

Trade, innovation, and prosperity

WORKING PAPER 14, SEPTEMBER 2010



The Institute for Competitiveness & Prosperity is an independent not-for-profit organization established in 2001 to serve as the research arm of Ontario's Task Force on Competitiveness, Productivity and Economic Progress.

The mandate of the Task Force, announced in the April 2001 Speech from the Throne, is to measure and monitor Ontario's competitiveness, productivity, and economic progress compared to other provinces and US states and to report to the public on a regular basis. In the 2004 Budget, the Government asked the Task Force to incorporate innovation and commercialization issues in its mandate.

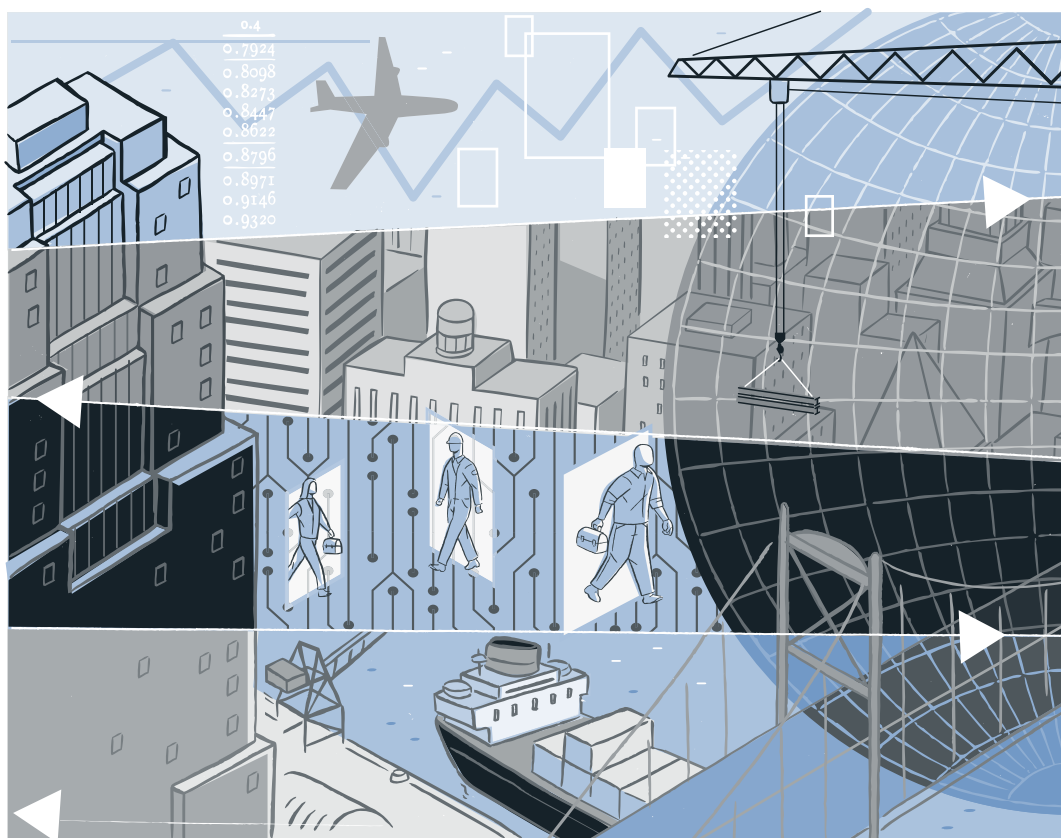
It is the aspiration of the Task Force and the Institute to have a significant influence in increasing Ontario's competitiveness, productivity, and capacity for innovation. We believe this will help ensure continued success in creating good jobs, increasing prosperity, and building a higher quality of life for all Ontarians. We seek breakthrough findings from our research and propose significant innovations in public policy to stimulate businesses, governments, and educational institutions to take action.

Working Papers published by the Institute are intended to inform the work of the Task Force and to raise public awareness and stimulate debate on a range of issues related to competitiveness and prosperity. The Task Force publishes annual reports to the people of Ontario each November.

We welcome comments on this Working Paper. The Institute for Competitiveness & Prosperity is funded by the Government of Ontario through the Ministry of Economic Development and Trade.

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Exhibits

Exhibit 1	Support and pressure drive innovation – and trade contributes to both	14
Exhibit 2	The United States is still our dominant trade partner, but the importance of China and the European Union has risen	17
Exhibit 3	Canada's trade with the BRICs is in line with that in the EU and the US	18
Exhibit 4	Commodities have become more important to Canada's export value in recent years	21
Exhibit 5	Countries' trade evolves from cost- to innovation-based competition	22
Exhibit 6	Significant events mark China's growth as a trading nation	28
Exhibit 7	Canada's high-tech imports from China are relatively low value added	32
Exhibit 8	China's computer exports still compete in the low-price segment	32
Exhibit 9	Based on China's R&D expenditures, its patents fall well below expectations	33
Exhibit 10	Despite rising GDP, Chinese overseas students are not returning home	34
Exhibit 11	Canada's imports from China are heavily weighted toward consumer products	36
Exhibit 12	Industries most affected by imports from China account for a small percentage of Canada's GDP	37
Exhibit 13	Canada's and Ontario's manufacturers have shed jobs but increased productivity	37
Exhibit 14	Manufacturing employment share has declined in all countries, except for Canada in the 1990s	38
Exhibit 15	As the Canadian dollar depreciated in the early 2000s, Canadian manufacturing employment peaked	39
Exhibit 16	Most manufacturing industries lost jobs, 2002–2008; growing industries had higher value added and more creativity-oriented jobs	40
Exhibit 17	Employment declines in most Canadian manufacturing industries are not related to imports from China	42
Exhibit 18	China's import penetration is greater in low value added industries	43
Exhibit 19	Imports from China have had no apparent impact on Canada's overall labour market	44
Exhibit 20	Canada is a relatively small trading partner with the European Union	46
Exhibit 21	Freer trade with the European Union would generate GDP gains	47
Exhibit 22	Liberalized EU-Canada trade would affect a range of industries	48
Exhibit A	Canada's trade balance and GDP growth show little relationship	20
Exhibit B	China accounts for most of Canada's trade with the BRICs	24

Contents

Foreword and acknowledgements	4
Trade and innovation	6
Emerging economies are approaching an innovation tipping point	8
China's impact on Canada's economy is still minimal	8
The European Union offers opportunity for Canadian trade	9
Expanding trade will strengthen innovation	10
Canada's trade scene	12
Trade fosters support and pressure for prosperity	13
Recession raises risk of protectionism	15
The Canada-US border seems to be thickening	16
Canada's global trade patterns are changing	17
Emerging economies' trade is approaching a tipping point	21
China, the low-cost manufacturing competitor	26
China has made remarkable economic progress	26
China has not yet reached the tipping point	31
China trade and Canada's manufacturing industries	35
Canada trade encounters the China "Dragon myth"	35
After growing in the 1990s, Canada's manufacturing employment is declining	36
The economy has shifted away from manufacturing	39
Exchange rates matter	39
China-Canada trade impact is highest in low value added industries	40
China is still competing in low-productivity industries	43
China-Canada trade has little effect on Canada's overall labour market	43
The European Union opportunity	45
The EU is an important trade partner	46
Barriers to trade need to be addressed	47
Trade, innovation and prosperity	50
Expand our trade relationships	51
Invest in infrastructure	51
Invest in education	52
Draw on the capabilities of our immigrants	52
Develop better ways to help displaced workers	52
Explore the benefits of wage insurance	53
References	55
Previous publications	58

Foreword and acknowledgements



I AM PLEASED TO PRESENT Working Paper 14 of the Institute for Competitiveness & Prosperity. In this Working Paper, we examine the importance of expanded international trade to our prosperity.

Trade has been an important contributor to prosperity here in Canada and Ontario and around the world. It is also a key factor in the rise of developing economies like China and India.

We are all familiar with the traditional arguments for international trade – it opens markets to our businesses and enables them to achieve scale and specialization; it offers our consumers more variety and lower prices. But we conclude that trade is also an important stimulus to innovation, our economic success, and our prosperity.

Innovation is driven by a combination of support and pressure, and international trade contributes to both.

Support refers to the conditions that are a foundation of assistance to all firms and individuals as they develop and compete. Trade leads to larger market opportunities and access to better supplies of materials, people, and capital – critical supporting conditions for innovation.

Pressure comes from aggressive and capable competitors, who are a threat to complacency, and from sophisticated customers, who demand innovative goods and services at low prices. International trade exposes our businesses and managers to these beneficial pressures that create the imperative for innovation.

Canada and Ontario are under performers in innovation, as evidenced by our low productivity, limited patent output, under investment in technology, and under achievement by our clustered industries – recurring themes in the Institute's past work. More trade has to be a key element of our innovation agenda – and our Agenda for Prosperity.

The current global economic environment presents challenges for trade expansion. But we have opportunities to increase trade with China and other emerging economies, we are negotiating growing trade with the European Union, and we have a solid base of trade with our US neighbours.

But talk of raising trade, especially with China and the emerging economies, often leads people to fears of losing our manufacturing base because of low-cost imports. Instead, when we analyzed this perception, we found that much of our current manufacturing weakness is the result of our appreciating dollar. Through the 1990s, our manufacturing employment was supported by a low-value Canadian dollar. Then, beginning in 2002, the stronger dollar made our manufacturing exports less competitive – especially in low value added industries.

“Trade is an important stimulus to innovation, our economic success, and our prosperity.”

The real challenge from trade is the pressure it provides for our businesses to become more innovative. Imports from China and other emerging economies are still relatively unsophisticated; but many of these economies will reach an “innovation tipping point” when they begin to compete on new ideas, design, and value added. They are not there yet – but they are on the path. To ensure our future prosperity in Canada, we need to engage with these emerging economies and step up our own innovation capabilities. Expanded trade with European Union countries will expose us even more to savvy trade partners and, through pressure and support, will help boost our capabilities.

Our research shows that Canadian governments and businesses should step up their efforts to encourage new and deeper trade relations on several fronts, through trade missions and agreements with potential trade partners. We continue to recommend that we drive for more innovative businesses in our economy and more demanding consumers – with ongoing investments in education as a prime driver. We need to improve our efforts to integrate our immigrants into Canada’s economy; their experience and familiarity with some of our emerging trade partners ought to be an advantage on which our businesses can build.

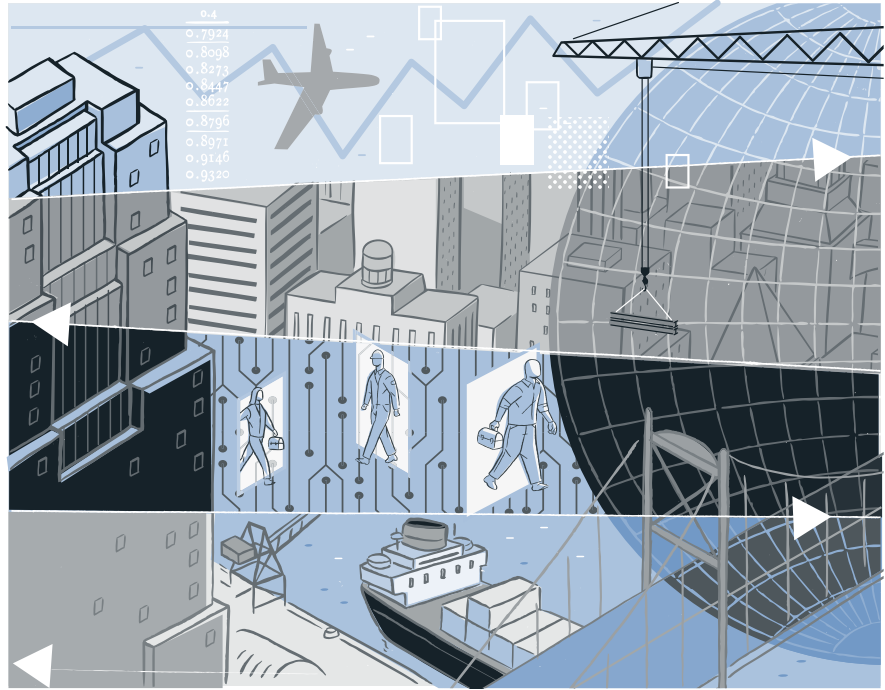
But we recognize that growing trade and low-priced imports create employment challenges for our workers in vulnerable industries. We need creative solutions to help those directly affected. We need new ways to help laid-off workers, and particularly older workers, make the transition to other jobs, because many of the current approaches are not working. One possibility is to introduce wage insurance – a program to help workers who are forced to take lower wage jobs. Other possibilities include retraining programs, though they have mixed reviews.

For this Working Paper, I want to extend a special thank you to Professor Daniel Trefler, a colleague of mine at Rotman and a member of the Task Force for Competitiveness, Productivity and Economic Progress since its inception, for his contributions to the research and analyses.

The Institute gratefully acknowledges the ongoing funding support from the Ontario Ministry of Economic Development and Trade. We look forward to sharing and discussing our work and our findings. We welcome your comments and suggestions.



Roger L. Martin, Chairman
Institute for Competitiveness & Prosperity
Dean, Joseph L. Rotman School of Management, University of Toronto



Trade and innovation

Trade is an important stimulant to innovation and Canada's prosperity

INTERNATIONAL TRADE HAS BEEN AN IMPORTANT contributor to prosperity here in Canada and Ontario and around the world. It is a key factor in the rise of developing economies like China and India. But Canada, with its small market size and generally colder climate and with aspirations for development and prosperity, has probably benefited more from international trade than larger economies that are closer to self sustainability. For now and for our future prosperity, trade will continue to be an imperative.

Trade opens markets to goods producers and service providers beyond the local economy. Among economists, there is widespread agreement that this increase in volume potential allows specialization, which in turn reduces costs, increases variety, and fosters innovation. When trade is carried out across several economies, the result is a much greater availability of goods and services to consumers. In sum, businesses are more successful, employees earn higher wages, and consumers see better choices and lower prices.

This articulation of the benefits of international trade is standard economic fare. But we conclude that trade is also an important stimulant to innovation and our economic success. Innovation is driven by a combination of **support** and **pressure**, and international trade contributes to both.

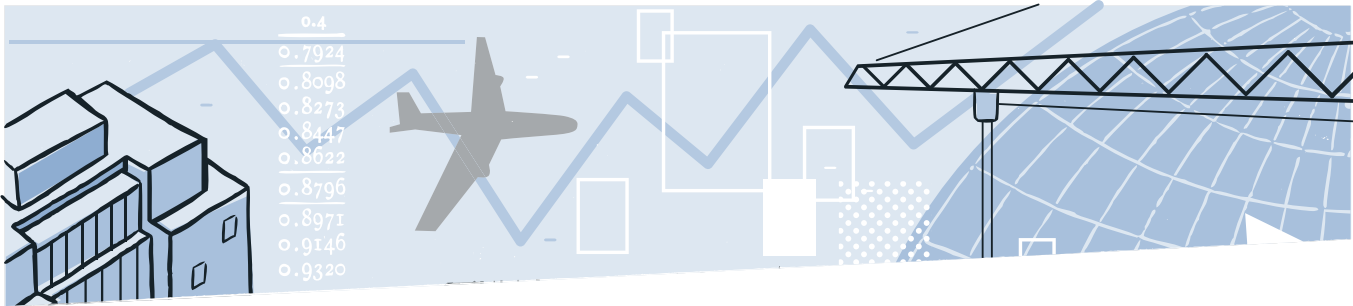
- **Support** refers to the conditions that are a foundation of assistance to all firms and individuals as they compete and develop. Trade leads to larger market opportunities and access to better supplies of materials, people, and capital – critical supporting conditions for innovation.
- **Pressure** comes from aggressive and capable competitors, who are a threat to complacency, and from sophisticated customers, who demand innovative goods and services at low prices. International trade exposes our businesses and managers to these beneficial pressures that create the imperative for innovation.

Canada and Ontario are under performers in innovation, as evidenced by our low productivity, limited patent output, under investment in technology, and under performance of our clustered industries – recurring themes in the Institute’s past work. Expanded trade has to be a key element of our innovation agenda – and our Agenda for Prosperity.

The current environment presents challenges for trade expansion. The global economic slowdown has lowered the volume of trade, as consumers and businesses around the world reduce their spending. Protectionism has featured more prominently in political discourse, especially in the United States. Greater security concerns and inadequate investment in our infrastructure have “thickened” the Canada-US border.

At the same time, Canada’s global trade patterns are changing. While the United States continues to be our dominant trading partner – accounting for 70 percent of our total exports and imports – its share of our international trade volume has been declining over the past decade. During this period, the European Union and China have increased their share of trade with us. The other major developing economies – Brazil, India, and Russia – are becoming more important participants in our trade, but our trading relationships are still under developed.

China and other developing economies are currently competing on the basis of their lower costs. Developed economies like Canada compete on the basis of innovation – although our recent trade volume growth has been driven largely by commodities. In time, the developing economies will become more sophisticated, as their large populations of consumers become more highly educated, better compensated, and more demanding. In parallel, their businesses will become more sophisticated. These economies will reach an “innovation tipping point” and begin to compete less on cost and more on innovation. Canada needs to improve its innovation capabilities to achieve and sustain a world leading standard of living.



Emerging economies are approaching an innovation tipping point

While several countries are emerging economically, China's remarkable progress is probably the most important development in these early years of the 21st century. Through sweeping reforms in its economic structures, China has leapt forward in its prosperity and its presence in international markets.

But has China reached the innovation tipping point? We conclude that it has not yet reached this milestone. Its manufactured goods seem to be everywhere, and they are becoming more and more high-tech; yet China is still assembling the technology of others and is not creating high value in its own operations. It is investing significantly in research and development; yet its patents tend to be more imitative than inventive. China is producing many engineers; yet many of these are lower skilled than their counterparts in other countries. The country is booming with opportunity; yet there has not been a mass return of Chinese students educated abroad, as seen in other innovative economies. Its institutions are being reformed to support innovation; yet much needs to be done to resolve internal conflicts between a market economy and an authoritarian regime.

We are by no means suggesting that we can be complacent in Canada. To date, China has expanded its economy and competed on the world stage as a low-cost competitor. So far China's trade has not had a significant negative effect on Canada's economy. However, in time, its innovation capacity will develop further, and China will become a more sophisticated competitor to our businesses and people. Clearly, Canada needs to step up its innovation capabilities now.

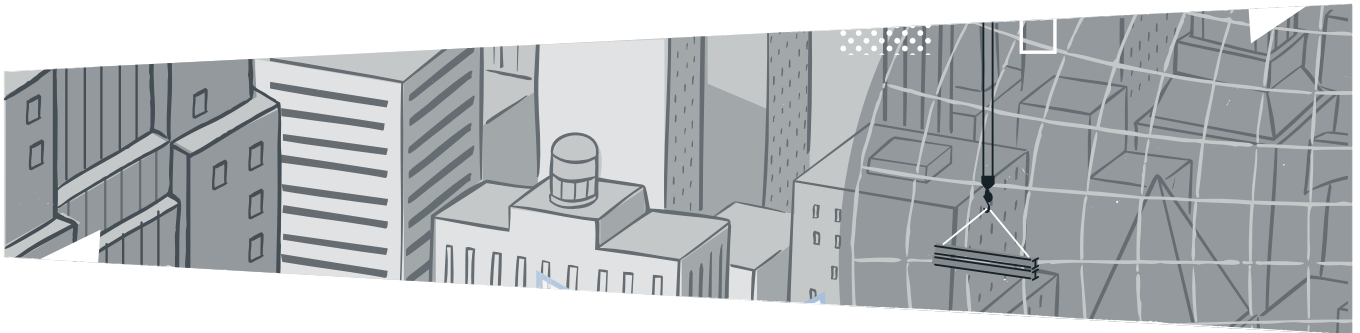
China's impact on Canada's economy is still minimal

How has China's emergence as an economic power house played out in Canada? Has our trade relationship benefited or harmed Canada? Our research indicates that China is not the primary cause of our current weakness in manufacturing employment; instead, our appreciating exchange rate is a more important factor.

Many of us perceive an impact of China on our economy that is greater than the reality. In our view, this perception is due largely to the seeming ubiquity of the "Made in China" label, because China's highest volume exports to Canada tend to be consumer goods – toys and games, electronic goods, and clothing. While we see these items daily in our homes and at stores, many other items are more important in our lives and our economy. These include commodities and

intermediate goods, like machinery, which are used in our manufactured goods; and services, which make up a high percentage of our economic lives and employment.

Coincident with the dramatic and visible growth of imports to Canada from China, manufacturing employment in Canada has been in steep decline – over 300,000 jobs were lost between 2002 and 2008. Yet the causal connection between these two trends is not as high as some would think. Our analysis indicates that the recent strengthening of the Canadian dollar has been much more of a factor in the decline in manufacturing employment. In addition, manufacturing's share of employment has been falling for decades. Where we do see a connection between imports from China and losses in Canadian manufacturing employment, it has been in low value added industries like textiles.



In fact, parts of the manufacturing sector are growing, and these tend to be the higher value, more sophisticated industries like production machinery and medical devices. And, while employment has been declining in the past few years in Canada, productivity in the sector has been increasing.

Across the breadth of our economy, it is very difficult to see that China's growth has had a negative impact on our overall employment results. Imports from China have been growing in Canada in this decade, but until the current recession our employment performance has been robust. Our recent slowdown is more the result of global factors, particularly in the United States and not China.

Overall, China's success in our manufacturing sector has been in the low value added industries. The solution for those worried about these and other import inroads is not trade barriers or a higher value yuan. It is, instead, the relentless pursuit of innovation and creativity by our manufacturers.

The European Union offers opportunity for Canadian trade

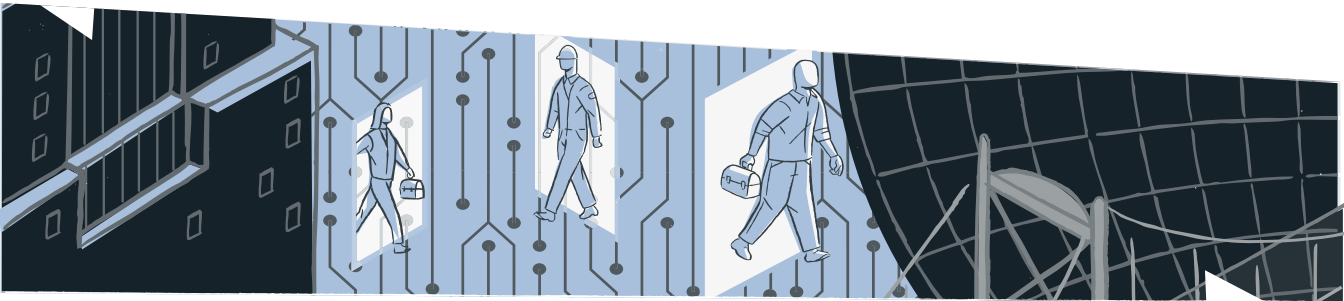
The European Union (EU) is our second most important trading partner after the United States, and this relationship has been growing. While China represents opportunities for increased trade as it becomes more developed, the EU is already a large and sophisticated trade partner. Expanding our trade with this innovation-based economic region can also increase the support and competitive pressure for our businesses, as consumer preferences and institutions are more familiar to us and offer the support of well-developed market opportunities. The sophisticated European consumer can provide beneficial pressure on our businesses to strengthen their product and service offerings even more. The competitive pressure from European imports can also stimulate more innovation here in Canada.

The EU's importance as a trade partner has increased in recent years, both in terms of the share of total Canadian imports and as a share of total exports. With the United States still reeling from the current recession, the case for an expanded EU trade relationship is stronger – not only for its immediate economic benefits, but also as a means of expanding and diversifying our trade.

Negotiations for expanded trade between Canada and the EU are underway. While it is unfortunate that harmful barriers in our two economies' agricultural sectors will not be dismantled in these negotiations, it is quite encouraging that we are pursuing this important initiative for strengthening our innovation capabilities. Our federal and provincial government leaders should be congratulated. Our businesses must pursue the resulting opportunities available to them.

Expanding trade will strengthen innovation

Trade is a critical element of our prosperity. The traditional reason is that it creates advantage through specialization and the availability of a wide variety of products and services at the lowest possible price. Equally important is the impact that expanded trade can have on our innovation results – which are in much need of improvement. Several avenues will help develop our trade and innovation success.

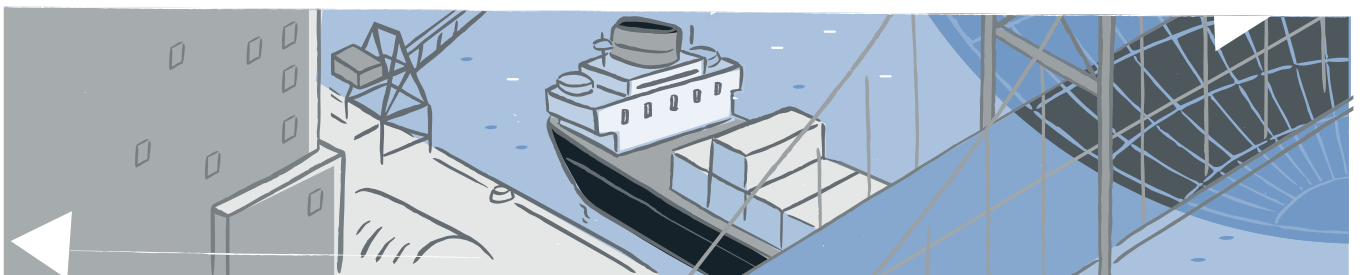


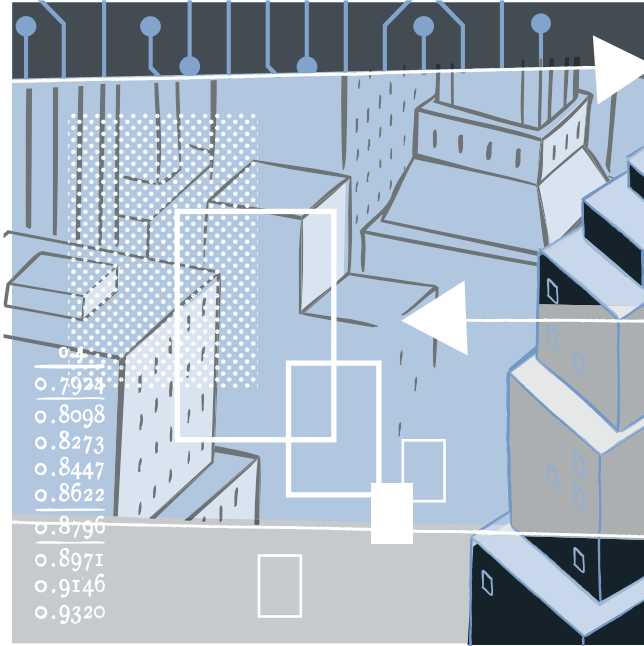
- **Expand trade relationships.** Despite the current sluggishness in trade, enhanced trade is an exciting opportunity for Canada and all economies. We are currently negotiating expanded trade with the EU. We need to move purposefully to deepen our relationship with China, India, and other developing economies.
- **Invest in infrastructure.** Our infrastructure needs to be upgraded at our borders and at our seaports and our airports.
- **Invest in education.** Increased investment in education is critical to build an economy that survives and thrives in the face of increased global competition. As larger economies become more sophisticated and cross the innovation tipping point, our creative skills will be tested, and it is by no means certain that we will be able to assume prosperity as usual. Education is a critical foundation for the broad skills we will need, and we need to step up our investments in this area.
- **Draw on the capabilities of our immigrants.** Canada has been blessed with a large group of well-educated immigrants from a wide variety of countries around the world, especially China and India. As we and others have noted, our challenge has been to draw on their skills to help them integrate more closely into our economy. This is a great opportunity for our businesses to help develop their

strategies for expansion outside of North America. Public expenditures to help immigrants develop businesses that are built on trade with their native countries may be wise investments that help expand trade and strengthen the economic success of our recent immigrants. Our businesses should not overlook these resources. There may be opportunities for governments to support internships with small- and medium-sized businesses.

- **Develop better ways to help displaced workers.** The effect of expanded trade is a net benefit to our people, our workers, and our businesses. But there are workers whose livelihood is threatened by expanded trade, and we need to help them make the necessary adjustment. Unfortunately, there is little evidence that retraining efforts in place are helping. We need to develop better tools and policies for helping displaced workers.
- **Explore the benefits of wage insurance.** Programs that could help workers adjust to lower paying jobs may be part of the solution to unemployment, especially among older and lower skilled workers.

Canada's productivity and innovation track record have been uninspiring. Expanded trade can have a huge impact on our innovation efforts and their success. More access to world markets enhances business results, thereby providing the support for investing in innovation and lowering the potential risks. More exposure to foreign customers and competitors provides beneficial pressure on our businesses and individuals to innovate. Canada needs to become even more of a trading nation than in the past. Our governments have to step up their efforts to negotiate trade expansion agreements. Our business leaders need to seize the opportunities that trade presents.





Canada's trade scene

Trade is important for Canada's prosperity

FROM OUR EARLY DAYS of shipping timber and furs to the Old World through to our current status as a leading exporter of automotive parts and vehicles, Canada's and Ontario's well being have been inextricably linked to international trade. As developing economies strengthen their capabilities, trade is increasing. Yet the current economic weaknesses have hurt trade and increased the spectre of protectionism. Canada and Ontario need to step up efforts to expand trade – to raise innovation and prosperity performance.

Generations of economists have analyzed and assessed the impact and effects of trade. Economic theory has evolved from Adam Smith's insight that trade facilitates specialization, to David Ricardo's theory of comparative advantage, to Eli Heckscher's factor-endowments model, to Nobel Laureate Paul Krugman's model of two-way trade in varieties, to Elhanan Helpman's model of international technology diffusion. Over the centuries, economists have concluded that there are many ways in which international trade enhances domestic competitiveness, improves productivity, increases sales, raises real wages, and provides consumers with more product

choices at lower prices. Many of them have also highlighted that there are winners and losers from international trade, so that redistributive government policies must be used to ensure that the prosperity from international trade flows broadly to all members of society.

Today, it is almost universally accepted among economists that freer trade has a positive impact on society.¹ In an environment that encourages trade, we can reap the rewards of international technology exchanges and low-wage markets to improve global competition. Ultimately, these benefits translate into more choices and lower prices for consumers as well as improved general well being. Thanks to trade with the United States, Canadians enjoy sophisticated high-tech computer systems; thanks to trade with China, Canadians enjoy low-cost clothing.

But it is fashionable to dismiss the benefits of lower cost imports because of lost jobs. A typical comment came from Barack Obama when he was a candidate in the 2008 election campaign: "People don't want a cheaper T-shirt if they're losing a job in the process. They would rather have the job and pay little bit more for a T-shirt." However, as Daniel Griswold of the Cato Institute pointed out, "every poor family must buy those shirts to keep themselves clothed, yet only one-third of 1 percent of American workers make clothing or textiles of any kind. A wealthy...commentator need not care about the price of a T-shirt or other everyday consumer items, but millions of poor and middle class... families do care."²

Still, with rising demand, global trade continues to expand and evolve rapidly. This reality is based on sophisticated production techniques, advanced transportation networks, transnational corporations, outsourcing of manufacturing and services, fast development

of information communications technology (ICT), and rapid industrialization. Growing global trade contributes to nations' prosperity.

Not all agree that the growth of global trade is inevitable. According to Jeff Rubin, former Chief Economist of CIBC World Markets, as the global economy recovers from recession, markets will once again have to adjust to triple-digit oil prices. With the combination of the return of demand for oil to pre-recession levels and falling supplies, trade in goods and services is about to get substantially more localized. Add to that, the high cost of extracting oil from resources, such as Alberta's Oil Sands, as well as increased demand from emerging markets, OPEC's cannibalization of its output as a result of economic growth, and the increasing demand for energy intensive water desalination projects, double-digit oil may very well be a thing of the past.³ Rubin concludes that persistent triple-digit oil prices will add significant costs to everything from manufacturing to transportation. As the price of both making and transporting goods increases, access to far and foreign markets will fall, making your next door neighbour an even more important trading partner.

Trade fosters support and pressure for prosperity

The Institute has developed a framework that shows how specialized **support** and competitive **pressure** are drivers of productivity, innovation, and prosperity.⁴ We think it is useful in considering the benefits of trade (*Exhibit 1*).

- **Support** refers to the conditions that provide a foundation of assistance to all firms and individuals as they compete and develop. Typical support elements include the availability of capital to entrepreneurs, well-educated and skilled workers, specialized

suppliers of goods and services, easy access to markets, and excellent infrastructure.

- **Pressure** comes from aggressive and capable competitors, who threaten complacency, and from sophisticated customers, who demand innovative goods and services at low prices.

These two drivers of higher productivity and continuous innovation in an economy need to work in balance – both have to be present. Each element of the economy needs to have not only support to make its task easier, but also pressure to provide incentives to move ahead. All support and no pressure creates a cushy and lazy environment inimical to productivity and innovation. All pressure and no support creates a harsh and barren environment, equally inimical to productivity and innovation.

Higher productivity and innovation result in product and process upgrades across the entire economy. But if one element of the economy lacks the necessary pressure or support, then the whole system will not perform to its potential. Having an imposing strength in one element will not make up for weakness in another.

International trade provides both specialized support and competitive pressure to enhance Canada's productivity and innovative capacity. Productivity improvements enable firms to grow at home and to compete internationally. More important, rising productivity and innovation are the wellspring of broad-based prosperity and key paths toward national well being. So it is important to understand how international trade affects the pressure and support faced by firms in Canada and Ontario.

¹ See for example Robert Whaples, "Do Economists Agree on Anything? Yes!" *The Economists' Voice*: Vol. 3: Iss. 9, Article 1, 2006, who found that 87.5 percent of members of the American Economic Association (AEA) agreed that "the US should eliminate remaining tariffs and other barriers in trade," available online: <http://www.bepress.com/ev/vol3/iss9/art1>; or Dan Fuller and Doris Geide-Stevenson, "Consensus on Economic Issues: A survey of Republicans, Democrats and Economists," *Eastern Economic Journal*, Vol. 33, No. 1, Winter 2007, who found that, in 2000, 72 percent of AEA members agreed that "tariffs and import quotas usually reduce the general welfare of society"; 21 percent agreed, but with some proviso; and only 6 percent disagreed.

² Daniel Griswold, "Obama's protectionist policies hurting low-income Americans," *Washington Times*, September 29, 2009.

³ Jeff Rubin, *Why your world is about to get a whole lot smaller*. Random House Canada, 2009.

⁴ Roger Martin and James Milway, "Commercialization and the Canadian Business Environment: A Systems Perspective," Institute for Competitiveness & Prosperity, 2005, available online: http://www.competeprosper.ca/images/uploads/InnovationSystem_040705.pdf

Trade supports productivity and innovation

The small market size of Canada is an ongoing challenge to raising our productivity and advancing innovation. It makes little sense for Canadian firms to invest large amounts of money in R&D or capital for our small market. Trade increases the size of markets available to support Canada's and Ontario's firms. This is a key reason why exporting to the United States has been so important to the success of our firms. The impact of increasing scale by adding US as well as other international customers to our market justifies large innovation investments and gives creative firms the opportunity to succeed. In addition, international markets expose Canadian firms to sophisticated suppliers of specialized inputs, including machinery and services related to research and financing.⁵

Trade pressures productivity and innovation

Trade strengthens the pressure on our firms, workers, and managers. When foreign firms export to Canada or establish production facilities here, they increase this competitive pressure on Canadian firms. Opening our markets to more rivals creates an uncomfortable situation – our firms must ensure they

are competing effectively or close up shop. The most familiar form of pressure is cost-based, such as Walmart expanding to Canada or Chinese toy manufacturers flooding our markets with their exports. But the more subtle and ultimately more important form of pressure is innovation-based, as when Apple enters the smart phone market and challenges Research in Motion to take its innovative prowess to a new level.

Trade also exposes our firms to more sophisticated customers outside of Canada who care about costs and quality, forcing our firms to compete on the basis of innovation. To be sure, trade, and all forms of pressure, have a “dark side” in that they force the less innovative and unproductive firms to improve their performance or go out of business.

Freer trade strengthens support and pressure

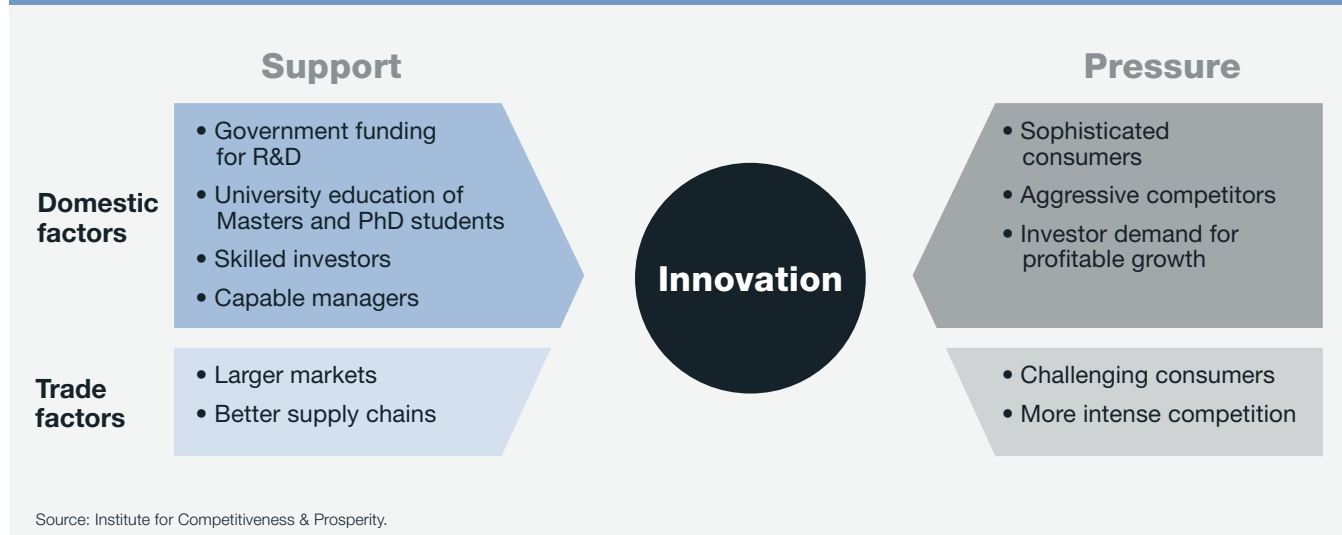
University of Toronto economist and the Institute's Task Force member Professor Daniel Trefler analyzed the impact of the Canada-US Free Trade Agreement of 1989.⁶ Working with detailed data on some 10,000 Canadian manufacturing plants, Trefler concluded that the results supported the academic theories advanced to promote the agreement.

Trefler documented the downside of increased pressure. He showed that the fall in the Canadian tariff forced many import-competing Canadian plants to contract and even exit. About 100,000 workers were forced to look elsewhere for employment. Fortunately, most found jobs in export-oriented plants, so that unemployment rates did not rise, and wages did not fall.

But the upside of support was far larger – in the form of improved access to US markets. As Canadian firms expanded into the US market, average Canadian productivity rose by an astounding 8 percent. Why? The tariff changes led to the growth of the most productive firms and to the contraction of the least-productive firms. The mechanism is similar to that of a student who has written two tests and is suddenly allowed to put more weight on the better test – the average grade rises.

Support also had another positive impact. In preparation for expansion into the US market, Canadian firms engaged in a series of productivity-enhancing activities: they invested in developing new products and processes, they adopted state-of-the-art advanced manufacturing technologies, and they invested in worker training programs.

Exhibit 1 Support and pressure drive innovation – and trade contributes to both



Source: Institute for Competitiveness & Prosperity.

⁵ Kalina Manova, "Credit constraints and the adjustment to trade reform," in G.Porto ed., *The Costs of Adjustment to Trade Reform*, World Bank Trade and Development Series (forthcoming).

⁶ See Daniel Trefler, "The Long and Short of the Canada-U.S. Free Trade Agreement," *American Economic Review* 94, September 2004, pp. 870-89; Alla Lileeva and Daniel Trefler, "Improved Access to Foreign Markets Raises Plant-Level Productivity ... for Some Plants," *Quarterly Journal of Economics*, August 2010, Vol. 125, No. 3: 877-921 and related research by John Baldwin, Richard E. Caves, and Wulong Gu, "Responses to Trade Liberalization: Changes in Product Diversification in Foreign and Domestic Controlled Plants," in Lorraine Eden and Wendy Dobson, eds., *Governance, Multinationals and Growth*. Cheltenham: Edward Elgar Publishing, 2005, pp. 209-246. As well as John Baldwin and Wulong Gu, "Participation in Export Markets and Productivity Performance in Canadian Manufacturing," *Canadian Journal of Economics*, 36, 2003, pp. 634-657.

The result was that the typical Canadian plant increased its productivity by 5 percent. Adding this to the previous 8 percent gain led to overall productivity gains of 13 percent. The idea that a simple government policy of reducing tariffs could raise manufacturing productivity by 13 percent is truly remarkable.

As further evidence, economists Philippe Aghion and Peter Howitt have made the correlation between innovation and trade, concluding that if we want our companies to succeed and be more innovative, we must embrace further international trade. They concluded that more access to foreign markets supports domestic innovators by increasing the size of markets available to them. It also pressures domestic innovation laggards to innovate more, through higher product market competition from foreign producers who compete with domestic producers. This forces the less innovative and unproductive firms out of the market and pressures those who survive to innovate so they can continue to be successful in the more competitive environment created by openness to trade.⁷

Greater access to foreign markets and free trade increases innovation, which in turn raises productivity. This is an important issue for Canada. Our analyses have shown, time and time again, that lagging productivity is a major contributor to the prosperity gap between Canada and the United States. More trade means a more prosperous Canada.

Recession raises risk of protectionism

According to the World Trade Organization, in 2009 the global economic crisis led to a 12.2 percent fall in global trade – the largest decline since the Second World War.⁸ As we

review the causes and effects of the current global recession, most observers see two key factors that were also observed in the Great Depression – a financial meltdown, and a collapse of trade. The latter was due to protectionism and was a key reason why the Depression was so deep and long. Today, we are certainly not out of the woods yet on the financial collapse, but we must ensure that governments do not heed the lure of protectionism.

A recent series of articles in *The Economist* outlined the risks of governments resorting to protectionism to stimulate domestic demand by way of export subsidies, tariffs, and cheaper currencies.⁹ The articles also described some of the measures that act as trade barriers, and reviewed the protectionist measures that the US government undertook during the Depression of the 1930s. These measures eventually led to retaliation by other countries, resulting in a dramatic decline in world trade – from US\$5.3 billion in 1929 to US\$1.8 billion by 1933. The overall conclusion was that, while trade barriers and protectionist measures may be politically popular as a tool to increase domestic jobs and incomes, the result is that they will only exacerbate the problem and leave us all worse off.

In a recent working paper published by the Bank of Canada, Philipp Maier discussed both the short-term and long-term consequences of protectionism. He concluded that myopic policy makers, who tend to focus on short-term considerations, are more likely to support protectionism, since the restriction of imports stimulates demand for domestic goods and services. However, in the long run, he judged that countries hurt themselves by adopting protectionist policies, as they eventually lead to a fall in the exports of the protectionist country.¹⁰

Some of the current trends are ominous. We see protectionist policies in several countries.

In the United States, during the 2008-2009 recession, the US government adopted “Buy American” policies in the hopes of aiding the local economy and decreasing unemployment. In February 2009, the Senate passed a protectionist provision that requires that “iron, steel and manufactured goods used in projects funded by the \$790 billion economic stimulus bill must be produced in the United States.”¹¹ Despite signs of changing attitudes, the United States continues to postpone finalizing previously approved free trade agreements with both South Korea and Columbia.¹² Both agreements awaited congressional approval as of August 2010.¹³ To protect US jobs, the administration also increased tariffs on tires imported from China from the existing 4 percent to 35 percent in the first year to be lowered to 30 percent in the second year and 25 percent in the third.

As the *Wall Street Journal* has observed, the tire tariff has done nothing to reverse the long term trend of declining employment in the US tire industry. Imports from China are almost entirely at the low end of the market and the United States had long since stopped competing in this segment. The result is higher prices for low-income American consumers – as much as 20 percent, or \$40 for four new tires priced at \$50 each. Wholesalers also report shortages as supply chains look to replace their inventory with tires from other countries.¹⁴

Canadian firms have recently been allowed to bid for US infrastructure investments financed by the record stimulus package under an agreement

⁷ Philippe Aghion and Peter Howitt, *The Economics of Growth*. Cambridge: MIT Press, 2009

⁸ World Trade Organization, “Trade to expand by 9.5% in 2010 after a dismal 2009, WTO reports,” March 26, 2010, available online: http://www.wto.org/english/news_e/pres10_e/pr598_e.htm

⁹ See “Fare well, free trade,” “Barriers to entry,” and “The Battle of Smoot-Hawley,” *The Economist*, December 18, 2008, available online: http://www.economist.com/opinion/displaystory.cfm?story_id=E1_TNRTVGTS

¹⁰ Philipp Maier, “A Wave of Protectionism? An Analysis of Economic and Political Considerations,” Bank of Canada, Working Paper 2008-2.

¹¹ William Matthews, “Buy-American Provisions Survive in Stimulus Bill,” *Defense News*, February 12, 2009, available online: <http://www.defensenews.com/story.php?i=3946283>

¹² Doug Palmer, “US trade freeze could be slowly thawing,” Reuters, 2009 available online: <http://www.reuters.com/article/idUSN20474221>

¹³ Executive office of the President, Office of the United States Trade Representative, available online: <http://www.ustr.gov/trade-agreements/free-trade-agreements>

¹⁴ “China wants talks with US on tire tariff dispute,” *Global Times*, September 15, 2009, available online: <http://business.globaltimes.cn/china-economy/2009-09/467800.html> and “Tire-d Old Trade Policies,” *Wall Street Journal*, August 31, 2010, p. A16.

formulated by the Obama administration and the Harper government.¹⁵ However, protectionism affects other sectors of our economy and not just those industries involved in manufacturing and construction.

China has reacted. Recently it levied tariffs on US nylon, though it did not indicate that this was in direct retaliation.¹⁶ In a further escalation of the trade row between China and the United States, China has also levied tariffs of nearly 100 percent on US poultry products.¹⁷

In Canada, the signals are mixed. On a positive note, the Federation of Canadian Municipalities decided to suspend its October 4, 2009, deadline on a fair trade resolution to support member municipalities that choose to stop purchasing goods and services from the United States. But, on the negative side, the Ontario government recently introduced its Green Energy Act, which provides that at least 25 percent of wind projects and

50 percent of large solar projects must contain Ontario goods and labour. These shares will increase for solar on January 1, 2011, and for wind on January 1, 2012. A 25 percent content rule already applies for public transit vehicles. As worthy as the objectives of this act may be, protectionist measures such as these will be counterproductive and will make it difficult to discuss the importance of keeping international trade growing with our US and European trade partners.¹⁸

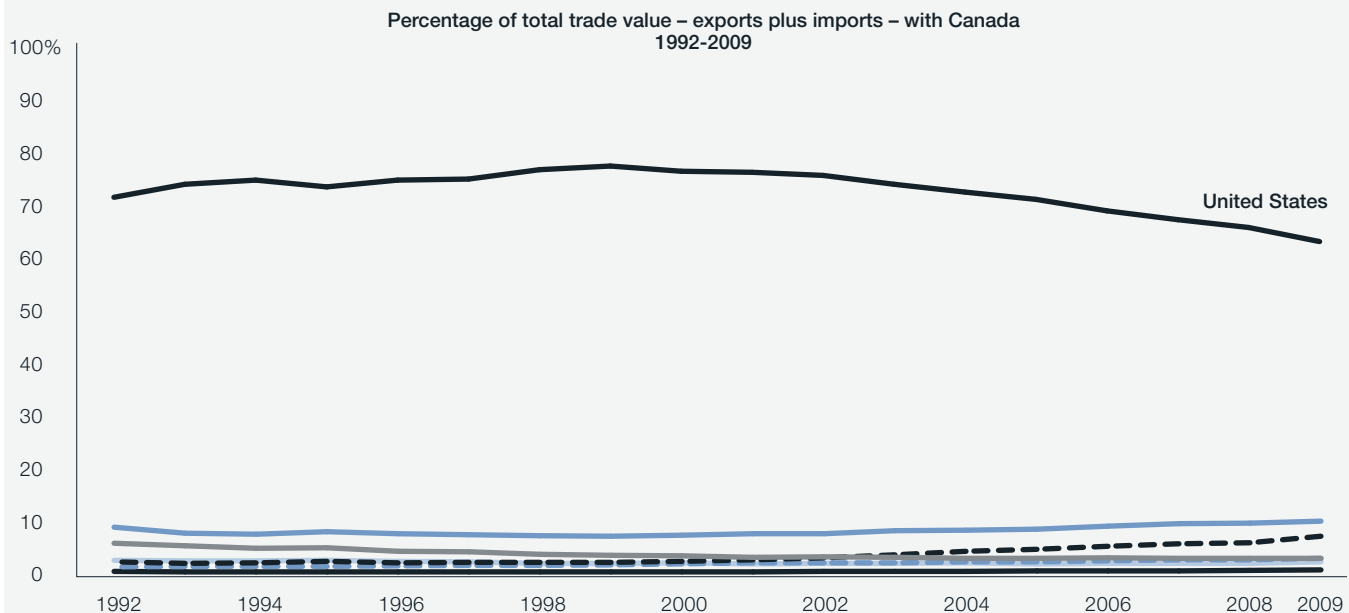
The Canada-US border seems to be thickening

Even before the current protectionist initiatives emerged in the United States, trade between Canada and the United States had been under pressure. One reason is that our infrastructure has not kept pace with increased traffic and tightening security demands. Former Deputy Prime Minister John Manley recently observed that, because of technology and the growth of services, “national borders are becoming less and

less trade inhibiting, with one exception – the one between Canada and the United States. Tightened security since 9/11 slowed the flow of goods, the movement of people, and even the exchange of ideas between our two countries.”¹⁹

A policy update paper by Colin Robertson for the Canadian Defence and Foreign Affairs Institute explored recent rhetoric emerging from the Department of Homeland Security that promotes the adoption of a “Real Border” between Canada and the United States.²⁰ Robertson quotes Department of Homeland Security’s Janet Napolitano saying: “On both borders, North and South, there needs to be some parity...we shouldn’t go light on one and heavy on the other. The fact of the matter is that Canada allows people into their country that we do not allow into ours.” The intent is to increase the difficulty of border crossing because of heightened security concerns – and also to raise pressure on firms to relocate south of the border to sustain margins and sales levels.

Exhibit 2 The United States is still our dominant trade partner...



Source: Institute for Competitiveness & Prosperity analysis based on data from Industry Canada.

¹⁵ Jane Taber, “Ottawa hails Buy American deal,” *The Globe and Mail*, February 5, 2010, available online: <http://www.theglobeandmail.com/news/politics/ottawa-notebook/ottawa-hails-buy-american-deal/article1457313/>

¹⁶ Victoria Ruan, “China set to impose new tariffs on nylon,” *The Wall Street Journal*, October 20, 2009, p. A15.

¹⁷ J.R. Wu, “China to Tax U.S. Chicken,” *The Wall Street Journal*, February 5, 2010, available online: <http://online.wsj.com/article/SB10001424052748704533204575046933865929748.html>

¹⁸ Government of Ontario, “Ontario Makes It Easier, Faster To Grow Green Energy,” September 24, 2009, available online: <http://news.ontario.ca/mei/en/2009/09/ontario-makes-it-easier-faster-to-grow-green-energy.html>

¹⁹ John Manley at Rx&D National Innovation Roundtable, October 15, 2009.

²⁰ Colin Robertson, “After Obama’s First Hundred Days: The Pursuit of the Ottawa Agenda and the Need for a Permanent Campaign,” Canadian Defence and Foreign Affairs Institute, *Policy Paper Update*, May 2009.

There are varying perspectives when it comes to assessing the economic impact of the “thickening border.” Steven Globerman and Paul Storer found that there has been and continues to be a significant negative impact on Canadian exports to the United States post 9/11.²¹ They concluded that Canadian exports to the United States in 2005 were around 12 percent lower than expected. It does appear that the traffic tie-ups at our borders with the United States are lengthening lead times for goods shipments. The logistical impact is to add costs through delays and out-of-stocks in processing facilities.

Economists John Taylor, Douglas Robideaux, and George Jackson estimated the impact of increased costs and delays in crossing the Canada-US border to be the equivalent of a 2.7 percent tariff on all merchandise trade and about 4 percent for truck trade.²² The Conference Board of Canada also identified the negative

impact of tightening security on the Canada-US border in the post 9/11 period on trade levels.²³

In a recent paper, George Stalk and Kevin Waddell discussed the looming threat of capacity limitations at North American ports on the west coast as freight from China and Asia increases and the higher costs associated with congestion delays. They also reviewed how opportunities for west coast port expansion may be thwarted by the double-customs clearing for US companies importing through Canadian ports and how that may lead to lost opportunities for Canada.²⁴

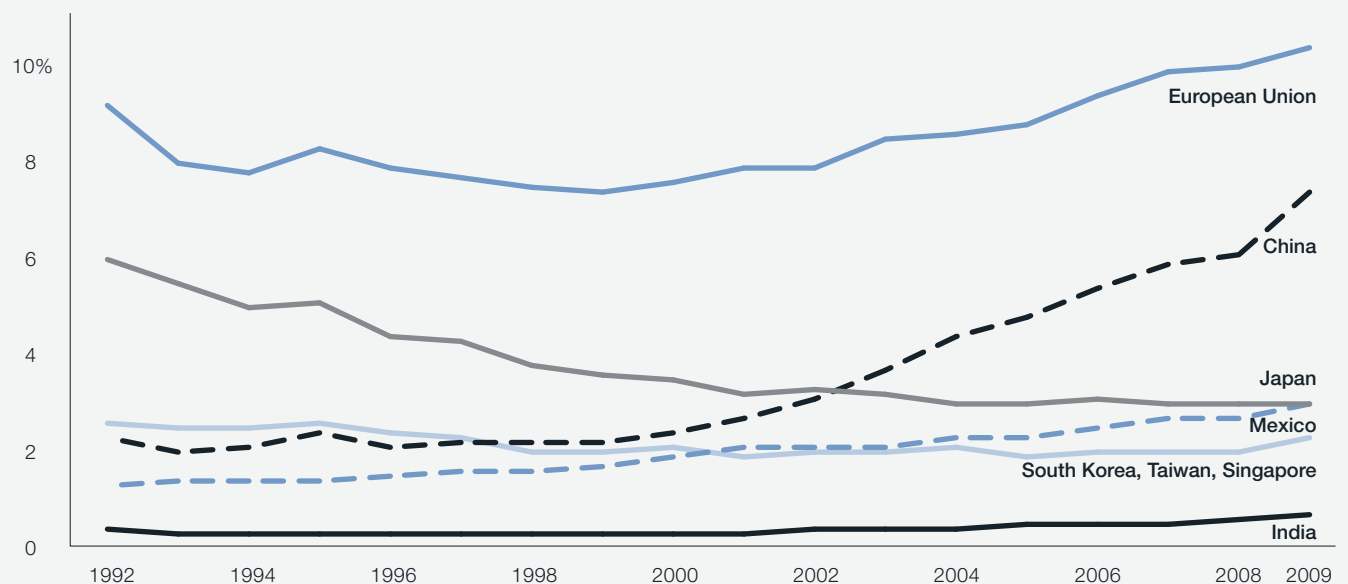
But not all agree that the border has thickened. Michael Burt concluded that tightened security has had little impact on Canada’s exports to the United States. Burt also argued that “aside from a few isolated examples, any higher costs associated with increased security appear to be being borne by businesses with no significant effect on trade volumes.”²⁵ Burt ultimately

attributed the decline in exports to industry specific factors. For example, a decline in the television and telecommunications equipment was the result of Canada losing market share to low-cost producing countries following the meltdown in the high-tech sector that occurred around the same time as the terrorist attacks, in September 2001.

Canada’s global trade patterns are changing

While Canada-US trade remains robust, Canada has sought to build trade relations with other countries. Canada joined the World Trade Organization (WTO) in 1995 and has developed trade relationships with advanced as well as developing nations (*Exhibit 2*). This is important for our economy, since Canada is the ninth largest exporter and tenth largest importer in the world, with trade being linked to one in five jobs and being responsible for 67.6 percent of Canada’s GDP.²⁶

...but the importance of China and the European Union has risen



²¹ Steven Globerman and Paul Storer, “Border Security and Canadian Exports to the United States: Evidence and Policy Implications,” *Canadian Public Policy*, Vol. XXXV, No. 2, 2009.

²² John C. Taylor, Douglas R. Robideaux, and George C. Jackson, “U.S.-Canada Transportation and Logistics: Border Impacts and Costs, Causes, and Possible Solutions,” *Transportation Journal*, Volume 43, No. 4, 2004, pp. 5-21.

²³ Andrew Shea, “Border Choices: Balancing the Need for Security and Trade,” The Conference Board of Canada, October 2001.

²⁴ George Stalk and Kevin Waddell, “The China Rip Tide: Threat or Opportunity?” The Boston Consulting Group, 2006.

²⁵ Michael Burt, “Tighter Border Security and Its Effect on Canadian Exports,” *Canadian Public Policy*, Vol. XXXV, No. 2, 2009.

²⁶ Canada and the WTO, Foreign Affairs and International Trade Canada, available online: http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/wto-omc/c_wto.aspx?lang=eng

The close relationship between the United States and Canada is evidenced in the staggering volume of bilateral trade – more than \$1 billion worth of goods are traded each day. But the US share of Canada's total trade volume has declined from more than 70 percent in 2005 or earlier to 63 percent in 2009, though it is still Canada's largest trading partner by far.

The value of trade between Canada and the United States has also changed. In 2009, it was \$456.6 billion, a decline from \$588.9 billion in 2000.²⁷ At the same time, the value of trade between Canada and the EU has increased, as has that between Canada and China. More specifically, we observe a rise in imports from China and a decline in US imports into Canada. The same pattern applies in Ontario.

Traditionally, Canada has run trade surpluses, the net effect of surpluses with the United States exceeding deficits with most other countries. However, in 2009, Canada's surplus with the United States dropped to \$83 billion, well

below the \$148.2 billion surplus in 2008. Consequently, Canada had a trade deficit for the first time in almost two decades.²⁸ (See *Do trade deficits matter?*)

China is now Canada's third largest individual merchandise trading partner, with merchandise – goods and commodities – exports to China nearly tripling between 2000 and 2008.²⁹ The overwhelming majority of Chinese goods imported by Canada was in the manufacturing sector.

China is often discussed as one of the four major emerging economies – Brazil, Russia, India, and China, the so-called BRICs. (See *The Emerging BRICs*.) Canada's exports of goods to China and the other BRIC nations have grown tremendously. However, despite more than tripling during this decade, our exports to them represented only 3 percent of Canada's total exports of goods in 2006, with China being the largest importer of Canadian goods within the group. On the services front, Canada's exports to the BRICs more than doubled between 1998 and 2006.

However, they represented only 6 percent of Canada's total exports of services, with China once again accounting for the largest share.³⁰

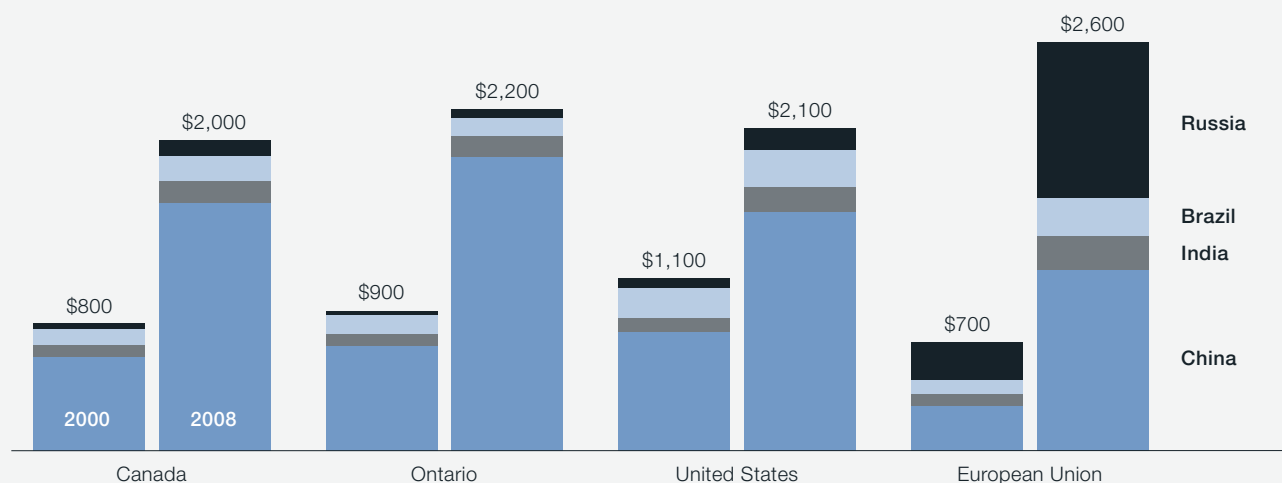
Canada's increased trade with the BRICs compares favourably with that of the United States and the EU (*Exhibit 3*). On a per capita basis, we trade at about the same rate with the BRICs. To be sure, the EU does trade more with the BRICs, but because of its trade with Russia.

These results indicate that Canada and Ontario are participating in the growing trade flows occurring with emerging nations. These nations will more and more be the source of innovation in the world as they reach a tipping point – and it is important that we are competing and collaborating with them effectively.

But we should be wary. In the past, Canadians have prided ourselves on our success as exporters. And we have noted that our trade as a percentage of GDP is among the highest of that

Exhibit 3 Canada's trade with the BRICs is in line with that in the EU and the US

Total trade value per capita with the BRICs, 2000 & 2008
(Constant 2008 C\$)



Note: China data do not include Hong Kong.

Source: Institute for Competitiveness & Prosperity analysis using data from the European Commission, Eurostat, and Trade Data Online (TDO), Industry Canada.

²⁷ Trade Data Online (TDO), Industry Canada, available online: <http://www.ic.gc.ca/eic/site/tdo-dcd.nsf/eng/Home>

²⁸ *Ibid.*

²⁹ Foreign Affairs and International Trade Canada, International Trade: Fast Facts on Canada-China Commercial Relations, available online: <http://www.international.gc.ca/commerce/facts-infos/china-2008-chine.aspx>

³⁰ Trade Data Online (TDO), Industry Canada, available online: <http://www.ic.gc.ca/eic/site/tdo-dcd.nsf/eng/Home> China data from Industry Canada include Hong Kong and Macau

Do trade deficits matter?

As generations of first-year economics students have learned, international trade benefits nations when they specialize in producing those goods and services in which they have a comparative advantage and letting other nations specialize where they have an advantage. Each nation will then export things where it has an advantage and import those where it doesn't.

But some argue that importing goods or services costs jobs here in Canada. It is true that, when a foreign company displaces a Canadian company in manufacturing a product, there can be a direct job loss. But Canadian consumers now can purchase this good at a lower cost, thanks to the foreign supplier, and the extra money they have is available to buy more goods or services. Other jobs are created – and the consumer is better off. Self reliance or sustainability may be an old-fashioned virtue, but it's not the way for people or economies to prosper. By specializing and trading, economic outcomes improve.

It's also hard to make the case that trade surpluses create jobs or that trade deficits kill jobs. Canada, for example, is a major exporter of traditional forestry, fisheries, and agricultural products. In the last decade, our trade surplus more than doubled from about \$5 billion to \$12 billion. Over the same period, employment in those industries fell by nearly a quarter. As another example, the United States has had trade deficits in every year since 1976, and yet employment and GDP continued to grow.

A trade surplus, however, can leave a country vulnerable to swings in global demand. Stephen Roach argues that the export driven growth in Asia “leaves the region in a very uncomfortable place.” For example, as China increases its dependency on exports for economic growth and maintains a surplus, it increases its economy's susceptibility to volatility in international markets. This will prove to be increasingly challenging as the primary markets for China's exports – the United States and Europe – suffer from the aftermath of the economic

crisis.^a The same happens in Canada, as 63 percent of Canadian trade in 2009 was with the United States; without a hedge, any swings in demand for goods and services there will always severely hurt Canada's economy.^b

Then, what happens when a country has a trade deficit? People elsewhere accumulate the currency of the deficit country – the currency they received when they sold the goods or services. This currency can be invested in the country of origin. Hence trade deficits are matched exactly by capital surpluses – the currency that leaves the country when foreign goods are purchased returns as investments. If there is little demand for investing in the country with the trade deficit, then the value of the currency will decline. With fewer people wanting to hold or invest in the currency, its exchange rate drops. When a currency becomes devalued the country's exports are cheaper – which reduces the trade deficit, as trade increases. And equilibrium is achieved.

The relationship between our trade balance and prosperity is weak (*Exhibit A*). The worst performing year for both trade and GDP was 2009 when we experienced our first deficit in many years and GDP fell 2.6 percent from 2008 – the worst decline in decades. Few would argue that Canada's poor economic performance in 2009 was caused by our trade deficit. In fact, if this outlier is removed from the analysis in Exhibit A, the weak statistical relationship vanishes.

So what can we say about Canada's deficits with specific countries? Bilateral deficits are meaningless. A nation can have a trade deficit with another country, and yet be in surplus with the world. Canada has recurring trade deficits with many countries representing the full range of economic success – Bulgaria, Jamaica, Japan, Mexico, Nicaragua, Portugal, and Singapore to name a few. Yet our economic performance matches or exceeds that of most of those countries. Nobel laureate Robert Solow observed that he has a chronic deficit with his barber, buying haircuts from him but never once selling him an economics lesson.

^a Stephen S. Roach, “The consumption gap,” *Foreign Policy*, July 21, 2010, available online: http://www.foreignpolicy.com/articles/2010/07/21/the_consumption_gap

^b Trade Data Online (TDO), Industry Canada, available online: http://www.ic.gc.ca/sc_mrkti/tdst/tdo/tdo.php#tag

The trade deficits that attract most attention are those of the United States with China – the main source of so-called “global imbalances.” These deficits are of unprecedented size, and some fear that they have the potential for global destabilization.

Bruce Little and Robert Lafrance of the Bank of Canada examined the situation and point to three schools of thought. Optimists conclude that the US trade deficits are the mirror image of capital surpluses. Investors in China and elsewhere see opportunities in the US economy and want to participate. If this situation changes, market forces will automatically correct the imbalances. Pessimists are concerned that US trade deficits reflect an unwillingness of US governments and consumers to live within their means and China’s unwillingness to lower prices of imports for its consumers’ benefit and to invest in its own infrastructure. While this continues, there is a serious risk that China will no longer want to hold US currency, and a major upheaval could occur. Those in the middle ground remain hopeful that market forces will gradually unwind the global imbalances. They believe that gentle pressure on the United States will force

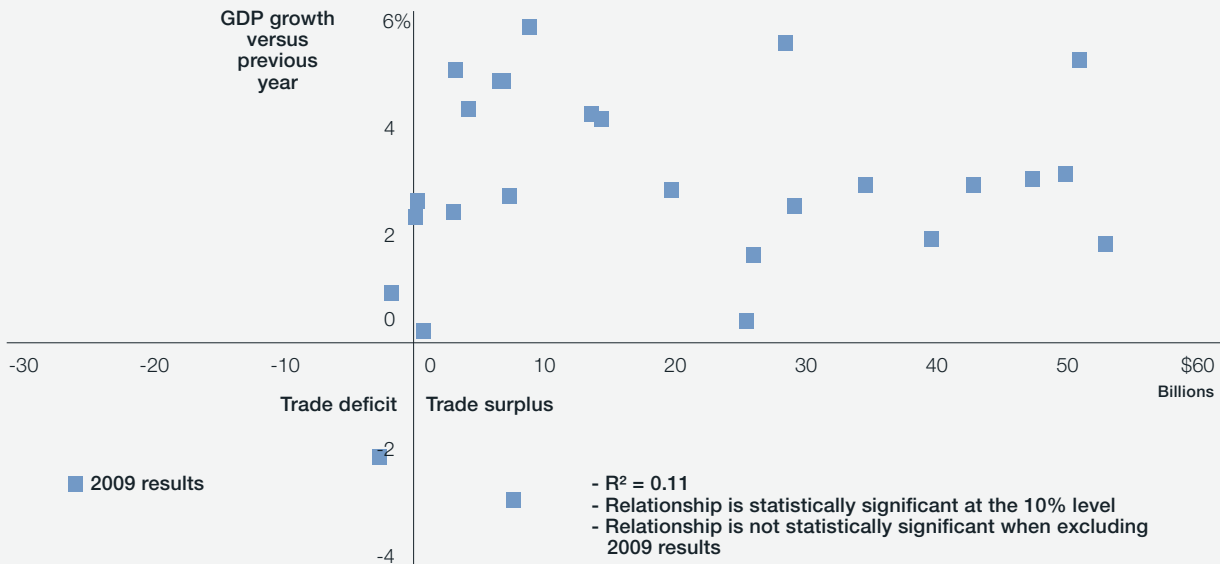
savings up and on China will reduce its growing trade surpluses through currency appreciation.

The global imbalance associated with the US trade deficit may have the potential for a serious negative impact on the global economy – but here in Canada there is little we can do about it. For us, an annual trade deficit with the world doesn’t really matter; nor does a trade deficit with a particular country. What does matter is trade volume. As trade increases, firms become more competitive, they invest in innovation, and increase hiring and wages. Then, productivity increases, and consumers have more choices and enjoy lower prices. Ultimately, an increase in trade volume leads to an increase in total economic output and thus improves overall well being.

Clearly, trade is not a zero-sum game – rather, “it allows all countries to achieve greater prosperity.”^c

Exhibit A Canada’s trade balance and GDP growth show little relationship

**Trade balance and GDP growth (goods and services), 1981-2009
(Constant 2009 C\$)**



Sources: Institute for Competitiveness & Prosperity analysis using data from Statistics Canada, CANSIM table 3800027.

^c N Gregory Mankiw, *Principles of Economics*. Thomson Learning, 2007

in all countries. Yet we should not be too complacent about our prowess as a trading nation. As Canadian Auto Workers economist Jim Stanford has observed, the combination of the global increase in demand for our commodities and the weakness of our manufacturing sector has meant that an increasing share of our export value is in unprocessed resource products. Much of this is related to our currency appreciation and the slowdown in our manufacturing sector. Now we need to ensure that our trade is driven as much as possible by high value added capabilities (*Exhibit 4*).

Emerging economies' trade is approaching a tipping point

In his work on global trade, Harvard's Michael Porter classifies the stages of competitive development of an economy in his book *The Competitive Advantage of Nations*.³¹ Porter identifies three stages of development through a nation's trade evolution.

In the first, factor-driven stage, the competitive advantage of the nation and primary source of export dollars

are low-cost labour and unprocessed natural resources. Firms operating within that setting compete globally on a basic platform of commodity production or assembly of simple products designed elsewhere. Value added is minimal.

In the second, the investment-driven stage, firms begin producing more sophisticated goods and services. They increase their investment in infrastructure, improve business regulation, offer investment incentives, and facilitate access to capital flow in order to encourage capital investment for increased productivity. During this stage the nation's firms increase their value added in the supply chain and improve their global competitiveness, but they still lack the ability to produce differentiated and innovative products that can compete globally.

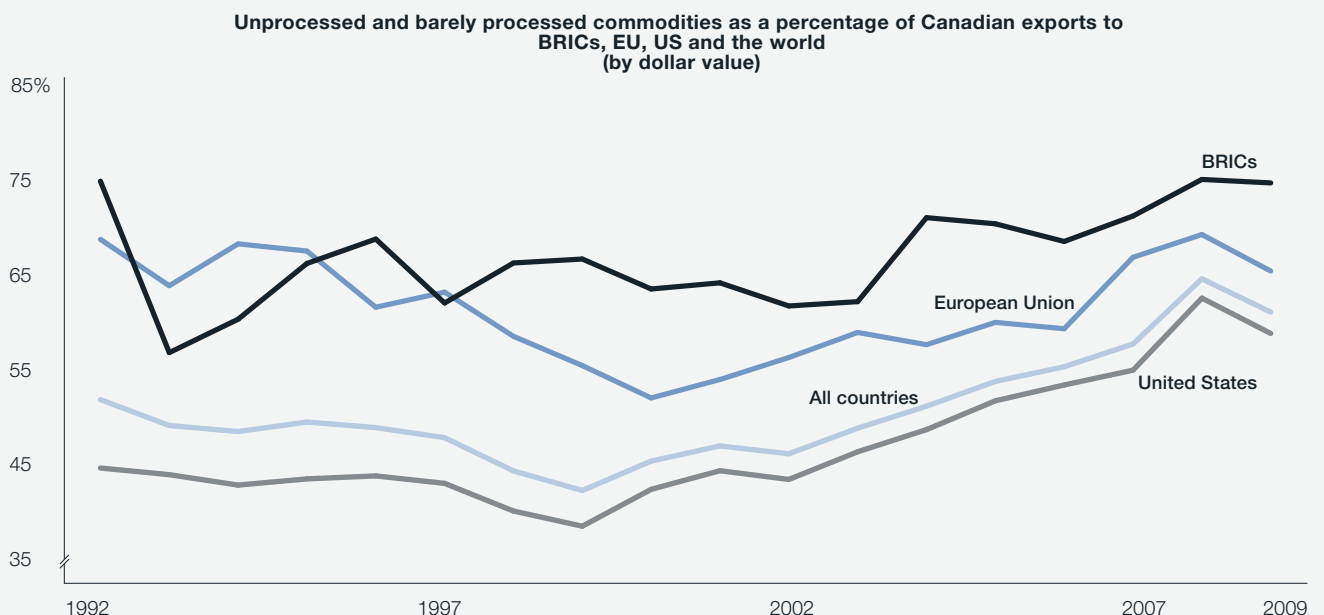
The third stage of development is the innovation-driven stage. In this final stage, firms within the economy begin to compete on a global level by producing innovative products and services. These unique products become the foundation for a sustainable competitive advantage.

University of Toronto's Daniel Treffer has a similar framework. He identifies two different types of economies: low-cost based economies, and innovation-based economies (*Exhibit 5*).³² Low-cost based economies are those that depend on the low cost of labour and natural resources to compete globally. Innovation-based economies are driven by skilled labour to create unique and high value added goods and services, thus creating a competitive advantage.

The tipping point is the term that describes the moment when an economy evolves from low-cost competition to innovation-based competition. For that to occur, Treffer outlines two conditions that must be satisfied.

The first is the development of sophisticated institutions. They are needed to secure, facilitate, and encourage investment and innovation. Property rights institutions are needed to protect investors from arbitrary expropriation by government officials. A sophisticated financial network is needed to facilitate the flow of capital from those who have it to those who need it. A transparent

Exhibit 4 Commodities have become more important to Canada's export value in recent years



Source: Institute for Competitiveness & Prosperity analysis based on data from Industry Canada, Trade Data Online.

³¹ Michael Porter, *The Competitive Advantage of Nations*. New York: The Free Press, 1990.

³² Daniel Treffer, "Canadian Policy Responses to Offshore Outsourcing," Summary of the conference on Offshore Outsourcing: Capitalizing on Lessons Learned, Rotman School of Management, University of Toronto, October 26-27, 2006.

and accessible legal system is needed to govern relations between firms and, in particular, to protect the intellectual property (IP) that results from investments in innovation. It is also imperative that creativity is supported by a national innovation system that includes patent offices, patent courts, and world class universities. These institutions support innovation.

The second condition is the presence of sophisticated consumers together with intense competition. They are a necessity for continued pressure for greater innovation. The more sophisticated consumers are, the more they will expect in terms of goods and services. And the more competitive the business environment, the more firms will be forced to cater to sophisticated demand. This is a key driver of the location of R&D, design, and other creative elements in an economy. Most of the world's richest economies have succeeded by competing on the basis of creativity and sophistication; they have long ago ceased relying on low wages or natural resources as their source of competitive advantage. Once the institutional support and the intense and sophisticated demand pressure are in place, an economy can make the transition from a low-cost based global competitor to an innovation-based global competitor.

These ideas provide a rich framework for thinking about how the rise of emerging economies like China and India will affect Canada.

Currently, the most sophisticated consumers are concentrated in the OECD countries. We expect this dynamic to continue to change over time, as the standard of living of consumers in China and India improves, and they begin to apply pressure on organizations to accommodate their growing needs.³³ Already Chinese and Indian customers are demanding innovative goods, such as China's Chery and India's Tata cars.³⁴

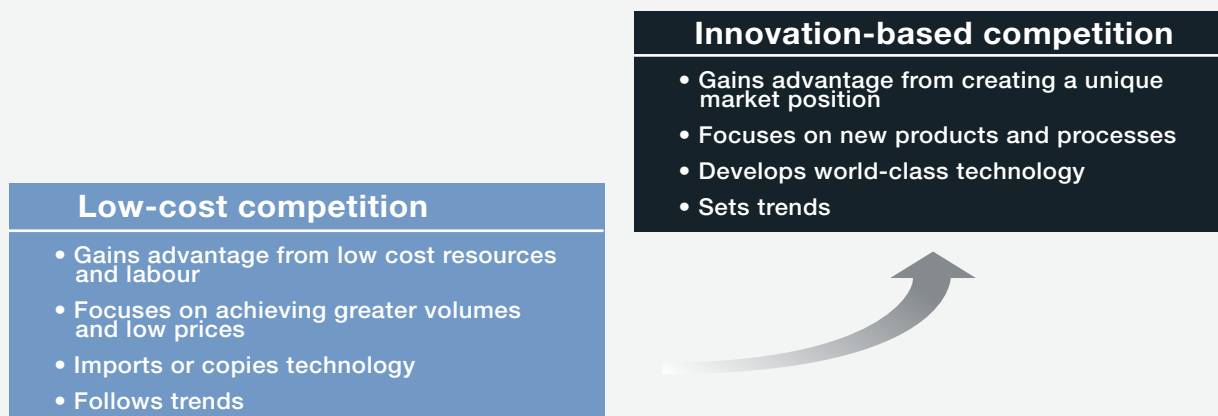
But to date, China and India have not moved from competing on the basis of low wages to innovation and sophistication.³⁵ When there are enough sophisticated consumers in China and India to support domestic firms, coupled with investment in innovation sustaining institutions, these countries will have reached the tipping point. Once they move past the tipping point, world leadership in innovation will begin to shift away from the developed economies of the OECD to China and India. As Trefler notes, when this happens, China and India will have unplugged themselves from their past

and become significant competitors to every profitable corporation in the industrialized world.

Canadians cannot control or stall the spectacular growth of innovative capability in China and India. But we can stimulate the growth of our own innovative capacity. As we have noted in many of our reports, Canadian innovation presents a mixed picture. While we are home to many world-leading companies, Canadian business-sector indicators of innovation, such as R&D and patenting, are among the lowest in the OECD and far lower than those in the United States.

Under performance is the imperative for the main theme that emerges from our research. If we do not want China and India to crowd us out of the OECD innovation leaders group, then we will have to stop worrying about what we cannot control and start taking major steps towards drastically improving our own innovative capacity. We can choose reactive complacency, or we can choose to push forward with a set of active and positive innovation policies. The choice is ours to make, but we must make it now – China and India will not wait.

Exhibit 5 Countries' trade evolves from cost- to innovation-based competition



Source: Institute for Competitiveness & Prosperity, based on Daniel Trefler, "Of Dragons and Elephants: Responding to the Rise of China and India," presentation to the University of Alberta, October 15, 2009.

³³ Daniel Trefler, "Canadian Policy Responses to Offshore Outsourcing."

³⁴ Jeff Rubin, *Why your world is about to get a whole lot smaller*. Random House Canada, 2009.

³⁵ Daniel Trefler, "Canadian Policy Responses to Offshore Outsourcing."

The Emerging BRICs

Brazil, Russia, India, and China are fast emerging players in the global economy. Over fifteen years, Canadian exports to the BRICs rose 372 percent, and imports increased by 747 percent.^a Collectively, the BRICs accounted for almost 3 percent of all Canadian trade in 1993, and this nearly tripled to approximately 8 percent by 2008.

In 2008, Canada's trade with China represented fully 80 percent of the trade between Canada and the BRICs. Over the past fifteen years, China has accounted for almost 82 percent of the growth in Canada-BRIC trade.

Overall, Canada generated a trade surplus with the world, but a trade deficit with the BRICs, which has been increasing since the mid-1990s. Total Canadian exports to the BRICs in 2008 were approximately \$19 billion and imports were \$50 billion, resulting in a trade deficit of \$31 billion compared to only \$2 billion in 1993. Not surprisingly, in 2008, China generated over 98 percent of the overall Canadian trade deficit with the BRIC nations.

Brazil, Russia, and India are emerging as important trade partners

Although China is currently Canada's only significant trade partner among the BRICs, Brazil, Russia, and India are likely to become more important economically.

Brazil is an emerging strength in the Americas

In 2008, the value of trade between Canada and Brazil was almost balanced, with imports from Brazil being slightly higher. From 1993 to 2009, our exports to Brazil increased in the manufacturing and mining and oil and gas extraction industries. During the same period, the share of imports from Brazil only increased significantly in the manufacturing sector. Our key exports to Brazil are

commodity based, while key imports are commodities and manufactured goods (*Exhibit B*).^b

The Government of Canada has acknowledged Brazil as a Global Commerce Strategy Priority Market and identified certain export sectors for Canada to focus on for the future. For instance, the Market Plan recognized the oil and gas equipment and services sector as offering clear opportunities well suited to Canadian capabilities and interests.^c

Much of Brazil's current success is the result of recent government initiatives to create a stable macroeconomic environment in which businesses can flourish.^d Successful Brazilian companies like Petrobras (oil), Vale (mining), and Embraer (aircrafts) have grown and prospered. Foreign direct investment has also poured into Brazil, attracted by an economy that is moving people out of poverty and into a growing lower middle class.^e One of Brazil's major assets, which it has used to its advantage, is its vast stores of natural resources in agriculture and mining; it is poised to capitalize on recently discovered offshore oil reserves.

Russia is becoming an energy superpower

Russia's emerging economy depends upon the oil and gas commodity sector. Oil and gas exports accounted for about 60 percent of federal budget revenue as well as 60 percent of all exports.^f Since Russia is one of the world's leading producers of oil and gas, Canadian oil services companies have experienced substantial growth in Russia, and there is considerable potential for further growth in the development of offshore deposits off Russia's Arctic Shelf and in the Sakhalin region.^g

The Canadian Government has also identified Russia as a Global Commerce Strategy Priority Market. Out of the

^a Trade Data Online (TDO), Industry Canada, available online: http://www.ic.gc.ca/sc_mrkti/tdst/tdo/tdo.php#tag

^b Foreign Affairs and International Trade Canada, International Trade: fast facts on Canada-Brazil commercial relations, available online: <http://www.international.gc.ca/commerce/facts-infos/brazil-2008-bresil.aspx>

^c Foreign Affairs and International Trade Canada, "Seizing global advantage, Brazil, a global commerce strategy priority market," available online: <http://www.international.gc.ca/commerce/strategy-strategie/r5.aspx>

^d "Getting it together at last," A special report on business and finance in Brazil, *The Economist*, November 2009, available online: <http://www.economist.com/node/14829485>

^e "Brazil takes off," *The Economist*, November 2009, available online: <http://www.economist.com/node/14845197>

^f "Russia's economic rise may be too well oiled – Business – International Herald Tribune," *The New York Times*, July 11, 2006, available online: <http://www.nytimes.com/2006/07/11/business/worldbusiness/11iht-ruble.2171938.html>

^g Foreign Affairs and International Trade Canada, "Seizing global advantage, Russia, a global commerce strategy priority market," available online: <http://www.international.gc.ca/commerce/strategy-strategie/r13.aspx>

BRICs, Russia trades the least with Canada. In 2008, Canadian exports were more manufacturing-oriented than those for the other BRICs. Our imports were more oriented to mining and oil and gas extraction from this energy superpower.

With its strength in metals, minerals, and related equipment and services, Russia is an export opportunity for Canadian equipment and services providers. They have established an excellent reputation for providing reliable, cutting-edge technologies and equipment. With a number of major Russian mining companies looking to expand and diversify, opportunities are arising in mining services for Canada – for example, surveying and extraction plans for mineral deposits.^h

India is awakening as a modern trading nation

Canada had a trade surplus with India in 2008. Our exports are driven primarily by commodities, and their share has increased over the past decade.

Indian imports into Canada were dominated by the manufacturing sector.ⁱ

Canadian firms are making the effort to build partnerships with India. For example, Canpotex – a marketing firm representing three of Saskatchewan’s major potash producers and owned by Potash Corporation of Saskatchewan, Agrium, and a Canadian subsidiary of Mosaic Co. – recently completed a deal with a group of Indian purchasers to sell approximately US\$222 million worth of its output for fertilizer production.^j

There are key markets in India in which Canada could compete. Canada already exports mining output, and we are in an excellent position to export engineering services, recovery technology and practices, and transportation infrastructure, based on years of knowledge and experience in oil and gas. Opportunities exist in natural gas exploration and development, offshore oil production, and pipeline technology.^k

Exhibit B China accounts for most of Canada’s trade with the BRICs

Total trade with Canada (billions)	Brazil \$5.3	Russia \$3.6	India \$4.6	China \$55.4
Top Canadian exporting industries to BRICs	Non-metallic and coal mining Paper mills Oil and gas Wheat	Animal meat Agriculture implements Mining, oil and gas field machinery Seafood products and packaging Aerospace	Non-metallic mining Dried peas and beans Pulp and paper Aerospace	Pulp Non-ferrous metal (ex-aluminum) Basic manufactured chemicals Oilseed (ex-soybean) Oil and gas
Top BRIC exporting industries to Canada	Aluminum Sugar manufacturing Automobile manufacturing Iron and steel Aerospace	Oil and gas Petroleum Fertilizer Non-ferrous metal (ex-aluminum) Iron and steel	Basic manufactured chemicals Jewelry and silverware Clothing Curtains and linens	Computer and peripheral equipment Dolls, toys and games Audio and video equipment manufacturing Women's and girls' clothing Furniture

Source: Institute for Competitiveness & Prosperity analysis based on data from Industry Canada, Trade Data Online.

^h Foreign Affairs and International Trade Canada, International Trade: fast facts on Canada-Russia commercial relations, available online: <http://www.international.gc.ca/commerce/facts-infos/russia-2008-russie.aspx>

ⁱ Foreign Affairs and International Trade Canada, International Trade: fast facts Canada-India commercial relations, available online: <http://www.international.gc.ca/commerce/facts-infos/india-2008-inde.aspx>

^j “Potash group sells to India, \$370 a tonne,” Report on Business, *The Globe and Mail*, February 19, 2010, available online: <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/potash-group-sells-to-india-370-a-tonne/article1474047/?cmpid=tgc>

^k Foreign Affairs and International Trade Canada, “Seizing global advantage, India, a global commerce strategy priority market,” available online: <http://www.international.gc.ca/commerce/strategy-strategie/r9.aspx>

^l Richard Vincent and Larry McKeown, “Trends in telephone call centre industry”, 2008, Statistics Canada, p.8

Apart from goods industries, India is very popular for its service sector, especially for being the offshore hub of call centres. Canada has lost ground in this industry to low-wage competitors, such as India. However, for developing nations to become productive in this market, it is imperative for call centres to offer higher value added in terms of skills, both technical and linguistic, and technology.^l

India has an educated and talented workforce. Leading universities such as the Indian School of Business (ISB), associated with the Wharton School and the Kellogg Graduate School of Management, and the Indian Institutes of Technology (IIT) have added to India's sophisticated labour pool. The country has also progressed because of its strong market-driven economy with private corporations, democratic government, Western accounting standards, an active stock market, widespread English use, and rigorous training in computer science and math in its schools.^m

The BRICs are projected to become economic superpowers

Several studies have examined the changing structure of the BRICs to investigate their rise as economic superpowers.

In a March 2008 study, PricewaterhouseCoopers (PwC) examined the economic growth projections of several emerging economies over time, including the BRICs. Over recent years, India and China have exhibited solid economic growth and are on a track to reach parity in GDP output with developed nations. PwC employed a GDP growth model for the BRICs that took into account four key drivers of growth: physical capital stock, labour force, quality of labour (human capital), and technological progress.ⁿ With updated data, PwC used these inputs to create a long-run GDP growth and output model.

The model had important conclusions. China is expected to experience the highest growth rates among the BRICs over the next few years and could overtake the US economy as the world's largest by 2025. PwC forecasts faster growth for India over the 2020-2050 period, and that its economic output will surpass Japan's before 2030 and possibly the United States by 2050. Brazil could overtake Japan by 2050, and Russia might not be far behind.

Goldman Sachs published a global economics paper entitled "Dreaming with BRICs: The Path to 2050" that also mapped out GDP growth to 2050. Using an estimation model of demographic projections, capital accumulation, and productivity growth, they forecasted that by 2050 all four BRICs will be in the top six countries ranked by economic output – the other two will be the United States and Japan. Rounding out the top ten will be the United Kingdom, France, Germany, and Italy.^o

Goldman Sachs summarized the work of Robert Barro and other leading development economist to identify some of the most important requirements for the plausibility of its economic forecasts: sound macroeconomic policies and a stable macroeconomic background, strong and stable political institutions, openness to trade and foreign direct investment, and high levels of education. The BRICs are making progress on these requirements, with some exceptions

Renowned professor of history and international affairs at Princeton University, Harold James, has highlighted three major challenges for the BRICs to overcome. First, to be globally competitive, the underprivileged and illiterate citizens of mostly rural China and India will need to be integrated into mainstream society. Second, little transparency exists in the financial systems in China and Russia, while those in Brazil and India are still underdeveloped – this may increase the risk for a financial crisis. Third, Russia faces a demographic decline and an aging population, and China will experience a demographic downturn from 2040 onwards as a result of its one-child policy.^p

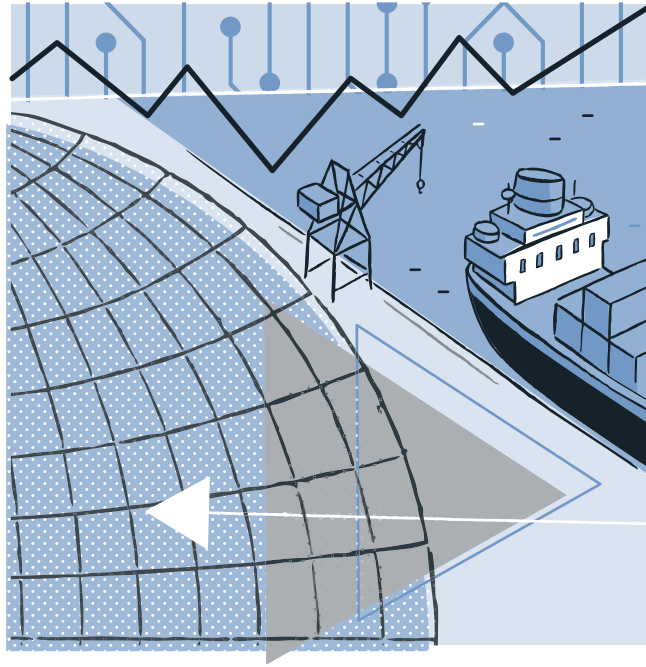
Long-term forecasts are never exactly correct and whether China surpasses the United States in 2020 or 2030 is not important. What matters most is that we recognize the dynamism of these four economies, and that we strive to benefit from much deeper trading relationships than we have now.

^m Manjeet Kripalani, Pete Engardio and Steve Hamm, "The Rise of India," *Business Week*, December 8, 2003, available online: http://www.hciottawa.ca/whyindia_bpo-Rise.htm

ⁿ John Hawksworth and Gordon Cookson, "The world in 2050 beyond the BRICs: a broader look at emerging market growth prospects," 2008, PricewaterhouseCoopers, pp. 7-12.

^o Dominic Wilson and Roopa Purushothaman, "Dreaming with BRICs: The Path to 2050," 2003, Goldman Sachs, p. 14.

^p Harold James, "The Rise of the BRICs And the new logic in international politics", *The Magazine of International Economic Policy*, 2008, available online: http://www.international-economy.com/TIE_Su08_James.pdf



China, the low-cost manufacturing competitor

China has emerged as a major trading nation

CHINA IS CURRENTLY ONE of the world's leading trading nations. In 2008, it accounted for 8.9 percent of global exports and 6.9 percent of imports, positioning it as the world's second largest exporter and third largest importer.³⁶ It overtook Germany in 2009 to become the world's largest exporter and has now surpassed Japan as the world's second largest economy.³⁷

From the headlines filling our business journals to the toys lining our retail shelves, it is impossible to overlook China's impressive presence in global commerce. Wind the clock back thirty years, however, and a different picture emerges.

China has made remarkable economic progress

In the late 1970s, China was an insular nation, struggling to right itself after the excesses and upheavals of the Mao era from 1949 to 1976. Despite their terrible human cost, Mao's economic development plans had succeeded in raising the share of industrial production in China's primarily agricultural economy.³⁸ Nevertheless, the

³⁶ World Trade Organization, "International trade statistics 2009," available online: http://www.wto.org/english/res_e/statis_e/its2009_e/its09_toc_e.htm

³⁷ David Barboza, "China Passes Japan as Second-Largest Economy," August 15, 2010, *The New York Times*, available online: http://www.nytimes.com/2010/08/16/business/global/16yuan.html?_r=1&scp=1&sq=china%20japan&st=cse

³⁸ Angus Maddison, "Chinese Economic Performance in the Long Run," OECD Development Centre Studies, 2007, p. 61.

country faced chronic economic difficulties, including little or no growth in total factor productivity, sharp swings in output, a distorted pricing system, inefficient resource allocation, and acute shortages of consumer goods and housing. As a result, China's development lagged well behind that of other industrializing Asian nations, such as Korea, Singapore, Japan, and Taiwan.³⁹

China's growth was further hampered by its policy of closure to the outside world. With the goal of becoming "self-sufficient," the state monopolized all trade, spurned foreign direct investment, and protected domestic industries with high import tariffs and non-tariff barriers. Foreign transactions were largely restricted to the Soviet Union and other Communist states, to which China exported agricultural products in exchange for the heavy machinery vital to its industrial ambitions.⁴⁰ Far from the mighty trading nation it is today, China's exports in 1976, the year of Mao's death, represented less than one percent of exports globally.⁴¹

Two years later, in 1978, political moderate Deng Xiaoping became leader of the Chinese Communist Party, ushering in an era of economic reform and growth (*Exhibit 6*). Recognizing the limitations of Mao's ideologically driven policies, Deng adopted an incremental, pragmatic approach to reform, a political shift embodied in his famous slogan "Who cares if a cat is black or white, as long as it catches mice."

His first step was to overhaul China's inefficient communal agricultural system by introducing profit incentives, letting the market dictate prices for many

goods, and instituting a leasing system that effectively put land tenure back in the hands of households. Based on the success of these pro-market measures, Deng next took on China's state-owned enterprises, allowing managers to set wages, retain profits, and sell surplus production at market prices.⁴² His reforms also greatly expanded the role of China's township and village enterprises. Run largely like businesses in market economies, these small manufacturing operations grew to account for 38 percent of China's total industrial output by 1993, up from 7 percent in 1978.⁴³

Along with these sweeping changes to agriculture and industry, Deng's reforms began to integrate China into the global economy. In 1979 China established four "Special Economic Zones" along its coast: three in Guangdong province near Hong Kong and one in Fujian province across the strait from Taiwan. These areas were designed to attract foreign investors through a mix of tax incentives, foreign exchange provisions, and looser regulation.⁴⁴ In 1984, this approach was extended to fourteen other "open coastal cities," including Shanghai and Guangzhou.

China further stimulated foreign investment by introducing a system of dual exchange rates. This policy allowed foreign enterprises to trade their foreign exchange receipts at a market-based rate more favourable to them than the official rate set by China's central bank.⁴⁵ This provided a great incentive for foreign firms to establish operations in China aimed at export markets.

Other measures aimed at expanding China's export growth included: devaluing the Chinese currency, the yuan; permitting local governments, ministries, and export enterprises to retain a portion of the foreign exchange earned in exports; providing tariff exemptions on imported materials used in producing exports; and offering rebates on indirect taxes for exports.⁴⁶ China and its currency management continue to attract controversy. (See *China's currency: The problem of under valuation.*)

From 1978 until Deng's retirement from political life in 1992, China's GDP grew at an average annual rate of 9.6 percent.⁴⁷ After decades of stagnation, trade growth picked up: between 1978 and 1992, exports and imports grew at average annual rates of 18 and 19 percent, respectively.⁴⁸ Via the economic development zones, foreign direct investment (FDI) finally began flowing into China, and the country's FDI stock went from US \$1 billion in 1980 to US \$101 billion by 1995.⁴⁹

Along with promoting growth, Deng's reforms changed the nature of China's economic production. With improved incentives and price signals in place, foreign and domestic enterprises began to draw more effectively on the country's abundant labour supply, channeling workers into labour-intensive but more productive sectors. International markets also encouraged labour-intensive work, since China's comparative advantage lay in such production. The increased presence of foreign firms further altered Chinese production, as it brought modern technologies, management practices, and intermediate materials

³⁹ Michael W. Bell, Hoe Ee Khor and Kalpana Kochar, "China at the Threshold of a Market Economy," International Monetary Fund, Occasional Paper 107, 1993, p. 6

⁴⁰ Maddison, "Chinese Economic Performance in the Long Run," p. 63.

⁴¹ International Monetary Fund, International Financial Statistics Database, March 2010, available online: <http://www.imf.org/external/data.htm>

⁴² Debora Spar and Jean Oi, "China: Building Capitalism with Socialist Characteristics," Harvard Business School, 2006, p. 6.

⁴³ Justin Yifu Lin and Yan Wang, "China's Integration with the World: Development as a Process of Learning and Industrial Upgrading," The World Bank: Policy Research Working Paper 4799, 2008.

⁴⁴ Spar and Oi, "China: Building Capitalism with Socialist Characteristics," p. 6.

⁴⁵ *Ibid.*

⁴⁶ Yun Wing Sun, *The China-Hong Kong Connection: The Key to China's Open-Door Policy*. Cambridge University Press, 1991, p. 50.

⁴⁷ The World Bank, World Databank, available online: <http://databank.worldbank.org/ddp/home.do>

⁴⁸ Data excludes Hong Kong and Macau. International Monetary Fund, International Financial Statistics Database, March 2010, available online: <http://www.imf.org/external/data.htm>

⁴⁹ United Nations Conference on Trade and Development, FDI Stat, available online: <http://stats.unctad.org/fdi>

into assembly and re-export processes. Together, these developments dramatically raised the sophistication of China's exports, evolving from resource-intensive products like crude oil, to traditional labour-intensive products such as textiles and clothing, to non-traditional labour-intensive products, such as machinery and electronics.⁵⁰

The 1990s saw an acceleration of the reforms and growth initiated by Deng. As the economy became increasingly market-oriented, privatization efforts intensified. Town and village enterprises began to be auctioned off, followed by divestments of smaller- and medium-sized state-owned enterprises. The pace of trade liberalization also quickened. In 1994, the dual exchange rate system came to an end and was replaced by a single pegged foreign exchange rate. This allowed domestic enterprises to convert their foreign profits at the same exchange rate as foreign firms, ending years of unequal treatment. Import

barriers began to drop more sharply; the average applied import tariff rate fell from 40 percent in 1994 to 16 percent in 2001.⁵¹

Perhaps the most significant impact on China's trade growth in the 1990s came from increased FDI inflows, which rose 426 percent between 1992 and 2001.⁵² These investments represented foreign invested enterprises engaged in the processing trade. They imported intermediate materials, assembled them using low-wage Chinese labour, then exported the finished products. Foreign invested enterprises began to account for an ever-increasing share of China's trade. In 1995, they represented 30 percent of Chinese exports; by 2001 their share had jumped to 50 percent.⁵³

The next big milestone in China's trade growth came on December 11, 2001, when, after fifteen years of negotiations, China finally became an official member of the World Trade Organization (WTO). In accordance with its WTO

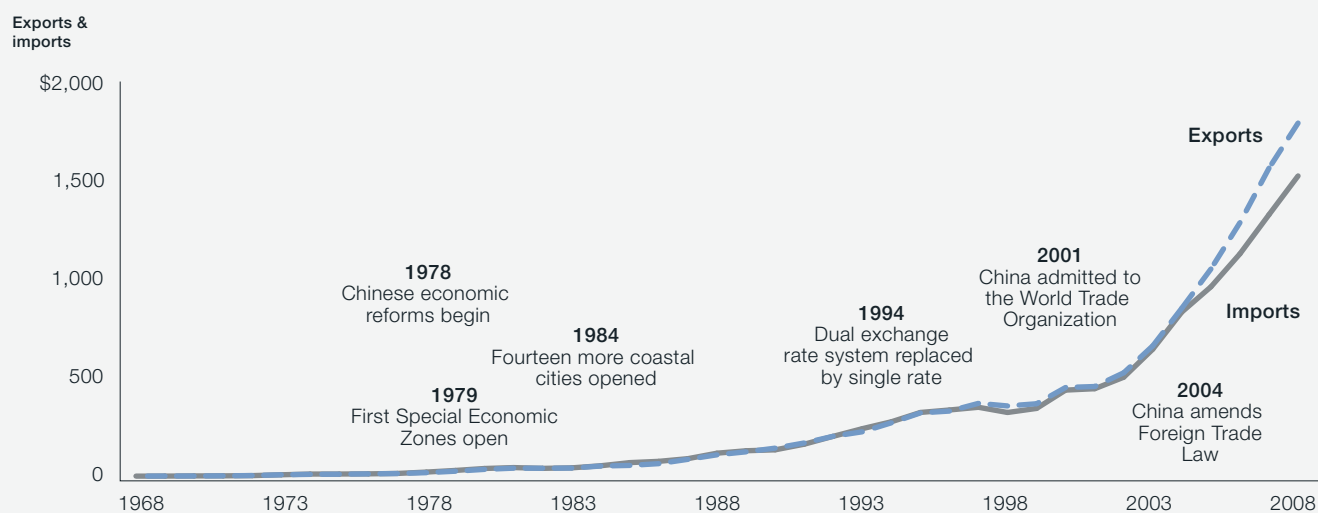
commitments, China progressively reduced its non-tariff barriers and average tariff rates.

Then, on July 1, 2004, China revised its Foreign Trade Law in accordance with its WTO commitments. Under the revised law, foreign trade operators no longer required administrative approval to import and export goods and services. Individuals – not just firms – were allowed to conduct foreign trade, and China was expected to give foreign individuals and companies the same legal treatment as their Chinese counterparts. Thus foreign firms were able to compete on the same level as Chinese firms, and individuals and smaller enterprises, both foreign and domestic, could engage in foreign trade.⁵⁴

By the end of 2004, import quotas were discontinued, and average applied tariffs dropped to 9.6 percent as of 2008.⁵⁵ More important, WTO accession meant China's laws and institutions had to conform to international standards, and

Exhibit 6 Significant events mark China's growth as a trading nation

Significant events in China's trade growth,
1968 to 2008
(Current US\$ billions)



Notes: includes data for Hong Kong and Macau.

Source: Institute for Competitiveness & Prosperity analysis based on International Monetary Fund, "International Financial Statistics Database," March 2010 Edition.

⁵⁰ Lin and Wang, "China's Integration with the World: Development as a Process of Learning and Industrial Upgrading," p. 15.

⁵¹ *Ibid.*, p. 13.

⁵² United Nations Conference on Trade and Development, FDI Stat, available online: <http://stats.unctad.org/fdi>

⁵³ John Whalley, "China and Outsourcing," Presentation at University of Toronto conference Offshore Outsourcing: Capitalizing on Lessons Learned, October 26-27, 2006.

⁵⁴ "A Look at China's New Foreign Trade Law," Embassy of the People's Republic of China in Canada, Press Release, April 16, 2004, available online: <http://www.chinaembassycanada.org/eng/xw/t85448.htm>

⁵⁵ World Trade Organization, "Trade Policy Review of the People's Republic of China."

The undervalued yuan

China's economy has undergone phenomenal growth within the past few decades, and news of its economic surge and soaring exports has increasingly dominated international headlines. As this has happened, analysts have speculated that China's under valued currency and its rigid exchange rate policy have played a significant role in the explosive growth of China's economy.

Until July 2005, China maintained a formal peg of its yuan at 8.2 to the US dollar, but has now relaxed this somewhat. It allowed its currency to appreciate against the US dollar until 2008,^a where it has remained more or less fixed at around 6.8 yuan per US dollar.

Nevertheless, the yuan is still seen to be under valued and continues to boost trade, enabling China to hold the world's largest current account surplus and positioning it as the globe's fastest growing economy. The pace of China's growth has even enabled it to overtake Germany to become the world's largest exporter in 2009 and it has now surpassed Japan as the world's second largest economy.^b

China's extraordinary expansion has risks

Though a pegged and under valued yuan has boosted Chinese exports and attracted foreign investment, it has also led to unbalanced and unsustainable economic growth, raising worries about the health of its domestic economy. Three consequences are particularly important.

First, China's over reliance on exports has rendered its imports more expensive. Consumers who buy foreign goods, including imported food, and companies that must buy foreign intermediate inputs both suffer, suppressing overall living standards.^c In fact, though household income has grown significantly over the past decades, it has not risen as quickly as GDP. According to the European Chamber of Commerce, China's GDP grew by 11 to 12 percent over the 2002 to 2007 period, while household incomes rose at a lower 9 percent rate. The under valued currency reduced real household wages by raising the cost of imports, while creating export subsidies for producers.^d

Second, trade surpluses lead to huge inflationary pressures. The reason is simple. If foreigners want to buy Chinese goods, then they need yuan. The bigger China's surplus, the more yuan it must print, which drives up China's inflation.

Third, to fight off inflationary pressures, China must engage in a host of complex financial transactions that further complicate China's already distorted financial markets. These concerns stem from the fact that currency intervention requires the Chinese government to manipulate its money supply in order to control the inflows of foreign dollars to maintain its exchange rate

^a Board of Governors of the Federal Reserve System, available online: <https://www.federalreserve.gov/datadownload/Build.aspx?rel=H10>

^b "China tops Germany as No. 1 Exporter," *Bloomberg Business Week*, February 10, 2010, available online: http://www.businessweek.com/globalbiz/content/feb2010/gb20100210_998970.htm and "Why China's exchange rate policy is a common concern," *The Financial Times*, December 9, 2009, "China closes gap with Japan as economic growth beats forecast," *The Financial Times*, January 22, 2010 and David Barboza, "China Passes Japan as Second-Largest Economy," August 15, 2010, *The New York Times*, available online: http://www.nytimes.com/2010/08/16/business/global/16yuan.html?_r=1&scp=1&sq=china%20japan&st=cse

^c Wayne Morrison and Marc Labonte, "China's currency: A summary of the economic issues," *Congressional Research Service*, 2009, p. 5.

^d European Chamber of Commerce in China, *Overcapacity in China – Causes, Impacts and Recommendations*, 2009, p. 8, available online: <http://www.eucc.com.cn/view/home>

targets. In fact, the People's Bank of China (PBC) currently implements "sterilization" techniques to hold down the value of the yuan. This involves buying excess foreign currency to maintain the preferred price of the yuan in international markets. The PBC then restricts the supply of yuan inside China through the issuance of yuan-denominated bills and bonds to financial institutions and raises reserve requirements of commercial banks to keep inflation in check, thereby reducing the supply of yuans.^e

Currency intervention has not only weakened China's ability to use monetary policy to stabilize its economy, it has exacerbated problems like the excessive growth of money and credit, which in turn fuel already delayed inflationary pressures. History has shown that prolonging these sterilization techniques is unsustainable. This was Germany's experience during the collapse of the Bretton Woods system, as well as Japan's, which also pegged the yen to the US dollar in the late 1960s and used similar sterilization measures to maintain it.

China's managed exchange rate has shifted pressure to other countries

In the United States, policy makers and analysts argued that the under valued yuan has contributed to the burgeoning US trade deficit, since US consumption has been increased through the improvement in their terms-of-trade with China. They have also asserted that China's currency policy has led to "several unfair trade advantages enjoyed by Chinese firms, including low wages, lack of enforcement of safety and environmental standards, below cost selling (dumping), and direct assistance from the Chinese government."^f

This trade imbalance friction is intensifying between China and the rest of the world, and particularly with the United States. Politicians and policy makers are calling for a stronger yuan as a solution not only to help alleviate global trade imbalances, but also to allow China to regain control of its monetary policy and reduce its over reliance on exports for growth.

Others argue that this is not a panacea to the problem, since China produces such a small fraction of the value added in its exports that a revaluation of the yuan would not significantly reduce any trade imbalances.^g In fact, according to the International Monetary Fund (IMF), "a 20 percent rise in the yuan... would at best lead to a rise in US exports worth 1 percent of gross domestic product."^h

However, both sides agree that China must continue to take the necessary steps to avoid overheating its economy. According to IMF chief economist, Olivier Blanchard, China should be, and is, taking the right steps to lower its savings rate to increase domestic demand and adjust production to meet this higher demand.ⁱ

^e John Greenwood, "The Costs and Implications of PBC Sterilization," *CATO Journal*, Vol. 28, No. 2, Spring/Summer 2008, pp. 208-209.

^f Wayne Morrison and Marc Labonte, "China's currency: A summary of the economic issues," *Congressional Research Service*, 2009, p. 5.

^g Daniel Treffer, at the Conference on "The Offshore Outsourcing: Capitalizing on Lessons Learned", October 26-27, 2006, available online: <http://www.rotman.utoronto.ca/offshoring/>

^h "Yuan rise no panacea for others – IMF economist," *The Guardian*, February 2, 2010, available online: <http://www.guardian.co.uk/business/feedarticle/8927391>

ⁱ *Ibid.*

investors and businesses could work within a more certain policy and legal environment.⁵⁶ As a result, China's trade skyrocketed in the years following its WTO accession, and it has continued to grow rapidly to the present day. Since 2002, exports have increased at an average annual rate of 22 percent, and imports have risen at an equally brisk pace of 19 percent annually, reaching respective totals of US \$1.8 trillion and US \$1.5 trillion in 2008.⁵⁷

China has not yet reached the tipping point

China is making great strides as it transitions from a low-wage economy to an innovation-based economy. In the early 1990s, major reforms opened its economy and moved significant segments from the controlled market system to a more free market oriented system. The use of more sophisticated information and communications technology (ICT) accelerated in the same period, thus combining low-wage domestic labour with advanced imported technology. This induced fast-growing FDI in China and helped create a sophisticated global production network. This evolution can be seen in the mix of products it exports to Canada. In 1990, the top imports were leather bags, toys, dolls, clothing, and other low-tech items. In 2008, laptop computers, telephones, and monitors were at the top of the list.

Is China then nearing the tipping point and transitioning to innovation-based competition? The Institute's analysis indicates that China's tipping point is still in the future; however, we are by no means suggesting that complacency is in order.

How high tech are China's products?

One way to determine the development of an economy is to assess the relationship between a country's export sophistication and its GDP. Daniel Trefler and John Sutton assessed this relationship across countries and calculated a predicted value for per capita GDP, based on each country's export sophistication.⁵⁸ They concluded that China and India have lower GDP per capita than expected, based on the sophistication of their exports. This is because export data do not capture quality and, while China and India produce relatively sophisticated goods, they are doing so at a low level of quality.

A high-technology product analysis reveals a more detailed portrait. China's exports of technology products to Canada have increased dramatically. Yet in the biggest category, computer and peripheral equipment, which accounted for half our high-tech imports, the value added in China through design, high-wage manufacturing, and other sources is less than 20 percent of total value (*Exhibit 7*). In essence, China is using low-cost wage earners to assemble high-value components designed and produced elsewhere.

As an example of this phenomenon, a study of the production of a \$300 iPod shows that imports from China represent just under half of the shipment value – \$144. But because the components were finally assembled in China, this amount appears in trade data as an import from China – even though the assembly cost there was only \$3. In fact, only a small share of the \$144 total value was added in China, and the bulk of this was done by low-wage labour. The majority of the \$144 shipment value was created in Japan, the United States, and Korea. In fact, of the \$300 retail price, \$155 accrued to US workers and owners, because the concept was

created and the product designed in the United States.⁵⁹

Apple's iPad has a very similar value added chain. Only 5 percent of the value of the \$250 import price is added in China and that small share comes from assembly. Most "value added" comes from South Korea's Samsung, Japan's Toshiba, Broadcom in the United States and Amperex Technology, a Hong Kong company owned by TDK in Japan. The touch screen, processors, wireless gear and a score of other elements are created and manufactured around the world.⁶⁰

China is also still competing at the low-price end of technology (*Exhibit 8*). The average price of computer products imported from China to Canada is about a fifth of the price of those imported from the United States. This is not a comparison of similar products; instead, it shows that China is competing in products that are in the low-price segment of computers and peripheral equipment.

How sophisticated are China's R&D and patents?

China has increased its R&D and its patent output considerably over the past decade. Chinese businesses increased their spending on R&D in high-technology industries from 0.4 percent of sales in 1995 to 1.1 percent in 2007.⁶¹ The number of patents in high-technology industries grew from a mere 410 in 1995 to 13,386 in 2007 – a 32-fold increase.⁶²

In 2006, the OECD assessed the innovative capacity of various nations by comparing average annual investment in R&D by the private sector relative to the average annual number of patents filed with the triadic patent offices (US Patent and Trademark Office, the Japan Patent Office, and the European Patent

⁵⁶ Lin and Wang, "China's Integration with the World: Development as a Process of Learning and Industrial Upgrading," p. 15.

⁵⁷ International Monetary Fund, International Financial Statistics Database, March 2010, available online: <http://www.imf.org/external/data.htm>

⁵⁸ John Sutton and Daniel Trefler, "Capabilities, Wealth, and the Export Mix," Working Paper, available online: http://economics.stanford.edu/files/Trefler_IO_6_2.pdf Export sophistication is calculated as a weighted average of the sophistication indices across products, with the weights determined by trade shares, where each product's sophistication is measured by the weighted average of per capita GDP of the countries that export it. The higher the proportion of a country's exports that are also exported by developed countries, the more sophisticated are its own exports.

⁵⁹ Greg Linden, Kenneth L. Kraemer, and Jason Dedrick, "Who Captures Value in a Global Innovation System? The Case of Apple's iPod", 2007, available online: http://paginaspersonales.deusto.es/aminondo/Materiales_web/Linden_et_al_iPod_2007.pdf.

⁶⁰ Terence Corcoran, "The iPad lesson for China trade," *Financial Post*, April 5, 2010, available online: <http://www.financialpost.com/news-sectors/features/story.html?id=2767102>

⁶¹ China National Bureau of Statistics, *China Statistics Yearbook High Technology Industry*, 2008.

⁶² *Ibid.*

Exhibit 7 Canada's high-tech imports from China are relatively low value added

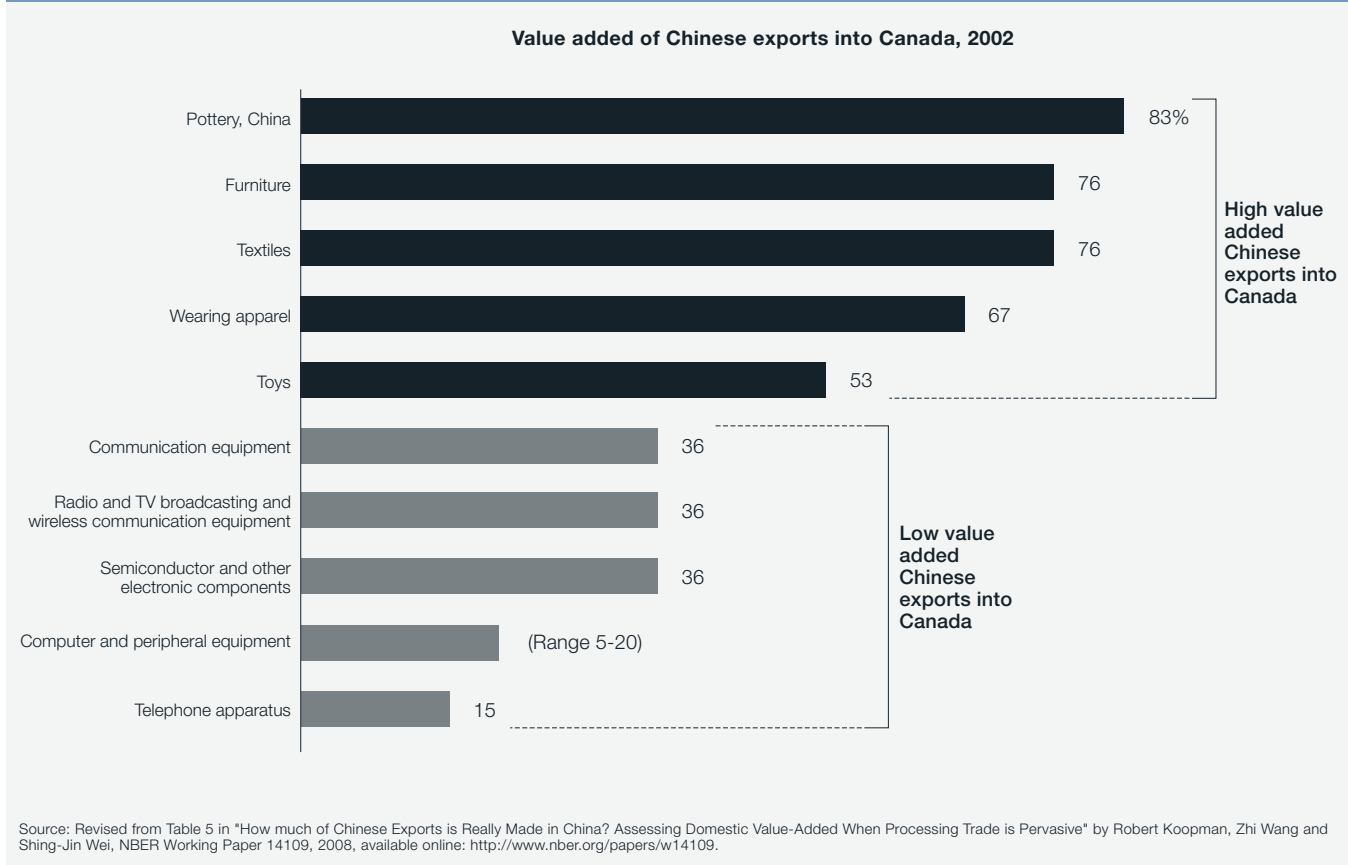
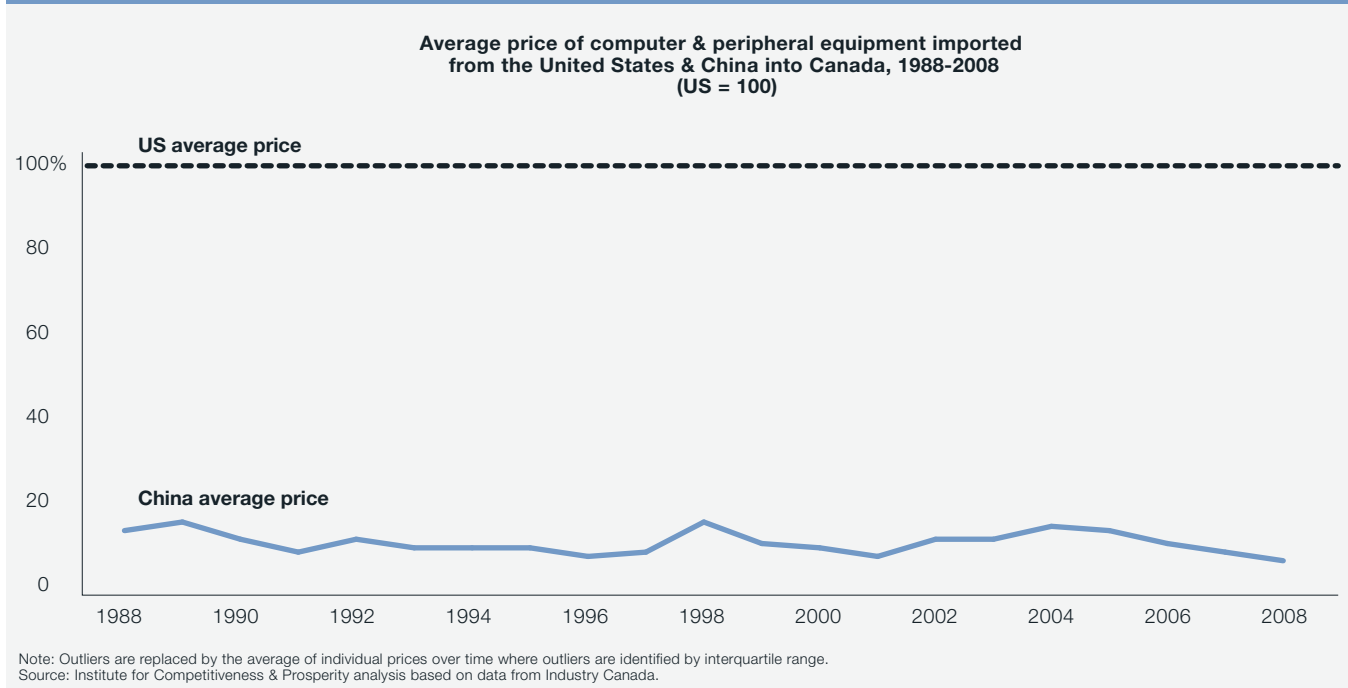


Exhibit 8 China's computer exports still compete in the low-price segment



Office) between 1996 and 2002.⁶³ The research showed that, while China spent considerably on R&D, the focus of that spending was on imitation not innovation.

The Institute conducted similar research using data from 2003-2007 and concluded that China's research spending remains geared toward imitation rather than innovation. During that time, China filed an average of 400 triadic patents annually. However, based on China's average annual investment in R&D by the private sector, China would have been expected to file an average of 2,900 triadic patents annually between 2003 and 2007 (*Exhibit 9*).

What is the quality of China's human capital?

It seems common wisdom that North America is losing the technology race because of its lower levels of engineering talent production. One oft-cited statistic is that 600,000 engineers are

graduating at the baccalaureate level annually in China compared to only 70,000 in the United States (2004 results). However, when Duke University researchers adjusted these results to ensure comparability, China's engineering graduates were scaled down to 352,000 and the US numbers rose to 137,000.⁶⁴ That means China is producing 270 undergraduate engineers per million people annually, while the United States is producing 470.

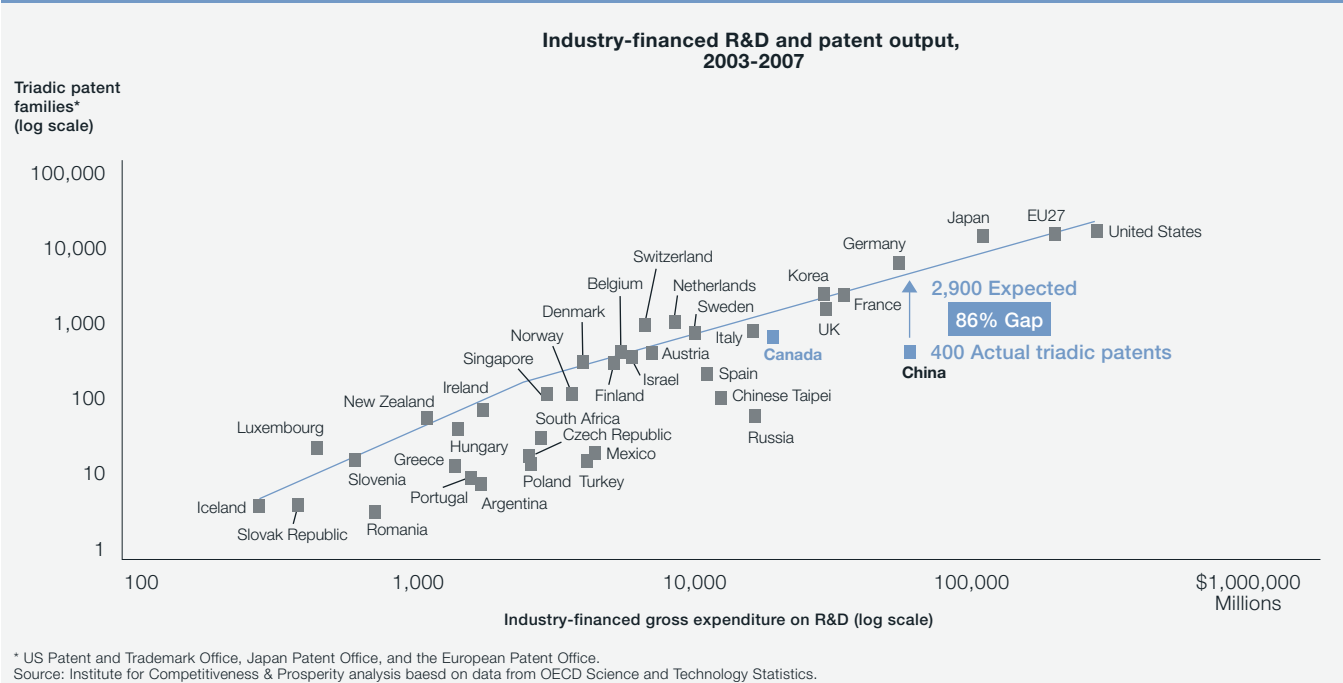
In another assessment, a McKinsey & Company survey using 2003 results has found that Chinese engineering graduates were not as employable as North American graduates. The main reason for this variation is that the Chinese engineering student experience emphasizes theory, while the North American student participates in various projects in a team environment.⁶⁵

The Institute's analysis shows that Canada is producing more engineers

per capita than China, as well as India and the United States. This is not to say that China is not making great strides in its human capital – but simply that it is still a long way from competing on the basis of innovation and sophistication.

Another way to assess the strengthening of China's human capital and its economic sophistication is to look at the return of its diaspora. Ireland is a good example of a country that experienced the transition to the innovation-competition wave. Ireland completed this transition in the 1990s, and net migration patterns in Ireland can be considered a good gauge of movements from one wave to the next. After decades of more Irish people leaving the country than returning, this pattern reversed in the early 1990s as the Irish economy advanced. Now this pattern may be reversing as Ireland's economy is undergoing serious strains in the current global slowdown.⁶⁶ While we do not have exactly comparable statistics

Exhibit 9 Based on China's R&D expenditures, its patents fall well below expectations



* US Patent and Trademark Office, Japan Patent Office, and the European Patent Office. Source: Institute for Competitiveness & Prosperity analysis based on data from OECD Science and Technology Statistics.

⁶³ Dirk Pilat, Agnes Cimper, Karsten Olsen, and Colin Webb, "The Changing Nature of Manufacturing in OECD Economies," STI Working Paper 2006/9, available online: <http://www.oecd.org/dataoecd/44/17/37607831.pdf>.
⁶⁴ Gary Gereffi, Vivek Wadhwa, Ben Rissing, and Ryan Ong, "Getting the Numbers Right: International Engineering Education in the United States, China and India," *Journal of Engineering Education*, January 2008, 97-1; and Vivek Wadhwa, "About That Engineering Gap," *Business Week*, December 13, 2005, available online: http://www.businessweek.com/smallbiz/content/dec2005/sb20051212_623922.htm.
⁶⁵ Diana Farrell, "Don't Be Afraid of Offshoring," McKinsey analysis, 2006, available online: <http://www.mckinsey.com/mgi/mginews/businessweek/>.
⁶⁶ Liz Alderman, "In Ireland, a Picture of the High Cost of Austerity," *The New York Times*, June 28, 2010, available online: http://www.nytimes.com/2010/06/29/business/global/29austerity.html?_r=1&ref=ireland

for China, we can see that only a third of Chinese overseas students returned to China in 2008 – and that this pattern has not changed appreciably over the last decade (*Exhibit 10*).

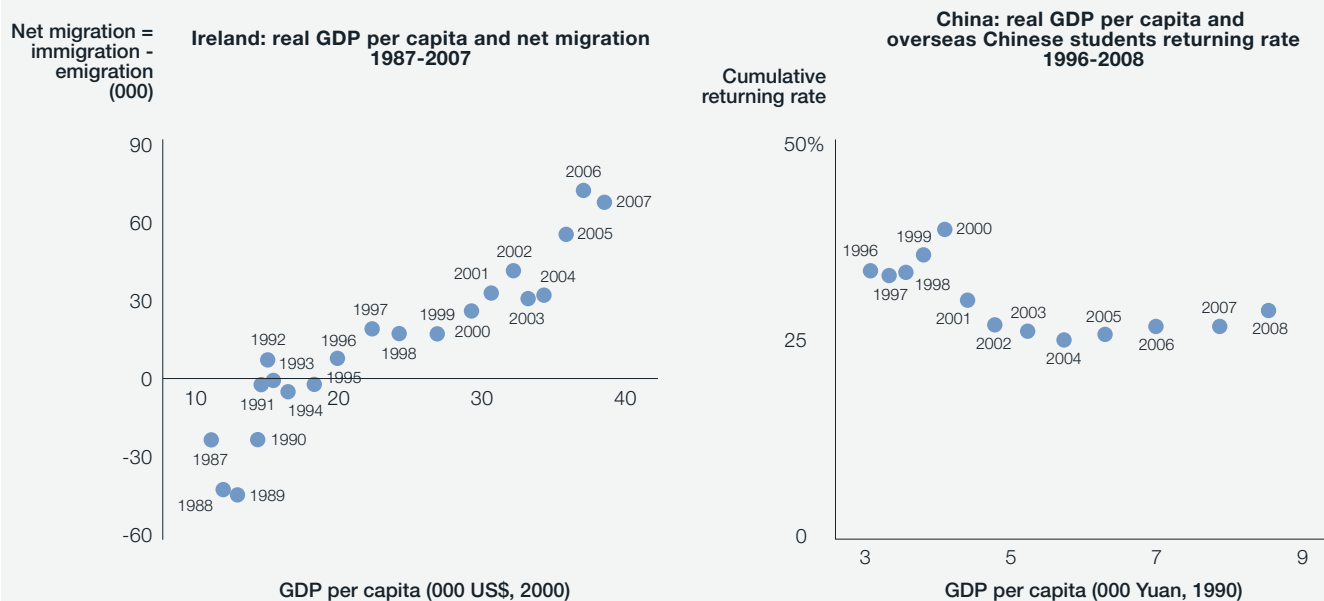
Do China's institutions support an innovation economy?

Researchers on economic development have noted the importance of institutions that support the rule of law in a sophisticated economy. These include stable and law-based political institutions, impartial courts, and effective and uncorrupt law enforcement agencies. There has been progress in China's institutions, but there is still room for improvement. Research by Daniel Kaufmann, Senior Scholar at the Brookings Institution and previously with the World Bank, and his colleagues suggest that the quality of these institutions is a necessary condition for innovation. By Kaufmann's metrics, China currently ranks 116th out of 210 countries studied.⁶⁷ According to the 2009–2010 World Economic Forum's *Global Competitiveness Report*, the quality of China's institutions ranks 48th

among the 133 nations participating in the study.⁶⁸ China's institutions are still far from the standards necessary to support an innovation economy.

We are by no means suggesting that China will not develop as a truly innovation-based economy and that we have nothing to fear from competing with China. Instead, we conclude that China has not yet reached the innovation tipping point and is still competing on the basis of low cost. We should be pursuing greater trading opportunities with China to benefit from both its low-cost position and from the pressure trade with China will bring to bear on our innovation capabilities in the future.

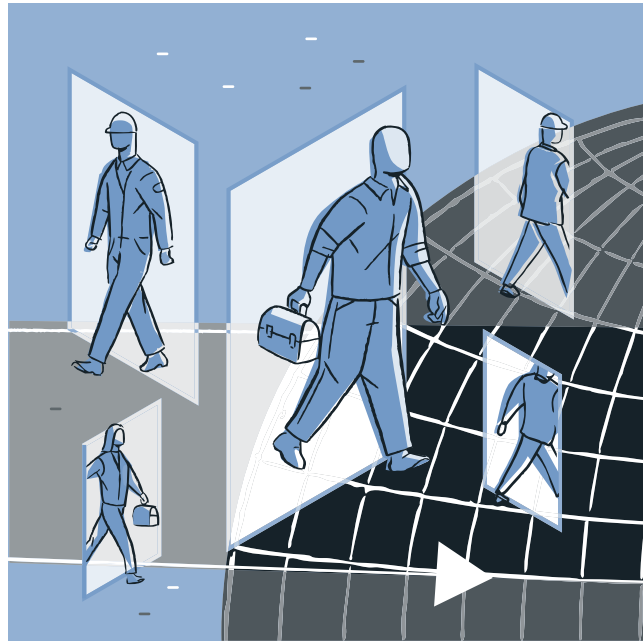
Exhibit 10 Despite rising GDP, Chinese overseas students are not returning home



Source: Institute for Competitiveness & Prosperity analysis based on data from Ministry of Education of the People's Republic of China, International Monetary Fund, World Economic Outlook Database, October 2009.

⁶⁷ Daniel Kaufmann, Aart Kraay, and Massimo Mastruzzi, "Governance Matters VIII: Governance Indicators for 1996-2008," World Bank Policy Research Working Paper No. 4978, available online: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1424591; and <http://info.worldbank.org/governance/wgi/index.asp>.

⁶⁸ World Economic Forum, *The Global Competitiveness Report*, 2009-2010.



China trade and Canada's manufacturing industries

China trade is not the primary cause of our current manufacturing weakness

How has China's emergence as an economic power house played out in Canada? As we have seen, China is growing in importance as our trading partner and now ranks third. Has the trade benefited or harmed Canada? While China has not reached the innovation tipping point, the question is whether its growth is emerging at the expense of Canadian jobs, particularly in manufacturing. Our research indicates that China trade is not the primary cause of our current weakness in manufacturing employment; instead, our strengthened exchange rate is a more important factor.

Canada trade encounters the China "Dragon myth"

In the past few years, employment in Canada's manufacturing sector has been hit hard. When it seems like every product we buy is "Made-in-China" and every service we consume has been outsourced to India, it is only natural to blame those countries for the loss of our manufacturing jobs.

A 2008 Asia Pacific Foundation poll attests to the wariness of some Canadians toward trade with China. Asked whether increased trade and investment between Canada and China would create jobs or result in job losses, twice as many Canadians said they thought the result would be job losses, rather than gains. Moreover, 71 percent of Canadians agreed with the statement that “Canadian industries should be protected from imports from countries with very low wages.”⁶⁹

Clearly, Canadians perceive an onslaught of Chinese imports. Why is it that we see the Made-in-China label everywhere, but almost never seem to buy goods Made-in-Canada? The reason is simple. Many of the leading imports from China are consumer goods we see every day (*Exhibit 11*).

And yet these goods make up a very small share of economic activity in Canada. The five Canadian industries most affected by Chinese imports

represent 61 percent of all Chinese imports to Canada, but account for merely 2.5 percent of our GDP (*Exhibit 12*). In other words, unlike Chinese exporters, most Canadian firms are not in the business of producing everyday consumer goods.⁷⁰ Rather, our GDP is dominated by services (70.4 percent of GDP) and, to a lesser extent, goods-producing industries like construction (6.1 percent of GDP), mining and oil and gas extraction (4.5 percent of GDP), and transportation equipment manufacturing (2.5 percent of GDP). In reality, Chinese imports only affect a small fraction of our economy.

Another way to understand Chinese imports is to look at how much we spend on Chinese products. Every year, on average, each Canadian spends \$1,300 on imports from China, or 2.7 percent of annual income. However, this overstates the economic impact of imports from China, because only 54 percent of their value added is produced in China.⁷¹ Thus Canadians

actually spend only 1.4 percent of their annual income on what is truly “made” in China.

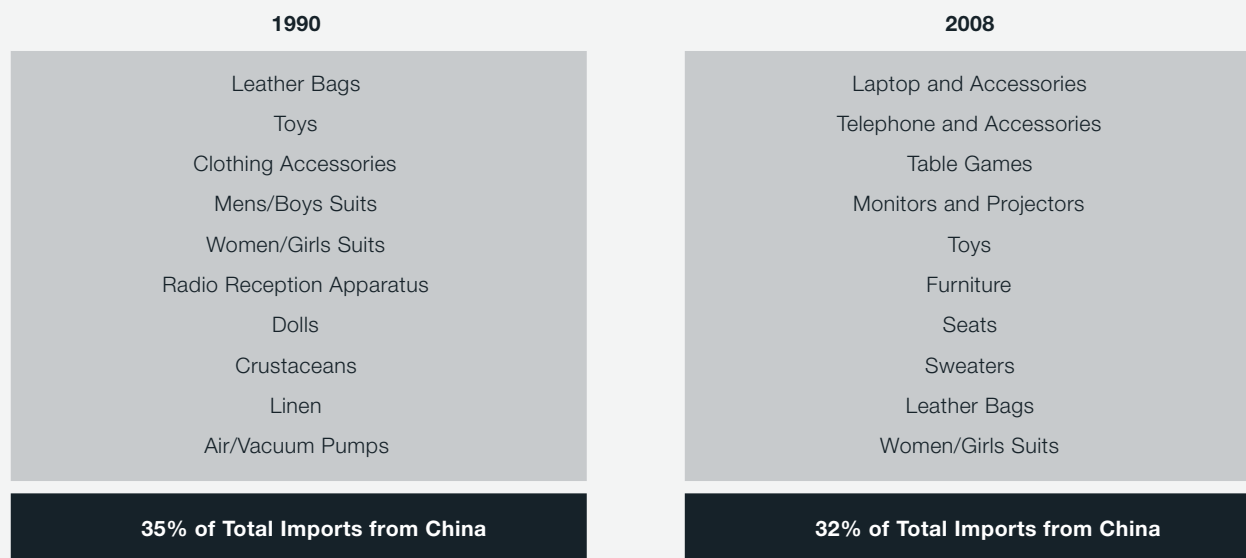
Much of China's export activity is based on assembling sub-components to produce final products, but only a small share of value is added to these goods in China. China is still competing on the basis of low-cost goods and has not yet passed the tipping point of being an innovation economy.

After growing in the 1990s, Canada's manufacturing employment is declining

Manufacturing sector jobs accounted for 11 percent of Canadian employment in 2009, down from 19 percent in 1976. Employment is not the only metric that has shrunk: from 1998 to 2008, manufacturing's share of Canada's GDP fell from about 16 percent to 13 percent⁷² (*Exhibit 13*).

Exhibit 11 Canada's imports from China are heavily weighted toward consumer products

Top 10 imported products from China



Source: Institute for Competitiveness & Prosperity analysis based on data from Industry Canada.

⁶⁹ Asia Pacific Foundation, National Opinion Poll 2008, available online: <http://www.asiapacific.ca/surveys/national-opinion-polls>

⁷⁰ This is not the result of importing from China. We calculated each sector's contribution to Canadian GDP in 1998, before international trade with China, and found a similar distribution – the service sector accounted for 66.5 percent; non-manufacturing goods producing, 16.3 percent; and manufacturing producing, 17.2 percent. The industries most exposed to China's products accounted for 8.5 percent of Canadian GDP in 1998.

⁷¹ Robert Koopman, Zhi Wang and Shang-Jin Wei, “How Much of Chinese Exports is Really Made in China? Assessing Domestic Value-Added When Processing Trade is Pervasive,” NBER, Working Paper 14109, Table 5, 2008.

⁷² Our analysis is based on Statistics Canada's Labour Force Survey (LFS). The Survey of Employment, Payrolls and Hours (SEPH) provides another set of data. SEPH estimates that employment peaked in 2000. After 2000, both surveys show a similar decline. LFS and SEPH estimates are not the same because of conceptual and methodological differences. LFS provides information on the employment characteristics of individuals, based on a survey of households, whereas SEPH provides information related to jobs based on a census of administrative data from businesses.

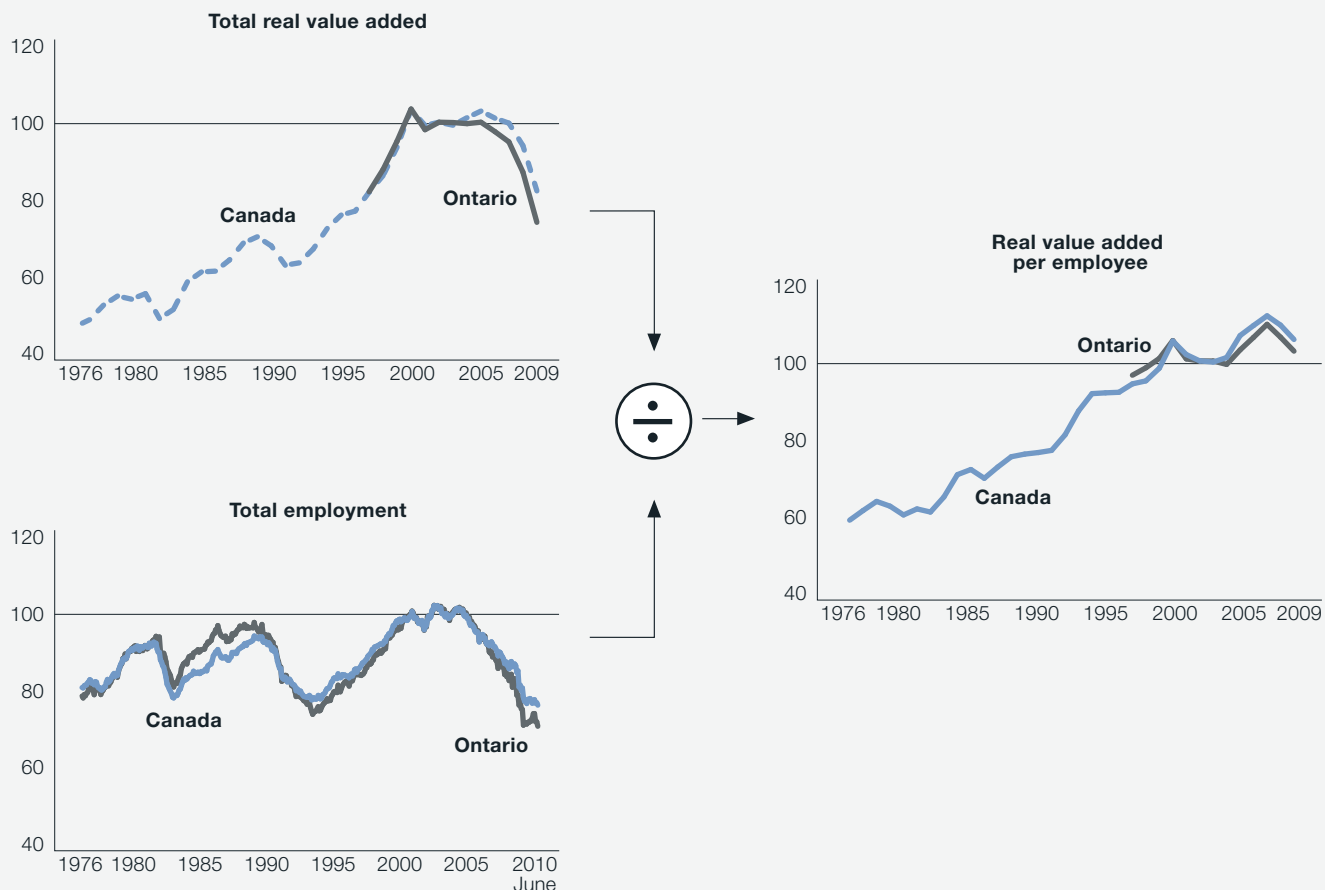
Exhibit 12 Industries most affected by imports from China account for a small percentage of Canada's GDP

Top 5 manufacturing industry imports from China 2008	Percentage of imports from China	Affected industry as percentage of Canada's GDP 2008
Computers and electronic products	26%	0.6%
Miscellaneous	11	0.4
Clothing	11	0.1
Electrical equipment, appliances and components	7	0.3
Machinery	6	1.1
Total	61%	2.5%

Source: Institute for Competitiveness & Prosperity analysis based on data from Industry Canada; Statistics Canada, CANSIM Table 379-00271.

Exhibit 13 Canada's and Ontario's manufacturers have shed jobs but increased productivity

Manufacturing industry indexes, Canada and Ontario, 1976–2010 (2002=100)



Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada.

Probing deeper into the results yields further insights. While manufacturing's share of overall employment has indeed fallen significantly, actual employment – as measured by numbers of employees or by hours worked – is only slightly lower than in 1976. There have been significant “ups” and “downs” during this period, including the loss of over 300,000 jobs between 2002 and 2008, but the net effect over the long term has remained relatively unchanged.

More important, manufacturing's real output has increased since 1976, despite flat employment numbers. Accounting for inflation, the constant dollar value added has actually doubled over the past forty years. The net effect of this is that the real value added per worker has significantly increased since 1976. For similar amounts of labour effort, the Canadian manufacturing industry output has consistently increased – a dramatic rise in productivity. Far from being a stagnant, backward sector of the economy, as suggested by many commentators, Canadian manufacturers have

been walking the “value added” talk and competing based on innovation and higher productivity. In the end, consumers get a lot more for their dollar today than in the past when they buy Canadian manufactured goods.

These include our automotive industry with global leaders like Husky Injection Molding Systems, whose innovative designs in molded plastics reduce costs significantly for their customers, and Magna, which has grown to be one of the world's most important automotive parts manufacturers.

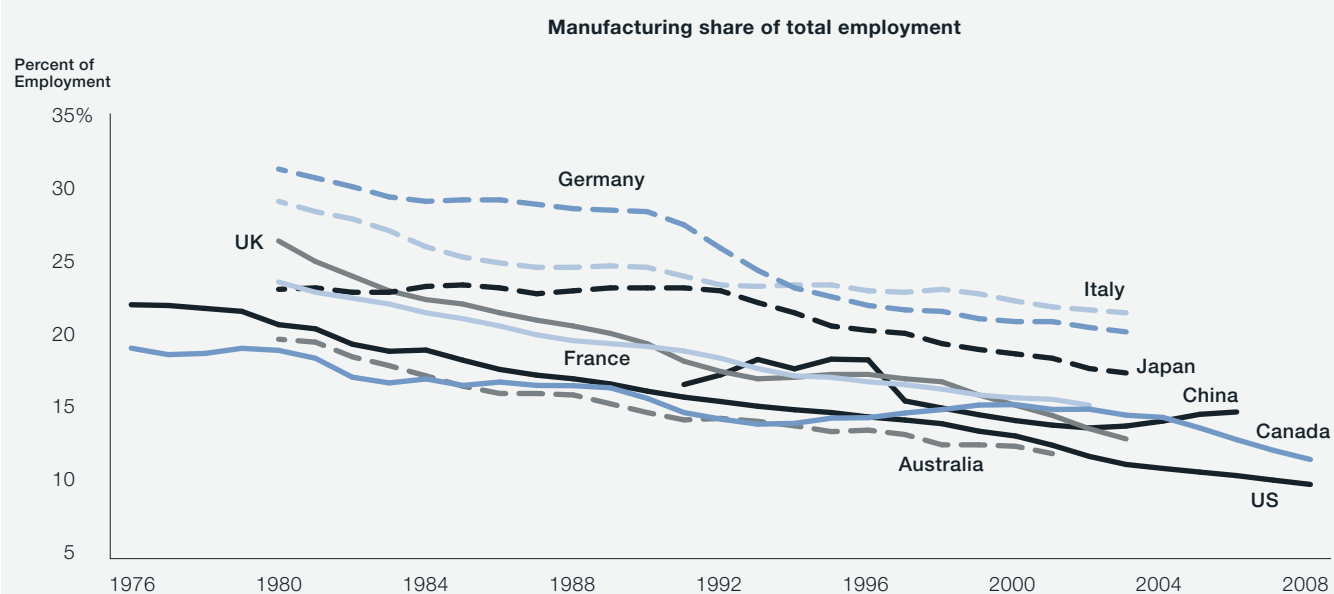
Some smaller, less well-known innovators have also succeeded. Keilhauer Industries, working closely with ergonomics experts, has developed internationally renowned office furniture. Patriot Forge has drawn on technology breakthroughs and skills upgrading to improve its manufacturing process for forging metal. EnerWorks is an innovative solar thermal technology manufacturer. Gourmet Settings has developed creative designs in stainless steel flatware, and streamlined their

production process. These firms are succeeding on the basis of innovation in products or processes or both. Some have outsourced manufacturing to lower wage countries, but they retain much of the design and marketing skills here in Canada.

Canadians can pride themselves on the numerous Canadian companies that are global leaders – in the top five in their market niche based on revenue or market share worldwide. In 1985, Canada was home to 33 global leaders, and by 2003 this had grown to 87. In 2008 and 2009, the number of global leaders stabilized at 86, discrediting statements and theories that Canadian companies are being hollowed out. It is encouraging to find that almost half of all our global leaders are billion-dollar companies, increasing by 24 companies from 1985 to 2010, as excellent firms such as Bombardier, Gildan, and McCain joined the list.⁷³

In addition, our recent research indicates that Canada is among the world leaders in the overall quality of its manufacturing

Exhibit 14 Manufacturing employment share has declined in all countries, except for Canada in the 1990s



Note: For US, it is manufacturing employment share out of total non-farm employees.

Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada; U.S. Bureau of Labor Statistics; OECD STAN Indicators database, 2006; China Statistical Yearbook 2008; <http://www.bls.gov/fls/chinareport.pdf>.

⁷³ Institute for Competitiveness & Prosperity, Eighth Annual Report, *Navigating through the recovery*, November 2009, pp. 64-65 and Report on Canada 2010, *Beyond the recovery*, June 2010, pp. 54-55.

management, as measured by the implementation of effective operation processes, performance management, and people management.⁷⁴

The economy has shifted away from manufacturing

Still, it cannot be denied that manufacturing is relatively less important to our economy than in the past. As with most economic phenomena, reasons for this can be found in the interaction of supply and demand.

On the supply side, research shows that this trend can be partly attributed to technological improvements and productivity changes. These were brought about by increasing skills and capital intensity.⁷⁵

On the demand side, research by the Dallas Federal Reserve concluded that the relative shrinking of the manufacturing sector compared to the expansion of the services sector is primarily consumer driven.⁷⁶ After collecting data from countries around the world

at different stages of development, the Reserve observed that the growth of the industrial sector tends to reach a natural limit as it approaches 30 percent of employment. The US economy reached this threshold through employment in manufacturing, mining, and construction in the early 1950s, and it has declined ever since, falling to below 20 percent.

Developing economies like India, China, and former Eastern Bloc economies employ between 15 and 40 percent of their workers in goods manufacturing. The reason for this pattern is based on German economist Ernst Engel's theory on the differences in how poor and rich families spend their money. He theorized that people in low-income countries tend to allocate relatively more of their income to manufactured goods, such as food, clothing, and shelter, while high-income countries allocate more to service products, such as entertainment, travel, and personal care. For example, India's consumers allocate an average 46 percent of their \$3,700 annual per capita income to food and 3 percent to recreation. Ontarians with a per capita

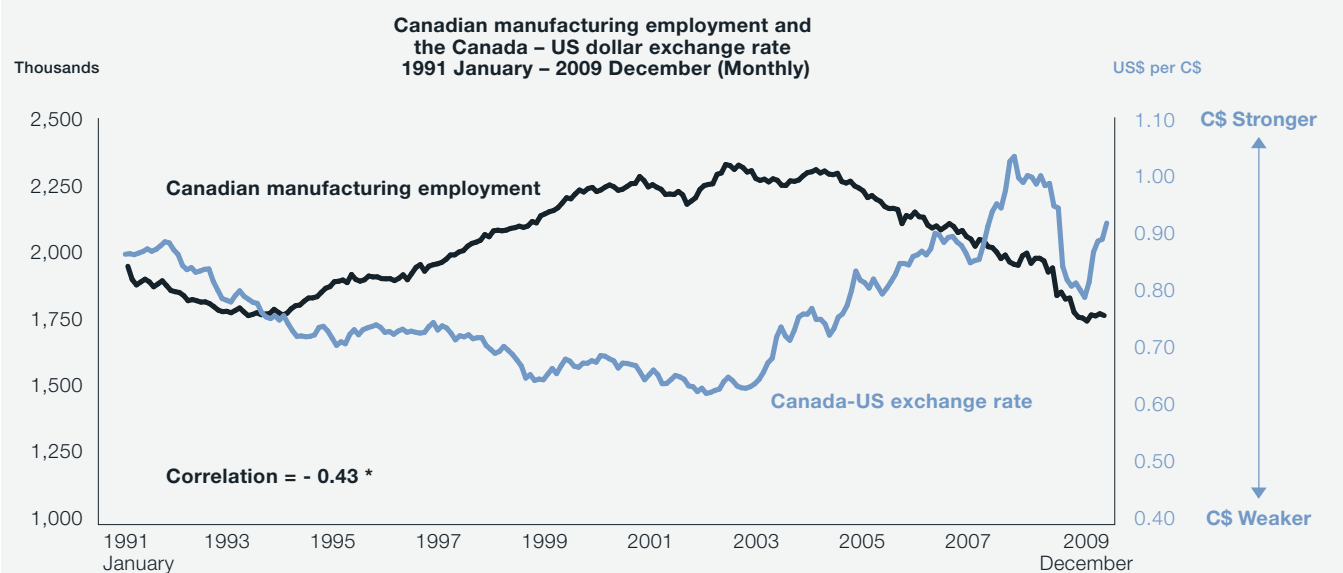
income of \$36,300 spend 8 percent on food, but 4 percent on recreation. This shift in demand from basic needs to services causes the shift of employment from the manufacturing sector to the service sector.

Following Engel's theory, manufacturing employment trended down in most developed economies during the 1990s. Though Canada was an outlier during that period, actually experiencing growth in manufacturing employment, since 2002 it has joined other developing nations in the long-term decline (*Exhibit 14*). It is, however, difficult to attribute the decline in manufacturing employment in developed economies to Chinese competition, since this trend began well before China's entrance into the WTO in 2001.

Exchange rates matter

Our research indicates that an important part of the explanation for Canada's divergent trend in the 1990s was the weak Canadian dollar within that period (*Exhibit 15*). The depreciation of the

Exhibit 15 As the Canadian dollar depreciated in the early 2000s, Canadian manufacturing employment peaked



* Significant at 1%.
 Note: Monthly employment is seasonally adjusted.
 Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada and Bank of Canada.

⁷⁴ Institute for Competitiveness & Prosperity, Working Paper 12, *Management Matters*, March 2009, pp. 29-35.
⁷⁵ Fisher and Rupert, "The Decline of Manufacturing Employment in the United States," Federal Reserve of Cleveland, 2005.
⁷⁶ Federal Reserve Bank of Dallas, 2007 annual report, *Opportunity Knocks Selling our services to the World*, available online: <http://dallasfed.org/fed/annual/2007/ar07b.pdf>

Canadian dollar likely resulted from a combination of factors, including weaker commodity prices and a surging US currency, which was boosted by higher US interest rates in the late 1990s.⁷⁷ The weak Canadian dollar helped the manufacturing sector create more domestic jobs to respond to higher demand for its lower priced goods. Furthermore, the advent of the Canada-US FTA made it easier for domestic producers to respond to the opportunities created by the depreciation of the exchange rate. As the Canadian dollar fell to its deepest point, Canadian manufacturing employment peaked.⁷⁸

As the Canadian dollar has appreciated in this decade, Canada's manufacturing sector has faced increasing strain because of lower demand. Parts of Canada, and particularly Ontario, the manufacturing centre, may have suffered from the "Dutch Disease." This is a term coined by *The Economist* in 1977 to refer to the negative effects on manufacturing industries in an economy caused by rising commodity prices and an appreciating exchange rate.⁷⁹ Natural gas discoveries in the Netherlands in the 1960s led to an increase in the exports of the commodity, thus increasing demand for Dutch currency; this increased demand raised the value of the Dutch Guilder, making other Dutch

exports, such as manufactured goods, more expensive to foreign consumers.

In the Institute's analysis, the data seem to point to the correlation of the high Canadian dollar and the decline manufacturing employment. But it is still possible that China trade has also had a significant effect, particularly in some industries, so we have probed the data more deeply.

China-Canada trade impact is highest in low value added industries

We can gain more insight into the impact of China on our manufacturing

Exhibit 16 Most manufacturing industries lost jobs, 2002–2008; growing industries had higher value added and more creativity-oriented jobs

NAICS4	Share of net change in jobs (2002-2008)	Value added per employee, weighted by employment change	Occupational mix, 2002
Manufacturing industries losing jobs			Mix of jobs
Cut and Sew Clothing	-13%	\$88,400	Creativity-oriented 16%
Sawmills and Wood Preservation	-8		
Motor Vehicle Parts	-7		
Pulp, Paper and Paperboard Mills	-6		
Household and Institutional Furniture and Kitchen Cabinets	-5		
Rubber Products	-4		
Motor Vehicles	-4		
Semiconductor and Other Electronic Components	-4		
Printing and Related Support Activities	-4		
Clothing Knitting Mills	-3		
Foundries	-3		
Iron and Steel Mills and Ferro-Alloys	-3		
Other 56 industries	-50		
Manufacturing industries gaining jobs			
Agricultural, Construction and Mining Machinery	2	\$110,000	Creativity-oriented 25%
Other Foods	2		
Architectural and Structural Metals	2		
Pharmaceuticals and Medicines	1		
Cement and Concrete Products	1		
Other General-Purpose Machinery	1		
Petroleum and Coal Products	1		
Medical Equipment and Supplies	1		
Other 10 industries	3		
Other 10 industries	3		
Total manufacturing jobs lost		315,000	

Note: Our analysis by NAICS4 is based on the Survey of Employment, Payroll and Hours (SEPH) dataset, which is Canada's only source of detailed information at the industry level. SEPH data provides information related to jobs based on a census of administration data from businesses. Source: Institute for Competitiveness & Prosperity analysis based on data from Industry Canada.

⁷⁷ Michael Holden, *Why has the Canadian dollar been rising?* Parliamentary Research Branch, Library of Parliament, Ottawa, 2003, available online: <http://dsp-psd.pwgsc.gc.ca/Collection-R/LoPBdP/EB-e/prb0322-e.pdf>

⁷⁸ The sharp depreciation in the Canadian-US dollar exchange rate occurred during the recession from late 2008 to mid-2009, but manufacturing employment did not respond to the weaker Canadian dollar.

⁷⁹ "The Dutch Disease," *The Economist*, November 26, 1977, pp. 82-83 and W. M. Corden, "Booming sector and Dutch Disease Economics: Survey and consolidation," *Oxford Economic Papers* 36, 1984, pp. 359-380

employment by looking at the specific industries that were hardest hit in the 2002-2008 period, when more than 300,000 jobs were lost⁸⁰ (*Exhibit 16*). Of the 86 manufacturing industries tracked by Statistics Canada, 68, or nearly 80 percent, experienced job losses over the period – only 18 had job growth.

On average, the industries that gained jobs created higher value added per employee – \$110,000 per job, 24 percent higher than the \$88,400 per job in the industries that lost employment.⁸¹ This shift in manufacturing employment toward higher value added industries helped raise the real productivity of Canadian labour to \$89,300 (in 2002 Canadian dollars) per employee in 2008, \$9,400 higher than its 2002 level.

In addition, a higher proportion of the jobs in those industries was in “creativity-oriented” occupations and a lower proportion was in “routine-oriented” occupations. The distinction between creativity-oriented and routine-oriented jobs was first noted by Richard Florida, who observed that advanced economies are undergoing a fundamental transformation based on human intelligence, knowledge, and collaborative skills.⁸² The transformation involves moving from routine-oriented jobs to creativity-oriented jobs.

Routine-oriented jobs require workers to carry out tasks in a prescribed order or to do the same task repetitively according to a prescribed set of operating procedures. Workers in these occupations are either performing routine-physical labour, in traditional blue collar jobs like factory workers or truck drivers, or routine-service labour in clerical or hospitality service jobs, for example.

Creativity-oriented jobs, Florida’s “creative class,” require workers to apply knowledge and thinking skills to changing situations and to make decisions on how to proceed. A lawyer, for example, will recognize the key problems in a case and apply experience to determine what tasks need to be done in what order for that specific case. But every lawyer’s case is different. Creativity-oriented jobs require knowledge and understanding in specific fields, but they also depend heavily on the ability of workers to recognize patterns, analyze alternatives, and decide the best way to proceed. Creativity-oriented jobs include scientists and technologists, artists and entertainers, and managers and analysts.

Applying this framework to the industries that lost and gained jobs as the Canadian dollar appreciated indicates that, in the smaller number of industries gaining jobs, 25 percent of jobs were creativity-oriented – significantly higher than the 16 percent of jobs in the industries losing employment. Routine-oriented physical occupations accounted for nearly 66 percent of jobs in the industries shedding jobs, while they accounted for only 50 percent of the jobs in the industries gaining jobs. These results indicate that those manufacturing industries competing more on the basis of innovation – as evidenced by higher value added per job and greater reliance on creativity-oriented occupations – were more successful than others, while the rest were pummeled by the impact of the strengthening Canadian dollar.

When we examine the list of industries in *Exhibit 16*, a mixed view of the causes of job losses emerges. The industry that suffered most was *Cut and*

Sew Clothing Manufacturing, accounting for 13 percent of all lost jobs in manufacturing. As this industry lost a large portion of jobs, the Chinese share of our imports in that industry grew significantly. It is not a stretch to conclude that these jobs were lost to China.

This is confirmed in *Exhibit 17*, which examines the role of international trade in a more systematic way. Each of the points on the exhibit represents one of 86 industries in the North American Industry Classification System at the 4-digit level (NAICS4). The exhibit plots the annual growth of Canadian employment in each industry against the annual growth in that industry’s imports from China between 2002 and 2008.⁸³ Correlation analysis indicates a very mild relationship between the growth in imports from China in a specific industry and its employment loss (or gain) over the 2002-2008 period. Many industries lost employment with a minimal increase in Chinese competition; some grew, despite an increase in Chinese competition. The R-squared, the measure of correlation, is 0.06 which is statistically significant but very small. When we exclude the three textile industries, *Fabric Mills*, *Cut and Sew Clothing Manufacturing*, and *Clothing Knitting Mills*, the R-squared drops to 0.03, and the significant negative relationship no longer exists.⁸⁴

Each of the industries with the greatest employment losses has its own story

- Textile manufacturing (the combination of three industries, *Cut and Sew Clothing Manufacturing*, *Clothing Knitting Mills*, and *Fabric Mills*) appears near the bottom right of *Exhibit 17*, indicating that it lost a large percentage of its employment, while also seeing a significant surge in competitive

⁸⁰ Based on Labour Force Survey (LFS) estimates. LFS provides information on the employment characteristics of individuals, based on a survey of households.

⁸¹ The average value added for each lost job or newly created job is calculated based on 2002 industrial value added per employee, taking employment change between 2002 and 2008 as the weight. This weighted average not only considers each industry’s productivity, but also captures the size of employment loss or gain by the industry.

⁸² Richard L. Florida, *The rise of the creative class: and how it’s transforming work, leisure, community and everyday life*. New York, NY: Basic Books, 2002. Also see Roger Martin and Richard Florida, *Ontario in the Creative Age*, Martin Prosperity Institute, 2008.

⁸³ Let x_{it} be the share of Canadian imports from China in year t in industry i . For the horizontal axis, $x_i = (x_{i,2008} - x_{i,2002})/6$. For the vertical axis we do the same, except that we start with \log employment in the industry. To make the analysis more rigorous, we also try the same but with both employment and import growth de-trended. We de-trend as follows. Let x_{it} be the share of Canadian imports from China in period t in industry i . Let $\Delta x_{i,t} = (x_{i,2008} - x_{i,2002})/6$ and $\Delta x_{i,t} = (x_{i,2000} - x_{i,1992})/8$. We plot $\Delta x_{i,t} - (\Delta x_{i,t} + \Delta x_{i,t})/2$. For the vertical axis we start with \log employment in the industry. The exhibit with de-trending is very similar.

⁸⁴ Following Alberto Lsgut’s “Offshore outsourcing of goods and services: Are Canadian industries and workers benefiting or suffering?” October 2006, we ran multivariate regressions with Canadian employment on industrial product price, China’s share of total Canadian imports and total Canadian imports by applying difference-in-difference specifications from Daniel Treffer’s “The Long and Short of the Canada-U.S. Free Trade Agreement,” *American Economics Review*, 94, September 2004, p.870-895. After we excluded *Cut and Sew Clothing and Clothing Knitting Mills*, we did not find a significant relationship between the rise of imports from China and Canadian employment loss. This result is different from Lsgut’s result and this is because, in 2009, a major modification of the estimation methodology used by the Survey of Employment, Payroll, and Hours (SEPH) was implemented. For more information refer to the Statistics Canada website.

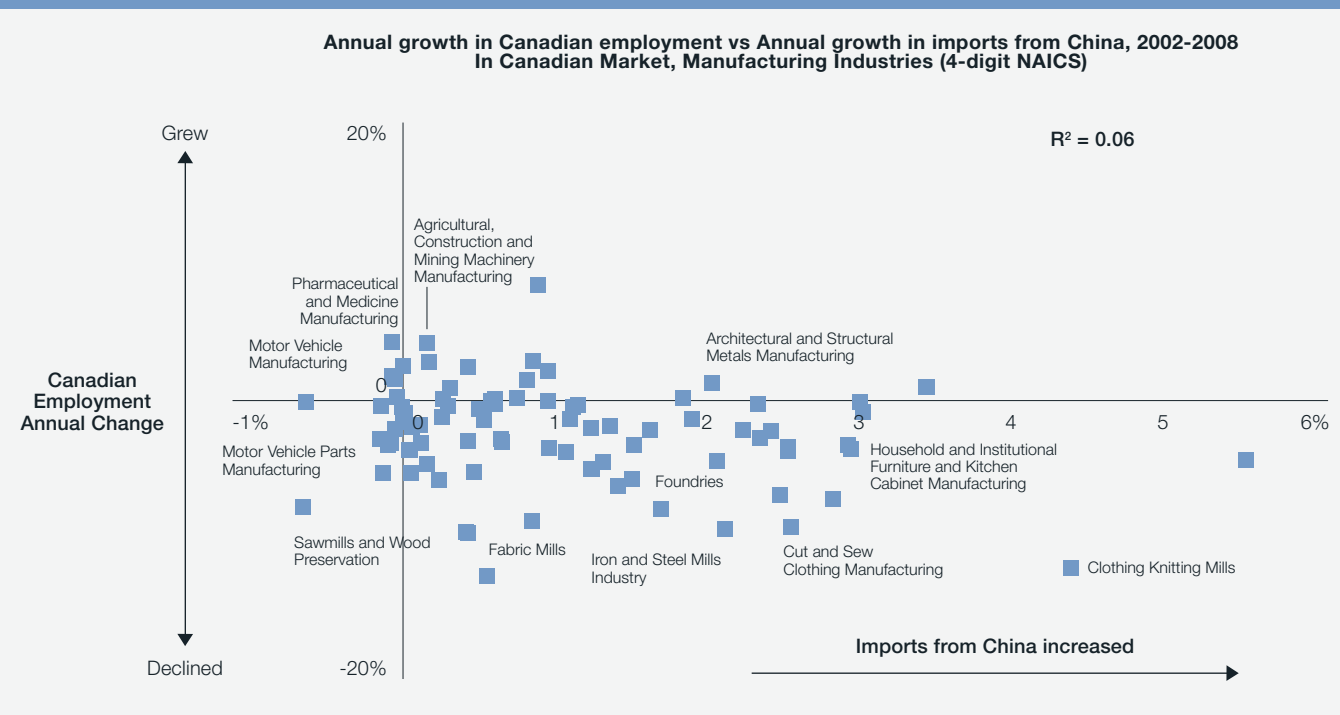
Chinese imports. This seems understandable. Textile manufacturing has a low value added per worker and a low percentage of employees working in creativity-oriented jobs. This kind of manufacturing industry is very vulnerable to low-wage Chinese competition.

- Losing industries are not always low-productivity players susceptible to low-cost imports. For example, the motor vehicle industry (combining *Motor Vehicle Parts and Motor Vehicles*) represents high value added Canadian manufacturing. It accounts for 11 percent of the total job losses in manufacturing. It also represents an industry that has lost a significant number of jobs in relatively high-productivity occupations – \$142,000 value added per employee, which is well above average. However, this industry has not faced serious competition from China, whose share of vehicle imports to Canada is essentially zero, and whose share of parts

imports reached only 3 percent in 2008. According to Dennis DesRosiers, one of the main factors behind the early success of the vehicle and parts manufacturing industry was “an artificially low Canadian dollar which frequently flirted with the 60 cent mark.”⁸⁵ As this advantage began to disappear, so did demand for Canadian manufactured vehicles and parts, and with it came a decline in employment and investment in that industry. DesRosiers also noted that increasing energy prices have contributed to declining employment and investment in this sector, following a decline in demand for passenger vehicles. Former Industry Minister and current chair of the Canadian Council for Chief Executives, John Manley, identifies exchange rates and the thickening border as the key factors in employment losses in the motor vehicle industry.⁸⁶

- Another significant loss of jobs took place in the *Sawmill industry*, a staple “Canadian” natural resources industry (see Exhibit 16). China, however, did not increase its share of exports to the Canadian market; nor does it already own a substantial share.⁸⁷ China also did not displace Canada in the United States, a key market for Canadian wood products. While Canada’s share of exports to the United States fell, the increase in China’s share of the US market was significantly smaller.⁸⁸ The rise in the Canadian dollar also does not explain this industry’s decline. The US sawmill industry, which would be poised to gain a competitive advantage from a rising Canadian dollar, also lost jobs during the same period. In this case, the decline in Canadian manufacturing relates to a fall in demand, driven by the housing market bust in the 2000s, which affected the entire North American industry. It is not attached to a change in trading terms or the entrance of a new player.

Exhibit 17 Employment declines in most Canadian manufacturing industries are not related to imports from China



Source: Institute for Competitiveness & Prosperity Analysis using data from Statistics Canada and Industry Canada

⁸⁵ Dennis DesRosiers, “The three eras of automotive manufacturing in Canada,” March 15, 2008, available online: <http://www.desrosiers.ca/docsandreports.html>

⁸⁶ John Manley, “Obama and Harper: A new beginning?” *Policy Options*, April 2009, p.19, available online: <http://www.irpp.org/po/>

⁸⁷ Among Canadian sawmills industry imports, in 2008, only 0.1 percent was from China.

⁸⁸ U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division.

- Another industry that suffered a decline in the time period was the *Iron and Steel Mills industry*. This is a case where China's exports to Canada do not represent a significant source of job losses – they are small and not growing at a rapid pace. However, Canada's exports of steel to the US dropped sharply after 2007, while over the 2004-2008 period US imports from China more than doubled in dollar terms.⁸⁹ This is a recent trend, where China appears to be displacing a higher value added Canadian industry, without directly competing in Canada. However, this does not hold in other industries. Our analysis shows that between 1992 and 2008, there is no significant indirect competition in the US market between Canada and China in other manufacturing industries.⁹⁰
- Not all manufacturing industries shed jobs over the 2002-2008 period. *Pharmaceutical and Medicine Manufacturing* posted a 1 percent

increase in employment. It generated \$168,000 value added per employee, and 43.9 percent of its jobs were creativity-oriented, higher than the average creativity share in the Canadian economy of 28.6 percent.

China is still competing in low-productivity industries

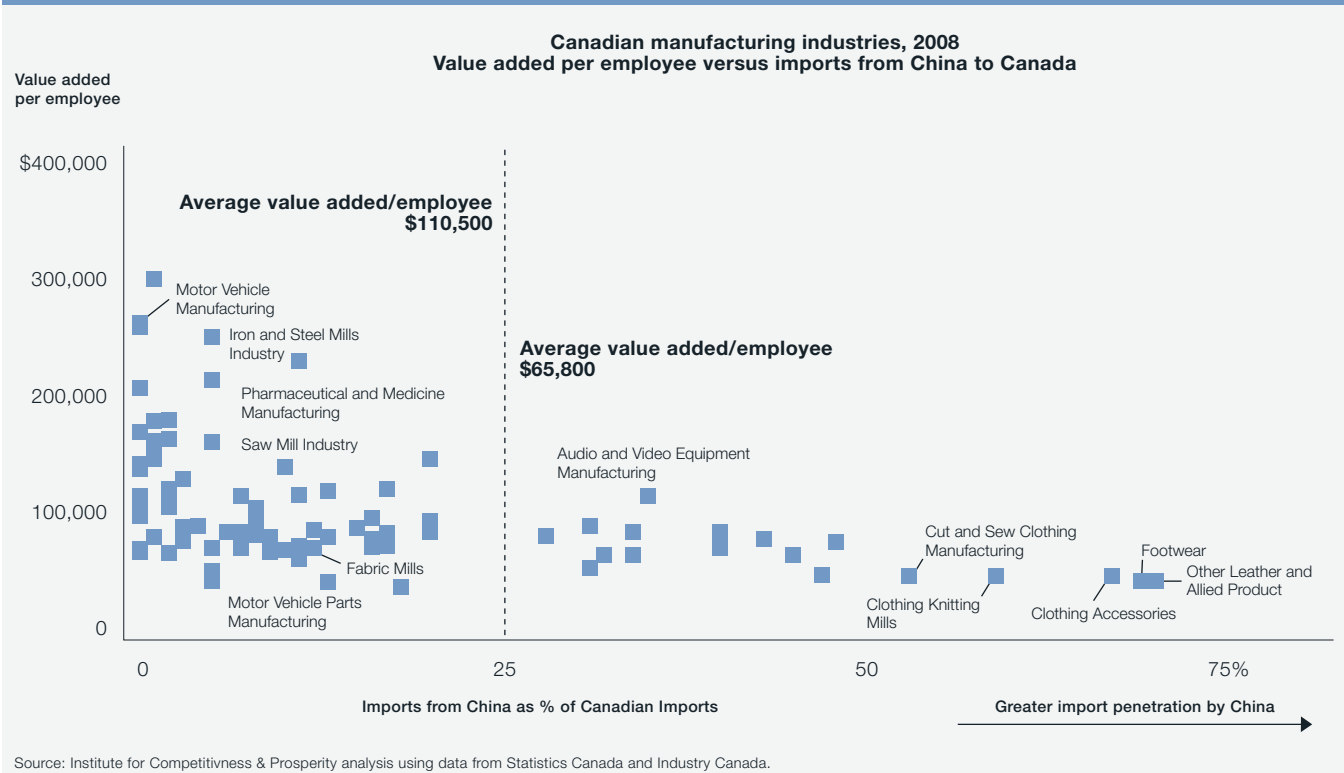
Exhibit 18 plots the 2008 value added per employee for each four-digit NAICS industry against imports from China as a percentage of Canadian shipments to measure the extent each industry is exposed to Chinese imports. It shows that Canadian industries with low value added are much more likely to surrender a significant market share to Chinese imports. For example, in Canadian industries where Chinese imports have a 25 percent or greater share, value added per employee was only \$65,800, well below the average \$110,500 in industries where China has had less import success. The industry most

affected by Chinese imports – textile manufacturing, where China accounts for half of Canada's market – produces value added per employee in the Canadian manufacturing industry of only \$51,800. Specific industries aside, 82.7 percent of total Chinese imports to Canada are in Canadian industries that are less productive than the average Canadian industry.⁹¹

China-Canada trade has little effect on Canada's overall labour market

Across the entire Canadian labour market, it is difficult to see any impact from China's growth. Since China was admitted to the WTO in 2001, the number of working-age Canadians seeking employment has continued to increase, and the job market has continued to have opportunities for them. This is evident in the growth in participation and employment rates (*Exhibit 19*).

Exhibit 18 China's import penetration is greater in low value added industries



⁸⁹ Our analysis is based on data from US Census Bureau, Foreign Trade Statistics. Four categories based on end-use code are picked up – Iron and steel mill products-semifinished; Iron and steel products, except advanced manufactured; Iron and steel manufactured-advanced; and Steelmaking and ferroalloying materials-unmanufactured.

⁹⁰ We ran the same regression in US markets –the regression of the growth rate of US imports from Canada on the growth rate of US imports from China for all NAICS 4-digits industries. We also analyzed the difference-in-difference specification between 1992-2000 and 2002-2008 and we did not find significant relationship between these two.

⁹¹ Total imports value from China in 2008 was \$43,086 billion, of which \$35,648 billion or 82.7 percent are products that could be produced in Canadian industries that have lower productivity than the average Canadian manufacturing productivity, \$103, 900 per employee.

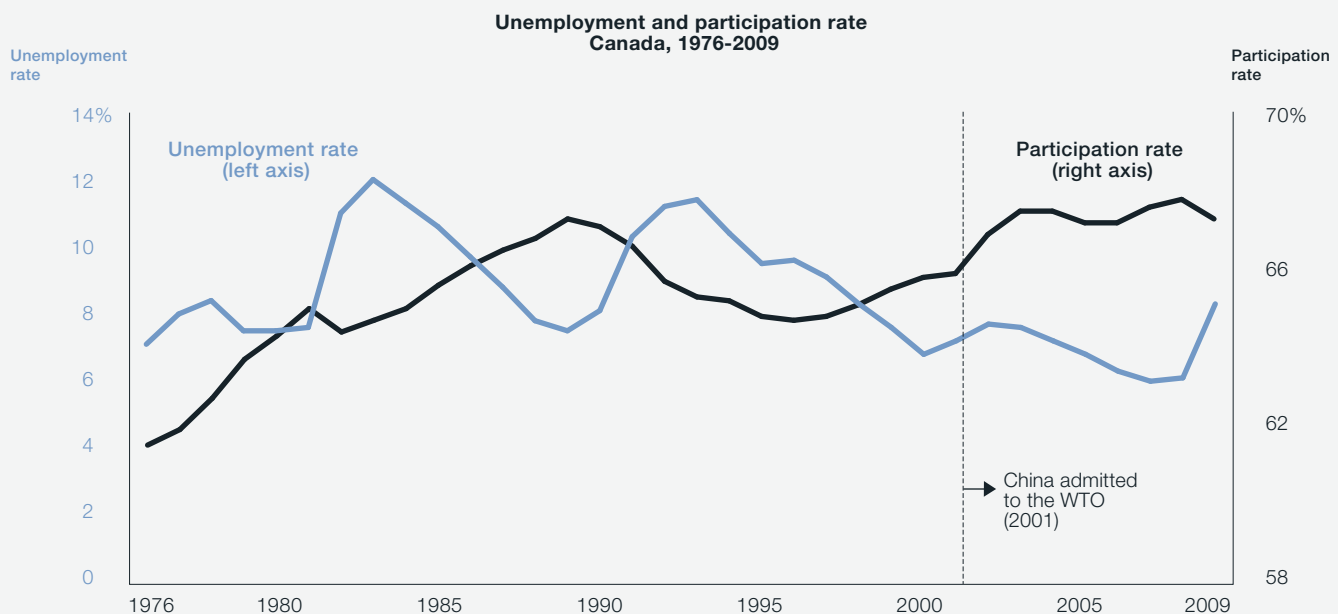
Another measure of employment weakness is the percentage of workers who are employed part-time involuntarily – they want full-time jobs, but are unable to find them. In 2009, 28 percent of Canadian and 32 percent of Ontario part-time employees in all industries wanted full-time work. As imports grew, we found that the increase in imports from China had no correlation with involuntary part-time employment. In the 2008-2009 recession, imports from China were falling, while the involuntary part-time ratio was increasing. So on this dimension, it is difficult to see how China’s export strength has weakened Canadian employment.

On balance, our research shows that China is still competing on the basis of low costs and has not yet crossed the innovation tipping point. Its export growth has occurred in a context of a general decline in the importance of manufacturing in developed economies, and so it is difficult to identify China as

a “culprit” in Canada’s slumping manufacturing employment. Rather, our research points more in the direction of a stronger Canadian dollar as the explanation.

But, regardless of the underlying cause of manufacturing employment losses, those firms and industries that are competing on the basis of higher value added and greater creativity content are less vulnerable to emerging global competition than those in less innovative industries. The challenge for Canada is to step up its innovation capabilities to flourish in the global competitiveness game.

Exhibit 19 Imports from China have had no apparent impact on Canada’s overall labour market



Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada CANSIM Table 282-0086 and 282-0002.



The European Union opportunity

Canada has an opportunity to expand trade with the EU

WHILE OPPORTUNITIES FOR TRADE WILL INCREASE as China becomes more advanced, the EU is already a large and sophisticated trade partner. Expanding our trade with this innovation-based economy can increase the support and competitive pressure for our businesses.

One advantage in the European market is that consumer preferences and institutions are more closely matched with those in Canada than with those in the BRICs. The sophisticated European consumer can place beneficial pressure on our businesses to strengthen their product and service offerings. The competitive pressure from European imports can also stimulate innovation in Canada. So, while expanded trade with the BRICs will provide greater support in sheer numbers of potential consumers, more trade with the EU will create opportunities from demanding consumers. While imports from the BRICs can push our businesses to increase the value added in their operations, imports from Europe will challenge Canadian companies already providing high value goods and services to improve their offerings even more.

The EU is an important trade partner

The EU's importance as a trade partner has increased in recent years, both in terms of the share of total Canadian imports and as a share of total exports. With the United States still reeling from the current recession, the case for an expanded EU trade relationship is stronger than in the past – not only for its immediate economic benefits, but also as a means of expanding and diversifying our trade. Federal and provincial governments must seize this moment to reduce trade and investment barriers, and our businesses must pursue the resulting opportunities available to them.

The EU is Canada's second largest goods or merchandise trading partner, with total trade volume that is 48 percent higher than China's. The EU accounted for \$45 billion or 12 percent of Canada's merchandise imports, and \$30 billion or 8 percent of Canada's merchandise exports in 2009. Within the EU, Canada's largest trading partners

are the United Kingdom, Germany, and France, with total trade in 2009 equaling \$21.5 billion, \$14.4 billion, and \$8.3 billion, respectively.⁹²

For the EU, trade with Canada is relatively less significant. In 2009, Canada was the EU's eleventh most important trading partner in goods, accounting for just under 2 percent of the EU's goods trade. Distance is a factor, as neighbouring countries like Norway and Switzerland trade more intensively with the EU, despite their smaller GDPs.

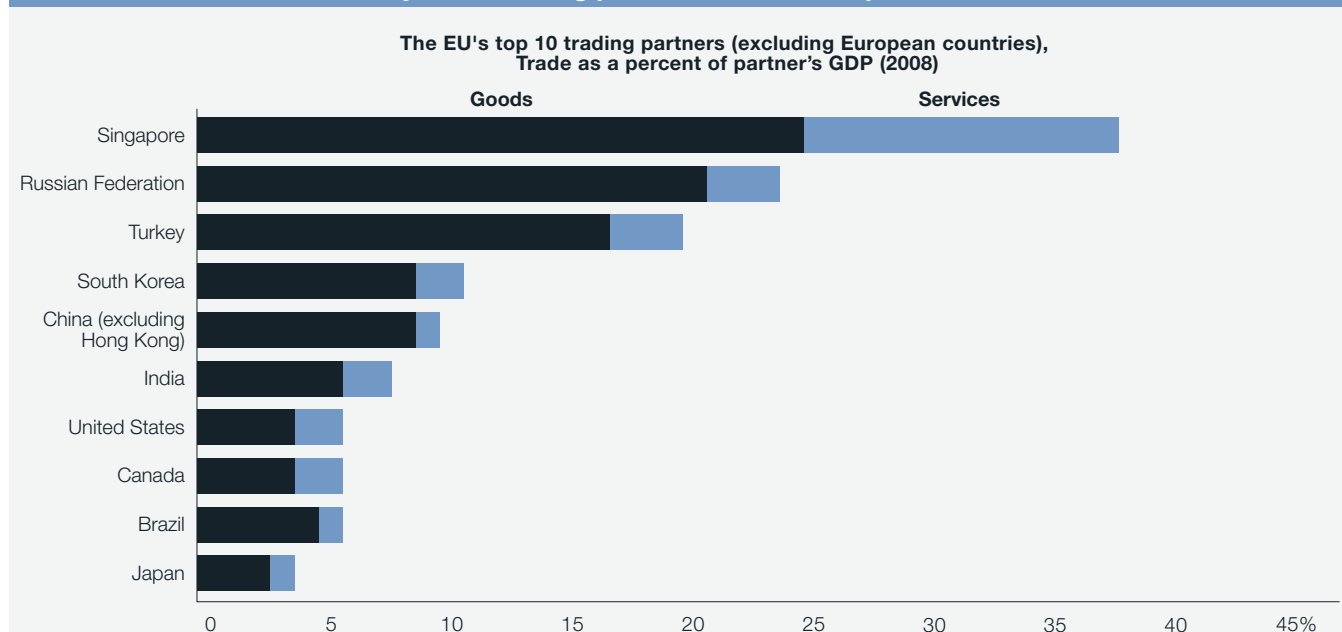
Canada's largest export to the EU is commodities (crude materials and fuels) accounting for 32 percent of the EU's imports from Canada. This is the same share of imports accounted for by commodities from all countries. Its next most important export is machinery and transportation equipment accounting for 28 percent of the EU's imports from Canada – the same share of its imports from all countries. Manufactured goods account for 18 percent of EU imports from Canada – less than the share it imports from other countries. Chemicals from Canada are next in importance to

the EU and account for a greater share of EU chemical imports from all countries.

The EU's largest export to Canada is machinery and transportation equipment – about 36 percent of all EU exports to Canada – although all other countries are relatively more important export markets for the EU. Chemicals make up 21 percent of EU exports to Canada, a greater share than its exports to all other countries. Manufactured goods account for 19 percent of EU exports to Canada, less than their importance to the EU's other export markets.

Trade in services between Canada and the EU amounted to \$26.9 billion in 2009. Exports and imports were roughly in balance, with Canadian exports to the EU equalling \$11.6 billion and imports from the EU totalling \$15.2 billion. The services trade is concentrated in a few sectors: transportation, travel (tourism), financial and insurance services, and other business services. While trade in most sectors tends to be balanced, in these largest categories Canada has

Exhibit 20 Canada is a relatively small trading partner with the European Union



Note: PPPs based on OECD estimates for 2008. Goods statistics are Customs-based, services statistics are Balance of Payments-based.
Source: Institute for Competitiveness & Prosperity analysis based on data from Eurostat, IMF World Economic Outlook Database 2010.

⁹² Industry Canada, available online: <http://www.ic.gc.ca/eic/site/tdo-dcd.nsf/eng/home>

trade deficits with the EU in transportation, travel (tourism), and financial and insurance services, and a trade surplus in other business services.

Compared to other countries of similar distance from the EU, the EU's trade relationship with Canada is under developed. While Canada's GDP is over one and a half times larger than South Korea's, our trade in goods and services with the EU is 8 percent lower than EU trade with South Korea. Canada's GDP is 24 percent larger than India's, yet our trade with the EU is 8 percent lower (*Exhibit 20*). Nevertheless, Canada is one of the EU's top ten largest trading partners.

Foreign direct investment (FDI) flows between Canada and the EU are generally balanced. The EU is Canada's second largest source of FDI, and Canada is the EU's fourth largest source of FDI. The relationship has also been growing rapidly: between 1995 and 2006, both Canadian investments in the EU and EU investments in Canada increased sevenfold.⁹³ This close and fruitful association must be nurtured as global competition intensifies.

At the Canada-EU Summit on May 6, 2009, in Prague, leaders announced the launch of negotiations toward a Comprehensive Economic and Trade Agreement (CETA). This new agreement will move beyond the 2004 Canada-EU

Trade and Investment Enhancement Agreement (TIEA) with a much broader and more ambitious scope, focusing on trade in goods and services; investment; government procurement; regulatory cooperation; intellectual property; temporary entry of business persons; competition policy and other related matters; labour; and the environment.⁹⁴

Since the Prague summit, four negotiating rounds have taken place, with the latest taking place in July 2010, in Brussels. Officials report significant progress has already been achieved and hope to complete two additional rounds by winter 2011.⁹⁵

Barriers to trade need to be addressed

A few key trade barriers inhibit the EU-Canada trade relationship from reaching its full potential. These include tariffs on goods, non-tariff measures, and barriers to trade in services.

Tariffs on goods traded between the EU and Canada are generally low. On a trade-weighted basis, in 2007, Canadian goods faced an average tariff of 2.2 percent entering the EU market, while EU goods faced an average tariff of 3.5 percent in the Canadian market.⁹⁶ However, certain sectors face particularly high tariffs, such as EU agricultural products and electrical products entering into Canada, and Canadian

fish and seafood products as well as processed food entering the EU.

Non-tariff measures inhibiting trade between the EU and Canada include sanitary and phytosanitary standards; customs rules and procedures; processing delays for product certifications; and certification and import requirements. Specific measures affecting Canadian market access to the EU include the EU's Common Agricultural Policy, with farm subsidies favouring EU producers, EU regulations on genetically modified organisms, the EU's ban on hormones in livestock production, and the EU's chemical regulation program (REACH).

Barriers to EU-Canada trade in services include limits to foreign ownership, lack of recognition of professional qualifications, inconsistent regulations across member states in the EU and provinces and territories in Canada, and discriminatory treatment advantaging domestic companies over foreign ones, such as nationality requirements. Architectural and engineering services, financial services, and environmental services are just a few examples of Canadian sectors disadvantaged by EU services trade barriers.

Addressing some of these key trade barriers would yield significant economic benefits (*Exhibit 21*). The joint Canada-EU study cited earlier esti-

Exhibit 21 Freer trade with the European Union would generate GDP gains

GDP gains (2007 C\$, billions)	GDP gains from expanded Canada-EU trade from ...			Total gain	Percent of GDP
	Liberalizing trade in services	Reducing tariffs	Lowering non-tariff barriers		
European Union	\$8.3	\$4.2	\$4.2	\$16.7	0.08%
Canada	\$5.3	\$3.9	\$2.5	\$11.7	0.77%

0.77% increase in GDP per capita = \$370 = 4% of the \$9,300 Canada-US Prosperity Gap

Source: Government of Canada and the European Commission (2008) "Assessing the costs and benefits of a closer EU-Canada economic partnership."

⁹³ The Government of Canada and the European Commission, "Assessing the costs and benefits of a closer EU-Canada economic partnership," 2008, p. 27.

⁹⁴ Foreign Affairs and International Trade Canada, Canada-European Union: Comprehensive Economic and Trade Agreement (CETA) Negotiations, available online: <http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/au-ue/can-eu-report-intro-can-ue-rapport-intro.aspx>

⁹⁵ Foreign Affairs and International Trade Canada, Press release, available online: http://www.international.gc.ca/media_commerce/comm/news-communiqués/2010/026.aspx

⁹⁶ The Government of Canada and the European Commission, "Assessing the costs and benefits of a closer EU-Canada economic partnership," 2008, pp.165.

mates that liberalizing trade in goods and services could bring a potential 23 percent increase to bilateral trade and GDP gains of up to \$11.7 billion for Canada by 2014.

A significant part of this economic growth would come from liberalizing trade in services. Estimates suggest that a liberalization of the services trade regime would be the main contributor to a \$3.2 billion, or 14.2 percent, expansion in Canada's service exports to the EU by 2014. Moreover, service sector liberalization would add significantly to trade gains in goods sectors that draw heavily on services as inputs, including the automotive and several metals sectors.⁹⁷

With the elimination of trade barriers, the Canadian processed foods, primary agriculture, metals, transportation services, petroleum & coal products, transport equipment, and machinery and equipment sectors will gain the

most. Chemical products, other business services, and motor vehicles and parts would also make solid bilateral export gains (*Exhibit 22*).

Agricultural product tariffs and public procurement are two areas worth examining in greater detail, as they could be stumbling blocks to an all encompassing agreement.⁹⁸

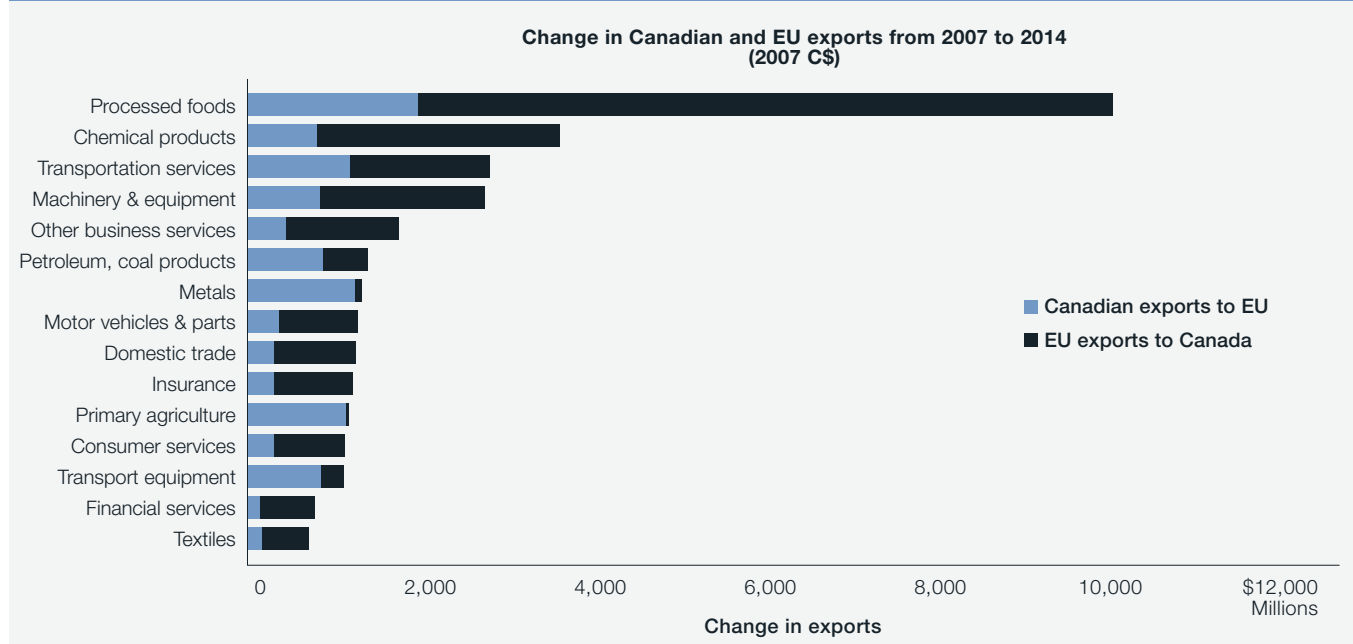
Tariffs on agricultural products block trade gains

Canada currently maintains prohibitively high over-quota duties on imports of agricultural goods from the EU, including dairy, poultry, egg, beef, wheat, barley, and margarine products. For instance, out-of-quota tariffs on cheeses are 245.6 percent, which greatly inhibits EU cheese exports to Canada, despite consumer demand.⁹⁹ These trade barriers are in place to support the supply management systems of Canada's agricultural marketing boards.¹⁰⁰ These systems are a deeply

entrenched component of Canada's agricultural economy, and the Federal Government has stated its firm position in the EU negotiations will be to maintain the current regime.¹⁰¹

Our supply management systems inhibit us from reaching our full trade potential, which in turn keeps us from realizing our innovation potential. In affected sectors, we have explicitly given up export opportunities to protect our domestic producers from foreign competition. As author Andrea Mandel-Campbell shows in her recent book, *Why Mexicans Don't Drink Molson*, Canada has fallen from tenth-place rank in global milk production in 1969 to twentieth – and our prices for milk in Canada are twice global averages.¹⁰²

Exhibit 22 Liberalized EU-Canada trade would affect a range of industries



Source: Government of Canada and the European Commission (2008) "Assessing the costs and benefits of a closer EU-Canada economic partnership."

⁹⁷ *Ibid.* p.158
⁹⁸ Kurt Hubner, "The Launch of Negotiations for an Encompassing EU-Canada Economic Partnership," Policy Brief, Centre for European Studies, Carleton University, 2009.
⁹⁹ The Government of Canada and the European Commission, "Assessing the costs and benefits of a closer EU-Canada economic partnership," 2008, p. 34.
¹⁰⁰ Dan Schrier, "Milking the System: Is Canada's Supply Management System an Impediment to Free Trade," in *BC Stats*, Issue 08-08, 2008.
¹⁰¹ House of Commons Committees, Standing Committee on International Trade, 40th Parliament, 2nd session, Evidence, October 8, 2009, available online: <http://www2.parl.gc.ca/HousePublications/Publication.aspx?DocId=4134772&Language=E&Mode=1&Parl=40&Ses=2>
¹⁰² Andrea Mandel-Campbell, *Why Mexicans Don't Drink Molson*. Vancouver: Douglas and McIntyre, 2007, pp.105-113.

Public procurement policies undermine trade arrangements

The market for the public procurement of goods and services is vast: government purchases account for 15 to 20 percent of GDP in OECD countries.¹⁰³ Many leading Canadian companies operate in sectors largely governed by public procurement rules, such as infrastructure; civil works; transportation; energy; electricity generation, distribution, and transmission; and water.

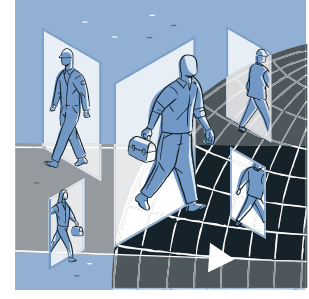
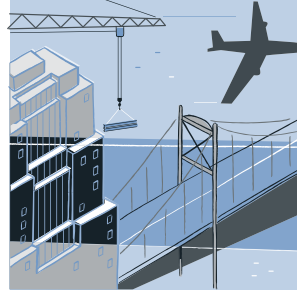
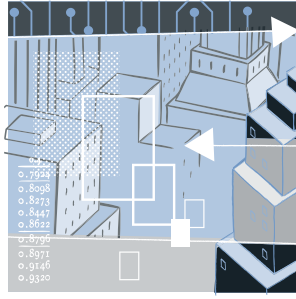
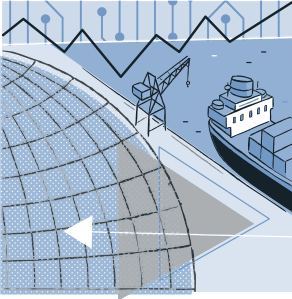
Although Canada and the EU are both signatories to the WTO Agreement on Government Procurement, Canada has excluded “sub-central entities” (provinces and territories) and “other entities” (Crown Corporations, both federal and provincial) from its commitments under the agreement (though the US and Canada recently included sub-central entities on a reciprocal basis). The EU, in contrast, has included commitments in both these areas, but does not extend access to procurement by such entities to Canada on the basis of reciprocity.¹⁰⁴ The deepening of public procurement commitments is thus an obvious candidate for inclusion in any comprehensive agreement between the EU and Canada.

Given the difficult fiscal situation facing our federal and provincial governments, they ought not to be timid about searching out the best value for money, irrespective of the source. And with the framework of pressure and support in mind, we conclude that greater competitive pressure for domestic companies supplying goods and services to our governments will provide a beneficial spur for innovation.

More trade with the European Union provides different benefits to Canada than that with China and the other BRICs. With the EU, we face market opportunities and competitive challenges from advanced economies. Their sophisticated consumers and competitors will help Canadian firms improve their innovation capabilities and enhance our consumers' welfare.

¹⁰³ The Government of Canada and the European Commission, “Assessing the costs and benefits of a closer EU-Canada economic partnership,” 2008, p. 160.

¹⁰⁴ *Ibid.*, p. 169.



Trade, innovation, and prosperity

Trade is critical to our prosperity

TRADE CREATES ADVANTAGES through specialization and the availability of a wide variety of products and services at the lowest possible price. Equally important, as we have shown in this Working Paper, is the impact that expanded trade can have on our innovation success. Greater access to world markets enhances business results, thereby providing the support for investments in innovative products and processes and lowering the risks of innovation. More exposure to foreign consumers and competitors provides beneficial pressure on our businesses and individuals to innovate. Both would contribute to higher productivity – and our prosperity.

We need these elements of support and pressure, given the lacklustre innovation track record in Canada:

- our productivity performance is poor, indicating our lack of innovation
- our businesses perform less R&D than their counterparts in most developed economies
- we produce far fewer patents per population compared to our US counterparts
- we invest less in advanced information and communications technology
- our clusters of traded industries are not as competitive as their US counterparts.

Rather than ignoring or resisting the development of emerging economies, we should welcome the opportunity to trade more with them – as a catalyst for strengthening our innovation efforts. Several initiatives will help develop our trade and innovation success.

Expand our trade relationships

Despite the current sluggishness in world trade brought on by the recession, this is an exciting time in international trade. As we have seen, economies are developing fast not just in China and India, but also in the other BRICs – Brazil and Russia. And other countries like Vietnam, Indonesia, Poland and Romania will likely become more prominent as globalization spreads. Canada has a solid set of strengths to compete globally – but we need to develop more and deeper trade relationships.

Trade with China is the opportunity that is here and now. A recent report by the Canadian Chamber of Commerce offers some practical recommendations for our governments to strengthen relationships between our two countries. At the national levels, it recommends more regular reciprocal visits between cabinet ministers and senior government officials, a formal invitation to China for a state visit by President Wen Jiabo, and more Memoranda of Understanding between various departments in agriculture, culture, transportation, and others. Political engagement needs to be strengthened at the provincial and local levels, with more trade missions led by premiers and mayors. In addition, the Chamber recommended that Canada's official presence in China be expanded beyond Beijing, Shanghai, and Hong Kong, building on the recent opening of six new trade representative offices in major Chinese cities.

Ultimately, trade will be expanded by businesses and, while governments can encourage and assist with trade missions, introductions, and market intelligence, our business leaders need to step up their efforts at expanding trade with China and the other BRICs – pursuing export and import opportunities. For many, the challenges of expanding into new markets and managing extended supply chains will be perplexing. Business leaders need to strike the right balance between moving quickly and planning and preparing adequately. But the first step has to be an acknowledgement that future success will depend on the right strategy for these developing economies.

At the same time as we are expanding relationships, we need to pay attention to the trade success we already enjoy with the United States. We need to exert friendly pressure on our neighbours to defeat protectionism, and we need to ensure that our markets are open to their products, services, and investments.

Invest in infrastructure

As we have seen, border crossing infrastructure, especially in southern Ontario, risks becoming a critical choke point for trade with the United States, our most important trading partner. Those of us living near the Windsor/Detroit and Niagara/ Buffalo border crossings have experienced the increased travel delays. Clearly, our federal and provincial governments are aware of the issue and are dealing with their US counterparts to develop solutions. We can only add our voice to those who have called on governments to find solutions and to allocate funding on a priority basis.

We have also seen that our infrastructure for facilitating trade with Asia Pacific countries is likely to be inadequate for expanded commerce between Canada and China and India. We have investment needs in our west coast seaports and our airports across the country if we are to realize the full potential from expanded trade with BRICs and others.

Invest in education

A recurring theme of our work is that greater investments in education are critical if we are to build an economy that survives and thrives in the face of increased global competition. To date, Canada, along with a few other countries accounting for a minority of the world's population, have had the opportunity to compete on the basis of innovation. But as larger economies become more sophisticated and cross the innovation tipping point, our creative skills will be tested, and it is by no means certain that we will be able to assume prosperity for the future.

In our 2009 Report on Canada, we showed the increasing returns to analytical and social intelligence skills and the decreasing returns to physical skills. We expect that this trend will continue – our economy will value less and less the jobs based on sweat and physical prowess. Education is a critical foundation for the broad skills we will need and, as our work has shown, we under invest in this strategic area.

Draw on the capabilities of our immigrants

Canada has been blessed with a large group of well-educated immigrants from a wide variety of countries around the world, especially China and India. As we and others have noted, our challenge has been to draw on their skills to help them integrate more closely into our economy. This is a great opportunity for our businesses to help develop their strategies for expansion outside North America. Public expenditures to help immigrants develop businesses that are built on trade with their native countries may be wise investments that help expand trade and strengthen the economic success of our recent immigrants.

It is especially important to develop ways for drawing on the knowledge and skills of newly graduated business students. Fully 21 percent of MBA students from the University of Toronto's Rotman School of Management are from Asia, and another 9 percent are from other parts of the world. This is typical of business schools across Canada. These newly minted MBAs combine formal business strategy knowledge and firsthand experience in these markets. Our businesses should not overlook such valuable resources. There may be opportunities for governments to support internships with small- and medium-sized businesses.

Develop better ways to help displaced workers

While expanded trade helps raise our standard of living overall, clearly there are those who bear the brunt of the adjustment process. While we have shown that developing economies, including China, have not been major contributors to the job losses in manufacturing, workers with lower skills in low value added manufacturing industries have already been hurt by China or are at risk.

Unfortunately, there is no proven plan to help these displaced workers. Retraining is the panacea most often promoted. But definitive positive results are hard to come by. A 2008 study by the US Department of Labor indicates that retraining laid-off workers has limited success at best. The study reports results of a non-experimental net impact evaluation of the Adult and Dislocated Worker Programs under the Workforce Investment Act (WIA). The study tracked the experience of 160,000 laid-off workers in twelve states from 2003 to 2005, a period of economic expansion. It compared the results for those laid-off workers who had participated in formal

training programs with those who had not and found very little difference in earnings three and four years later. It concluded that the “ultimate gains from participation [in formal training programs] are small or non-existent.”

Closer to home, a study conducted by the Canadian Auto Workers, Chrysler Canada, and the Ontario Government assessed the experiences of laid-off auto workers moving through the adjustment process at CAW Action Centres, which were the first point of contact for workers seeking retraining. While there was a high degree of interest and involvement among the laid-off workers, results were disappointing. Only a quarter of the participants in the study sample found employment. And most of them accepted jobs that were part time or low paid, with fewer benefits than the workers had in their old jobs – or none at all – and greater employment insecurity.

A significant impact of job loss among older workers who had long tenure with a single employer is the lower wages earned at their next job. The financial impact of the period of unemployment is typically less than the longer term impact of lower earnings. A 40-year-old worker earning \$40,000 annually, who is unemployed for six months, loses \$20,000 – but this amount is reduced by Employment Insurance benefits. If the worker secures a new job after six months, but one that pays 20 percent less, the lifetime impact of that loss is more than \$150,000. Our current employment insurance programs do not address this challenge.

A 2007 Statistics Canada study by René Morissette, Xuelin Zhang, and Marc Frenette indicates that male workers between the ages of 25 and 49, who lost their jobs during the years from 1983 to 2002 through firm closures or mass layoffs and subsequently found new jobs, were earning on average between 9 and 22 percent less five years later. The average reduction for females was between 12 and 35 percent. Earnings losses by displaced workers with five or more years of seniority were higher than those for other workers, with losses ranging from 18 percent to 35 percent among men and 26 to 35 percent among women. The researchers compared the experience of displaced workers during the 1987–92 period, which included a severe recession and the 1993–97 recovery period. The negative impact on earnings was more severe during the recession.

Retraining programs are costly if done adequately, incorporating formal training programs and workers' opportunity costs. And beneficial results for such investments with older workers have not been proven.

Explore the benefits of wage insurance

Insurance for the period of unemployment and retraining programs is essential in protecting against the uncertainties of the labour market. But we need targeted approaches to ease the transition for workers who are forced to move to lower paying occupations. Wage insurance could be a useful approach that supplements existing programs.

Wage insurance can help ease the transition that some workers face in our rapidly changing economy – particularly older workers with less transportable skills. At the same time, it motivates unemployed workers to find a new job; in fact, by reducing the sting of lower wages, it encourages them to consider jobs in other sectors where their current skills are not as valuable. In a sense, it subsidizes employers to hire and retrain these workers on the job.

Wage insurance, as presented by its proponents, could work as follows. The program would be targeted at workers who have been in a job for a relatively long period, say ten years. In fact, benefits could be available to all workers, but experience indicates that wage loss is a much less significant problem for workers who have been in the same job for less time, partly because they are younger. When these workers are re-employed at a lower wage rate, wage insurance benefits would cover half the earnings difference for a period of two years. The benefit would be capped at \$10,000 annually to ensure targeting at lower- and middle-income earners. The coverage rate, the coverage period, and the benefit cap could be adjusted up or down.

Some problems could undermine the program. Higher earnings replacement rates would lessen the incentive for a worker to secure a higher paying job and to invest in retraining while in the new job. The same challenge exists for the length of coverage. And rising program costs would also be an issue. US calculations of a wage insurance program as outlined above indicate a \$3.5 billion annual cost equal to an annual premium of \$25 per worker.

Although the concept of wage insurance is promising, one experiment conducted in the mid-1990s by the federal government's Social Research and Demonstration Corporation yielded disappointing results. The experiment, conducted in 1995-96, focused on workers who had lost their job after at least five years of continuous employment. Participants who chose to leave Employment Insurance for full-time work within a specified period of time received 75 percent of the difference between earning in their previous job and their new job up to a weekly maximum of \$250 for up to two years. Among eligible displaced workers, interest was high. However, the program produced only a modest increase in full-time employment and, after fifteen months, earnings were about 5 percent lower than for those who chose not to participate.

It is possible that better results could come from a redesign of the experiment – different qualifying time periods, richer benefits, and a focus on situations with older, less skilled workers, for example. There is still much work to be done in assessing the costs and benefits of wage insurance. Ontario and Canada would be wise to study the program further.

Canada is one of the world's most prosperous economies, but our productivity and innovation track record have been uninspiring. Expanded trade will have a huge impact on our innovation efforts and their success. More access to world markets will enhance business results, thereby providing the support for investing in innovation and lowering the potential risks. More exposure to foreign customers and competitors will provide beneficial pressure on our businesses and individuals to innovate. The world trade scene is changing rapidly as China and other developing economies move toward the innovation tipping point. In this tumultuous environment, Canada needs to become even more of a trading nation than ever before.

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