swedish- (e.g. Autoliv), and Chinese-owned (e.g. Stackpole, Yanfeng, Meridian). Chinese-owned automotive parts and components suppliers—all of which became Chinese-owned as the result of mergers and acquisitions—employ over 3000 people in Canada, and constitute a group of firms that were non-existent prior to the recession of 2008–2009 (Sweeney and Mordue 2017).

Trade Patterns and Canada's Role in the Global Automotive Industry

Despite its lack of a domestic automaker, Canada produces more vehicles than it consumes. This has been the case since the mid-1960s, when Canada and the US ratified the Auto Pact (Anastakis 2005). The Auto Pact led to high levels of automotive industry integration in North America, much of which was, and still is, concentrated in Southern Ontario and the Great Lakes states. It also cemented Canada's reliance on the US as the primary market for Canadian-made vehicles. In this sense, little has changed. In 2017, over ninety-six percent of Canadian vehicle exports were destined for the US (ISED 2018; author's calculations).

However, and while the US remains the primary source of automotive imports to Canada, imports from other countries and regions (notably Japan, Korea, China, Mexico, and the EU) have more than doubled since the 1990s. For example, countries other than the US accounted for less than eighteen percent of Canadian automotive product imports in 1999, but over thirty-seven percent in 2017 (ISED 2018; author's calculations). This trend is part of broader concerns regarding Canada's trade in automotive products in the context of a growing trade deficit and the consequences of new trade agreements with North American, EU, and Pacific Rim nations (see Carey and Holmes 2017; Sweeney and Holmes 2017).

Canada's balance of trade in automotive products shifted from a surplus to a deficit in the mid-2000s (Holmes 2015). After nearly two decades of growth, Canada's automotive trade surplus peaked at over C\$15.1 billion in 1999, coinciding with Canada's peak in vehicle production. Canada's trade surplus shrank in all but one year between 2000 and 2006, and went into deficit in 2007. This deficit increased to C\$11.8 billion by 2008 and to over C\$24.5 billion in 2017 (ISED 2018; Fig. 3.3).

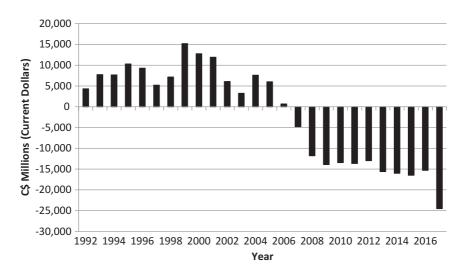


Fig. 3.3 Canada's automotive trade balance (NAICS 3361 and 3363), 1999–2017. Source: ISED 2018; author's calculations

Canada maintains a surplus in the trade of automotive products with the US. This surplus reached C\$23.9 billion in 2017. This surplus was C\$9.3 billion in 2017 (although this was nearly C\$6 billion less than in 2016). This reflects a surplus in the trade of vehicles with the US (C\$23.9 billion in 2017) and a deficit in the trade of automotive parts (C\$14.6 billion). However, Canada has a deficit in the trade of vehicles and automotive parts with its major trading partners outside the US. Taken together, Canada's combined automotive products trade deficit with the EU, Japan, Korea, and China was over C\$18.7 billion in 2017. Also of consequence is Canada's deficit in the trade of automotive products with Mexico, which grew from approximately C\$2 billion in 1993—the year prior to NAFTA taking force—to over C\$13.8 billion in 2017. This is due to the substantial imports of Mexican-made vehicles and automotive parts, a result of the growth of the export-oriented automotive industry and its supply chain in Mexico over the past twenty years and the loss of Canadian vehicle assembly and parts-making capacity since the early 2000s. The shift from being a net exporter of automotive products to a net importer is a concern for Canadian policy-makers and industry stakeholders.

Canada has recently entered into several trade agreements with Pacific Rim nations, the EU, and, at the time of writing, is in the process of renegotiating a free trade agreement with the US and Mexico. The consequences of these new trade agreements are a significant concern for policy-makers, industry stakeholders, and the general public. Over the past several years, there has been a considerable debate regarding the potential impacts on the automotive industry of the Canada-EU Comprehensive Economic and Trade Agreement (CETA), the Canada-Korea Free Trade Agreement (CKFTA), and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which includes Canada, Mexico, and nine other Pacific Rim nations, and its failed predecessor, the Trans-Pacific Partnership (TPP), which included the US. Unifor, the union representing the majority of unionized Canadian autoworkers, has been particularly vocal in its opposition to these trade agreements and predicts that they will exacerbate Canada's existing automotive trade deficit and lead to job loss (Stanford 2014). The CEOs for Ford and Fiat-Chrysler's Canadian operations have been equally critical, going so far as to comment that 'there will be no positive outcome for Canadian manufacturing' (Craig in Posadzki 2016). Furthermore, Holmes and Carey (2016) (see also Carey and Holmes 2017) conclude that a trade agreement with Pacific Rim nations is likely to have negative impacts on production and employment in Canada's automotive industry.

In the context of the automotive industry, the election of Donald Trump as the President of the US in 2016 and his subsequent positions on trade and, more specifically, on NAFTA have dwarfed policy-makers' and industry stakeholders' concerns about other trade agreements. While the impacts and consequences of the revised North American trade agreement are yet to be determined, these concerns are closely related to Canada's uncertain role in the contemporary global automotive industry. Canada served as a lower cost option for vehicle assembly and automotive parts manufacturing vis-à-vis the US until as recently as the late 1990s (Sturgeon and Florida 2000), although for much of this time, automakers' conception of the North American automotive supply chain did not extend far into Mexico. As Japanese, German, and Korean automakers invested in the southeastern US, and then as automakers of all nationalities invested heavily into Mexico, Canada's competitive advantages eroded. In light of these eroding competitive advantages, ensuring that trade agreements provide Canada with some advantages in the North American or global automotive production networks is increasingly important to maintaining production and employment in Canada's automotive industry.

Employment Relations and Collective Bargaining

Employment relations in Canada's automotive industry were similar to those in the US for much of the 1960s and 1970s. Production and trade workers employed by OEMs were unionized almost exclusively, as were a majority of those employed by independent automotive parts manufacturers. The Canadian division of the United Automobile Workers

(UAW)—the same union that represents autoworkers in the US—represented most unionized autoworkers in Canada until the mid-1980s. Canadian autoworkers' collective agreements closely followed those negotiated in the US. Most collective agreements were three years in length and used formulaic mechanisms linked to productivity gains and inflation to determine wage and benefit increases (Katz et al. 2013). These collective agreements established the basic terms and conditions for not only the automotive industry, but for other manufacturing industries throughout Canada and the US. Strikes and lockouts were common during bargaining impasses, particularly during the 1970s.

The strategies of unionized autoworkers in Canada and the US diverged in the early 1980s. The relative bargaining power of the UAW diminished as a result of increased imports, US-based automakers' loss of market share, and excess capacity at US plants-many of which were antiquated—following the recession of the early 1980s, all of which reduced the effectiveness of strikes as a tactic to gain leverage during negotiations (Katz et al. 2013). As a result, and partly due to efforts to help Chrysler avoid bankruptcy in 1979, the UAW departed from traditional bargaining practices in the US and instead accepted lump sum payment and profit-sharing schemes in lieu of annual base wage and benefit increases. Unionized Canadian autoworkers, however, retained substantial bargaining power due to the production and value-added provisions of the Auto Pact and lower relative labor costs. They continued to pursue traditional collective bargaining and refused to accept profit-sharing schemes in lieu of annual base wage increases. This divergence in strategy eventually led to the breakup of the UAW along international lines and the creation of the Canadian Auto Workers (CAW) in 1985. This breakup and the divergence of once-similar collective bargaining systems is the subject of a large body of employment relations and labor geography literature (see Holmes and Rusonik 1991; Kumar 1993; Yates 1993; Kumar and Holmes 1996).

The CAW leveraged the bargaining power afforded to them by relatively low Canadian labor costs, higher rates of productivity, and the production and value-added stipulations of the Auto Pact to make significant wage and benefit gains throughout the late 1980s until the mid-2000s. In addition to wage and benefit gains, the CAW negotiated successorship

and work ownership provisions in the mid-1990s that provided for union certification and job security in the event that work was outsourced from OEMs to independent parts suppliers (Holmes 2004). The CAW also successfully negotiated above-average wages and benefits at a network of independent automotive parts and components suppliers, many of which were US-owned.

The bargaining power of the CAW (renamed Unifor in 2013 as a result of a merger) vis-à-vis automakers has eroded since the mid-2000s. This is the result of several factors. Not least of these are the nominal and proportional increases in employment at Toyota and Honda and the growth of Canadian-owned suppliers Magna and Linamar. The CAW and Unifor have had little success organizing workers at Toyota, Honda, and Linamar and only limited success organizing workers at Magna (Lewchuk and Wells 2006; Malin 2010). The growth of these firms, the simultaneous decrease in the unionized employment at GM and Ford, and the closure of over 100 unionized independent automotive parts and component manufacturing facilities (many of which belonged to US-owned firms) between 2005 and 2015 led to steep decreases in union density in both the vehicle assembly and automotive parts manufacturing industries.

The recession of 2008–2009 and the subsequent government funding packages designed to assist GM and Chrysler emerge from bankruptcy eroded the CAW's bargaining power further. They also led to distinct changes in bargaining strategies. The CAW avoided concessions during negotiations with GM, Ford, and Chrysler on the eve of the recession in 2008. However, they departed from their more than two-decade-old noconcessions policy during negotiations in Spring 2009 and accepted substantial wage and benefit concessions so that GM and Chrysler could receive government funding for restructuring. The concessions included wage and cost-of-living adjustment freezes, the elimination or reduction of several fringe benefits, and a decrease in entry-level wages and simultaneous extension of the amount of time before entry-level workers reach the full base wage (CAW 2009). The CAW did, however, avoid the muchmaligned two-tier wage structure that unionized US autoworkers accepted in 2007 (and subsequently eliminated in 2015). These concessionary agreements were extended to Ford later that year.

Critics argue that the CAW's willingness to accept concessions represents a tacit acceptance of neo-liberalism (Fowler 2012; Siemiatycki 2012). Others, however, interpret this shift in bargaining strategy as a 'recalibration' of employment relations in the context of declining union density and the need to be competitive for capital investment with the US Great Lakes states and with lower cost jurisdictions such as Mexico (Wheaton 2015; Rutherford and Holmes 2013). Moreover, and as is evident in the collective agreements negotiated by Unifor and the US-based automakers in 2016, collective bargaining has become just as much a medium to discuss the conditions under which OEMs will make the capital investments necessary to produce vehicles and automotive parts and components in Canada as it is a mechanism to establish the terms and conditions under which people will be employed to do so. While the four-year collective agreements that govern GM, Ford, and Fiat-Chrysler's Canadian employees include wage increases in the first and fourth years and lump sum bonuses in the second and third years, the most important aspect of these negotiations was GM's commitment to maintain at least some production at their Oshawa assembly complex for the life of the agreement, a re-affirmation of Fiat-Chrysler's commitment (originally made in 2011) to modernize an antiquated paint shop at their Brampton assembly plant, and Ford's commitment to new production mandates at their engine plants in Windsor.

Earnings in vehicle assembly plants and automotive parts and components manufacturing facilities are both much higher than average earnings in Canada (Table 3.2). It is partly for this reason that the automotive industry receives so much attention from policy-makers. However, over the past decade, the wage premium enjoyed by Canada's automotive workers has decreased. While the average weekly earnings of all Canadian

Table 3.2 Average weekly wages, 2008 and 2017

	2008	2017	Percent change
All industries	\$810.20	\$976.14	20
Manufacturing	\$951.00	\$1096.65	15
Vehicle assembly	\$1394.59	\$1379.90	-1
Automotive parts	\$1026.49	\$1129.55	10

Source: Statistics Canada 2018

workers increased by twenty percent and of all Canadian manufacturing workers increased by fifteen percent, the average weekly earnings of automotive parts and component manufacturing workers increased by only ten percent and the average weekly earnings of vehicle assembly workers decreased by one percent. The diminished wage premium of Canadian autoworkers is related to the negotiated wage freezes, decreased entry-level wages, the widespread closure of unionized automotive parts and components manufacturing facilities, and the relatively low wages paid by many non-unionized automotive parts manufacturers.

Public Policy and Investment Incentives

Canadian policy-makers have actively used financial incentives and tax credits to incent automotive manufacturing and R&D investments since the late 1970s. These incentives have come primarily in the form of lowinterest loans and direct contributions from federal and provincial governments to support capital investments. Most government programs are available to all firms in a certain industry (e.g. automotive, aerospace) or entire sector (e.g. manufacturing) so long as the investment meets certain criteria (e.g. value, number of jobs created or sustained). Unlike the US, municipal governments do not offer incentives for manufacturing investments due to legislation that prohibits them from providing cash, land, or tax exemptions (Yates and Lewchuk 2017). Moreover, and again unlike the US, Canadian governments avoid including the value of upgrades to or investment to transportation, communication, utilities, or educational infrastructure in announced incentive packages. This is because the costs of such investments are both politically contentious and because such investments benefit not only firms, but the public generally. The true value of financial incentives offered to manufacturers in Canada is therefore often much higher than the publicly announced value (Yates and Lewchuk 2017).

The earliest government incentives for automotive investment in Canada occurred in the late 1970s. In an attempt to remain competitive with the US for investment during a period of industry restructuring, Canadian policy-makers provided C\$68 million toward the construction

of a new Ford engine manufacturing facility in Windsor in 1978 (Anastakis 2013). Since the late 1970s, most subsequent Greenfield investments by automotive OEMs (and several by large upper-tier parts suppliers) have received financial support from the Governments of Canada and Ontario. However, no automotive OEM has announced a Greenfield investment in Canada in over a decade. The Governments of Canada and Ontario also partnered with the US government to provide loan guarantees to help Chrysler avoid bankruptcy in 1980 in exchange for production and employment commitments (Anastakis 2007). They also provided over C\$13 billion in financial support to Chrysler and GM in 2009 to assist them as they emerged from bankruptcy.

As the prospect of receiving Greenfield investment decreased in the early 2000s, Canadian policy-makers began providing incentives for periodic capital investments in the existing vehicle assembly plants and in large powertrain and parts manufacturing facilities (Van Biesebroeck 2010). While such incentives were uncommon prior to the mid-2000s, Canadian governments had in the past provided automakers that were not facing bankruptcy with low-interest loans for investment in the existing production facilities. The most notable of these was a C\$220 million loan provided to GM by the Government of Canada and the Gouvernement de Québec in 1987 in exchange for a commitment to keeping an assembly plant near Montréal open for several more years (the plant closed in 2002; see Marrotte 2002).

Incentives for periodic capital investments in the existing assembly plants and powertrain and parts manufacturing facilities are now commonplace in Canada. Since 2013, the Government of Ontario has provided cash incentives of approximately ten percent of the value of manufacturing investments of C\$10 million and above through their Jobs and Prosperity Fund (JPF). Between 2004 and 2013, the Government of Ontario provided similar incentives through the Ontario Automotive Investment Strategy (OAIS). The Government of Ontario also provides cash incentives for lower value manufacturing investments through the Automotive Suppliers Competitiveness Improvement Program (ASCIP), the Southwestern Ontario Development Fund (SWODF), and the Eastern Ontario Development Fund (EODF). The primary condition of these incentives is that the investing firm maintains certain levels of

employment over a defined period of time (usually ten years). Other provinces, notably Québec, provide automotive parts suppliers with investment incentives through programs that provide low-interest loans (e.g. programs administered by Investissement Québec) or other discrete programs that provide cash incentives (e.g. the Québec Aluminum Development Strategy).

The Government of Canada provided financial incentives in the form of low-interest loans with long amortization periods of up to fifteen percent of the total investment to automakers and upper-tier parts manufacturers through the Automotive Innovation Fund (AIF) between 2008 and 2015 and through the Program for Strategic Industrial Projects (PSIP) between 2005 and 2008. The AIF's successor, the Strategic Investment Fund (SIF), was implemented in 2016 following the criticism of the tax implications of the former program (CAPC 2013; Yates and Lewchuk 2017). The SIF provides cash incentives and low-interest loans to firms (both automotive and non-automotive) making large-scale capital investments in manufacturing facilities. The Government of Canada also provides funding for smaller scale investments by automotive parts suppliers (and to non-automotive manufacturers) through its Federal Economic Development Agency and other discrete programs (e.g. the Automotive Supplier Innovation Program).

Since the early 2000s, Canadian governments have increasingly focused on using public policy to incent investments in automotive R&D. This is due to Canada's desire to improve upon historically low levels of automotive R&D spending (see Rutherford and Holmes 2007). It is also done partly out of necessity; as Canada became less competitive for traditional manufacturing investments, it sought to capture a greater share of higher value automotive industry activities, such as R&D. To do so, Canadian governments use a combination of tax credits and financial incentives. The Governments of Canada and Ontario both offer tax credits for R&D activities. While these are helpful, they are also criticized in that they are more beneficial to large and profitable firms and less beneficial to smaller firms in the early stages of commercialization that may not have significant revenues or profits. The Governments of Canada and Ontario also offer financial incentives for automotive R&D through the programs mentioned above (e.g. SIF, although the vast majority of these

programs' funds are directed toward capital expenditures), through research partnerships between private sector firms and publicly funded universities, and through discrete programs focused on the development of environmentally friendly technologies (e.g. Sustainable Development Technology Canada). While policy-makers are optimistic about Canada's future as a location for automotive R&D investment, and despite the availability of highly trained engineers and research professionals, studies suggest that Canada's automotive R&D performance continues to lag behind other automotive-producing nations (Mordue and Sweeney forthcoming). This is due to the lack of a homegrown automaker and to the propensity for upper-tier automotive parts and components suppliers to located R&D facilities near their customers' headquarters in Michigan, Germany, and Japan.

Future Prospects for Canada's Automotive Industry

Following decades of growth and the development of competitive advantages, Canada's automotive industry underwent a period of profound restructuring beginning in the early 2000s. This was due to the diminishing competitive advantages vis-à-vis the US, the emergence of Mexico as a location for automotive investment, the recession of 2008–2009, and new trade patterns and agreements. Despite a modest recovery following the recession of 2008–2009, Canada has struggled to develop new competitive advantages. In fact, what were once Canada's structural strengths—a well-developed network of assembly plants and automotive parts manufacturing facilities—might ultimately limit Canada's ability to shift toward higher value-added segments of the industry (e.g. R&D, niche vehicle production) that are generally thought to be more suitable for high-wage economies.

Canada is engaged in some automotive R&D activities (especially related to software) and in some niche vehicle production (e.g. the Ford GT). Governments and policy-makers have recently placed an increasing emphasis on Canada as a location for automotive R&D. Some

OEMs, namely GM and Ford, recently established automotive software development facilities in Canada. There is also a burgeoning network of smaller software firms that are developing products for the automotive industry, many of which are located in the Kitchener-Waterloo region just west of Toronto. However, the actual extent and economic impact of R&D activities related to traditional or emerging automotive technologies are unclear, and several studies express skepticism regarding the amount of automotive R&D spending, output, and employment that is actually taking place in Canada (see Mordue and Sweeney forthcoming). There is also little evidence that these activities will ever be able to make economic contributions that resemble those made by large-scale vehicle assembly and automotive parts manufacturing facilities. All that said, Canada continues to produce over two million vehicles annually, making it the ninth largest vehicle producer in the world, and Southern Ontario, the location of the vast majority of Canada's automotive industry, is undoubtedly geographically well-situated relative to Detroit.

At the time of writing, uncertainty around the long-term future of several assembly plants, the potential success and economic contributions of policies designed to incent investments in higher value-added segments of the industry, including those related to emerging connected, autonomous, and electrified technologies, and around trade agreements within and beyond North America are some of the major concerns for policy-makers and industry stakeholders alike. These concerns are themselves related to the broader questions regarding Canada's role in an increasingly 'commoditized' global automotive industry (Mordue and Sweeney 2017a). The emergence of China, and to a lesser extent, India, as major automotive-producing nations and as the sources of foreign direct investment may present opportunities for Canada. In fact, between three and four percent of Canada's automotive parts and components manufacturing industry is currently controlled by Chinese-owned firms (Sweeney and Mordue 2017). Other yet-to-be-conceived changes to the structure and organization of the industry may also very well be on the horizon. Yet, for Canadian policy-makers and industry stakeholders, the broader question remains: what role(s) will Canada play in the North American and global automotive industry production network? Only time will tell.

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