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Micro

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Micro-Economic Policy Analysis Branch Bulletin

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Perspectives on North American Free Trade

In 1989, Canada and the United States implemented the Free Trade Agreement (FTA), following an often acrimonious public debate. Five years later, in 1994, the North American Free Trade Agreement (NAFTA) came into effect, extending the FTA to the fast-growing Mexican market.

Supporters of the free trade agreements argued that they would foster prosperity in Canada by raising the efficiency and productivity of Canadian businesses. Trade agreements are expected to benefit the economies of the parties involved, and they are particularly beneficial to relatively small open economies, such as that of Canada. First, they expose domestically protected firms to international competition. Second, they reward innovative and productive firms by giving them access to larger markets. But at the same time, critics voiced concerns about possible plant closures and job losses in Canada.

More than ten years have passed since the implementation of the FTA – enough time to reliably assess the implications of that agreement for the Canadian economy. To carry out

such an assessment, the Micro-Economic Policy Analysis Branch of Industry Canada asked a group of experts to examine the Canadian economy in the light of the FTA. This special issue of *MICRO* looks at the six papers coming out of this exercise, which have been published under the general heading *Perspectives on North American Free Trade*. These papers analyze a broad spectrum of issues ranging from the impact of the FTA on interprovincial trade flows to its effects on the productivity performance of the Canadian economy. They assess the viability of the Canadian manufacturing sector, as well as the relationship between outward foreign direct investment and trade flows. They also explore the implications of trade for the evolution of Canada's industrial structure and skill mix, along with an assessment of Canada's migration patterns with the United States.

This issue of *MICRO* also reports on two lectures presented as part of Industry Canada's Distinguished Speakers Series: Ernst Berndt on firm-level productivity analysis; and Keith Banting on globalization and the future of social policy.

Volume 7, Number 3

Canada

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| 6 April 2001 | Josh Lerner, Harvard University, <i>TBA</i> . |
| 4 May 2001 | Charles Hulten, University of Maryland, on <i>Productivity</i> . |
| 11 May 2001 | Catherine Mann, Institute for International Economics, on <i>High-Tech and Productivity Growth</i> . |

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Can Small-Country Manufacturing Survive Trade Liberalization? Evidence from the Canada-US Free Trade Agreement

In the 10 years elapsed since the Free Trade Agreement (FTA) came into effect, Canadian manufacturing experienced a serious slump followed by a rebound and restructuring. This gives rise to the obvious question: to what extent are these changes attributable to trade liberalization under the FTA? In the first monograph published in the *Perspectives on North American Free Trade* series, Keith Head and John Ries investigate this question and the impact of the FTA on North American manufacturing.

The authors recognize that there are conflicting theories on whether trade liberalization between a small country and a large country will benefit or harm the small country manufacturing sector. In the Krugman model, industries with relatively large domestic demand run a trade surplus which is expanded by tariff reductions. In the Armington model, trade liberalization expands the output share of small-demand industries by giving them better access to foreign markets.

Head and Ries assess the usefulness of both models in evaluating the impact of the FTA and conclude that their results tend to support the latter hypothesis: Tariff reductions increased the share of production of Canadian industries with a relatively low share of demand. Moreover, they find some evidence that standard comparative advantage effects are at work: performance in terms of output share tended to be better for liberalized, natural resource-intensive industries over the 1990-95 period covered in their study.

They also estimate the border effect – the observed and unobserved barriers

to trade that impede the consumption of imported goods. They find that border costs that encourage a consumer to purchase local goods have fallen throughout the post-FTA period and

many industries, they exceed 80%. As a result, the authors conclude that the lack of full integration of North American markets for manufactured goods limits the impact that tariff reductions can have on industrial sectors.

Can small-country manufacturing survive trade liberalization? Head and Ries suggest the answer is yes. They conclude that, first, Canada remains a net exporter of

"...the role tariff reductions can play in re-shaping North American manufacturing is limited by the presence of high non-tariff barriers in many industries."

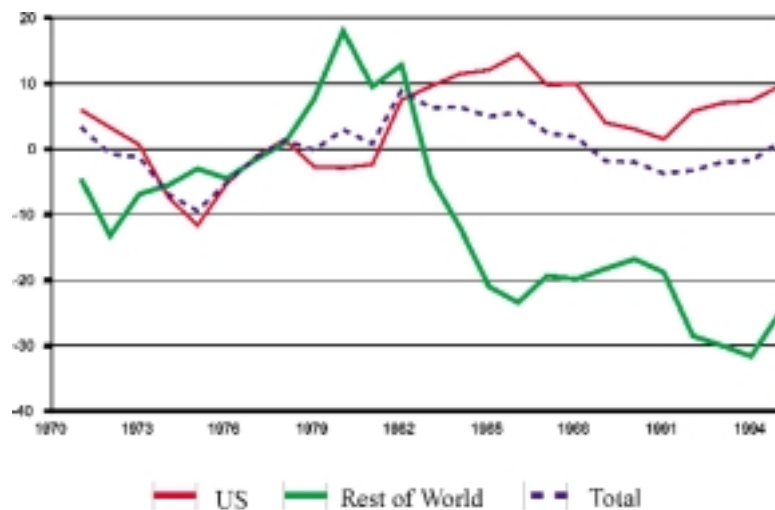
- Keith Head and John Ries

manufactures to the United States, and primary products now account for a smaller share of exports than they did before the FTA was enacted. Second, trade barriers other than tariffs still insulate Canadian firms from import competition. Third, the home-market size effects that could, in theory, lead to the demise of Canada's manufacturing sector appear to be small or non-existent in practice.

that this decline is part of a long-term reduction in border costs and an increasingly integrated North American market for manufactures. They show, however, that non-tariff barriers (NTBs) remain high in some industries, such as the dairy, publishing and printing and soft drinks sectors. Their estimates put average NTBs (including transport costs) at between 27% and 45%, on average, in 1995. In

Canadian Trade Balances in the Manufacturing Sector

(exports - imports)/(exports + imports)



Source: Head and Ries, *Can Small-Country Manufacturing Survive Trade Liberalization*, Industry Canada; April 1999.

Modelling Links between Canadian Trade and Foreign Direct Investment

Foreign direct investment (FDI) has played an important role in the Canadian economy for many years. Typically, Canada has had more inward FDI than outward FDI, but there has been a marked increase in outward FDI since 1980, with the result that Canada now has about the same level of outward FDI and inward FDI. This raises important questions about the implications of such an increase in outward FDI.

In the second monograph published in the *Perspectives on North American Free Trade* series, Walid Hejazi and Edward Safarian dispute the commonly held view that outward FDI transfers production facilities from Canada to foreign locations and reduces Canadian export and employment levels. They argue that, contrary to popular belief, Canadian outward FDI is complementary to trade, so that increases in outward FDI will lead to higher Canadian exports.

They find that to date, most of the research on the impact of FDI has concentrated on its domestic implications in Canada. Such research often views FDI as an important source of international technology transfer and, hence, of economic growth. At the same time, many believe that increases in outward foreign direct investment (FDI) substitute for domestic exports and that increases in inward FDI result in lower imports. However, recent evidence suggests that FDI and trade may not, in fact,

be substitutes for one another but, rather, complementary.

The authors use a gravity model to measure the link between outward Canadian FDI and Canadian exports on a bilateral basis with thirty-five countries over the 1970-96 period. They also examine the

"...outward FDI is strongly associated with export growth..."

- Walid Hejazi and Edward Safarian

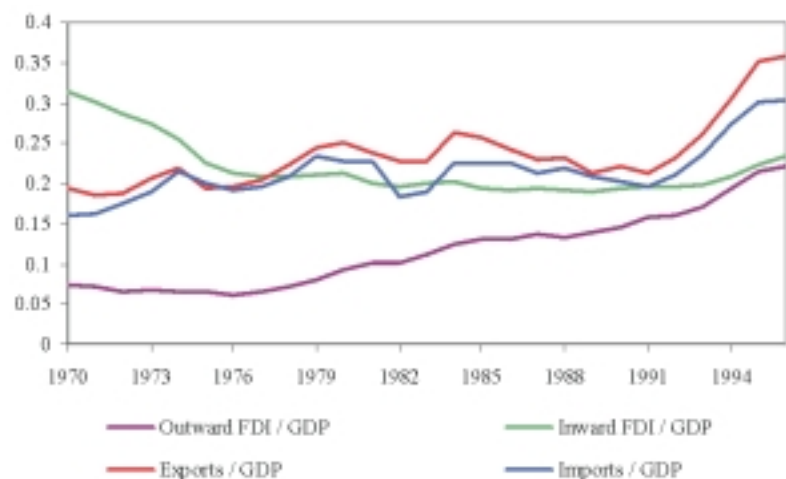
inward side, measuring the link between FDI coming into Canada and its impact on imports. They acknowledge that data and modeling limitations have constrained their efforts at undertaking a thorough study at the industry level, but the results they do present show a great deal of variation at that level. Some industries are characterized by complementarity, others by sub-

stitutability. At the industry level, there is stronger evidence of a complementary relationship on the inward side than on the outward side. They also establish that increased levels of openness to FDI in Canada have resulted in higher levels of domestic investment. In other words, increased levels of outward FDI have not been at the expense of domestic investment.

Overall, they conclude that international trade and FDI are complementary in the Canadian context. Over the period 1970-96 and for over 30 countries, a gravity model framework shows that Canadian outward FDI stimulates domestic exports, and inward FDI stimulates imports. Furthermore, the impact on exports is larger than the impact on imports, indicating that on a net basis, the higher level of openness of Canada to FDI has improved its trade balance.

Trade and FDI characteristics of the Canadian Economy

(relative to GDP)



Source: Hejazi and Safarian, *Modelling Links between Canadian Trade and Foreign Direct Investment*, Industry Canada, April 1999.

Trade Liberalization and the Migration of Skilled Workers

Has North American trade liberalization affected migration flows between Canada and the United States? Classical economic theory leads to a prediction that trade and factor movements are

"...net out-migration of Canadians under the NAFTA visa arrangements is not necessarily a problem for the Canadian economy."

-Steven Globerman

substitutes, so that freer trade could be expected to reduce incentives for bilateral migration. On the other hand, the modern theory of the multinational corporation stresses the potential need for factor movements, especially the relocation of managers and technical experts, to expedite production rationalization and expanded international trade following trade liberalization. In the third monograph published in the series, Steven Globerman looks at the issue of migration flows.

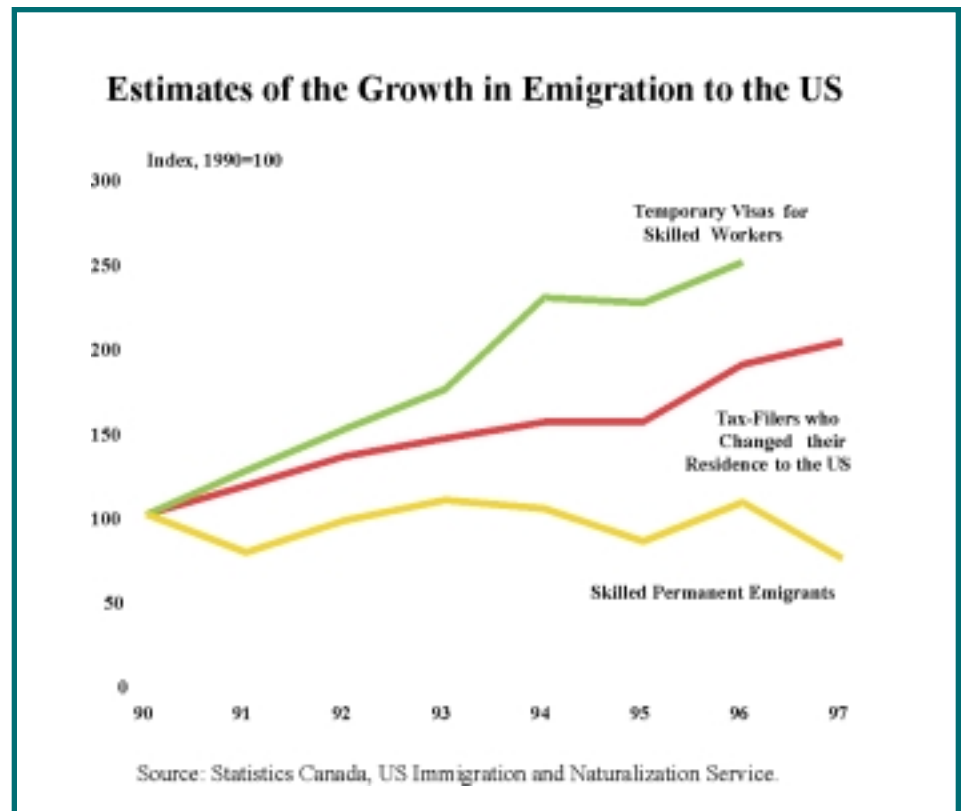
Globerman finds that the introduction of new visa arrangements for temporary workers has made it much easier and cheaper for skilled professionals and managers to migrate across national borders. Moreover, the data show strong and consistent growth in temporary immigration tied to new temporary visas. He notes, however, that it is

not clear that this latter form of migration is directly related to new production arrangements spurred by trade liberalization or whether it reflects the use of an "open gate" to arbitrage national differences in salary scales, living costs and tax rates.

The author argues that at least a portion of the increased temporary migration of Canadians to the United States in the 1990s has been linked to adjustments occasioned by trade liberalization. He notes that other motives, such as enhanced career development, may also be at work. He concludes that to the extent that Canadians improve their productivity in the U.S. labour market and return to Canada with stronger skills, there is likely to be a net spillover benefit to

the Canadian economy. Some survey evidence suggest that this reason may well be important in a substantial number of cases. He notes that survey evidence downplays the importance of the tax burden as a motive for migration.

Globerman concludes that the net out-migration of Canadians under visa arrangements is not necessarily a problem for the Canadian economy and could well prove to be a long-term benefit. He also concludes that net outward migration on its own does not justify initiatives to change Canadian tax rates or wage structures. Finally, he also raises the question of why private-sector organizations in Canada are not doing more to offer better career opportunities to their young and promising employees.



The Changing Industry and Skill Mix of Canada's International Trade

In the fourth monograph of the series, Peter Dungan and Steve Murphy set out to examine the changing industry and skill mix of Canadian exports and imports over the past three decades. The primary technique they use is an input-output analysis, supplemented by detailed sectoral education (skill) data from the Canadian Occupational Projection System. With this information, the authors estimate how much of Canada's employment is associated with exports and imports and whether changes in the industrial composition of Canada's trade have affected the employment and skill mix of jobs over time.

They find that while the shares of both exports and imports in the Canadian economy have grown strongly since 1961 – and massively so in the 1990s – the growth in the share of employment attributable to exports has been much less rapid. Exports today have a much higher import content of intermediate inputs than in the past. They find also that, while Canadian exports have always exhibited higher than average levels of labour productivity, there has been almost no growth in labour productivity in export sectors. Because the share of employment attributable to exports has been growing over time, increased exports have lifted both the overall level of Canadian labour productivity and wages and salaries.

Since 1961, the mix of Canadian export employment has continually evolved toward indus-

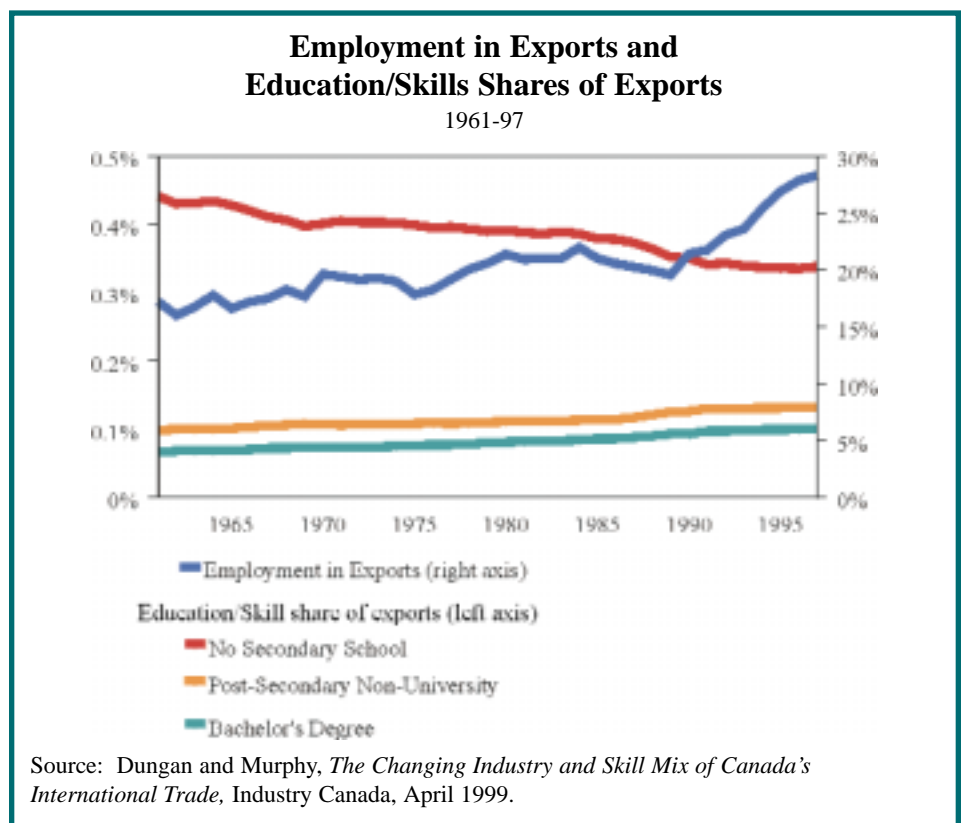
"While exports and imports have grown strongly ... the growth in the share of employment attributable to exports has been much less rapid."

- Peter Dungan and Steve Murphy

tries with more highly-educated workers. At the same time, exports exceed the economy-wide average in employing workers with low education and, also, workers with relatively advanced

education, leading the authors to conclude that employment from exports has a "bi-polar" distribution.

The labour productivity of employment displaced by imports is invariably lower than that of exports – although it is still above the business-sector average for most years. This means that Canada is replacing low-productivity employment with high-productivity employment through expanded international trade. This leads the authors to conclude that if macro policies can keep the economy near full employment, and the pace of change is not too fast, this shift makes Canada better off.



Effects of the Canada-United States Free Trade Agreement on Interprovincial Trade

The fifth paper published in the series is *Effects of the Canada-United States Free Trade Agreement on Interprovincial Trade*, by John Helliwell, Frank Lee and Hans Messinger. It assess-

because the FTA also affected the provinces' general economic growth, it is difficult to calculate the FTA's net effect on the overall 15 percent increase in interprovincial trade between 1988 and 1996.

that FTA-induced tariff cuts led to a reduction in interprovincial trade of about 7 percent, only about half the total reduction previously calculated with aggregate data.

The authors find that interprovincial trade linkages remain twelve times stronger than those between Canada and the United States. The FTA did have a border-reducing effect, and they estimate that the pre-FTA border effect of over 18 fell to 12 between 1990 and 1993, and has remained steady since. This suggests that at least the first round of trade adjustments is now complete. They conclude that in the absence of any sign of a new downward trend, the post-FTA Canadian economy retains a strong national structure, with interprovincial trade linkages more than an order of magnitude higher than those between provinces and states.

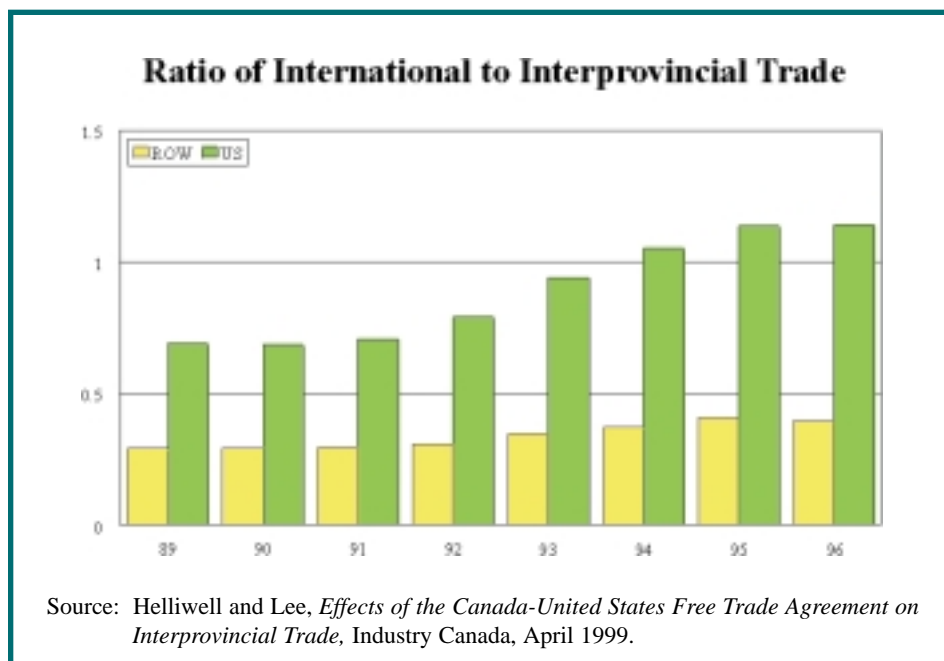
"Interprovincial trade linkages remain twelve times stronger than those between Canada and the United States."

-John Helliwell, Frank Lee and Hans Messinger

es the impact of the FTA on interprovincial trade. More specifically, the authors examine the possibility that the FTA may have generated more trade between Canada and the United States, in part by diverting trade away from interprovincial channels. They use two types of evidence in their study. First, they develop a gravity model to explain interprovincial and province-state trade flows. Then, they analyze new industry-level data to estimate the extent to which tariff changes in Canada and the United States can help explain inter-industry differences in the growth of interprovincial trade.

At the aggregate level, their results show that the FTA has increased north-south trade relative to east-west trade. After adjusting for appropriate factors, the gravity model indicates that in 1996, interprovincial trade would have been 13 percent higher than it actually was if the 1988 trade structure had remained unchanged. However,

The disaggregated results suggest that the FTA-related reductions in Canadian tariffs have led to higher imports from the United States and to reductions in interprovincial trade. On the other hand, reductions in US tariffs have led to higher exports to the United States and to increases in interprovincial trade. Overall, the authors calculate



The Long and Short of the Canada-US Free Trade Agreement

Ten years after its signing, the Canada-United States Free Trade Agreement still generates debate. Some point to it as the cause of job losses in manufactur-

output since 1996 suggest that some and perhaps most of the reallocation has been toward high-end manufacturing, further strengthening the economic outlook of

Canada's manufacturing sector under the free trade regime.

Despite these early adjustment costs, Trefler finds that, overall, the FTA has generated a significant increase in exports and

cialization which, in turn, lead to productivity improvements, reduced costs, and lower prices for consumers. He also presents evidence that tariff cuts raised labour productivity at a compounded rate of 0.6 percent in the manufacturing sector. Tariff cuts have also increased annual earnings slightly, raising production worker wages, though they did not affect earnings of non-production workers, or hours of work for production workers.

Trefler concludes that the effects of the FTA tariff cuts are smaller than those one could infer from the heat generated by the debate. He argues that the picture that emerges is one of short-run adjustment costs coupled with long-run gains from trade liberalization.

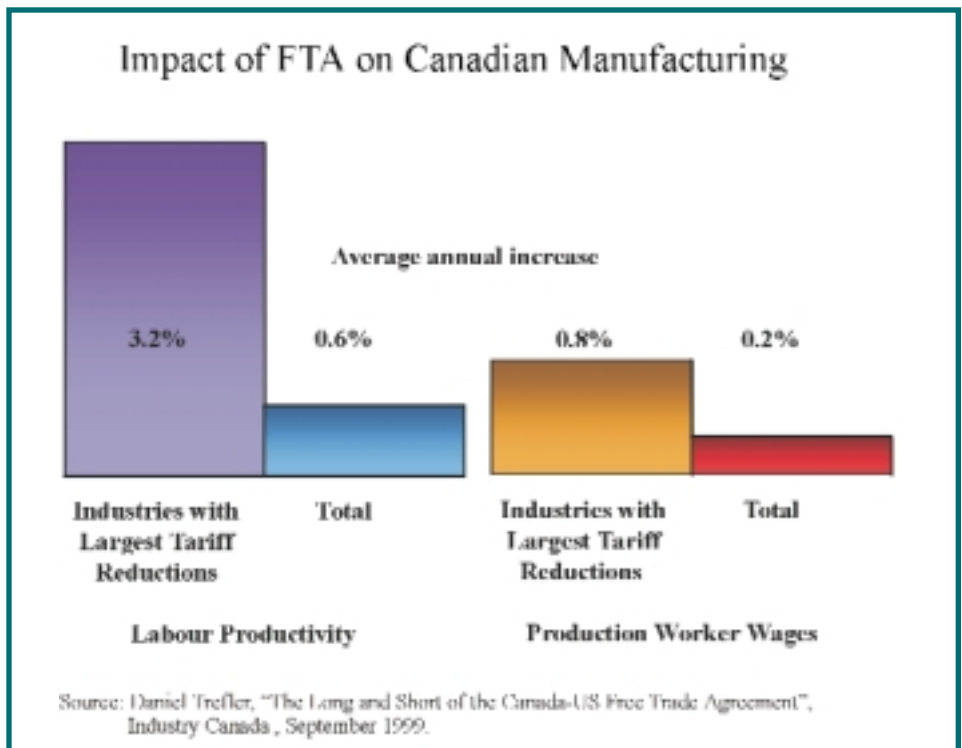
"It is a picture of long-run gains from trade liberalization coupled with significant, short-run adjustments borne by labour and uncompetitive enterprises."

-Daniel Trefler

ing in the early 1990s. Others worry about lagging productivity growth, which the agreement was supposed to stimulate. Daniel Trefler looks at these and other issues in the sixth and last paper published in the *Perspectives on North American Free Trade* series, in an effort to assess the impact of the agreement on trade flows, productivity, output and employment in the Canadian manufacturing sector.

Trefler notes that not all sectors have been affected in the same way by the FTA. He finds that a handful of industries experienced certain adjustment costs soon after implementation. These adjustments were associated with a reallocation of resources out of protected and inefficient manufacturing activities. However, according to the author, improvements in manufacturing employment and

imports throughout the 1990s. Trade growth outstripped growth in manufacturing output. This has been accompanied by other benefits, such as increased product spe-





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Factors Affecting Labour Productivity in the American Coal Industry

Ernst Berndt
MIT

Aggregate productivity statistics conveniently measure the efficiency with which resources are being used in a country or industry, but aggregation problems can lead to very misleading results. Because there is usually no data permitting analysts to study productivity trends at the firm level or to determine the extent to which differences between firms affect observed aggregate trends, they often assume the constituent firms are more or less similar.

On February 18, 2000, in a lecture entitled, *Factors Affecting Labour Productivity in the American Coal Industry*, Ernst Berndt depicted the difference that firm-level data can make. He presented the results of a study drawing from an unusually detailed database on the American coalmining industry to explore the differences between productivity trends as they appear at the aggregate level and as

they may be experienced at the firm level.

The detailed database on the coal industry provides a great deal of information on differences at the firm level. Using this data, Berndt

differentiated coal production by several distinct geographic regions, quality of coal produced, and mining technology used -- open pit or two different types of underground extraction. He argued that the industry could in fact be divided into eleven separate sub-sectors, and that labour productivity varied widely among these eleven sub-groups and showed patterns not immediately apparent in aggregate statistics.

Berndt concluded that the analysis of this detailed data set has yielded numerous insights that simply would not have been possible with highly aggregated data. In fact, the micro nature of the data set allowed the speaker to explain productivity patterns based on a range of factors, and to decompose the "productivity residual" into distinct and more specific components, a result not achievable using aggregate data alone.

"The observed change in national aggregate labour productivity for coal mining can be decomposed almost exactly into the sources of productivity change..."

- *Aggregate productivity statistics can measure the performance of a country or industry but obscure the impact of differences between individual firms.*
- *Firm-level analysis of the American coal mining industry illustrates that firm-level productivity can vary widely from industry averages.*
- *Examining the different characteristics of subgroups makes it possible to isolate the impact of scale, fixed and price effects.*
- *This, in turn, makes it possible to decompose the productivity residual into distinct and more specific components.*



What's a Country For? Globalization, Northern American Integration and Social Policy

Keith G. Banting
Queen's University

Globalization and increasing economic integration have sparked a debate over the degree to which Canada can maintain a distinctive social policy in the face of economic convergence. Are coun-

"The border still matters ... Choice still exists."

tries free to chart distinctive social futures, or does economic integration compel greater harmonization of social policy? In a lecture given on January 28, 2000, entitled *What's a Country For?*, Keith Banting assessed the degree to which Canada would be able to pursue domestic social policy goals in an integrated North America.

He began by reviewing the development of the postwar welfare state, which combined a liberalized trading system with social policy protection. Despite this overall pattern, there was considerable variation between the approaches followed by individual

countries. There is no single model of the welfare state.

The speaker noted that, in recent years, globalization and increasing economic integration have given rise to arguments on the part of economic determinists that freer movement of factor inputs, goods and services will generate irresistible pressures to strip away non-competitive cost differentials. This, in turn, will lead to harmonization of social policy and, in the extreme case, a rush to the bottom. He coun-

tered that neither the theory nor the evidence support this argument.

First, some aspects of the social contract may well enhance economic efficiency. As well, the proposition that domestic expectations now carry negligible weight is implausible. On the empirical side, the available evidence does not sustain the argument of an inevitable convergence. For political reasons, there is some convergence between European states, but even within Europe there is still considerable variability. Even within countries like the United States, variations between individual states persist.

Banting concluded that although greater economic integration may change some of the tradeoffs at work, harmonization of social policy is not inescapable. A choice still exists and there is plenty of room for distinctive national policies. In the speaker's view, if harmonization occurs, it will be mainly a matter of political choice, rather than the outcome of an economic process.

- *Postwar integration combined a liberalized trading system with increased development of the welfare state.*
- *Economic determinists now argue that with freer movement of factor inputs, goods and services, noncompetitive cost differentials will be stripped away, forcing harmonization of social policy and a rush to the bottom.*
- *The evidence is that social policy differences persist, even within single markets like the United States, where differences between states remain.*
- *Some tradeoffs may change as a result of integration but, by and large, distinctive social policies are possible and choice still exists.*

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