Employment Implications of Trade Liberalization with East Asia

by

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Executive Summary

This study examines the employment impacts of Canada's existing bilateral trade relationships with East Asia, and the likely employment effects of the proposed Canada-Korea Free Trade Agreement (CKFTA). The study focuses on Canada's three largest Asian trading partners: Korea, Japan, and China.

Canada experiences large and growing trade deficits with these countries. These deficits have emerged only during the last decade. Since 1996, Canada's imports from these three countries grew by 174 percent – but Canada's exports to the same countries grew by only 12 percent (despite the phenomenal pace of growth and demand in China, the region's largest market). By 2005, Canada imported $2.50 worth of products from these three countries, for every dollar we exported back to them. Canada's combined trade deficit with the three countries exploded from just $1 billion in 1996 (on a combined two-way flow of $35 billion), to over $30 billion in 2005 (on a combined two-way flow of less than $70 billion).

Table 1 Employment Effects of Current Canada-East Asia Trade 2005		
	Current Trade Balance ($ b)	Estimated Net Job Effects of Current Trade Flows
Korea	-2.85	-9,227
Japan	-6.84	-20,813
China	-22.79	-153,861
Total	-32.47	-183,902

Source: CAW Research from Statistics Canada and Strategis data. Includes all non-agricultural sectors (excludes NAICS sector 11).
Includes specified non-agricultural industrial sectors considered in this study; excludes NAICS sector 11 (unprocessed agricultural goods).

The fact that Canada purchases so much more from Asia than we sell there, combined with the fact that Canadian exports are mostly resource-intensive products which generate relatively few jobs, means that our bilateral trade with East Asia has become a major source of net job loss. This study conducts a detailed decomposition of Canada's bilateral trade with East Asia into 20 major sectors, considering total shipments, employment, and trade balances. In total, our current trade with East Asia results in the net loss of over 180,000 Canadian jobs. Most of this job loss is due to our trade with China, but significant job losses also result from our current trade with Korea and Japan. Strategic, high-technology sectors such as computers, machinery, and transportation equipment (especially motor vehicles) have experienced the worst of the job losses – contrary to the traditional assumption that only "low-technology" sectors such as clothing and footwear will lose out under trade liberalization.

This study also reviews the experience of Canada's past FTAs (with the U.S., Mexico, Israel, Chile, and Costa Rica). Uniformly, these FTAs have been associated with a decline in Canada's exports to those countries

as a share of FTA partner total imports, and in all but one case Canadian imports from FTA partners have grown far faster than our exports to them.[1] The study also finds that tariff reduction has been predictably associated with greater import penetration in Canada – but much less so in East Asia, where imports are curtailed (even under low tariffs) by pro-active economic and industrial policy tools.[2] Indeed, in Korea's case there is *no statistical relationship whatsoever* between tariff reduction and import penetration over the past quarter-century.

Finally, the report estimates the likely employment effects of a CKFTA using two distinct empirical techniques. The first, following traditional practice, estimates changes in trade flows within each sector on the

Table 2 Estimates of the Employment Effects of a Canada-Korea Free Trade Agreement				
	Elasticities Approach		Historical Experience Approach	
	Case 1: Partial Korean Sensitivity to Tariff Reduction	Case 2: No Korean Sensitivity to Tariff Reduction	Case 1: "Best Case" Experience (U.S.)	Case 2: "Average" Experience (all 5 FTAs)
Growth Exports to Korea	16.3%	0.0%	155.8%	99.7%
Growth Imports from Korea	25.4%	25.4%	152.7%	250.8%
Change in Trade Bal. ($b)	-$0.95	-$1.36	-$4.27	-$10.92
Net Job Effect of Change in Trade Bal.	-2,238	-3,609	-13,887	-33,358
Auto Jobs, Net Impact of Trade Balance Change				
Assembly	-526	-526	-1,755	-2,883
Parts	9	0	-688	-1,178
Total	-517	-526	-2,443	-4,061

Source: CAW Research as described in text.

basis of existing tariffs and presumed elasticities of substitution by consumers between national varieties of each product (called the "Elasticities Approach"). The approach is modified to reflect the demonstrated lack of sensitivity of Korean import flows to tariff levels. Under two separate cases, a CKFTA is found to generate important but limited job losses across a range of sectors. The bilateral trade deficit worsens by between $0.95 and $1.36 billion, with resulting net job losses ranging from 2,238 to 3,609 positions. According to this methodology, the deterioration in the bilateral automotive trade deficit with Korea is found to correspond to the loss of over 500 jobs in auto assembly.

However, this "elasticities approach" to simulating the effects of a CKFTA almost certainly underestimates the extent of the growth in export and import flows that would follow a FTA. Past experience with Canada's existing five FTA partners has indicated that bilateral trade grows by 150 to 300 percent in the decade following a FTA (in contrast to the modest 10-20 percent increase in total bilateral trade implied under the

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[1] The only exception to this finding was the FTA with the U.S., following which bilateral imports and exports grew at the same pace.
[2] These tools are described fully in the companion study to this report, *Understanding East Asian Industrial Success: Implications For Canadian Trade & Development Policy*, by Daniel Poon.

"elasticities" simulation above). FTAs have been proven to induce structural shifts in supply patterns, marketing strategies, transportation infrastructure, and other factors, hence producing much larger increases in two-way trade than can be reasonably attributed to tariff reduction alone

To capture these broader effects, the study undertakes a second approach, called the "Historical Experience Approach." In this approach, total trade flows in each sector are increased according to the demonstrated experience under Canada's previous FTAs. Again, two cases are presented. One corresponds to the average experience of Canada's five FTAs – which produced, on average, a 100 percent increase in Canadian exports and a 250 percent increase in Canadian imports. The other, more optimistic scenario corresponds to the best of the 5 bilateral FTA experiences (judged on this criteria, at any rate): namely, the Canada-U.S. FTA, following which both exports and imports grew by about 150 percent.

The estimated employment effects of the CKFTA according to this "historical experiences" approach are much more dramatic. The bilateral trade deficit deteriorates by $4 billion in the best case scenario, and by $11 billion in the "average" (five FTA) experience. Net job losses for Canada range from almost 14,000 jobs in the best-case scenario, to over 33,000 jobs lost in the "average" scenario.

Canada's auto industry is one of the hardest-hit sectors under the historical experience analysis, losing almost 2500 jobs in the "best case" approach, and over 4000 jobs under the "average" scenario.[3]

These job losses seem very large, yet they correspond quite closely to the realized experience of Canada's bilateral trade relationships under previous FTAs. The evolution of Canada's bilateral trade relationship with Mexico under NAFTA provides a particularly close parallel to the potential effects of a CKFTA. In 1993, before Mexico's entry into the NAFTA, Canada experienced a bilateral trade deficit of just under $3 billion – equivalent to Canada's current bilateral deficit with Korea. Since NAFTA, that bilateral deficit has widened to over $11 billion – with a resulting net job loss that is measured in the tens of thousands. Korea is clearly poised to become the next Mexico, if a CKFTA were indeed to go ahead.

The Canadian government states that its efforts to negotiate FTAs with Korea and other countries (including Japan and likely China) are motivated by a desire to diversify Canada's trade away from the U.S. market, and open new opportunities for Canadian exporters in the fastest growing region of the world economy. A realistic look at the empirical evidence, however – including the size and structure of our current trade imbalances with East Asia, the demonstrated experience of trade liberalization in other jurisdictions, and the likely effects of NAFTA-style trade agreements on Canada-Asia trade flows – suggests that this approach is badly misplaced. Canada's trade policy approach to East Asia must understand that those economies are characterized by wide-ranging, integrated policy interventions by government which seek consciously to shape industrial success in strategic, export-oriented sectors. NAFTA-style trade liberalization will not help Canada's extremely weak trade position with Asia, and almost certainly will make matters worse.

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[3] These numbers reflect only the direct job losses associated with the bilateral trade imbalance in finished vehicles and auto parts. They do not include the subsequent "spin off" job effects resulting through the auto supply industry, which could multiply the total job losses by a significant factor.

Introduction

Canada's trade with Asia is growing dramatically. Unfortunately, Canada's imports from Asia are growing much faster than our exports to Asia. Both the imbalance in the volume of trade, and important aspects of the structure of our trade with Asia, have caused significant and growing damage to production and employment in several key industries. Similarly, Canadian companies invest a lot more in Asia, than Asian companies invest in Canada; this only exacerbates the loss of investment, production, and employment resulting from our economic linkages with Asia.

The companion study published by the Canadian Auto Workers, *Understanding East Asian Industrial Success: Implications For Canadian Trade and Development Policy*, written by Daniel Poon, describes in detail the key policies that East Asian economies have followed in their successful industrialization processes. While specific policy tools have varied over time and place, the Asian development experience continues to reflect a key, common difference from the North American pattern. Economic development is dominated by pro-active government policies and interventions, across a range of policy fields (including industrial policy, finance, macroeconomic adjustment, exchange rates, labour markets, technology transfer, and training). These interventions constitute an integrated, internally consistent effort by government (acting in concert with business and other stakeholders) to construct dynamic, competitive, successful industries. Markets play a role, but markets do not run the show.

In light of this history, and the continuing, unbalanced expansion of Canada's economic links with Asia, this study considers in detail the employment impacts of our trade relationship with Asia. It considers both the consequences of existing trade patterns and imbalances, and the likely effects of initiatives to further liberalize Canada-Asia trade (in particular the proposed Canada-Korea Free Trade Agreement which the Canadian government is seeking to negotiate).

The study focuses on our three largest trading partners in East Asia: China, Japan, and Korea. These countries are particularly important not only because of their size, and the size of our bilateral economic relationships. They are also important because they all embody (in varying ways) the key features of the East Asian, state-directed development experience. Moreover, the Canadian government is actively pursuing trade liberalization initiatives with two of these three countries (Korea and Japan), and is likely to extend those initiatives to include China in coming years.

Part I of the study analyzes several empirical issues related to the current pattern of trade, and estimates the employment consequences of current trade levels and imbalances. It also reviews the demonstrated experience of other trade liberalization initiatives – both the five FTAs which Canada has implemented, and the limited historical impact of tariff reduction on import penetration in the East Asian economies.

Part II of the study then applies two distinct empirical techniques to estimate the likely employment con-

sequences of a Canada-Korea Free Trade Agreement (CKFTA). Canadian officials have indicated that they hope to use bilateral FTAs to enhance Canada's presence in rapidly-growing Asian markets. The CKFTA negotiations are proceeding rapidly; preliminary trade consultations have begun with Japan; and it is widely expected that deals with both of these countries would only be a precursor to an eventual FTA with China – the impacts of which would be far more substantial (given both the scale of our trade imbalance with China, and the pace of China's remarkable economic and industrial expansion).

The empirical estimates contained in this study indicate that Canada has already experienced significant job losses as a result of our trade with East Asia. Those negative effects are most dramatic in the case of our trade with China, but are significant with Korea and Japan as well. The job losses have been most significant in strategic, high-technology industries (such as machinery, computers, and automobiles), contrary to the claim that only "unproductive, labour-intensive industries" have anything to fear from expanded trade with Asia. Trade liberalization (if pursued via NAFTA-style FTAs) will significantly worsen those job losses.

Canada needs to expand its role in East Asian economic development. It is essential that we find ways to share in the economic benefits generated by the world's fastest growing region. Our current trade relationships, however, are not doing that. And the demonstrated experience of past trade liberalization initiatives – both the FTAs which Canada has implemented with other countries, and the limited impact of tariff liberalization on trade patterns into East Asia – indicate clearly that NAFTA-style FTAs will only exacerbate the problem.

Part I: Ten Features of Canada's Present Trade With East Asia

This section of the report reviews several empirical features of Canada's existing trade patterns with our three largest Asian trading partners. It also considers the historical evidence regarding the impact of past trade liberalization initiatives involving both Canada and East Asia. This analysis will subsequently inform the estimates, reported in Part II of the study, of the likely impacts of NAFTA-style trade liberalization with Korea.

FEATURE #1:
Canada Experiences Large Bilateral Trade Deficits With East Asia

Table 3 Canada's Current Trade Deficits With East Asia $Billions, 2005			
	Korea	**Japan**	**China**
Exports to East Asia	2.81	9.16	7.08
Imports from East Asia	5.37	14.79	29.50
Canada's Bilateral Deficit	-2.57	-5.62	-22.43
Deficit as Share Total Bilateral Flow	31.4%	23.5%	61.3%

Source: CAW Research calculations from Industry Canada, Strategis.

Canada imports far more from East Asia, than it exports to East Asia. Bilateral exports, imports, and trade balances are shown for the three countries considered. In 2005 Canada incurred bilateral trade deficits of over $2.5 billion for Korea, over $5 billion for Japan, and over $22 billion for China.

These trade deficits are large, both in absolute terms and in relation to the scale of the total bilateral trade flow. A simple measure of the degree of imbalance in the trading relationship can be constructed, by measuring the absolute size of the imbalance as a proportion of the total two-way flow. (By this measure, a perfectly balanced trade relationship will have a score of 0 percent, while a completely one-way trade flow will have a score of 100 percent.) On this aggregate criteria, Canada's current trade with China is the most imbalanced of the three largest East Asian trading partners, followed by Korea and then Japan.

The fact that Canada is starting from a significant trade imbalance with each of these major East Asian trading partners, is highly relevant for estimating the impacts of subsequent trade liberalization initiatives. Any initiative which is likely to expand both imports and exports (presumably by broadly similar proportions – although, as will be indicated below, this need not be the case) will automatically exacerbate an existing trade imbalance (since comparable increases in both of the component flows which constitute that imbalance must necessarily increase the imbalance). The existing imbalances with East Asia, therefore, immediately imply a likelihood that free trade agreements will worsen those imbalances (and their corresponding economic effects).

FEATURE #2:
Canada's Trade Deficits With East Asia Have Become Dramatically Worse in the Last Decade

Table 4 The Deterioration of Canada's Trade Performance With East Asia 1996 through 2005, $billions				
	Korea	**Japan**	**China**	**All 3**
1996 Balance	0.09	0.77	-1.92	-1.06
2005 Balance	-2.57	-5.62	-22.43	-30.62
Deterioration	-2.66	-6.39	-20.51	-29.56

Source: CAW Research calculations from Industry Canada, Strategis.

A decade ago, Canada's trade with East Asia was relatively balanced. With each of the major trading partners considered here, Canada exported virtually as much as it imported. With the three countries as a whole, Canada's trade deficit in 1996 was just $1 billion (on a total bilateral trade flow of over $35 billion). No-one could credibly raise concern at that time about unbalanced aggregate trade flows between the two regions.

In the subsequent decade, however, the bilateral flow doubled, to almost $70 billion (mostly due, unfortunately, to explosive growth in Canada's imports from the region), and a cumulative trade imbalance (in Asia's favour) emerged – that totalled over $30 billion for the three countries in 2005. This is Canada's largest trade deficit with any region.

Figure 1
Ratio of Imports to Exports
Canadian Trade With East Asia
1995-2005
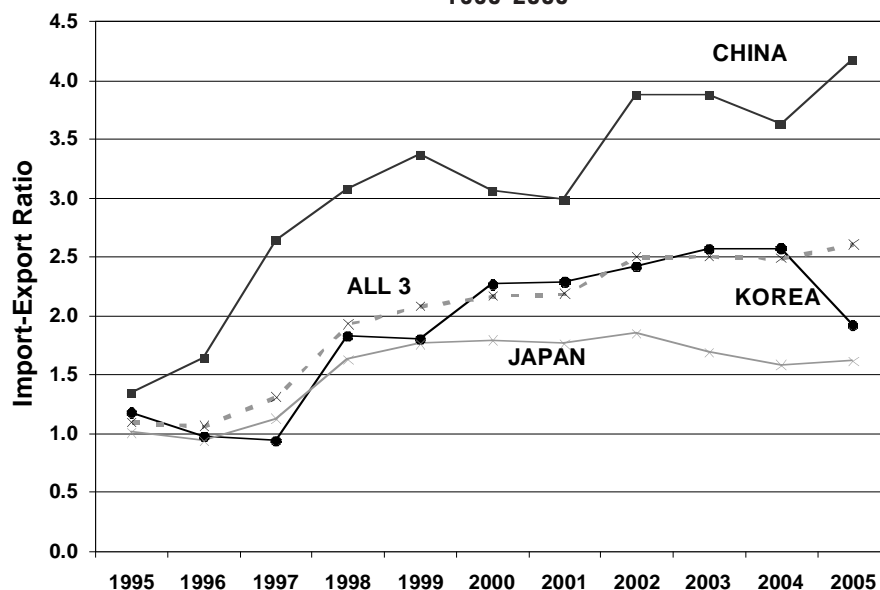
Source: CAW Research from Industry Canada, Strategis data.

Another way of illustrating this trend is provided in Figure 1. A decade ago, the ratio of Canadian imports from East Asia to Canada's exports to East Asia was just over 1. In other words, trade was almost perfectly mutual, resulting in only a small Canadian deficit. Between 1996 and 2005, however, Canada's imports from Asia grew by 174 percent – but Canada's exports to East Asia grew by only 12 percent (despite the phenomenal pace of growth in China, the region's largest market). As a result, the ratio of imports to exports in Canada's trade with East Asia grew dramatically. By 2005, Canada imported over $2.50 worth of products from East Asia for every dollar of exports to East Asia. For China, this ratio now exceeds 4-to1.

Several factors help to explain the dramatic expansion of trade deficits in the last decade. The East Asian financial crisis spurred countries throughout the region (especially, for purposes of this study, Korea) to accelerate exports and curtail imports, in order to assist in resolving the crisis in financial flows. Continued tariff reduction and other forms of trade liberalization on Canada's part have opened up our domestic markets further to imports – but without spurring a similar increase in openness in Asia. And China's phenomenal industrial development has produced a dramatic surge in that country's increasingly sophisticated exports. Of the three countries considered, China accounts for almost three-quarters of the combined Canadian trade deficit.

FEATURE #3:
Canada's Exports to Asia are Resource-Intensive, not Job-Intensive

Canada's exports to East Asia have become increasingly concentrated in sectors which rely on our abundant natural resource base. For our three largest trading partners in East Asia, all of our top five export sectors (at the three-digit NAICS code level) are resource-intensive industries, relying on Canada's mineral, agricultural, and forestry base for their competitive advantage in resource-hungry East Asian markets. In contrast, Canada's top imports from East Asia feature a range of relatively high-technology, strategic industries – including computers and electronics, transportation equipment (mostly motor vehicles), and machinery. Only one of our top five imports from East Asia – clothing – reflects the traditional stereotype of Asian imports as consisting of relatively low-technology, labour-intensive commodities.

Table 5 Job Content of Canada's Trade With East Asia 2005					
Top Exports			Top Imports		
Sector	Exports ($b)	Jobs per $b Shipments	Sector	Imports ($b)	Jobs per $b Shipments
Mining	3.52	1798	Computer/Electronics	12.36	3595
Food Mfctg.	2.66	3562	Transportation Equip.	8.98	1872
Chemicals	1.92	1948	Other Mfctg.	5.78	5475
Paper Products	1.70	2804	Machinery	4.79	4764
Wood Products	1.33	3714	Clothing	3.37	10838

Source: CAW Research from Statistics Canada, Strategis data.

The essence, then, of Canada's "trade" with East Asia is to export resource-dependent commodities in return for more sophisticated manufactured products. This raises several issues regarding the sustainability of Canada's trade position – in light of concerns regarding both the life expectancy of our natural resource base and the long-term tendency of resource prices to decline relative to other prices (a trend which has been currently, but probably temporarily, suspended).

Another related and more immediate concern is that on average, Canada's export-oriented resource industries do not support as much employment (measured relative to the value of shipments) as the industries which must compete with East Asian imports. Canada's resource industries tend to use huge amounts of capital in production, and generate relatively fewer direct and indirect jobs for any given value of shipments compared to other industrial sectors. This means that the employment impact of Canada's (relatively sluggish) exports to East Asia is muted further, by the relatively weak employment effects of those shipments.

FEATURE #4:
Canada's Imports From East Asia Embody More Jobs Than Canada's Exports to East Asia

Figure 2
Average Job Content of Bilateral Export and Import Flows
Jobs per $Billion, 2005
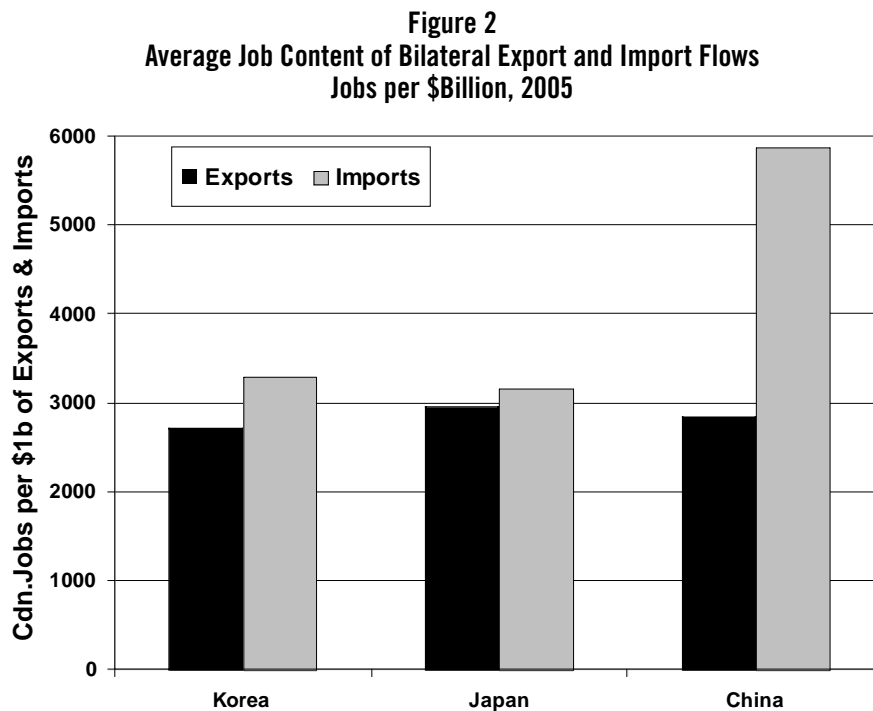
Source: CAW Research from Statistics Canada, Industry Canada Strategis data.

Because our exports to East Asia tend to be very resource-intensive, generating a smaller-than-average number of domestic jobs, bilateral trade flows with East Asia tend to reduce Canadian employment levels – *even if that trade was balanced*. To estimate this effect, the average Canadian jobs content (measured in jobs per billion dollars of industry shipments) was calculated for 20 sector groupings (composing all of Canada's trade

in produced commodities).[4] On this basis, the total number of Canadian jobs dependent on export shipments of the identified sectors to each of the three East Asian countries could be calculated. Similarly, the number of Canadian jobs displaced as a result of imports in each sector from the three countries could also be calculated. Finally, an aggregate average "job intensity" of Canada's bilateral export and import flows with East Asia can be estimated, by dividing the total number of jobs affected by trade (in each direction) by the volume of trade (again in each direction).

The accompanying figure indicates that in each of the three countries considered, there are more Canadian jobs displaced by a billion dollars of (composite) imports from East Asia, than are created as a result of a billion dollars of (composite) exports to East Asia. This reflects the resource-intensive nature of most Canadian exports to East Asia, in contrast to the technology- and labour-intensive nature of most Canadian imports from East Asia.

Table 6 Job Content of Canadian Exports and Imports With East Asia Jobs per $billion Shipments, 2005			
	Korea	Japan	China
Exports to East Asia	2,701	2,947	2,831
Imports from East Asia	3,291	3,160	5,881
Net Impact of Balanced $1 billion Increase in Both Exports and Imports	-589	-213	-3,050

Source: CAW Research from Statistics Canada, Industry Canada Strategis data.
Includes all non-agricultural sectors (excludes NAICS sector 11).

The resource-intensive nature of Canada's exports to each of our three largest Asian trading partners implies that less than 3000 Canadian jobs are supported for each $1 billion in exports to those countries. In contrast, on average Canadian imports from Korea and Japan result in the displacement of 3160 to 3291 jobs for each $1 billion in imports. Imports from China (by virtue of the remaining importance of traditional labour-intensive products such as clothing) displace a much larger number of Canadian jobs: close to 6000 positions lost for each $1 billion of imports. Assuming the preservation of the existing composition of our two-way trade flows, a *balanced* increase in both exports and imports of $1 billion nevertheless produces a loss of Canadian jobs: 213 jobs per $1 billion in mutual trade with Japan, 589 jobs with Korea, and over 3000 jobs with China.

A detailed listing of the sectors considered in this analysis, their jobs content, and aggregate two-way trade flows with the three countries considered, is provided in Table A1 in the appendix.

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[4] Due to the unavailability of consistent data regarding shipments and employment for agricultural products, hunting and fishing, and raw logging, these sectors (all included within NAICS sector 11) were excluded from the analysis. These excluded sectors constitute only 4 percent of Canada's bilateral trade with the three countries considered here.

FEATURE #5:
Growing Trade Deficits and the Resource-Intensive Nature of Canadian Exports Have Resulted in Significant Job Losses From Canada's Current Trade With East Asia

The preceding analysis indicates that even if Canada's two-way trade with East Asia were balanced, that trade would still produce a net job loss for Canada by virtue of the heavy concentration of our exports in resource-intensive industries. However, our trade with East Asia is not balanced: as indicated earlier, that trade is characterized by large, chronic, and growing trade deficits.

The combination of these twin factors – the resource-intensive nature of Canadian exports, and the large aggregate imbalances in bilateral trade – means that the overall employment impact of Canadian trade with East Asia is highly negative.

Table 7 Employment Effects of Current Canada-East Asia Trade 2005				
	Current Position		**Change Since 1996**	
	Current Trade Balance ($ b)	**Estimated Net Job Effects of Current Trade Flows**	**Change in Trade Balance ($ b)**	**Estimated Net Job Effects of Change in Trade Flows**
Korea	-2.85	-9,227	-2.68	-4,309
Japan	-6.84	-20,813	-6.23	-14,813
China	-22.79	-153,861	-19.93	-122,672
Total	-32.47	-183,902	-28.84	-141,794

Source: CAW Research from Statistics Canada and Industry Canada Strategis data. Includes all non-agricultural sectors (excludes NAICS sector 11).

At present, it is estimated that bilateral trade between Canada and East Asia has resulted in the net loss of over 180,000 Canadian jobs. Most of this total is due to the huge trade imbalance with China. But significant net job losses also result from Canada's bilateral trade flows with Korea (over 9,000 lost jobs) and Japan (over 20,000 lost jobs).

As noted, these net job losses reflect both that Canada incurs large trade deficits with these economies, and that the structure of trade flows results in net job losses for Canada even under a balanced trade scenario.

The bulk of the job losses have occurred in the last decade, as Canada's trade with East Asia has become increasingly unbalanced. Some 140,000 of the lost jobs, or over three-quarters of the total, have disappeared since 1996.

FEATURE #6:
The Biggest Job Losses From Current Trade With East Asia Have Been Concentrated in High-Technology, Strategic Industries

Table 8 Top Five Sources of Job Loss					
Korea		Japan		China	
Sector	Jobs Lost	Sector	Jobs Lost	Sector	Jobs Lost
Computer & Electronics	-4,453	Machinery	-11,151	Clothing	-35,748
Machinery	-1,756	Computer & Electronics	-8,468	Leather Products	-32,829
Transportation Equip.	-1,650	Transportation Equip.	-8,390	Computer & Electronics	-27,550
Fabricated Metal Prods.	-1,098	Other Mfctg.	-2,583	Other Mfctg.	-24,542
Other Mfctg.	-857	Electrical Equip.	-1,976	Electrical Equip.	-9,334

Source: CAW Research from Statistics Canada, Industry Canada Strategis data.

In general, the sectors which have experienced the largest net job losses as a result of Canada's current trade relationships with East Asia have been high-technology, strategic industries – including machinery, computers, transportation equipment, and electrical equipment. Only in China's case – where Canadian imports of clothing and leather products still constitute (for now, anyway) a large portion of total net job losses resulting from the bilateral relationship – are there some elements of the traditional "low-technology, labour-intensive" stereotype. Even with China, however, that country's rapid entry into increasingly sophisticated sectors (including machinery, electrical equipment, computers, and soon motor vehicles) indicates strongly that it is not just "old-fashioned" industries such as clothing and leather products that are at risk. Rather, the competitive challenge will be felt from China (as it was with Korea and Japan before it) across the full spectrum of goods-producing industries, with an increasing concentration in valuable high-technology sectors.

Table 9 Auto Industry Job Losses 2005					
	Korea	Japan	China	Total	Jobs Lost as % Remaining Sector Employment
Vehicles	-1149	-2780	5	-3924	-7.7
Parts	-452	-5057	-2065	-7575	-7.8
Total	-1601	-7837	-2060	-11498	-7.8

Source: CAW Research from Statistics Canada, Industry Canada Strategis data.

Given the importance of the auto industry in Canada's overall trade performance, and the coming challenge to the industry being experienced from Asian producers, Table 9 considers the net job impacts of Canada's current trade with East Asia on the automotive assembly and parts sectors. Significant net job losses have already been experienced in both sub-sectors with all three countries, with the exception of finished vehicle trade with China. China is just now developing a vehicle export industry, and hence this has not yet

become a source of job loss for the Canadian auto industry. In automotive parts, however, trade with China accounts for a net loss of over 2000 jobs. And with both Korea and Japan, existing automotive trade relationships have resulted in substantial total job losses: concentrated in the assembly sector in Korea's case, and the parts sector in Japan's case. (Even though Canada imports far more finished vehicles than parts from Japan, the higher job content of parts production means that the total job losses resulting from the smaller inflow of parts is actually greater.) Total job losses reflected in Canada's automotive trade imbalances with these three East Asian economies equal almost 4000 positions in the assembly sector, and about 7500 positions in parts production, for total automotive job losses of 11,500. In both the assembly and the parts sectors, jobs displaced by trade imbalances with these three economies are equivalent to about 8 percent of existing Canadian automotive employment.

Table 9 accounts only for direct job losses embodied in the bilateral trade imbalances. It does not include the additional job losses experienced in supply and related industries (which, according to conventional estimates, will result in much larger total employment effects).

A full description of the sectoral employment effects of Canada's existing trade relationships with East Asia is provided in the appendix, in Tables A2, A3, and A4.

FEATURE #7:
Past Free Trade Agreements Have Increased Trade Far More Than Could Be Predicted by Tariff-Reduction Alone

Past experience has indicated that free trade agreements result in changes in bilateral trade flows much greater than can generally be attributed directly to the impacts of tariff reduction alone. Structural shifts in supply

Figure 3
Trade Effects of Canada's Previous FTAs Aggregate Bilateral Trade Flows (%).
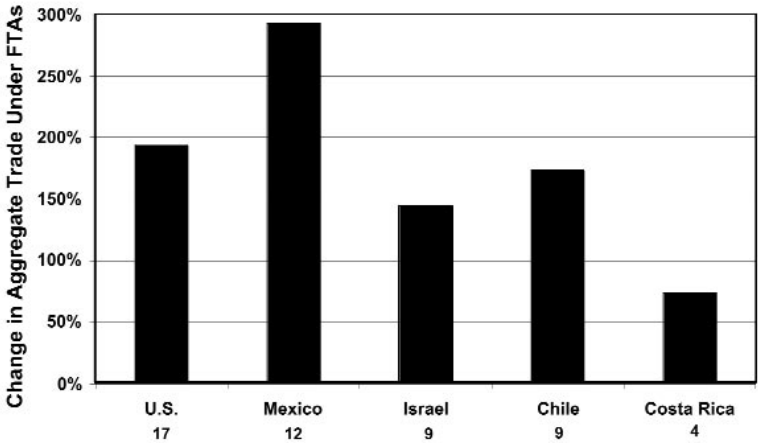
Years since FTA implementation indicated under each country.

Source: CAW Research from Statistics Canada, Industry Canada Strategis data

chains, marketing strategies, and transportation linkages in the wake of FTAs have produced far greater expansion of bilateral trade than was anticipated by economic modelers and policy-makers. (Whether this expansion of trade is good or bad, of course, depends on the structure and balance of the trade in question.)

Prior to the Canada-U.S. FTA, for example, average applied tariffs were equal to less than 3 percent of bilateral imports in Canada's case (and even lower in the U.S.). The elimination of tariffs under the FTA was therefore relatively modest – yet the volume of bilateral trade exploded in the wake of the FTA (and has tripled, in aggregate, since the FTA was implemented).[5] The expansion of total trade with other FTA partners has been similarly dramatic, and far beyond what could be reasonably attributed to the direct impact of tariff elimination alone. Clearly, the implementation of an FTA sparks broadly-based, significant structural changes in bilateral trading relationships; economists are still struggling to explain those changes. Figure 3 indicates that the expansion of trade flows even with far-off FTA partners (such as Israel or Chile) has been generally as strong (or even stronger) than the post-FTA expansion of trade between Canada and the U.S.[6] The problem for Canada, of course, has been that that new trade was composed disproportionately of imports to Canada rather than exports from Canada.

At any rate, it would be a huge mistake to assume that the impact of a bilateral FTA with Korea or any other country in East Asia is likely to be modest, in light of the generally modest levels of tariffs which are currently collected on trade between the two regions. The experience of every one of Canada's previous FTAs demonstrates conclusively that trade impacts of FTAs are very large.

Table 10 Impact of Past FTA's on Canada's Share of Partner Imports Percent				
Country	Date of FTA	Pre-FTA Share of Partner Imports	2005 Share of Partner Imports	Change
USA	Jan 1 89	17.70	16.84	-0.86
Mexico	Jan 1 94	1.78	1.37	-0.41
Israel	Jan 1 97	0.70	0.67	-0.02
Chile	July 1 97	2.34	1.26	-1.08
Costa Rica	Nov 1 02	1.05	0.84	-0.21

Source: CAW Research from IMF Direction of Trade Statistics.

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[5] This implies an aggregate "tariff elasticity" of trade many times greater than the standard trade elasticities utilized in elasticity-based simulation exercises, such as the one reported in Part II of this study.

[6] Remember that the growth rates illustrated in Figure 3 indicate the cumulative growth in bilateral trade since each FTA was implemented; since the agreements were implemented in different years, each bar represents a different period of elapsed time. Bilateral trade with Chile has grown faster in the first 9 years of that FTA than did trade with the U.S. in the first 9 years of the

FEATURE #8:
Under Past Free Trade Agreements, Canada's Share of Partner Country Imports Has Always Declined

Free trade agreements are often advanced with the argument that they will provide Canadian exporters with "preferential" access to the market of the partner country. The value of this preferential access, however, is open to question. In practice, imports of Canadian products by these FTA partners has universally failed to keep up with their overall inflow of imports. The result has been that Canada's share of total imports by these five economies has always *declined* in the wake of their FTAs with Canada.

The absolute decline of Canada's market share in FTA-partner imports has been greatest in Chile (where imports from Canada actually *declined* in value after the FTA) and the U.S. (where Canadian products have lost ground to exploding imports from China and other competitors). The absolute loss of market share was smallest in Israel (where Canada's import share has remained almost constant) and Cost Rica.

As a proportion of Canada's initial share of FTA partner imports, the loss of market share has been greatest in Chile (Canada has lost almost half of the import share it held prior to the FTA) and Mexico (Canada has lost almost one-quarter of the import share it held prior to the FTA).

It is interesting to note that the absolute loss of import share in the U.S. and Chile following Canada's FTAs with those partners has been just as great as the loss of Canadian market share in the total imports of Korea, Japan, and China over a corresponding period of time. In other words, Canada has been no more successful at protecting its share of imports in some of the countries with which it has signed FTAs, than it has with the historically closed East Asian economies, with whom no FTA has been signed. This casts powerful doubt on the notion that signing NAFTA-style FTAs with East Asian economies will be an effective means of expanding Canada's exports there.

FEATURE #9:

Figure 4
Trade Effects of Canada's Previous FTAs Export and Import Flows, Actual and Extrapolated 10-Year Periods.

Hatched areas indicate extrapolation to end of 10-year period based on actual growth to date.
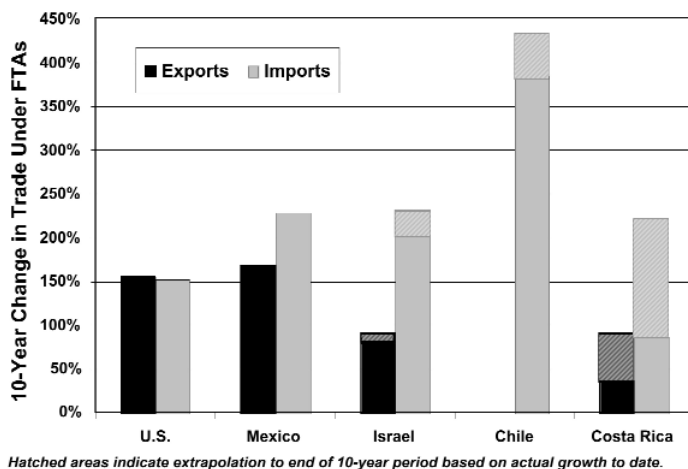
Past Free Trade Agreements Have Almost Always Increased Canada's Imports Faster than Canada's Exports

While past FTAs have universally failed to increase Canada's market share among the imports of the partner countries, they have nevertheless resulted in dramatic increases in Canadian imports from those FTA partners. In four of the five cases, Canada's imports from the FTA partner grew much faster than Canada's exports to the FTA partner. The one exception to this pattern was the FTA with the United States, following which our bilateral exports and imports grew at almost the same pace. In the case of Chile, as noted, Canada's exports to Chile actually declined in the first nine years after the bilateral FTA was implemented.

Figure 4 and Table 11 illustrate the contrasting expansion of bilateral exports and imports to and from Canada's FTA partners in the ten years following the respective FTAs. In three of the cases (Israel, Chile, and

Table 11 Comparative Export and Import Effects of FTAs					
Country	Date of FTA	Actual 10 years or to 2005		Extrapolated to 10 years	
		Growth Exports	Growth Imports	Growth Exports	Growth Imports
USA	Jan 1 89	156%	153%	156%	153%
Mexico	Jan 1 94	168%	229%	168%	229%
Israel	Jan 1 97	79%	204%	88%	226%
Chile	July 1 97	-1%	386%	-1%	429%
Costa Rica	Nov 1 02	35%	87%	88%	218%
Average		87%	212%	100%	251%
Average excl. U.S.		70%	226%	86%	275%

Source: CAW Research from Industry Canada, Strategis and Statistics Canada data.

Costa Rica), a full decade has not yet passed since the FTA was implemented, and hence actual trade effects to date have been extrapolated (by simple arithmetic extension) in order to estimate the likely full-decade effect.

On average, Canada's exports to the FTA partner countries increased by 87 percent in the subsequent decade (or portion of decade, for those agreements implemented less than 10 years ago). Extrapolating the export flows to Israel, Chile, and Cost Rica to develop full-decade growth estimates, and an expected average boost to exports of 100 percent is attained. In contrast, actual imports from the FTA partner countries increased by 212 percent. The full 10-year import increase (extrapolated for Israel, Chile, and Costa Rica) is 251 percent – 2.5 times larger than the increase in Canadian exports to those FTA partners.

It is interesting and important to note that Canada's relatively most positive post-FTA trade experience occurred with its most important trading partner: the U.S. Our exports to the U.S. experienced the second-largest post-FTA boost of any of the 5 FTA partners, and our imports from the U.S. experienced the second-smallest increase. As a result, the U.S. is the only one of Canada's FTA partners for which exports and imports grew by relatively similar proportions in the wake of the FTA. Indeed, if the relatively positive experience with the U.S. is excluded, then Canada's post-FTA imports increased more than three times faster than Canada's post-FTA exports – by 275 percent, versus an 86 percent increase in exports.

This raises interesting issues for Canada's strategy of negotiating FTAs with other countries – since in general our FTA experience with those countries has been much worse than our FTA experience with the U.S. This could reflect a number of factors, including relative size (Canada was larger than its other four FTA partners, but smaller than the U.S.); distance (Canada borders the U.S., but not the other four FTA partners); or the fact that trade deficits initially prevailed at the time of FTA implementation with Mexico,[7] Chile, and Costa Rica (and hence the subsequent expansion of trade naturally boosted Canada's imports more than its exports). At any rate, the general experience has been that FTAs with any country other than the U.S. have increased Canada's imports far faster than Canada's exports. This would seem to be a highly relevant point for Canadian trade negotiators to keep in mind as they pursue their strategy of negotiating still more FTAs.

	Table 12 Sensitivity to Tariff Reduction 1980-2004, percent					
	Canada		Japan		Korea	
	Average Applied Tariff Protection	Import Penetration	Average Applied Tariff Protection	Import Penetration	Average Applied Tariff Protection	Import Penetration
1980	3.90	26.44	2.24	14.59	6.43	41.47
1981	3.71	26.12	2.26	13.93	6.03	41.53
1982	3.45	22.06	2.19	13.80	6.53	37.06
1983	3.78	22.14	2.25	12.16	7.81	36.11
1984	3.44	24.88	2.22	12.27	7.38	35.84
1985	3.23	25.81	2.13	11.09	7.24	32.81
1986	3.15	26.37	2.71	7.41	7.74	31.72
1987	3.13	25.47	3.03	7.23	8.82	32.42
1988	2.90	25.81	2.93	7.83	6.68	30.47
1989	2.76	25.52	2.44	9.28	6.26	30.02
1990	2.35	25.56	2.16	10.10	6.78	30.31
1991	2.32	25.55	2.65	8.54	5.26	30.62
1992	2.04	26.81	2.73	7.68	4.47	29.14
1993	1.72	29.32	2.89	6.89	3.84	27.49
1994	1.46	32.11	2.89	7.02	3.77	28.96
1995	1.08	34.08	2.70	7.70	4.00	29.92
1996	0.93	34.58	2.36	9.22	3.88	31.34
1997	0.84	37.75	2.01	9.66	3.67	33.00
1998	0.67	39.90	2.02	8.86	2.44	33.29
1999	0.55	39.29	2.00	8.53	2.80	32.38
2000	0.66	39.88	1.83	9.37	2.72	37.67
2001	0.73	37.82	1.83	9.76	2.77	35.51
2002	0.76	36.71	1.69	9.92	2.98	33.87
2003	0.69	33.76	1.66	10.23	2.79	35.64
2004	0.69	33.98	1.47	11.42	2.27	39.73
Regression Results						
			Canada	Japan		Korea
Average Impact of reduction on import share (in % GDP)			4.45	2.65		0.00
1% applied tariff t-statistic			11.087	2.902		0.011
Share import penetration explained by tariff reduction (adj. R^2)			83.6%	23.6%		n/a

Source: CAW Research from IMF International Financial Statistics and OECD Revenue Database data.

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[7] Canada's exports to Mexico grew faster after the NAFTA than with any other FTA partner. However, Canada's exports to Mexico were very small initially compared to its imports from Mexico, and hence the post-NAFTA expansion of bilateral trade has nevertheless resulted in a dramatic expansion of the bilateral deficit despite the relatively vibrant growth of Canada's exports to Mexico.

FEATURE #10: Canada's Imports Are Much More Sensitive to Tariff Reduction than East Asia's Imports

Canada possesses an open, competitive, relatively transparent, and market-driven economy. In this context, tariff reduction has had quite powerful effects in motivating greater import penetration of Canadian markets.

East Asian economies, on the other hand, are characterized by pervasive, systematic, and consistent interventions by government aimed at developing dynamic competitive advantage in key industries. Key investment, production, and trade decisions very often reflect policy considerations rather than simple cost calculations. In this context, tariff reduction (when it has occurred) has not had comparable impact on trade penetration of East Asian markets.

As described in detail in the companion study by Daniel Poon, *Understanding East Asian Industrial Success: Implications For Canadian Trade and Development Policy*, East Asian economies have tended to reduce tariffs only when it was clear they were no longer needed to protect emerging industrial sectors – and even then the impact of tariff reduction was controlled and offset through other pro-active interventions (such as non-tariff barriers, other regulatory tools, and macroeconomic management).

This contrast in economic structure and policy is clearly evident in historical data on average tariff reduction and import penetration in Canada and East Asia. Table 12 summarizes trends since 1980 in average applied tariff protection and average import penetration in Canada, Japan, and Korea. (China is not included in this analysis because of a lack of comparable, consistent data. However, qualitative examination of the history of Chinese trade policy suggests a similar result.) Average tariff protection is calculated as the ratio of collected tariff revenue (as reported by the OECD's Revenue database) to total imports of goods and services (as reported in the International Monetary Fund International Financial Statistics). Average import penetration, in turn, equals imports of goods and services measured as a share of GDP (also as reported by the IMF).

The relative importance of tariff reduction in the "opening" of each country's economy to international trade can be estimated by performing a simple linear regression of the import share on the average degree of tariff protection. These results are summarized in the table. The coefficient on the degree of tariff protection will indicate the increase in import penetration (as a percentage of GDP) that results, on average, from each 1 percent reduction in the average degree of effective tariff protection. (The t-statistic under this figure indicates the degree of statistical significance of this estimate; the coefficient for Canada is very highly significant, for Japan highly significant, and for Korea not significant.) The proportion of total variability in import penetration which can then be explained by the process of tariff reduction is also reported (equal to the adjusted R^2 score generated by each regression).

The results of this analysis are striking, and entirely consistent with the qualitative analysis of the motivations for, and effects of, East Asian trade policy discussed in the companion study by Daniel Poon. Canadian tariff reduction is stably and predictably linked to expanded import penetration of the Canadian market. Each one-point reduction in average applied tariffs leads, on average, to a 4.5 point increase in

import penetration (measured as a share of GDP), and tariff reduction historically explains most of the growth in import penetration that has been observed in Canada (with an adjusted R2 for the regression of almost 85 percent).

In Japan, in contrast, tariff reduction has been roughly half as powerful as in Canada in leveraging import penetration. On average, each one-point reduction in tariffs has led to a 2.65 point increase in import penetration, and tariff reduction explains less than one-quarter of the swings in import penetration that have been observed in Japan over the past quarter-century. This results helps explain why Japan remains one of the most closed economies in the world (with gross imports equal to barely 10 percent of total GDP), despite charging very low tariffs on imports.

In Korea, the results are even more dramatic: *there is absolutely no statistical relationship between tariff reduction and import penetration in the Korean case.* Korean tariffs have fallen, in the wake of various domestic reforms and WTO commitments. Yet import penetration is still actually slightly lower than it was in the early 1980s. The notion that Korean commitments to tariff reduction under a free trade agreement will somehow result in an expansion of Canadian exports to that country is utterly refuted by the empirical evidence of Korea's recent economic development. On the other hand, there is little doubt that Canadian tariff reduction commitments will indeed result in still higher import penetration of our economy, consistent with the clear pattern of the past quarter-century.

Part II: Likely Employment Effects of a Canada-Korea Free Trade Agreement

Economists have utilized numerous different empirical and quantitative techniques to estimate the likely economic effects of trade liberalization. Computable general equilibrium models have become popular with some economists as a tool for analyzing the economic effects of trade liberalization and other policy shocks. However, the real-world relevance of these models is questionable given their reliance on unrealistic starting assumptions (such as full employment of labour and other factors of production; and the maintenance of balanced trade between affected trading partners). More pragmatic econometric and partial equilibrium models attempt to simulate the effects of trade liberalization through the application of observed or assumed trade elasticities. These models, however, do not fully capture the structural changes which FTAs and other far-reaching liberalization initiatives are likely to spark. Both types of models have tended to underestimate the full impact of FTAs on bilateral trade flows (and hence on employment, output, and other related variables).

This section of the report will summarize two distinct approaches to simulating the likely employment impacts of a Canada-Korea FTA. The first follows the standard "Elasticities" approach, in calculating the assumed change in trade flows within each of the 20 sector groupings identified above that is predicted to result from bilateral tariff elimination (on the basis of assumptions regarding the elasticity of substitution of consumers between national varieties of similar products, and the assumed sensitivity of trade flows in each partner to tariff reduction). It finds that a CKFTA sparks moderate increases in two-way trade, with noted negative impacts on Canadian employment.

The second approach, however, recognizes that the traditional elasticities approach has tended to dramatically underestimate the true expansion in bilateral trade that has followed previous FTAs. To capture the structural changes in trade flows that are likely to result from a CKFTA (as occurred with Canada's five previous FTAs), this "Historical Experience" approach applies the past experience of Canada's other FTAs to the case of Korea. It asks what will happen to trade flows, trade balances, and hence employment if a Canada-Korea FTA has roughly the same effects on trade as did Canada's other FTAs. It turns out that the answers to this question are dramatic.

A. Elasticities Approach

The analysis presented in Part I of this report lends itself readily to the estimation of the likely partial equilibrium industrial and employment effects of a bilateral Canada-Korea FTA, following the standard "elasticities" approach to this subject.

Existing bilateral trade flows by sector between Canada and Korea were described in detail in Part I of this paper, as were their net employment effects in Canada. (See also the tables in the Appendix for more detail.)

The employment effects of a FTA can then be estimated by measuring the likely change in bilateral sectoral trade flows that would result from the elimination of bilateral tariffs under a FTA, and then calculating the employment content of those changes in trade patterns.

Table A1 in the appendix lists additional information required for this analysis, for each of the 20 non-agricultural sector groupings reported above. That table lists average applied tariff rates for Canada and Korea (applied against imports from the other). In most cases, the sector definitions used in this analysis reflect a composite of different particular tariff lines. Therefore, the average tariff rate used in the analysis must reflect the effective average tariff collected across the component industries. Since there are dozens of individual tariff lines within each sector grouping, this is a difficult task. The applied bilateral tariff rates reported in Table A1 were calculated from data on tariff collections and bilateral trade volumes produced by the GTAP database at Purdue University. In three cases for which the sector definition was relatively narrow (oil and gas, motor vehicles, and motor vehicle parts), the explicit tariff level allowed under each country's MFN commitments was assumed to prevail and hence reported directly.[8]

Table A1 also lists another parameter needed for the analysis, namely the degree to which one nation's products in a particular sector will be "substitutable" by consumers in their purchases for products from other nations (including home production). This approach is consistent with the standard "Armington assumption" in international trade models of imperfect substitutability between products produced in different jurisdictions. The elasticities applied within each sector are the same elasticities utilized by economists at Canada's Department of Foreign Affairs and International Trade in their own recent simulation models regarding the impacts of trade liberalization.[9]

The standard approach is to multiply the assumed price reduction resulting from the elimination of bilateral tariffs in each sector, by the corresponding elasticity of substitution, to estimate the extent to which a country's exports will enjoy additional market penetration among the consumers of the FTA partner economy. This approach is consistent with assuming the existence of some form of constant elasticity of substitution (CES) consumer demand function, in which consumers are assumed to demonstrate a constant degree of indifference between national varieties of different products, regardless of what point on their "demand function" they happen to be occupying.

In the Canada-Korea case, however, the standard approach must be modified to reflect the fact that Korean import purchases have demonstrated a distinct lack of sensitivity to tariff reduction (as proven in the

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[8] MFN tariff rates for these three sectors were attained from the APEC on-line tariff database, www.apectariff.org.
[9] See in particular "Toward 'Deeper' Canada-U.S. Integration: A Computable General Equilibrium Investigation," by Marcel Mérette, Evangelia Papadaki, Jorge Hernández, and Yu Lan, in *NAFTA@10,* edited by John M. Curtis and Aaron Sydor, DFAIT, 2006.

discussion of Feature #10 above). Empirical evidence indicates that Korean imports are unaffected by tariff reduction. Japanese imports, meanwhile, are roughly half as sensitive to tariff reduction as Canadian imports. This insensitivity reflects the continuing influence of other policy tools in East Asian economies even after tariff reduction has occurred, and the fact that tariff reduction has been negotiated at times and in sectors that were advantageous to the continuing competitive success of domestic East Asian industries, in both home and export markets.

To this end, two cases are considered in the following analysis. In Case 1, it is assumed that Korean imports are half as sensitive to tariff reduction as Canadian imports. (This would be more consistent with the evidence presented for Japan in the discussion above.) Thus the substitution elasticities presented in Table A1 are reduced by half in simulating the impact of an FTA on Korea's imports from Canada. In Case 2, it is assumed that Korean imports are not at all sensitive to tariff reduction (as in fact is suggested by the actual historical experience for the Korean economy).

In the two cases, the level of existing tariffs is multiplied by the assumed elasticity of substitution (and, in Korea's case, by the additional parameter reflecting the relative insensitivity of imports to tariff reduction). The resulting factors are then applied to the 2005 level of imports and exports within each sector grouping. The resulting change in the trade balance within each sector is then analyzed to determine the consequent impact on net employment in Canada within each sector. That number will indicate the extent to which the post-FTA change in sectoral trade balances affects the net employment embodied in Canada-Korea trade within each sector.[10]

In the case of partial Korean sensitivity to tariff reduction (Case 1), Canada's exports to Korea grow by 16 percent, but Canada's imports from Korea grow by 25 percent. The result is a deterioration in the bilateral trade balance of almost $1 billion. A net total of over 2,200 jobs are lost in Canada. Job gains are experienced in 7 sectors (the biggest being over 500 new jobs in food manufacturing). Job losses are experienced in 10 broad sectors, including 526 job losses in Canada's auto assembly sector – the second-hardest-hit sector.[11] Other sectors experiencing major job loss under the FTA include clothing, fabricated metal products, and machinery.

If it is assumed that Korean imports (as evidenced by historical experience) are fully insensitive to tariff reduction (Case 2), then there is no upside to Canada from an FTA – only a downside. The trade balance deteriorates by $1.35 billion, and a total of 3,600 net jobs are lost. Job losses in auto assembly are unchanged at 526.[12]

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[10] The results reported in Tables 13 and 14 therefore correspond to the number of net jobs created or destroyed in Canada in each sector as a result of bilateral trade between Canada and Korea. Total employment in each sector in Canada, of course, depends on many other factors – including Canada's trade relationships with other countries. Changes in the trade relationships between Canada and those other countries in the wake of a Canada-Korea FTA will affect the final job impact experienced in Canada.

[11] Reduction of Korea's tariff on imports of auto parts is found to generate $3 million in new parts exports from Canada, and 9 associated jobs. Since Canada currently charges no tariff on OEM parts imports, there is presumed to be no change in imports of parts from Korea.

Table 13
Employment Effects of a Canada-Korea FTA:
Elasticities Approach

Sector	Case 1: Partial Korean Sensitivity to Tariff Reduction		Case 2: No Korean Sensitivity to Tariff Reduction	
	Change in Trade Balance ($b)	Net Jobs Gained or Lost	Change in Trade Balance ($b)	Net Jobs Gained or Lost
Oil and Gas Extraction	0.0	0	0.0	0
Mining (except Oil and Gas)	36.9	66	0.0	0
Food Manufacturing	143.1	510	-26.1	-93
Clothing Manufacturing	-48.9	-530	-49.4	-535
Leather and Allied Product Manufacturing	-7.8	-181	-8.1	-189
Wood Product Manufacturing	8.0	30	-0.3	-1
Paper Manufacturing	18.0	50	-6.9	-19
Petroleum and Coal Products Manufacturing	0.2	0	-0.2	0
Chemical Manufacturing	-56.7	-110	-86.9	-169
Plastics and Rubber Products Manufacturing	-62.6	-290	-64.0	-296
Primary Metal Manufacturing	-35.3	-64	-54.5	-99
Fabricated Metal Product Manufacturing	-74.0	-401	-74.9	-405
Machinery Manufacturing	-82.5	-393	-108.9	-519
Computer and Electronic Products	11.5	41	-48.1	-173
Electrical Equipment, Appliances, Components	3.7	16	-7.4	-31
Transportation Equipment Manufacturing	-717.3	-519	-720.7	-529
Motor Vehicle Manufacturing	*-718.9*	*-526*	*-719.2*	*-526*
Motor Vehicle Parts	*3.0*	*9*	*0.0*	*0*
Furniture and Related Product Manufacturing	-3.1	-20	-3.7	-24
Other Manufacturing*	-80.8	-443	-96.0	-526
Total Non-Agricultural Trade Sectors	**-947.6**	**-2,238**	**-1356.1**	**-3,609**

Source: CAW Research, as described in text.

B. Historical Experience Approach

The problem with the elasticities approach utilized in the preceding discussion is that the historical evidence is overwhelming that free trade agreements spark a much larger expansion of trade flows than can be predicted on the basis of tariff reduction alone. Rather, structural changes are induced in supply chains and marketing strategies that lead to much more important shifts in trade patterns (as indicated starkly by the historical experience of Canada's five existing FTAs, summarized in the discussion of Feature #7 above).

In reality, a Canada-Korea FTA will result in an expansion of bilateral trade far greater than the relatively modest (but still job-destroying) scenario outlined under the Elasticities Approach above. In that case, Canada's imports from Korea grew 25 percent, and its exports to Korea – in the partial sensitivity case – grew 16 percent. This is far smaller than the actual increases in bilateral trade that followed all of Canada's other FTAs.

An alternative approach to estimating the employment impact of a CKFTA, therefore, would be to replicate the average experience of Canada's past FTAs. As was described in the discussion of Feature 9 above, four of Canada's five FTAs resulted in a much larger expansion of Canada's imports than Canada's exports. (In the fifth case, our initial FTA with the U.S., exports and imports grew roughly equally.)

Recall that Canada is entering these negotiations carrying a significant trade deficit with Korea. Even if both exports and imports grew by the same proportion, therefore, the trade deficit will still widen – and hence so will the resulting net employment losses. In fact, however, it is more likely (based on past experience) that export growth will not match import growth (especially given Korea's demonstrated insensitivity to tariff reduction, and the continuing influence of pro-active economic interventions there).

Therefore, the following analysis will also consider two cases. In Case 1, it is assumed that Canada's bilateral trade flows with Korea grow in the first ten years after an FTA in the same *average* proportion as was experienced in the five previous FTAs. This implies an increase in Canadian exports of 100 percent, and an increase in Canadian imports of 251 percent (see discussion of Feature 9 above).[13]

In Case 2, we optimistically assume that the experience of a CKFTA will match the *best* realized experience (according to this criteria) from among *all* of Canada's previous FTAs: namely the experience with the U.S. In that case, our exports grew by 156 percent in the decade after the FTA, and our imports grew by 153 percent.

As in the elasticities-approach analysis above, the presumed changes in imports and exports are converted into a resulting change in the bilateral trade balance in each sector. The net employment impacts of these changes in the sectoral trade balances are then computed according to the same job content parameters that have been utilized throughout this report.

The analysis applies the same (overall average) growth ratios to bilateral trade flows in all sectors. In reality, export growth rates are likely to be faster than the average in sectors in which Canada is already a net exporter, and import growth rates are likely to be faster than the average in sectors in which Canada is already a net importer. As a result, the employment effect estimates reported below are *conservative*. Since Canada's exports are resource-intensive and generate relatively fewer jobs than corresponding import flows, assuming that exports and imports in all sectors grow at the same rates will consequently *underestimate* the overall net job loss resulting from the FTA (since it overestimates the total jobs created by new exports, and underestimates the total jobs lost to new imports).

Table 14 summarizes the sectoral employment effects under the two cases. The estimated job losses are very large. Remember, past FTAs have resulted in very large increases in bilateral trade flows – almost always increasing imports far more than exports. In Korea's case, this is further exacerbated by the fact that Canada is entering the FTA with a large trade deficit. Increasing both component flows of a large deficit by the same proportion, increases the size of the deficit correspondingly. And increasing imports faster than exports increases the deficit (and associated job losses) much more dramatically.

Sector	Case 1: Matches Best Case		Case 2: Matches Average Experience	
	Change in Trade Balance ($b)	Net Jobs Gained or Lost	Change in Trade Balance ($b)	Net Jobs Gained or Lost
Oil and Gas Extraction	-0.2	0	-0.3	0
Mining (except Oil and Gas)	1250.9	2249	800.5	1439
Food Manufacturing	355.1	1265	176.0	627
Clothing Manufacturing	-88.4	-958	-150.9	-1636
Leather and Allied Product Manufacturing	-18.6	-431	-34.0	-789
Wood Product Manufacturing	64.8	241	40.3	150
Paper Manufacturing	513.3	1439	276.8	776
Petroleum and Coal Products Manufacturing	-13.7	-5	-26.8	-10
Chemical Manufacturing	23.3	45	-417.4	-813
Plastics and Rubber Products Manufacturing	-285.1	-1320	-487.9	-2259
Primary Metal Manufacturing	-131.8	-239	-542.6	-986
Fabricated Metal Product Manufacturing	-309.0	-1672	-547.7	-2964
Machinery Manufacturing	-560.2	-2668	-1062.4	-5061
Computer and Electronic Products	-1884.3	-6773	-3493.1	-12556
Electrical Equipment, Appliances, Components	-275.9	-1171	-527.5	-2239
Transportation Equipment Manufacturing	-2667.3	-2519	-4412.1	-4212
Motor Vehicle Manufacturing	*-2399.5*	*-1755*	*-3942.0*	*-2883*
Motor Vehicle Parts	*-227.6*	*-688*	*-389.5*	*-1178*
Furniture and Related Product Manufacturing	-10.6	-70	-22.1	-145
Other Manufacturing*	-237.2	-1299	-489.5	-2680
Total Non-Agricultural Trade Sectors	**-4.3**	**-13887**	**-10.9**	**-33358**

Source: CAW Research, as described in text.

In Case 1, with both exports and imports growing by about 150 percent, the overall non-agricultural trade deficit worsens by over $4 billion. The consequence of this deficit is an aggregate job loss of almost 14,000 positions, spread across a range of sectors. Net job losses occur in 14 broad sectors, with net gains in only 5 sectors. The largest losses occur in computers and electronics (almost 7000 positions), machinery (over 2500 lost jobs), and the auto industry (which loses almost 2500 jobs, this time in both assembly and parts). The biggest gainers are mining (with 2250 new net jobs), paper, and food.

In the worse Case 2 scenario, however (which reflects the average experience of all of Canada's past FTAs), the net impact is far worse. Exports grow by 100 percent, and imports by about 250 percent. The overall bilateral trade deficit, therefore, deteriorates by almost $11 billion. The total net jobs lost as a result of that bilateral imbalance exceeds 33,000. The job loss in the computer and electronics sector is again the largest, with over 12,000 positions lost. In this case, the wider bilateral deficit corresponds to the loss of over 4000 jobs in Canada's auto industry – almost three-quarters of those in assembly.

These job loss numbers seem very large, but in fact they correspond to Canada's demonstrated experience in the past FTAs it has signed. Whenever imports grow much faster than exports, significant Canadian jobs must be lost – even before we consider the fact that Canada's exports embody a relatively smaller job content than Canada's imports. And the losses will be all the larger if (as in the case of Korea) Canada is entering the FTA from a position of substantial deficit.

Indeed, perhaps the most similar case to Korea among Canada's existing five FTA partners is Mexico. Prior to the inclusion of Mexico in the NAFTA, Canada's trade deficit with Mexico was just under $3 billion – roughly equivalent to Canada's trade deficit with Korea today. In 2005, just over a decade later, Canada's trade deficit with Mexico reached over $11 billion. The preceding analysis suggests that under an FTA, Canada's bilateral trade deficit with Korea would ultimately expand to between $7 and $14 billion. This is quite consistent with the actual experience of our bilateral trade deficit with Mexico under the NAFTA. In other words, free trade with Korea is likely to have similar aggregate effects on Canada's trade position (with consequent net employment effects) as did Mexico's inclusion into the NAFTA, and in that context the preceding job loss estimates – while strikingly large – can hardly be judged "unrealistic."

Conclusion

Canada enters FTA negotiations with Korea experiencing a large trade deficit that corresponds to the loss of almost 10,000 Canadian jobs. Even if an FTA increases both exports to Korea and imports from Korea by equivalent proportions, that trade deficit (and the corresponding job loss) will worsen significantly. The past experience of Canada's five previous FTAs, however, suggests that Canada's imports will grow substantially faster than our exports in the wake of an FTA, making the resulting deterioration in the trade balance (and consequent job loss) much worse. This result is fully consistent with the demonstrated empirical evidence that Korea's imports are almost perfectly insensitive to tariff reduction.

The preceding analysis suggests that as many as 33,000 Canadian jobs would be lost as a long-term result of a Canada-Korea FTA. As many as 4000 of those positions would be in Canada's hard-pressed auto industry – which would endure lost production and employment opportunities at the very moment in time when several strategic Canadian facilities are fighting for their survival. Counting spin-off jobs lost, and the toll of a CKFTA for the auto industry would be even worse.

Canada's government has embarked on FTA negotiations with Korea seemingly driven more by a knee-jerk faith that free trade must always be beneficial, than by any pragmatic analysis of Canada's existing trade weaknesses in East Asia or the likely real-world impacts of an FTA on Canada's sluggish exports there. The proposed CKFTA would clearly act as a precedent for subsequent NAFTA-style deals with Japan and then China. The impacts of these subsequent deals (especially one with China) would be far, far worse than the estimated negative effects of a CKFTA.

Canada's trade relationships with East Asia are clearly undermining investment and employment across a range of strategic high-technology sectors. Studying the history and nature of the East Asian development model, leads to the immediate conclusion that free-market remedies to Canada's poor trade performance there cannot work – and will only make matters worse. Before leaping into a NAFTA-style free trade deal with Korea (which will almost certainly serve as a template for subsequent, even more destructive deals with Korea's neighbours), Canadian officials should fundamentally rethink their trade policy strategy. Yes, enhancing Canada's current small role in rapidly-growing Asia is an essential economic policy challenge. But it will take a very different approach than simply replicating NAFTA – perhaps an approach informed by the East Asians' own successes with far-reaching policy interventions – to make this necessity a reality.

Appendix

Table A1							
List of Sectors and Parameters							
2005							
Sector	**NAICS Code**	**Total Cdn. Shipments ($ bil.)**	**Canadian Employment**	**Shipments per Job (5000)**	**Elasticity of Substitution[2]**	**Canada Applied Tariff on Korean Imports[3]**	**Korea Applied Tariff on Canadian Imports[3]**
Oil and Gas Extraction	211	109.0	45,117	2416	4.4	0.0	5.0
Mining (except Oil and Gas)	212	26.4	47,394	556	6.3	0.0	1.5
Food Manufacturing311	68.5	243,950	281	5.4	14.4	24.0	
Clothing Manufacturing	315	5.6	60,312	92	4.5	17.8	5.9
Leather and Allied Product Manufacturing	316	0.5	12,028	43	5.0	11.3	6.3
Wood Product Manufacturing	321	35.4	131,592	269	6.4	5.4	6.1
Paper Manufacturing	322	32.3	90,460	357	4.1	5.0	3.3
Petroleum and Coal Products Manufacturing	324	54.8	21,132	2593	4.4	0.3	6.4
Chemical Manufacturing	325	47.9	93,216	513	4.8	6.4	4.3
Plastics and Rubber Products Manufacturing	326	27.5	127,320	216	5.0	6.4	4.3
Primary Metal Manufacturing	331	46.3	84,208	550	5.1	3.6	3.6
Fabricated Metal Product Manufacturing	332	36.7	198,517	185	5.1	6.4	1.4
Machinery Manufacturing	333	31.3	149,158	210	8.0	3.0	7.3
Computer and Electronic Products	334	22.1	79,505	278	6.3	0.5	7.4
Electrical Equipment, Appliances, Components	335	10.7	45,599	236	6.3	0.5	7.4
Transportation Equipment Manufacturing	336	125.4	234,777	534	7.5	0.6	0.2
Motor Vehicle Manufacturing	*3361*	*69.8*	*51,012*	*1367*	*7.5*	*6.1*	*8.0*
Motor Vehicle Parts Manufacturing	*3363*	*32.2*	*97,282*	*331*	*7.5*	*0.0*	*8.0*
Furniture and Related Product Manufacturing	337	15.5	101,893	152	6.8	5.4	6.1
Other Manufacturing[1]		50.9	278,876	183	6.6	6.6	7.2
Total Non-Agricultural Trade Sectors (excl. NAICS 11)		**746.8**	**2,045,054**	**365**		**3.5**	**5.6**

Source (unless otherwise indicated): Statistics Canada.

1. 'Other' manufacturing sectors include NAICS 312, 313, 314, 323, 327, and 329.

2. "Toward 'Deeper' Canada-U.S. Integration: A Computable General Equilibrium Investigation," by Marcel Mérette, Evangelia Papadaki, Jorge Hernández, and Yu Lan, in NAFTA@10, edited by John M. Curtis and Aaron Sydor, DFAIT, 2006.

3. Calculated from GTAP 5 database, Purdue University, except for NAICS sectors 211, 3361, and 3363, for which direct MFN bound rates are applied.

	Current Position		Change Since 1996	
Table A2 **Employment Effects of Current Canada-Korea Trade** **2005**				
	Current Trade Balance ($ b)	Estimated Net Job Effect	Current Trade Balance ($ b)	Estimated Net Job Effect
Oil and Gas Extraction	-0.1	0	-5.5	-2
Mining (except Oil and Gas)	803.0	1444	52.1	94
Food Manufacturing	227.3	809	121.2	432
Clothing Manufacturing	-57.9	-628	76.3	827
Leather and Allied Product Manufacturing	-12.2	-283	22.6	523
Wood Product Manufacturing	41.6	154	-16.0	-59
Paper Manufacturing	328.8	922	-90.0	-252
Petroleum and Coal Products Manufacturing	-9.0	-3	-9.4	-4
Chemical Manufacturing	9.5	18	-296.4	-577
Plastics and Rubber Products Manufacturing	-186.9	-866	-80.9	-375
Primary Metal Manufacturing	-90.4	-164	-319.8	-581
Fabricated Metal Product Manufacturing	-202.8	-1098	-175.5	-950
Machinery Manufacturing	-368.6	-1756	-368.4	-1755
Computer and Electronic Products	-1238.8	-4453	51.7	186
Electrical Equipment, Appliances, Components	-181.6	-771	-118.6	-503
Transportation Equipment Manufacturing	-1746.7	-1650	-1554.7	-1489
Motor Vehicle Manufacturing	*-1570.8*	*-1149*	*-1399.2*	*-1023*
Motor Vehicle Parts Manufacturing	*-149.4*	*-452*	*-151.5*	*-458*
Furniture and Related Product Manufacturing	-7.0	-46	-11.5	-75
Other Manufacturing*	-156.6	-857	46.3	253
Total Non-Agricultural Trade Sectors	**-2848.6**	**-9227**	**-2676.5**	**-4309**

Source: CAW Research as described in text.

Table A3
Employment Effects of Current Canada-Japan Trade
2005

	Current Position		Change Since 1996	
	Current Trade Balance ($ b)	Estimated Net Job Effect	Current Trade Balance ($ b)	Estimated Net Job Effect
Oil and Gas Extraction	0.0	0	0.0	0
Mining (except Oil and Gas)	1738.4	3126	-566.7	-1019
Food Manufacturing	1762.2	6276	297.1	1058
Clothing Manufacturing	15.3	166	-2.6	-29
Leather and Allied Product Manufacturing	0.8	18	-2.0	-46
Wood Product Manufacturing	1189.1	4417	-1865.6	-6929
Paper Manufacturing	455.8	1278	-718.4	-2014
Petroleum and Coal Products Manufacturing	5.5	2	2.5	1
Chemical Manufacturing	-189.4	-369	-51.7	-101
Plastics and Rubber Products Manufacturing	-411.3	-1904	-175.1	-811
Primary Metal Manufacturing	350.3	636	3.0	5
Fabricated Metal Product Manufacturing	-351.0	-1899	-153.8	-832
Machinery Manufacturing	-2340.8	-11151	-690.7	-3290
Computer and Electronic Products	-2355.6	-8468	749.9	2696
Electrical Equipment, Appliances, Components	-465.7	-1976	-122.8	-521
Transportation Equipment Manufacturing	-5768.2	-8390	-2813.9	-2337
Motor Vehicle Manufacturing	*-3801.5*	*-2780*	*-2641.5*	*-1932*
Motor Vehicle Parts Manufacturing	*-1671.5*	*-5057*	*-71.4*	*-216*
Furniture and Related Product Manufacturing	1.3	8	-13.0	-86
Other Manufacturing*	-471.8	-2583	-102.0	-558
Total Non-Agricultural Trade Sectors	-6835.3	-20813	-6225.9	-14813

Source: CAW Research as described in text.

Table A4 Employment Effects of Current Canada-China Trade 2005				
	Current Position		**Change Since 1996**	
	Current Trade Balance ($ b)	**Estimated Net Job Effect**	**Current Trade Balance ($ b)**	**Estimated Net Job Effect**
Oil and Gas Extraction	269.2	111	228.4	95
Mining (except Oil and Gas)	943.0	1696	700.9	1260
Food Manufacturing	61.4	219	55.3	197
Clothing Manufacturing	-3298.3	-35748	-2637.6	-28587
Leather and Allied Product Manufacturing	-1415.8	-32829	-830.6	-19260
Wood Product Manufacturing	-230.6	-857	-311.7	-1158
Paper Manufacturing	713.6	2001	283.3	794
Petroleum and Coal Products Manufacturing	-72.4	-28	-64.1	-25
Chemical Manufacturing	820.0	1597	703.0	1369
Plastics and Rubber Products Manufacturing	-739.5	-3425	-590.5	-2734
Primary Metal Manufacturing	-658.2	-1196	-622.9	-1132
Fabricated Metal Product Manufacturing	-1471.3	-7962	-1277.6	-6914
Machinery Manufacturing	-1368.4	-6518	-1302.8	-6206
Computer and Electronic Products	-7664.3	-27550	-7294.0	-26219
Electrical Equipment, Appliances, Components	-2199.3	-9334	-1823.6	-7739
Transportation Equipment Manufacturing	-774.9	-1450	-841.5	-1575
Motor Vehicle Manufacturing	7.1	5	6.6	5
Motor Vehicle Parts Manufacturing	-682.6	-2065	-770.1	-2330
Furniture and Related Product Manufacturing	-1222.9	-8047	-1127.4	-7418
Other Manufacturing*	-4482.3	-24542	-3181.5	-17420
Total Non-Agricultural Trade Sectors	-22790.9	-153861	-19935.0	-122672

Source: CAW Research as described in text.   .

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