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WHAT DEPENDENCY ISSUES? RE-EXAMINING ASSUMPTIONS ABOUT CANADA'S RELIANCE ON THE U.S. EXPORT MARKET*

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SUMMARY

There are things about Canada's economy that Canadians take for granted: We are unusually reliant on exports; and we are exceptionally reliant, even precariously so, on trade with one particular market, the United States. But despite the fact that we are accustomed to believing such things, to the point where these assumptions inform discussions about developing trade policy, a closer examination reveals a different picture. In reality, while it is true that Canada has a higher ratio of trade to GDP than some of the largest countries in the world, we are not, in fact, an outlier relative to other countries. In fact, our trade-to-GDP ratio is similar to those of France, Great Britain and Australia.

Canada's ratio of exports to GDP is not only unexceptional, it has been steadily declining, almost to the point where soon, rather than debating whether we are too dependent on the U.S. export market, Canadians may find the more urgent policy question to be why our trade openness has been underperforming in international markets.

The conventional wisdom that Canada is "too dependent" on the United States for trade has veered many trade policy discussions toward the conclusion that it is essential for Canada to diversify its trade. But this ignores the evolution of trade patterns globally. Throughout the world, open economies are typically concentrated on regional, rather than wider global trade. It is true that more than 80 per cent of Canadian exports went to the United States between 1995 and 2010. But in 2012, 69 per cent of European exports went to other European countries. In Asia, 53 per cent of exports were traded within Asia. The reality is that, across the world, trade is predominantly based around regional value chains, and the North American region where Canada is situated is, of course, heavily dominated by the United States. A comparable economy to ours, such as Australia's, may appear to have a more diverse trading pattern, because it trades heavily with several Asian countries, but it is still principally reliant on the Asian region. And when comparing intra-regional trade dependency, Australia is actually more dependent on a single regional market than Canada is.

Similar assumptions about a lack of diversification in Canada's export products — that perhaps we are too dependent on, say, energy or automobile exports — also dissolve under closer analysis. Looking at regional-level data, Canada's export products are more diversified than Australia's, Poland's, Austria's, Mexico's, Hong Kong's, and those of many more countries. Out of 121 countries measured, Canada ranks roughly in the middle, at 51st, on export-product diversity.

None of this is to say that there is no benefit to Canada increasing trade diversification; rather, Canada should focus trade policy both on deepening its regional trade ties with the U.S., while also developing, as much as possible, other global export markets. It does, however, reveal that Canada's attachment to the U.S. is not unusual in the global context, let alone cause for concern. Moreover, it is a recognition of the reality of international trade: That such trading patterns have emerged around regional value chains for good reasons. These are the export decisions made by countless firms to meet the demand decisions of tens of millions of consumers. Assuming that diversification policy could hope to redirect so many sensible market-level decisions would be naïve at best, while contriving policy aimed at interfering with the natural and entirely normal flow of these market-based decisions could only invite grave economic danger.

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QUELS PROBLÈMES DE DÉPENDANCE? RÉEXAMEN DES IDÉES PRÉCONÇUES À PROPOS DE LA DÉPENDANCE DU CANADA À L'ÉGARD DU MARCHÉ D'EXPORTATION AMÉRICAIN*

Eugene Beaulieu and Yang Song

SOMMAIRE

Il y a des choses que nous tenons pour acquises à propos de l'économie du Canada, comme par exemple le fait que nous serions exceptionnellement dépendants des exportations et particulièrement – même dangereusement – dépendants des échanges avec un seul marché, celui des États-Unis. En dépit du fait que nous sommes habitués à croire en de telles suppositions, au point où ces idées préconçues influencent les discussions relatives à la mise au point d'une politique commerciale, un examen plus attentif révèle une image différente. En réalité, bien qu'il soit vrai que le Canada a un ratio échanges/PIB plus élevé que certains des plus grands pays au monde, nous ne sommes pas, en fait, un cas aberrant par rapport à d'autres pays. De fait, notre ratio échanges/PIB est comparable à ceux de la France, de la Grande-Bretagne et de l'Australie.

Non seulement le ratio exportations/PIB du Canada n'a-t-il rien d'exceptionnel, mais il a connu un déclin constant, presque au point où, bientôt, plutôt que de discuter de la question de notre supposée trop grande dépendance à l'égard du marché d'exportation américain, les Canadiens pourraient constater qu'il y a une question de politique plus urgente, à savoir comment expliquer la performance décevante de notre ouverture commerciale sur les marchés internationaux.

L'idée reçue voulant que le Canada soit « trop dépendant » à l'égard des États-Unis pour ce qui est de ses échanges a mené de nombreuses discussions sur la politique commerciale à la conclusion qu'il est essentiel pour le Canada de diversifier ses échanges. Cette opinion ignore toutefois l'évolution mondiale de la structure commerciale. À travers le monde, les économies ouvertes sont en général axées sur le commerce régional plutôt que sur le commerce mondialisé. Il est vrai qu'entre 1995 et 2010 plus de 80 pour cent des exportations canadiennes ont été dirigées vers les États-Unis, mais en 2012, 69 pour cent des exportations européennes avaient comme destinations d'autres pays d'Europe. En Asie, 53 pour cent des transactions d'exportation se faisaient entre pays asiatiques. La réalité est que, partout dans le monde, le commerce est axé de manière prépondérante sur les chaînes de valeur régionales et, bien entendu, la région nord-américaine où le Canada est situé est fortement dominée par les États-Unis. Une économie comparable à la nôtre, comme celle de l'Australie, peut sembler avoir une structure commerciale plus diversifiée du fait que ses échanges se font en majorité avec plusieurs pays d'Asie mais son marché est tout de même principalement dépendant de la région asiatique. Si l'on compare la dépendance commerciale intra-régionale, l'Australie est en fait plus dépendante d'un unique marché régional que le Canada.

Des préjugés semblables concernant le manque de diversification des produits d'exportation du Canada, selon lesquels nous serions peut-être trop dépendants, par exemple, des exportations d'énergie ou d'automobiles, disparaissent également lorsqu'on en fait une analyse plus serrée. Si l'on consulte les données au niveau régional, on constate que les produits d'exportation du Canada sont plus diversifiés que ceux de l'Australie, de la Pologne, de l'Autriche, du Mexique, de Hong Kong et de ceux de nombreux autres pays. Sur 121 pays pour lesquels on a effectué des mesures, le Canada se classe à peu près au milieu (au 51e rang) pour ce qui est de la diversité des produits d'exportation.

Rien de ce qui précède ne signifie qu'il n'y a aucun avantage à ce que le Canada rehausse la diversification des échanges. Le Canada doit plutôt axer sa politique commerciale sur l'intensification de ses liens commerciaux régionaux avec les É.-U., tout en développant autant que possible d'autres marchés d'exportation internationaux. L'étude révèle toutefois que la relation entre le Canada et les États-Unis n'est pas exceptionnelle dans le contexte international et qu'elle n'est certainement pas une cause de préoccupation. De plus, elle constitue une reconnaissance de la réalité du commerce international. Il y a de bonnes raisons qui expliquent que de telles structures commerciales se soient développées autour des chaînes de valeur régionales. Elles résultent de décisions d'exportation prises par d'innombrables entreprises pour satisfaire la demande de dizaines de millions de consommateurs. Supposer qu'une politique de diversification pourrait espérer rediriger autant de décisions raisonnables au niveau des marchés serait au mieux naïf, pendant que l'imposition de politiques visant à entraver le flot naturel et totalement normal de ces décisions axées sur le marché ne ferait que poser le risque d'un grave danger économique.

* Cette recherche a été soutenue financièrement en partie par le gouvernement du Canada via Diversification de l'économie de l'Ouest Canada.

1. INTRODUCTION

At first look, the Canadian economy is not very different from that of other small open economies: trade makes up a large share of the GDP of small open economies. However, one aspect of Canada's international trading relations that does set it apart from other countries is the extreme concentration of trade relations with one country. Although other countries have close bilateral relations with one, or a few trading partners, the concentration of Canada's international relations with one partner is, and has always been extreme. Historically, Canada has always had a highly concentrated portfolio of trading partners, first with Great Britain and then, over the past 100 years, with the U.S.. Canada's trade portfolio was already highly concentrated with the United States prior to the Canada-U.S. Free Trade Agreement (CUSFTA) and North American Free Trade Agreement (NAFTA), which served to further increase Canadian trade concentration.

Canada's degree of trade concentration with the U.S. has led many policy-makers, commentators, politicians, businessmen and economists to proclaim that "something must be done" to reduce the trade concentration on one country. This proclamation is generally motivated by some version of the "don't put all your eggs in one basket" adage. Indeed, Canadian foreign policy is taking this to heart, as evidenced by the government's revamped "Global Markets Action Plan" and the recent efforts to expand trade and investment relations in Asia by signing a free trade agreement with Korea and joining the Trans-Pacific Partnership (TPP) and with Europe through the negotiation of the Comprehensive Economic and Trade Agreement (CETA) with the European Union (EU).[1] These international efforts and other similar efforts are part of Canada's 2007 (updated in 2009) "Global Commerce Strategy." Stockwell Day, Canada's then minister of international trade, stated that the "essential objective" of his department's "Global Commerce Strategy" is for Canada to "continue expanding trade far beyond North America."

There are dissenting views on a diversification strategy. Michael Hart argues that Canada should not pursue a diversification strategy but instead should focus on deepening ties with the U.S. and eliminating border nuisances.[2] His objections to a diversification strategy are primarily based on the perceived inefficacies of diversification tools and policies, but also partly on the lack of return on devoting scarce foreign-policy resources to the multilateral trading system. He argues that the Doha Round of the WTO is not worth it for a Canadian government unwilling to budge on agricultural protection; free-trade agreements (FTAs) with small countries do not cover the costs of negotiation; and Team Canada-type foreign missions are not effective. Hart claims that the Canada-U.S. border remains too costly to cross and that scarce trade policy resources should instead be devoted to reducing trading frictions between the two countries.[3] He argues that the border still increases costs between five and thirteen per cent, and that harmonizing regulations will significantly reduce costs. These border actions will position Canada well in a world trading system based on fragmented production.

A major problem with the debate over trade diversification is a lack of evidence-based discussion. Although the sentiment of using policy to diversify trade relations is attractive, there is no evidence that Canada is somehow "too dependent" on trade with the U.S. and that policies are needed to address this level of dependence. What does "too dependent" mean? A prerequisite to identifying a strategy to diversify trade is to explicitly define how much dependence is "too much" and what goals should be

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[1] See http://www.international.gc.ca/global-markets-marches-mondiaux/index.aspx?lang=eng

[2] Michael Hart, "Canadian Engagement in the Global Economy," in *A Canadian Priorities Agenda*, eds. Jeremy Leonard, Christopher Ragan and France St-Hilaire (Montreal: The Institute for Research on Public Policy, 2008).

[3] ibid.

set in terms of reducing trade dependence — if it is indeed a problem. In short, one must quantify the problem (if there is one) and provide measurable and meaningful targets in addressing the problem.

This paper analyzes the evidence behind arguments for Canadian policy options directed at trade diversification. Trade with the U.S. has historically dominated Canadian international trade and the extent of this integration reached its pinnacle prior to the 2008 financial crisis. Canadian international trade is concentrated both geographically and in terms of products. The paper documents the trends in Canada's level of integration and concentration in products traded. We show that, although trade is a major component of the Canadian economy, Canada is not unusual in terms of its trade openness. Canada is similar to other small open economies and the trade share of the Canadian economy is consistent with the economic size of the country. In order to tackle the question of whether Canada is "too dependent" in trade with one country, we construct three different measures of trade concentration using bilateral trade data: geographic concentration, regional concentration, and product concentration. We find that Canada (and Mexico) are extraordinary outliers in terms of their "trade dependence" on one country. So the proponents of a trade diversification agenda have an easy target: Canada is extremely dependent on trade with the U.S. But, as to whether Canada is somehow too dependent on trade with one country, we show that most trade in the world is regional in nature — and that Canada (and Mexico) are not outliers in terms of their concentration of trade on a regional level. Therefore, it is more accurate to conclude not that Canada is too dependent on trade with the U.S., but that Canada is part of an integrated North American economy and this regional concentration is not unusual. Moreover, perhaps surprisingly, Canada is not overly concentrated in terms of the products exported. In fact, based on our measure of product concentration, Canada is diversified in terms of products exported. We argue further that it is important to consider the nature of trade, not just the concentration of trade. The Canadian trade pattern reflects a regional nature that was enhanced by CUSFTA and NAFTA, which had the desired effect of creating an integrated North American economy with North American value chains.

Therefore, we conclude that Canada is not "too dependent" on trade with the U.S. This deflates the argument for a trade diversification policy based on the "all eggs in one basket" adage. We challenge this argument further by arguing that it is Canadian firms that undertake exports and imports, not governments. In that sense, the "all your eggs in one basket" argument is fallacious, as has been argued elsewhere.[4] Aggregate trade patterns reflect the decisions of thousands of firms, and markets involving millions of people, and are not conducted by countries. Moreover, profit-maximizing firms conduct their business across international borders and the resulting aggregate trade patterns are determined by geography. The predominant pattern of bilateral trade is with larger, nearby economies. In the case of Canada and Mexico this means an inexorable gravitational pull of the large nearby U.S. economy. It is difficult to imagine an argument that government policy should attempt to undo this. Moreover, it is not clear how effective any policy could be at overturning these patterns.

Although we find no basis for a trade diversification policy based on the "all eggs in one basket" argument, we do argue that, due to the changing nature of the world economy, it is important for government policy to open doors and encourage Canadian firms to look outside of North America. We conclude that, from a policy perspective, it is important to pursue both deeper North American integration and encourage a broader geographical diversification. These two objectives are complementary. Deeper North American integration is required to enhance and develop the North American value chains. For Canada to be successful outside of North America, Canadian firms will need to work within an integrated North American economy. We need deeper ties with the U.S. *and*

[4] See, for example, Eugene Beaulieu, "Has North American integration resulted in Canada becoming too dependent on the United States?" *Policy Options* (October 2007), http://policyoptions.irpp.org/issues/free-trade-20/has-north-american-integration-resulted-in-canada-becoming-too-dependent-on-the-united-states/.

more diversified trade. This policy has been endorsed by others such as Mathias Hartpence of the Canadian Chamber of Commerce, who argues that deepening economic ties with the U.S. is the first pillar of Canadian trade policy, but that "... more than ever, governments and business must work together to build a solid second pillar, that of greatly boosting economic exchanges with key markets around the world such as China, India, the European Union and others."[5]

2. CANADA IS A TRADING NATION

Trade with the U.S. has historically dominated Canada's international trade. The extent of this integration reached an all-time high earlier this decade prior to the 2008 financial crisis, which significantly affected demand in the United States. Canadian international trade is concentrated geographically and in terms of products. This section documents the trends in Canada's level of integration and concentration in products traded.

As is well known, Canada has always been a trading nation. However, there has been a definite upward trend in the share of Canada's exports in total economic output. With the expansion of trade with the U.S., Canada saw an increase in its reliance on external trade, which is measured by the ratio of trade to GDP. Figure 1 shows the ratio of trade to output in Canada from 1870 to 2010 and presents a linear trend of the data over this period.[6] With the exception of the periods surrounding the First and Second World Wars, when trade was exceptionally high, trade was normally between 15 and 25 per cent of GDP. Since 1990, the ratio of trade to GDP has increased dramatically. As shown in Figure 1, the importance of trade for the Canadian economy measured by the ratio of trade to GDP was higher in 2000 than at any other time in Canadian history. The share reached a historic high of 43 per cent in 2000. The Great Recession, starting in the fall of 2008, greatly reduced U.S. demand and brought the share of Canadian trade to GDP down to 30 per cent. Since then it has declined to 25 per cent.

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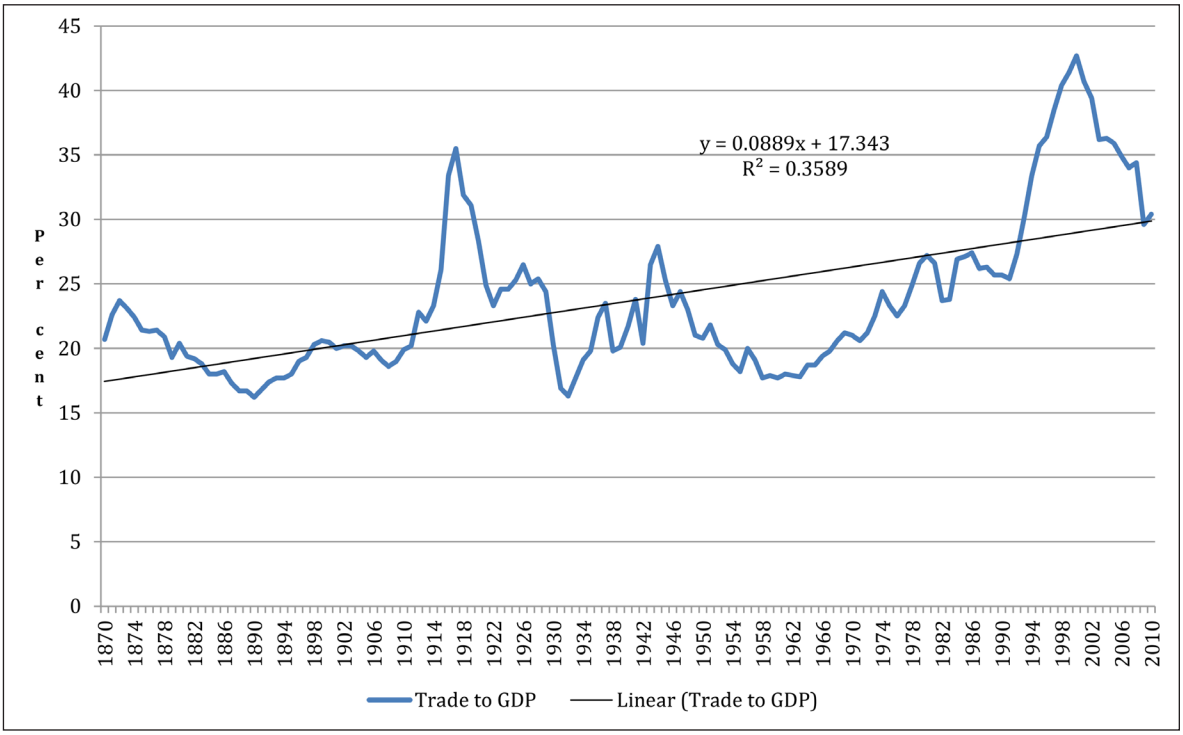
[5] Mathias Hartpence, "Canada's trade and investment diversification, beginning with China" (Canadian Chamber of Commerce, 2010), http://www.canadianbusinessjournal.ca/features/features_august_10/canada_s_trade_and_investment_diversification_beginning_with_chi.html.

[6] Trade openness in Figure 1 is measured by the arithmetic mean of imports and exports relative to GDP (1/2(X+M)/GDP) where X is imports, M is imports, and GDP is Gross Domestic Product. However, researchers use different measures of openness that yield qualitatively similar results. For example, some use total exports over GDP or total imports over GDP (i.e. X/GDP or M/GDP). We are interested in the combined trade openness and employ one common measurement for this measure of openness: the arithmetic mean value of total exports and total imports in relation to GDP. Other researchers, and Figure 3 in this paper, employ (X+M)/GDP — and get similar results, just scaled up to double the size of the index used here. Using the averaging approach we employ here means that our index is similar in magnitude to X/GDP – a measure that we use later in the paper. Note that when trade is balanced X/GDP = ½(X+M)/GDP = M/GDP.

FIGURE 1 TRADE TO OUTPUT (GDP), 1870-2010



Source: Statistics Canada (Table 383-0027): trade ratio measured as ½(X+M)/GDP.

How does this degree of trade openness compare to other countries? Figure 2 compares Canada to other high-income countries. The ratio of Canada's exports to GDP has been higher than the average ratio for high-income countries since 1965. However, the difference becomes stark after 1990 when Canada's ratio of exports to GDP grew much faster than the average ratio for high-income countries. In 1965 the ratio of exports to GDP was approximately 19 per cent in Canada and 12 per cent on average among high-income countries (representing a 53 per cent differential). The increase in the ratio from 1965 to 1990 was similar for Canada and the average of high-income countries (the differential did not change much). However, after 1990 the ratio increased faster in Canada than it did for the averages across the other countries. By 2001 the ratio was 44 per cent in Canada and 23 per cent on average among high-income countries — a differential of over 87 per cent. Note however, that comparing Canada to country averages obscures the fact that a large number of countries have much higher export-to-GDP ratios than Canada does. In fact, out of the 166 countries for which data are available, Canada's ratio of exports to GDP ranked 64th in 2001.

FIGURE 2 EXPORT SHARE OF GDP FOR CANADA AND COUNTRY GROUPS: 1965–2001

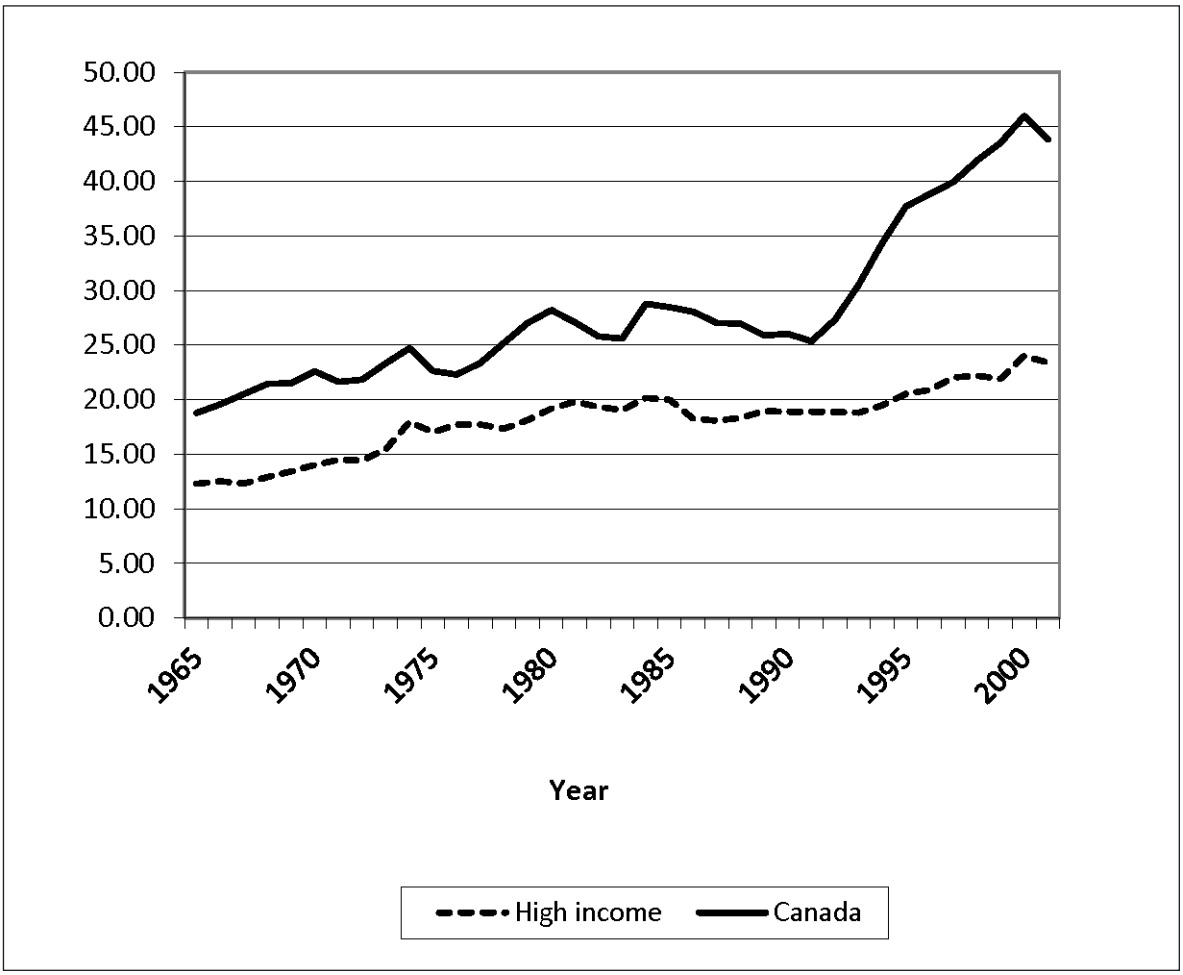
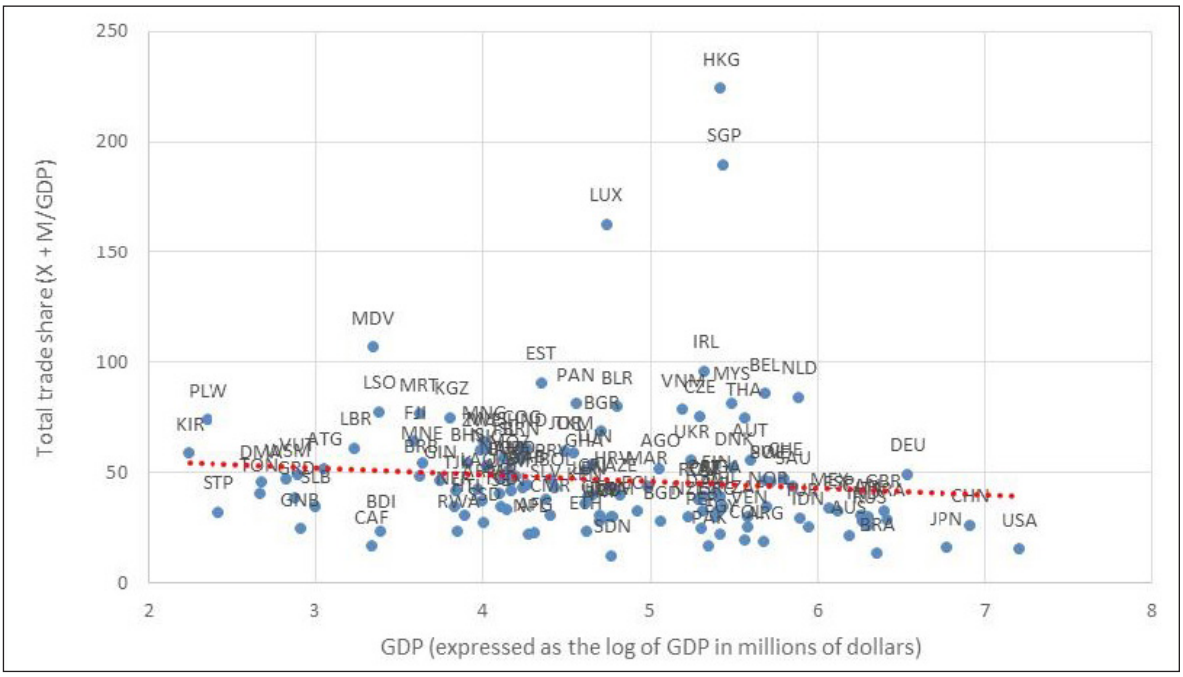


Figure 3 presents a scatter plot of the ratio of average trade to GDP against country size (measured by log GDP).[7] Canada is difficult to find in this figure — but the Canadian trade share is just over 30 per cent and its log GDP is 6.26 — which is equal to $1,821,424 million. So, in the picture, Canada is very close the regression line in a cluster of countries such as France (FRA), Great Britain (GBR), Russia (RUS), and Australia (AUS). As mentioned, Canada is close to the regression line and is not at all an outlier in terms of the ratio of average trade to GDP, given the size of the country. Canada has a higher ratio of trade to GDP than the largest countries in the world but, as the regression line shows, the trade ratio is inversely related to country size. The outlier countries include Luxembourg (LUX) and Hong Kong (HKG), with average trade-to-GDP ratios greater than 100 per cent. Ireland (IRL), Belgium (BEL) and the Netherlands (NLD) also have higher ratios of average trade to GDP than their size suggests. On the other hand, Australia (AUS) and Greece (GRC) have lower than average export-to-GDP ratios given their economic size.

[7] We used the log of GDP in the figure because this compresses the GDP data across countries so it is easier to compare the relationship between GDP and trade share across countries. Without taking logs it is impossible to include all the countries of the world in this figure because there is such a large difference between rich and poor countries based on GDP. With the logs, the distribution is compressed and we get a similar picture of the relationship between trade shares and economic size.

FIGURE 3 TRADE SHARE OF GDP AND COUNTRY SIZE IN 2012



Notes: Total trade in this figure is defined as (X+M)/GDP, where X = exports, and M = imports — so the magnitude of trade openness is twice the measures of trade openness expressed in Figures 1 and 2. The red line is the fitted linear regression line. Country labels are displayed as three-digit ISO country codes.

Source: Author's calculations based on World Development Indicators.

It is also important to recognize that Canada was not the only country to recently experience an increase in trade openness. In fact, the rapid growth of world exports in the post-war period caused export revenues to be an increasingly important portion of domestic income for numerous countries. Moore and Rugman point out that from 1980 to 2000, world trade flows have become increasingly regional, and less global in nature.[8] In fact, intra-NAFTA trade went from 34 per cent of North American trade in 1980 to 56 per cent in 2000. Europe and Asia experienced similar growth in the share of regional trade. Although world trade flows have become more regional, Canadian trade flows became even more concentrated.

It is well known that the Canadian economy is extremely open to trade and that international trade has grown in importance relative to GDP. However, something not always appreciated is that, when one corrects for economic size, Canada is not an outlier in terms of its degree of openness. In fact, if Canada's ratio of exports to GDP continues to decline, the policy question will not be examining potential issues with the extent of Canada's dependence on trade, but rather would rightly be trying to understand why the country is underperforming in international markets. The next issue to examine is Canada's perceived dependence in trade with one country.

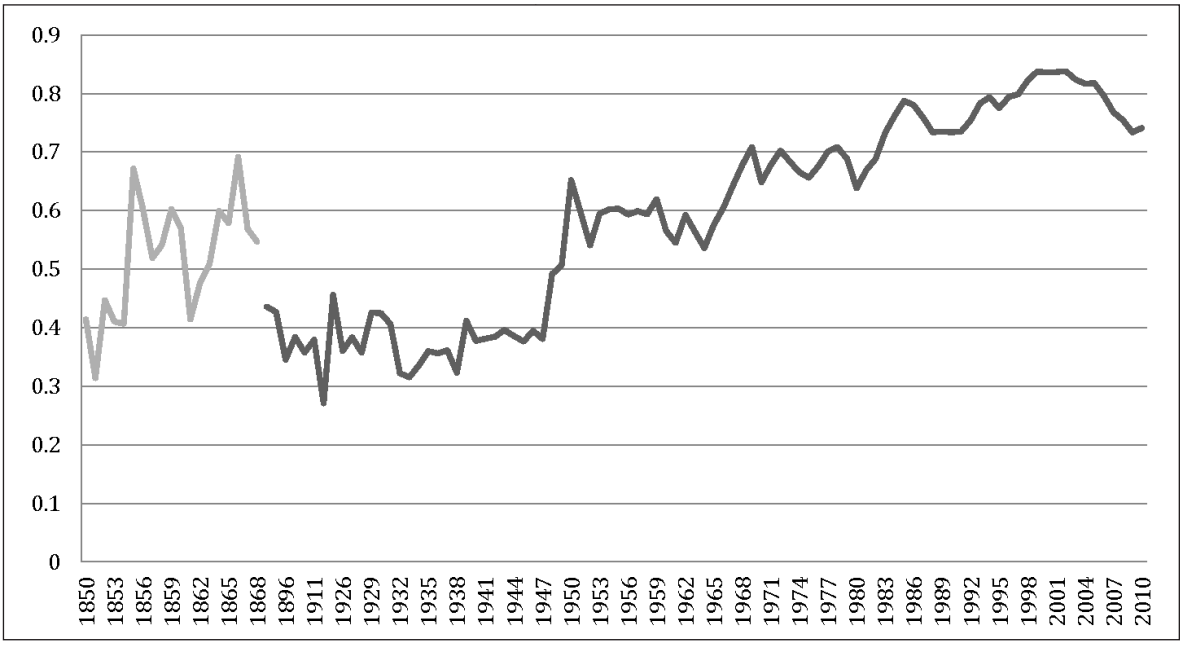
[8] Karl Moore and Alan Rugman, "The Myths of Globalization" *Ivey Business Journal* 66, 1 (September 2001): 64-68.

3. DECOMPOSING EXPORTS

Canada has historically had close economic ties with either England or the U.S. The share of Canada's export trade with the U.S. increased during the period of Canada-U.S. Reciprocity from 1854 to 1866, reaching as high as 70 per cent (Figure 4). England resumed its dominant position as Canada's trade partner after the abrogation of Reciprocity with the U.S. in 1866. From 1886 to 1947, exports to the U.S. were usually 35 to 40 per cent of total exports, and exports accounted for 25 to 40 per cent of Canada's Gross National Product (GNP). From 1886 to 1913, exports to Britain accounted for over half of Canadian exports, but fell abruptly during the First World War to 25–30 per cent of total Canadian exports. Canada's reliance on the U.S. as an export destination has been increasing as a series of steps since the Second World War. In 1947, 39 per cent of exports went to the U.S., and 27.5 per cent to the U.K. In 1950, the U.K. share had fallen to 15 per cent, and the share of exports to the U.S. increased to 65 per cent.[9]

It is important and interesting to understand that even in the late 1950s the extent of Canadian dependence on trade with the U.S. was considered an exceptional and unprecedented economic relationship between two sovereign nations. Moreover, the exceptionally close economic ties between Canada and the U.S. had already become a concern for Canadian politicians, policy-makers and academics. At a speech at Carleton University in 1958, the great (Canadian-born) trade economist Jacob Viner remarked: "These are all exceptionally high ratios for economic relations of one country to another. They cannot be matched, taken together, I feel certain, for any other two countries in the free world."[10]

FIGURE 4 SHARE OF TOTAL CANADIAN EXPORTS TO THE UNITED STATES, 1850–2010



Source: F. H. Leacy, "Historical Statistics of Canada, 2nd edition" (Ottawa: Statistics Canada, 1982); CANSIM.

[9] Tim Rooth, "Australia, Canada, and the International Economy in the Era of Postwar Reconstruction, 1945–50," *Australian Economic History Review* 40, 2 (2000): 127-152.

[10] Jacob Viner, "Canada and Its Giant Neighbour," *Alan B. Plaunt Memorial Lectures* (Ottawa: Carleton University, January 30 and February 1, 1958), 37.

Although Canadian exports to the U.S. had already reached 60 per cent of total Canadian exports, the trend continued upward. From 1950 to 1967, the share of exports to the U.S. remained at around 60 per cent, but increased to 70 per cent after 1965 following the Auto Pact Agreement. In the 1950s and 1960s, there was an expectation that increasing reliance on the U.S. was likely a short-run situation and, once other markets emerged, the export reliance would fall. When economic stagnation struck in the 1980s, Canada responded by relying more on the lucrative U.S. market. Since 1983, the share of exports to the U.S. has increased to its peak of over 80 per cent in the late 1990s. Note that the real value of exports to destinations other than the U.S. grew until 1980, but by much less than Canadian exports to the U.S. It is the expansion in total exports to the U.S. that dominates the expansion of Canadian trade after 1960.

From 1870 to 1980, the increased reliance on the U.S. as an export market reflected the high growth of demand for industrial inputs in that country. The increased reliance on the U.S. as an export destination after the Second World War reflects the expansion of the level of exports in response to rising U.S. demand, and Canadian exports expanded to the rest of the world as well, albeit at a slower pace. In this sense, trade expansion with the U.S. was not trade diversion at the expense of other destinations.

TABLE 1 TOP 20 CANADIAN EXPORT DESTINATIONS: ECONOMIC SIZE AND GROWTH RATES (1995–2010)

Country	Exports in 2010	Share (1995-2010)	Cumulative	Average Annual Real GDP Growth 1970-2008	GDP 2010 (million PPP adjusted)	Share of World GDP
United States	288.82	81.7%	81.7%	2.96	14.45	0.16
Japan	8.93	2.5%	84.2%	3.01	4.39	0.05
United Kingdom	15.76	2.2%	86.4%	2.38	2.40	0.03
China	12.84	1.7%	88.1%	9.37	10.81	0.12
Germany	3.67	0.9%	88.9%	2.20	3.13	0.04
Mexico	4.86	0.8%	89.8%	3.77	1.51	0.02
South Korea	3.60	0.7%	90.5%	6.81	1.40	0.02
Netherlands	3.12	0.6%	91.1%	2.74	0.71	0.01
France	2.29	0.6%	91.7%	2.55	2.28	0.03
Belgium	2.02	0.6%	92.3%	2.48	0.41	0.00
Italy	1.87	0.5%	92.7%	2.32	1.93	0.02
Norway	2.46	0.4%	93.1%	3.29	0.28	0.00
Hong Kong	1.84	0.4%	93.5%	6.43	0.30	0.00
Austria	0.34	0.4%	93.9%	2.67	0.35	0.00
Brazil	2.49	0.4%	94.3%	4.23	1.96	0.02
Taiwan	1.25	0.3%	94.6%	7.13	0.74	0.01
India	2.02	0.3%	94.9%	5.27	4.69	0.05
Spain	0.95	0.2%	95.2%	3.16	1.43	0.02
Switzerland	1.58	0.2%	95.4%	1.75	0.35	0.00
Venezuela	0.54	0.2%	95.6%	2.68	0.32	0.00
Total top 20	361.25	95.6%		3.86	53.84	0.61
All other countries	24.54	6.4%			34.28	0.39
Total all countries	385.80	100.0%			88.12	

As the Canadian economy experienced a severe recession in the early 1980s coincident with the stagnation in growth of its exports, the Macdonald commission was charged with investigating strategies designed to re-invigorate the economy. Coincident with this major strategic initiative was increased protectionist sentiment in the U.S. along with a unilateral approach to trade policy in America. After years of study and volumes of research, the key conclusion from the Macdonald commission was that Canada should move towards freer trade with the U.S. This recommendation was a fundamental break with past trade policy approaches and the Canadian government acted on the commission's recommendations. In 1988, Brian Mulroney's Progressive Conservative government implemented the Canada-U.S. Free Trade Agreement followed in 1993 by NAFTA. Following these policies, exports to the U.S. grew rapidly, and while exports to the rest of the world showed no growth, the share of total exports destined for the U.S. grew to 86 per cent, where they reached a pinnacle at the turn of the century.

Table 1 presents Canada's top 20 export destinations, along with data on the economic size and recent growth rates (1995–2010) of the destination countries. The table provides an excellent snapshot of Canada's trading partners over 16 years, and this removes the fluctuations observed in annual data. Over this period, Canada exported almost 82 per cent of its exports to the U.S. The next three countries on the list are Japan (2.5 per cent), the United Kingdom (2.1 per cent), and China (1.7 per cent). In total, these four countries purchase just over 88 per cent of Canada's exports.

The rest of the top 20 export destination countries purchase about 14 per cent of Canada's exports. If one only considered the overall numbers for Canada's top 20 export destinations, it would seem that Canada's trade export markets are extensive and robust. That is, 96 per cent of Canada's exports go to its top 20 export destinations, and these countries represent 61 per cent of the world economy (share of world GDP). Canada's top exporting partners represent some of the largest and fastest-growing countries in the world. On average, the GDP's of Canada's top 20 export destinations grew 3.86 per cent annually over the period and the list includes rapidly growing economies such as China (9.37 per cent average annual growth) and Korea (6.81 per cent average annual growth).

It is important to consider the diversity of trade along two dimensions: geographic dispersion and product dispersion. As late as 1980, increased specialization in the destination for exports was accompanied by greater diversification of products for export. Since 1980, the volume of Canadian international trade has continued to increase rapidly and has become even more specialized in its destination market partner — that is, increasingly specialized in trade with the U.S. However, Acharya, Sharma and Rao find that most of the increase in trade has been intra-industry, rather than inter-industry trade.[11] The rapid increase in intra-industry trade suggests that trade flows have become more diversified in the variety of goods traded — but the authors also find that Canada's comparative advantage remains in commodity-intensive sectors. The authors examine the changes in export intensities and import penetrations for 84 industries between 1985 and 1997. They find that the number of industries with increased trade (larger export intensities and import penetration) increased during this period. In 1985, 30 of the 84 industries (or 36 per cent) had export intensities of more than 30 per cent and by 1997, 50 industries (or 60 per cent) had export intensities of more than 30 per cent. Similar increases occurred in import penetration rates.

[11] Ram Acharya, Prakash Sharma and Someshwar Rao, "Canada-US Trade and Foreign Direct Investment Patterns," in *North American Linkages: Opportunities and Challenges for Canada*, The Industry Canada Research Series, ed. Richard G. Harris (Calgary, Alta.: University of Calgary Press, 2003).

Note that although there was a large increase in trade over a broad cross-section of industries, the relative pattern of export intensity and import penetration was very stable from 1985 to 1997. Since 1997 however, the value of exports has increased due to increases in intra-industry trade in autos and in energy exports where high prices have resulted in a highly specialized export composition. Figure 5 provides an important look at the evolution of the products Canada exports from 1995–2011. The figure presents two aspects of Canada's top exports: the main categories of goods, and the main categories of manufacturing goods based on technology and skilled-worker inputs. In terms of goods, the largest export categories in 2011 are machinery and transport equipment, followed by fuels, other manufacturing, ores and metals, other food items, and agricultural raw materials. Before looking at the skill-and-technology intensity of Canada's main exports, Figure 6 provides a breakdown of Canada's top exports at a finer level of aggregation.

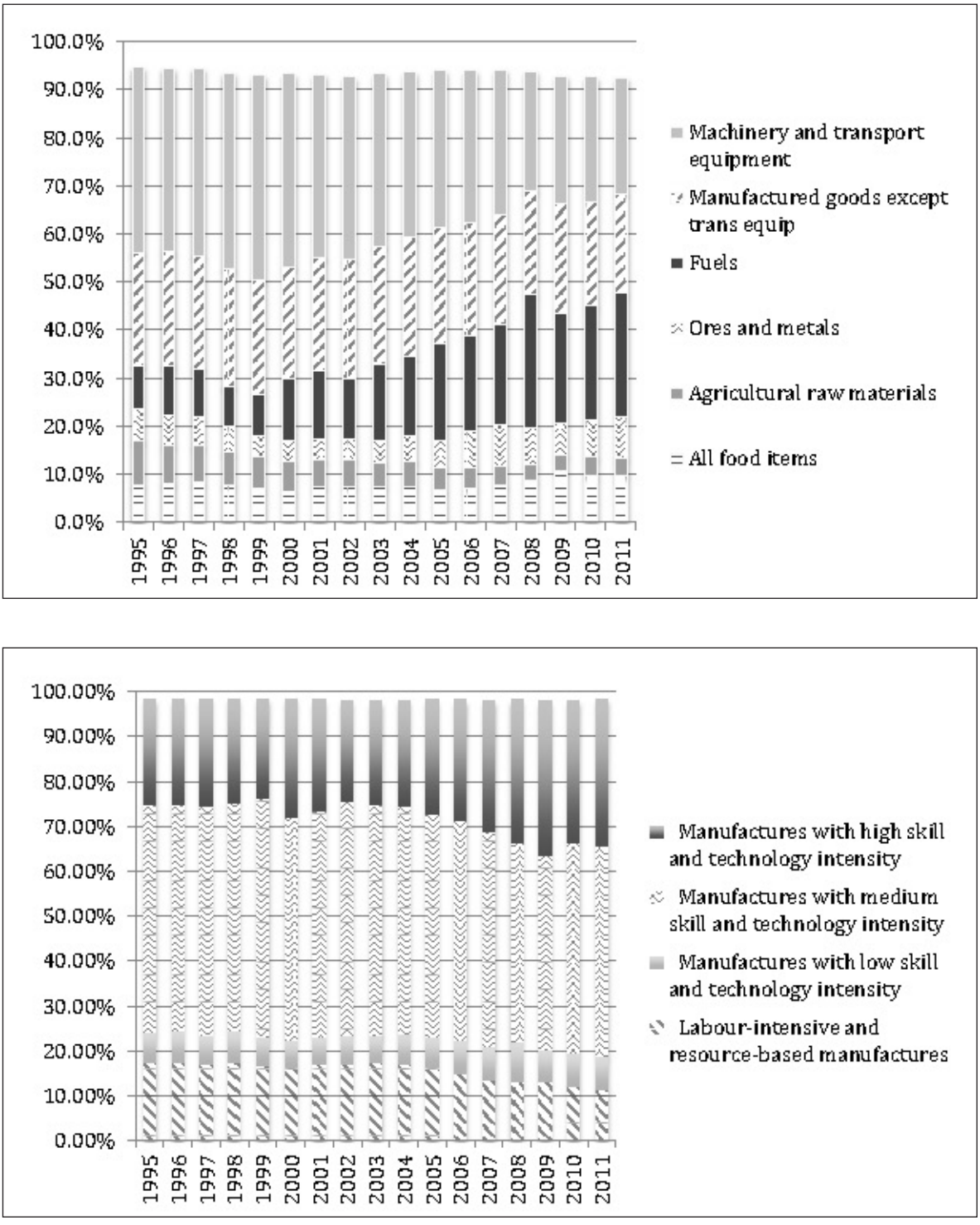
According to Figure 6, Canada's largest export product in 2012 was "Oil and Gas Extraction" (HS code 21111), representing 18 per cent of Canada's exports. Although the figure does not report earlier years, this has been Canada's largest export since 2005 (see Industry Canada's Trade Data Online). The second-largest export was "Automobile and Light-Duty Motor Vehicle Manufacturing" (HS 33611), followed by: "Petroleum Refineries," "Gold and Silver Ore Mining," "Aerospace Product and Parts Manufacturing," "Non-Ferrous Metal (except Aluminum) Smelting and Refining," and "Other Non-Metallic Mineral Mining and Quarrying." Figure 6 provides a more detailed look at the major exports, but paints a similar picture as in Figure 5: Canada's main exports are in fuels, ores and metals, machinery and transport equipment. However, the more detailed breakdown reveals a more diverse range of export products than one may glean from simply looking at Figure 5. Figure 5 gives the impression that Canadian exports are fairly concentrated in a few categories: fuels, mining and transport equipment. But according to Figure 6, only 18 per cent of Canada's exports are oil and gas extraction, and only 10 per cent are automobile and light-duty motor vehicle manufacturing. The petroleum refinery industry represents the third-largest export, and represents five per cent of the total exports. The top 10 export categories account for 50 per cent of Canadian exports. The top 25 exports account for 65 per cent of exports. This may be a highly concentrated export portfolio, but it appears to be less concentrated than the geographic dispersion of Canada's trade pattern. Later in the paper we will examine more carefully how concentrated Canada's trade is both geographically and by products, and we will compare this performance to other countries. First, it is also useful to consider the type of products Canada is exporting.

The second part of Figure 5 shows exports by technology-and-skill intensity of inputs. Canada's largest export share is that of manufacturers, with medium levels of skill intensity and technology, and the second major export is in exports of high skill-and-technology intensity. This is important to keep in mind because sometimes people make the mistake of thinking that Canada exports raw materials and that these exports are not very skill intensive or technology intensive. Of course this is not the case, but it is very instructive to see that the skill intensity and technology intensity of our exports is high (which is what those with a good understanding of the fuels, mining and transport equipment sectors would expect).

Before taking a closer look at the measure of trade concentration, there is one further aspect of Canada's trade pattern that deserves some attention. A few of the commentators who argue that Canada's trade portfolio is too concentrated point to the idea that if Canada is exporting to slower-growing economies, then our trade and exports will grow slower as well. Some are concerned that having too close ties to one economy also has an element of risk, one that a more diversified portfolio addresses. In terms of exporting to slower-growing regions, the implication is that Canadian exports would grow faster if Canada were exporting to faster-growing economies. We have already established that most of Canadian exports go to one large economy, and that this is not a fast-growing economy. How are Canadian exports

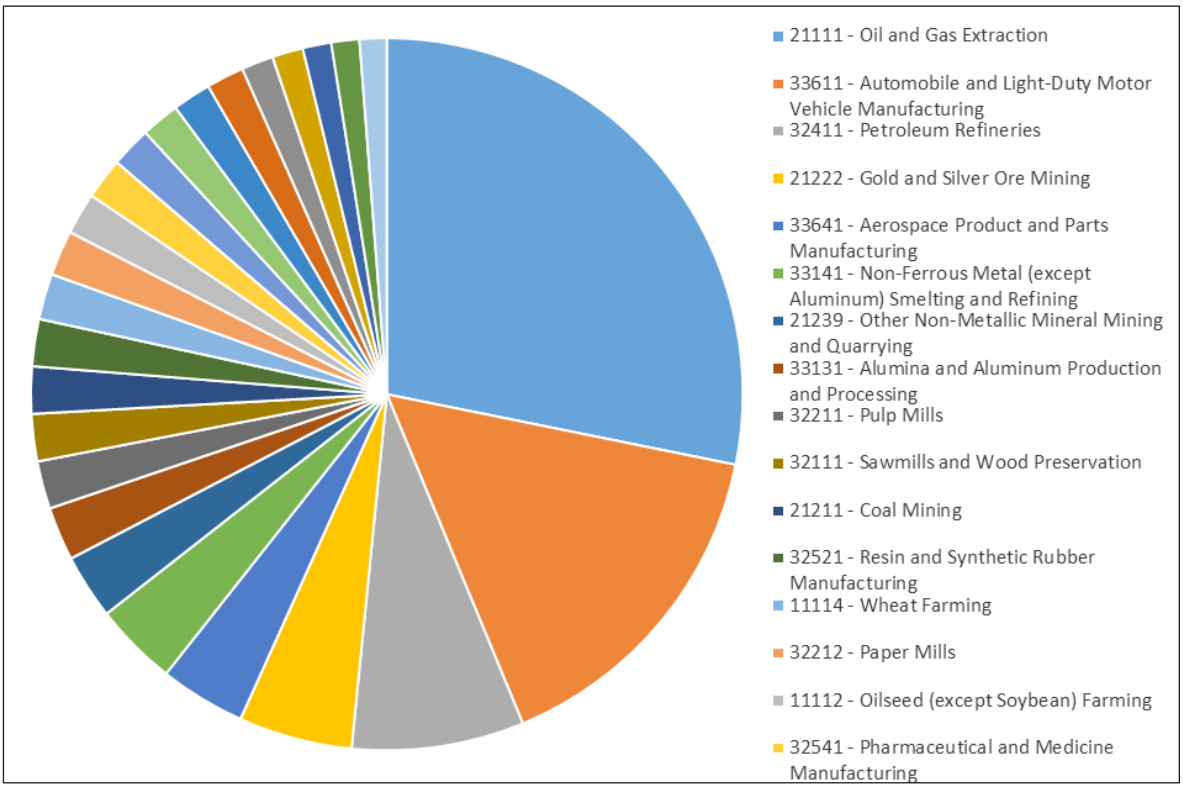
doing as a share of world exports? Figure 7 shows that Canadian exports as a share of world exports have been declining since 2000. Total Canadian exports reached over four per cent of total world exports in 2000 and have been declining ever since to about 2.5 per cent of world exports. According to Figure 7, this secular decline in Canada's share of world exports has occurred in Canadian exports of primary commodities (excluding fuels), fuels, and manufacturing.

FIGURE 5 MAJOR EXPORT CATEGORIES, 1995–2011



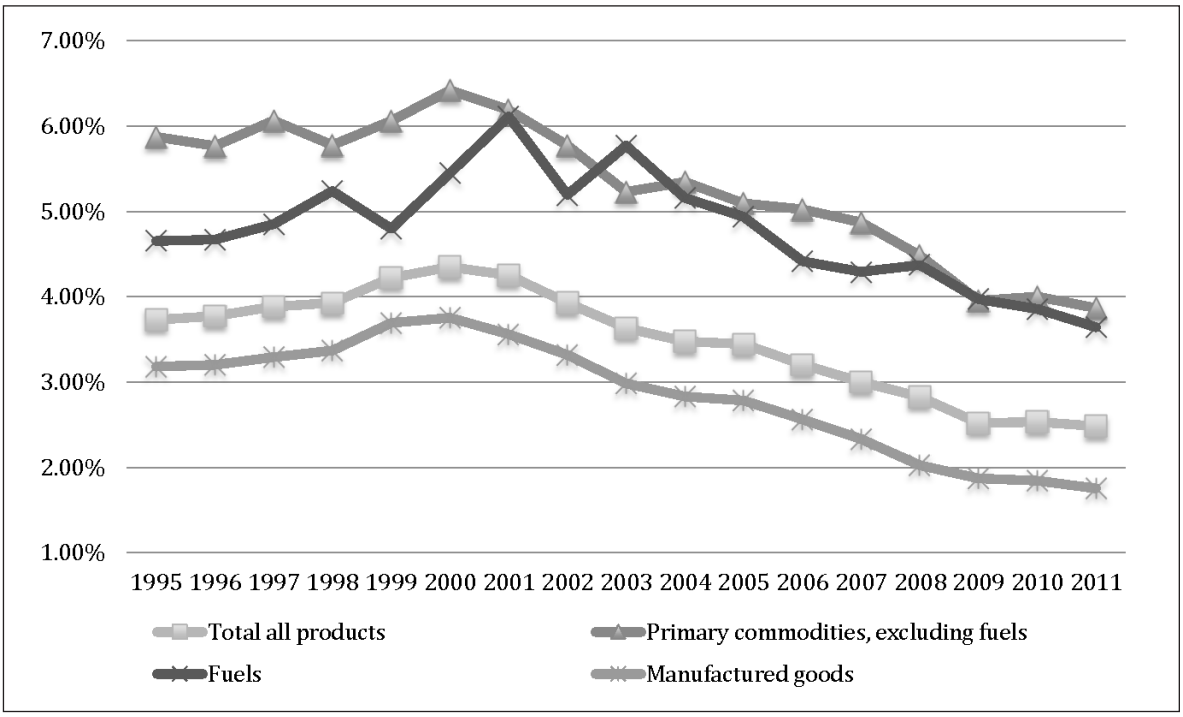
Source: Industry Canada, Strategis Web Page, http://strategis.ic.gc.ca/.

FIGURE 6 TOP 25 CANADIAN EXPORTS 2012



Source: Industry Canada, Trade Data Online (TDO), https://www.ic.gc.ca/eic/site/tdo-dcd.nsf/eng/Home.

FIGURE 7 CANADIAN SHARE OF WORLD EXPORTS: 1995–2012



3.1 MEASURES OF CANADIAN EXPORT CONCENTRATION

There is a large literature examining the impact of trade concentration on economic growth and development. Farmer provides an excellent overview of this literature and quantifies trade concentration to measure its impact on the economic growth of less-developed countries.[12] The concern is that a high level of trade concentration can render a country dependent on a trade partner both economically and politically. A high trade concentration renders a country vulnerable to disruptions in trade with a principal trading partner. The country can be vulnerable to fluctuations in the principal trading partner's economy and/or exchange rate, as well as politically motivated disruptions such as tariffs and even boycotts.

One measure of trade dependence is the share of total exports (or imports) with the principal trading partner. Cassing and Husted present the share of exports with principal trading partners for 186 countries in 1980 and 2000 and find that the average share of exports of leading trade partners was 27 per cent in 1980 and 26 per cent in 2000.[13] Canada had the highest share at 68 per cent in 1980 and 64 per cent in 2000, while Mexico was second in 1980 (at 62 per cent) and the highest in 2000 at 73 per cent. Obviously, in both cases the principal partner was the U.S. The only countries close to these numbers are small countries with colonial ties such as the Central African Republic (62 per cent in 1980 and 31 per cent in 2000) and Gabon (58 per cent and 65 per cent) in trade with France; and Honduras (42 per cent and 57 per cent) and Haiti (53 per cent and 54 per cent) in trade with the U.S. Cassing and Husted look at bilateral trading relations for all 186 countries and find that the pattern of trade is extremely persistent over time and the proximity to a high-income country, economic size, colonial relations and neighbours determined principal trading partners.[14]

An alternative measure of trade dependence is the Herfindahl-Hirschman Index (HHI) for imports and exports, which measures trade-partner concentration. In the case of exports (imports), the HH index is the sum of squares of the percentages of the partner's share of total exports (imports):

$$HH\ Index = \sum_{i=1}^{n} \left({}^{X_i}/_{X} \right)^2$$

Where n is the number of trading partners for exports (imports); X_i is the value of exports (imports) to partner country I; and X is the total value of exports (imports). The HHI ranges from zero to one. If there is no trade partner, the index equals zero and if there is only one trading partner, the HHI would equal one. The interpretation of the index is that the closer the HHI is to one, the higher the trade partner concentration, and vice versa. When trade is spread among a large number of partners the index approaches zero.

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[12] Brian Farmer, *The Question of Dependency and Economic Development: A Quantitative Analysis* (Lanham, Md.: Lexington Books, 1999).

[13] James Cassing and Steven Husted, "Trade Pattern Persistence," *Empirical Methods in International Trade: Essays in Honor of Mordechai Kreinin*, ed. Michael G. Plummer (Northampton, Mass.: Edgar Elgar, 2004), 91-110.

[14] ibid.

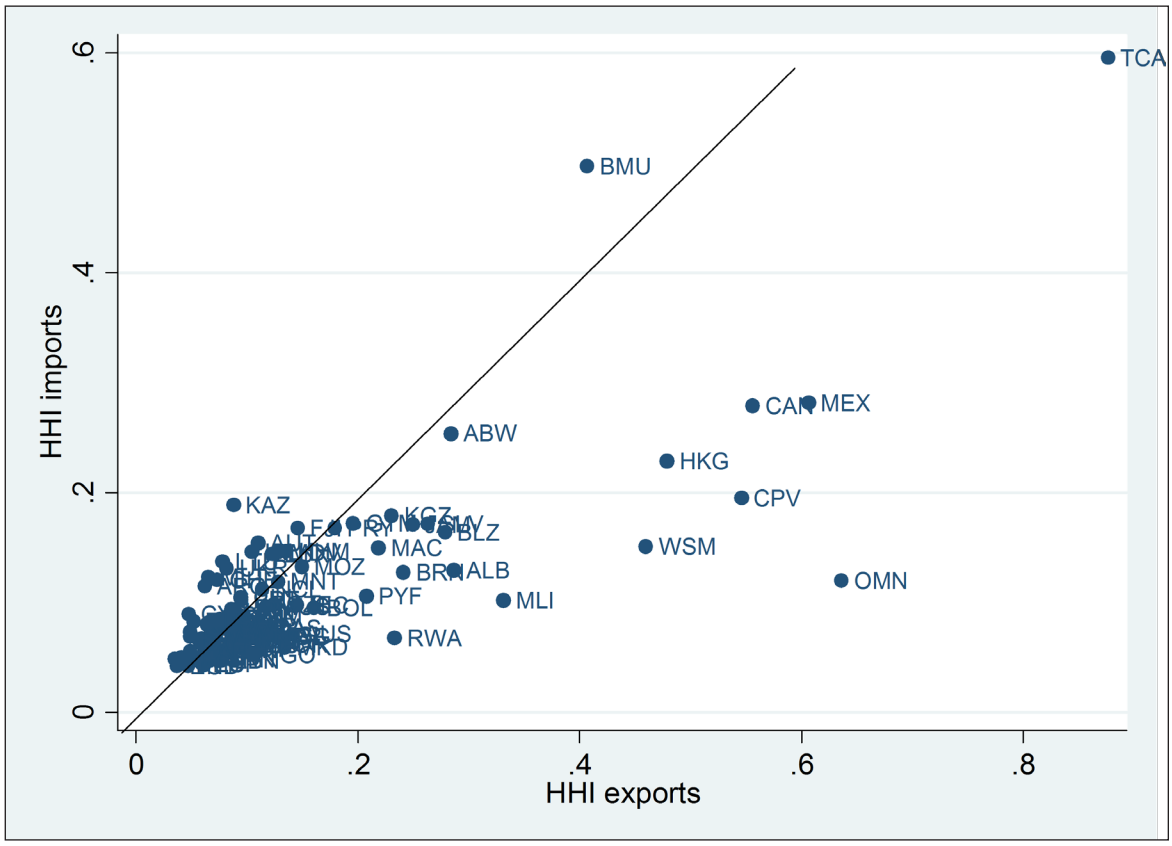
3.2 GEOGRAPHIC CONCENTRATION AT COUNTRY LEVEL

Figure 8 shows the import and export Herfindahl-Hirschman indices for the 76 countries for 2012 and Table 2 presents the 20 most concentrated and most diverse exporters. As Figure 8 shows, most countries have very low levels of trade concentration — an HHI of less than 0.2 in export concentration and less than 0.1 in import concentration. Most countries' import-concentration index is lower than their export-concentration index. Canada and Mexico (CAN and MEX) are outliers in this figure in the sense that they are highly concentrated in exports and imports. The only countries that are more concentrated than Canada and Mexico are small island economies, such as Turks and Caicos Islands (TCA) and Bermuda (BMU). Hong Kong (HKG), Cape Verde (CPV) and Western Samoa (WSM) are also very highly concentrated exporting countries that are smaller island economies. Oman is a highly concentrated exporter, although it is not an island; it is a small Arab state on the tip of the Arabian Peninsula. As Figure 8 reveals, Canada's export-concentration index is an astounding 0.56 and Mexico's is even higher at 0.6. All of the other countries have an export concentration of less than 0.2, and 46 of the 76 countries are less than 0.1. From an imports perspective, Canada and Mexico also have a very high concentration, with both at 0.28. Canada and Mexico stand out with very high concentrations of imports and exports relative to other countries in the OECD. However, the difference is much larger with respect to exports. As mentioned, most OECD countries have similar concentration measures for imports and exports. Overall, for Canada and Mexico, the export-concentration ratio is over two times larger than the concentration in imports.

Table 2 provides a closer look at the top 20 most diversified exporting countries and the top 20 most concentrated exporting economies. As discussed, and as seen in Figure 8, Table 2 confirms that only a handful of countries have HHI numbers over 0.3. These are all relatively small and mostly island economies. In fact, this is true of most of the top 20 most concentrated exporters, with the exception of Mexico and Canada. Canada and Mexico really stand out in this group of highly concentrated exporters in terms of their high level of concentration (0.56 and 0.61 respectively) and for the fact that they are larger, generally richer and more diversified economies. However, in terms of geographic concentration of their exports, they are extremely concentrated.

The top 20 most diversified economies on the other hand, represent a broad range of countries with a broad range of size and wealth. Keep in mind that most of the countries in world have low HHI measures based on their bilateral trading relationships. As Figure 8 shows, most of the mass of the distribution is in the lower-left quadrant of the figure. As mentioned, almost all countries have an HHI less than 0.1. In order to illustrate this point, we provide two further plots of the HHI measure, based on bilateral exporting patterns. Figures 9 and 10 plot HHI measures against GDP per capita and against economic growth respectively. As seen in Figure 9, Canada is still an outlier in the sense that it is a high-income country with a high HHI. On the other hand, Sweden, Australia, Switzerland, Norway and Luxembourg are high-income countries with a low HHI. Again, almost all countries have an HHI below 0.15 and they range from poor to rich countries. The few countries with highly concentrated exports tend to be poorer countries — with the exception of Canada. However, as the trend line indicates, there is no relationship between HHI and income per capita. Similarly, Figure 10 shows that there is no clear relationship between economic growth and export diversification.

FIGURE 8 GEOGRAPHIC CONCENTRATION OF IMPORTS AND EXPORTS (2012)



Source: UN Comtrade.

TABLE 2 EXPORT HHI (BASED ON COUNTRY-LEVEL DATA) 2012

Top 20 Most Diversified Countries / Top 20 Most Concentrated Countries											
Top 20 Most Diversified Countries						Top 20 Most Concentrated Countries					
Country Name	HHI (Exports)	GDP	GDP/ capita	Growth Rate	Population	Country Name	HHI (Exports)	GDP	GDP/ capita	Growth Rate	Population
Turkey	0.04	801.1	10,830	2.2	74	Turks And Caicos Islands	0.88	..	..	..	0
Egypt	0.04	241.8	3,000	2.2	81	Oman	0.64	53.5	19,110	0.3	3
Greece	0.04	262.4	23,260	-6.4	11	Mexico	0.61	1,160.20	9,600	3.9	121
Germany	0.04	3,603.90	44,010	0.7	82	**Canada**	**0.56**	**1,777.90**	**50,970**	**1.7**	**35**
India	0.05	1,890.40	1,530	3.2	1237	Cape Verde	0.55	1.9	3,810	4.3	0
Cyprus	0.05	22.7	26,000	-2.4	1	Hong Kong	0.48	261.6	36,560	1.5	7
Bulgaria	0.05	50.2	6,870	0.8	7	Samoa	0.46	0.6	3,220	1.2	0
Sweden	0.05	535	56,210	0.7	10	Bermuda	0.41	6.9	106,920	-2.8	0
Finland	0.05	254.1	46,940	-0.2	5	Mali	0.33	9.8	660	-1.2	15
South Africa	0.05	389.8	7,610	2.5	51	Albania	0.29	12.9	4,090	0.8	3
Thailand	0.05	347.8	5,210	6.5	67	Aruba	0.28	..	..	..	0
United Kingdom	0.05	2,418.50	38,250	0.3	63	Belize	0.28	1.3	4,180	1.9	0
France	0.06	2,742.90	41,750	0	66	El Salva-dor	0.26	22.5	3,580	1.9	6
Brazil	0.06	2,311.10	11,630	0.9	199	Jamaica	0.25	13.9	5,140	-0.3	3
Spain	0.06	1,391.40	30,110	-1.4	46	Brunei Darus-salam	0.24	..	..	2.2	0
Yugoslavia	0.06					Rwanda	0.23	6.2	560	8	11
Argentina	0.06	..	..	..	41	Kyrgyz-stan	0.23	163.8	9,750	5.1	17
Pakistan	0.06	225.4	1,260	4.2	179	Macau	0.22				
Malta	0.07	10.96	29200	0.6%	0.42	French Polynesia	0.21	..	..	..	0

Source: UN Comtrade

FIGURE 9 GEOGRAPHIC CONCENTRATION OF IMPORTS AND AVERAGE INCOME (2012)

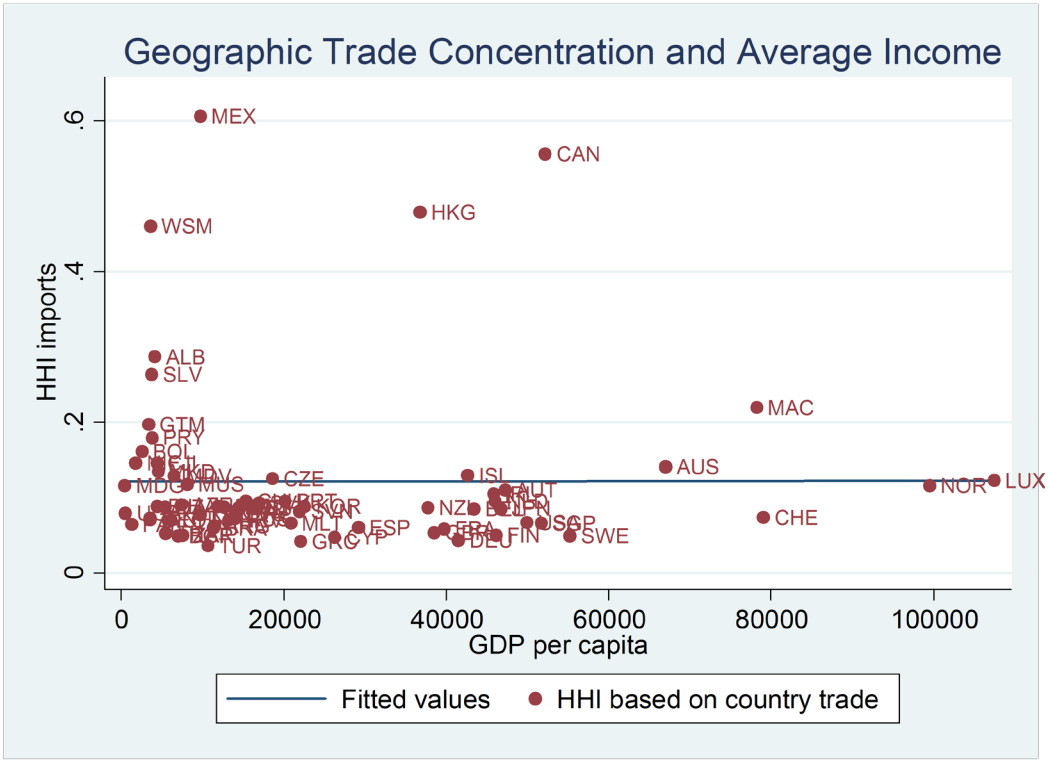
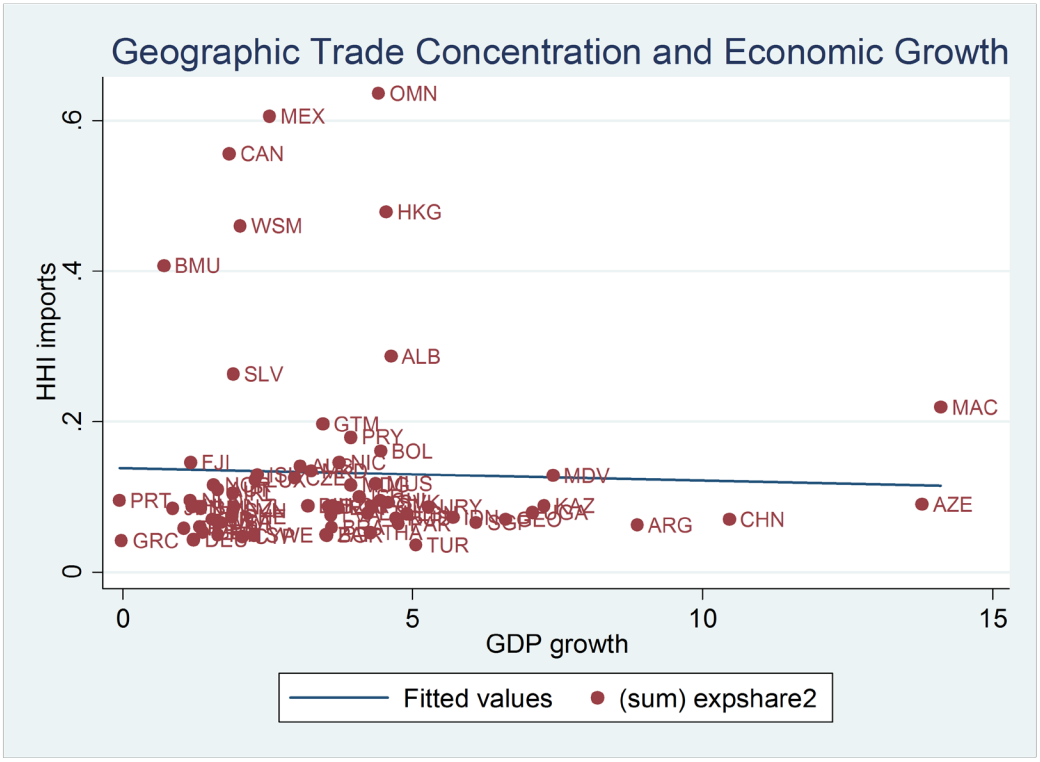


FIGURE 10 GEOGRAPHIC CONCENTRATION OF IMPORTS AND ECONOMIC GROWTH (2012)



3.3 GEOGRAPHIC CONCENTRATION AT THE REGIONAL LEVEL

In our analysis of HHI based on bilateral trade patterns we find that Canada is an outlier in terms of trade concentration. Of course, based on the gravity model of trade, which predicts that countries will trade more with larger and closer countries, Canada's trade concentration may not be that extreme. Certainly when compared to other countries, Canada's level of trade concentration appears extreme; the only other large economy that is as highly concentrated as Canada is Mexico. Again, a gravity model of trade would predict concentration of Mexican trade with the large, rich bordering country to the north. It is interesting to compare Canada and Australia. Although Australia is remote and does not border a large economy, Australia is close to Asia. If we think distance or transportation cost is the main driver for this high concentration of Canadian trade with the U.S., we should have a smaller HHI for Australia. We find that the HHI for Australia is only 0.14, which is much smaller than Canada's, and similar to most of the other countries' HHI. Australia appears to have a diverse export portfolio based on the measure of HHI using bilateral exports. However, it is also important to consider the regional nature of world trade. Let's consider trade patterns through a slightly different lens and focus on regional trade to investigate whether Canada is truly an outlier in terms of export concentration. Figure 11 shows the distribution of world trade between three main regions, Europe, Asia, and North America, and the rest of the world in 2005 and 2012.

FIGURE 11 SHARE OF WORLD MERCHANDISE TRADE BY REGION (2005 AND 2012)

Source: WTO.

As can be seen in Figure 11, Europe accounted for 43 per cent of world trade in 2005 and 37 per cent in 2012. North America also declined from 21 per cent in 2005 to 17 per cent in 2012. Still, these two large economic regions accounted for 54 per cent of world trade in 2012. Asia's share is also large and is growing. Asia accounted for 24 per cent in 2005 and increased to 30 per cent of world trade in 2012. The rest of the world also increased its share of world trade from 10 per cent in 2005 to 15 per cent in 2012. Although this pattern does not say anything about whether or not trade is regional in nature, it does remind us that in 2012, 85 per cent of world trade was with the three large regions: Europe, Asia and North America. But how much trade is within each region?

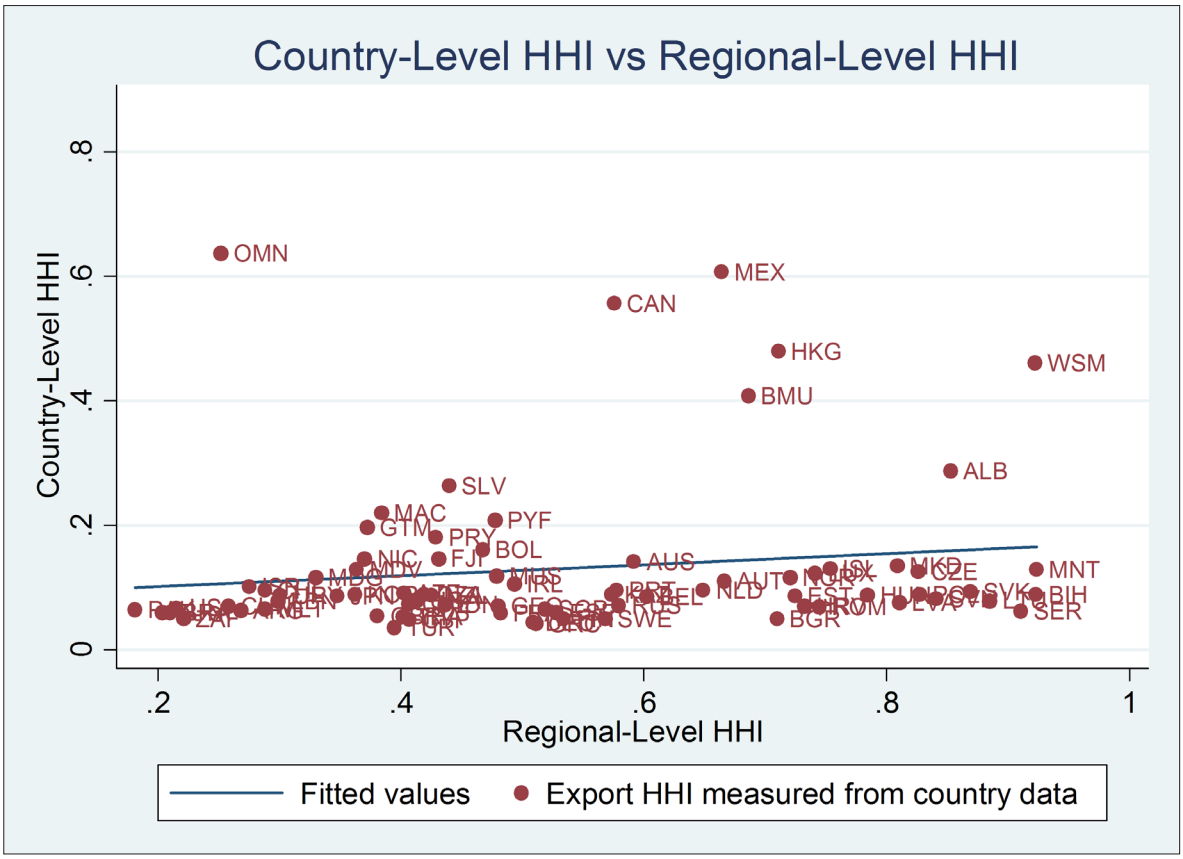
Figure 12 shows the share of exports between the four regions summarized in Figure 11. Reading down the three left-hand-side graphs in Figure 12, it is shown that in 2005, 56 per cent of North American was trade within North America; 73 per cent of European trade was within Europe; and 51 per cent of Asian trade was within Asia. That means that European countries trade primarily with other European economies. The numbers have come down a bit for Europe and North America, but in 2012, 69 per cent of European exports were to other European countries, 49 per cent of exports from North American countries went to other North American countries and 53 per cent of Asian exports were within Asia. World trade is primarily regional in nature.

How does this change how we think about the geographic concentration of a country's exports? What if we compute HHI based on the regional destination of a country's exports instead of the country destination? We re-did the HHI calculations but we aggregated all export destination countries to one of seven regions. We used the World Bank classification of regions and separated the world into these seven regions: East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, North America, South Asia, and Sub-Saharan Africa. Then we re-calculated the HHI for each country — so each country now exports to one of seven regions, and we computed the share of trade with each region using the above equation. The results are presented in Table 3 and Figure 13.

FIGURE 12 NORTH AMERICAN MERCHANDISE EXPORTS BY REGION (2005 AND 2012)

Similar to the measurement of HHI based on country level, given the seven regions, we calculate the regional HHI for the exports of each country. More specifically, HHI is the sum of squares of the shares of each country's exports to each region. After we calculate HHI on regional trade, we are interested in investigating the relationship between country-level HHI and regional-level HHI. As shown in Figure 13, Canada and Mexico have a high HHI based on bilateral country trade patterns but are in the middle of the pack based on the regional HHI.

FIGURE 13 COUNTRY-LEVEL HHI AND REGIONAL-LEVEL HHI



By comparing Table 2 and Table 3, we find although Australia's country-level HHI is much lower than Canada's, its regional-level HHI is even a bit higher than Canada's. This result confirms our conjecture that regional trade is the main driver for each country's trade pattern. Country-level HHI for Australia is 0.14 while its regional HHI is 0.6, which is slightly higher than Canada's regional HHI. Canada's and Mexico's regional HHIs are similar in magnitude to other countries; they are no longer extreme outliers. Almost all countries are highly concentrated in exporting to their region. Like Canada's trade within North America, Australia's trade is concentrated with Asia. But based on bilateral country export patterns, Australia is more diverse because it trades with several Asian countries. In this sense, Canada is not an outlier in trade concentration; instead, if we focus on geographic trade concentration, regional HHI provides a more reasonable explanation for Canada's trade pattern.

TABLE 3 EXPORT HHI (BASED ON REGIONAL-LEVEL DATA) 2012

Table 3 Export HHI (Based on Regional-Level Data) 2012			
Country Name	HHI (exports)	Country Name	HHI (exports)
Pakistan	0.18	Ireland	0.49
European Union	0.20	Germany	0.51
Brazil	0.21	Greece	0.51
United States	0.22	Singapore	0.52
South Africa	0.22	Spain	0.53
Oman	0.25	Finland	0.53
China	0.26	Sweden	0.57
Argentina	0.27	Kazakhstan	0.57
Israel	0.28	**Canada**	**0.58**
Chile	0.29	Portugal	0.58
Malta	0.29	Russian Federation	0.58
Lebanon	0.30	**Australia**	**0.59**
Uruguay	0.30	Belgium	0.60
Madagascar	0.33	Netherlands	0.65
Japan	0.35	Mexico	0.66
Korea, Rep.	0.36	Austria	0.67
Maldives	0.36	Bermuda	0.69
Nicaragua	0.37	Bulgaria	0.71
Guatemala	0.37	Hong Kong SAR, China	0.71
United Kingdom	0.38	Norway	0.72
Macao SAR, China	0.38	Estonia	0.72
Turkey	0.39	Croatia	0.73
Thailand	0.40	Luxembourg	0.74
Azerbaijan	0.40	Romania	0.74
Switzerland	0.41	Iceland	0.75
Cyprus	0.41	Hungary	0.78
Uganda	0.41	Macedonia, FYR	0.81
Algeria	0.42	Latvia	0.81
New Zealand	0.43	Czech Republic	0.83
Paraguay	0.43	Poland	0.83
Fiji	0.43	Slovenia	0.84
Indonesia	0.44	Albania	0.85
El Salvador	0.44	Slovak Republic	0.87
Bolivia	0.47	Lithuania	0.89
French Polynesia	0.48	Senegal	0.91
Mauritius	0.48	Samoa	0.92
Georgia	0.48	Bosnia and Herzegovina	0.92
France	0.48	Mauritania	0.92

This finding is also consistent with the results shown in Figure 12. In Figure 12, we can find that for North America, Asia and Europe, their own regional trade or the trade with their own area takes at least up 50 per cent out of their total trade, which confirms again that regional trade is the dominant trade pattern in the world. We also note that there is a positive relationship between country-level HHI and regional-level HHI, meaning that, as each country's trade with the area becomes more concentrated, the trade within the region also becomes less diversified.

3.4 CONCENTRATION BASED ON EXPORT PRODUCTS

In addition to examining the geographic concentration of Canada's trade policy, it is important to explore the trade concentration of Canada from a product or industry perspective. Similar to the measurement of HHI for the country and regional level, we calculate the HHI for each country based on the range of products each export. HHI is the sum of squares of the percentages of each product of total exports.

By using data from the World Bank's WITS (World Integrated Trade Solution), we calculated HHI by country for goods defined by 100 different Harmonized System (HS) product categories. Given HHI on product level, we are first interested in comparing HHI between country level and product level. As shown in Figure 14, we can see that Canada has a low product HHI (0.11) but a high HHI at country level (0.56). Similar to Mexico, its product HHI and country HHI are 0.12 and 0.61, respectively. Canada still looks like an outlier — much more diversified from product perspective, but highly concentrated on geographic trade. As a good comparable country, Australia has a low HHI on both (product-level HHI: 0.16; country-level HHI) and seems a "truly" diversified exporter. However, if we plot regional HHI with product HHI, as shown in Figure 15, then we find the two HHIs for Canada are lower than Australia; in other words, Canada is more diversified than Australia.

FIGURE 14 GEOGRAPHIC HHI (COUNTRY-LEVEL) AND PRODUCT HHI

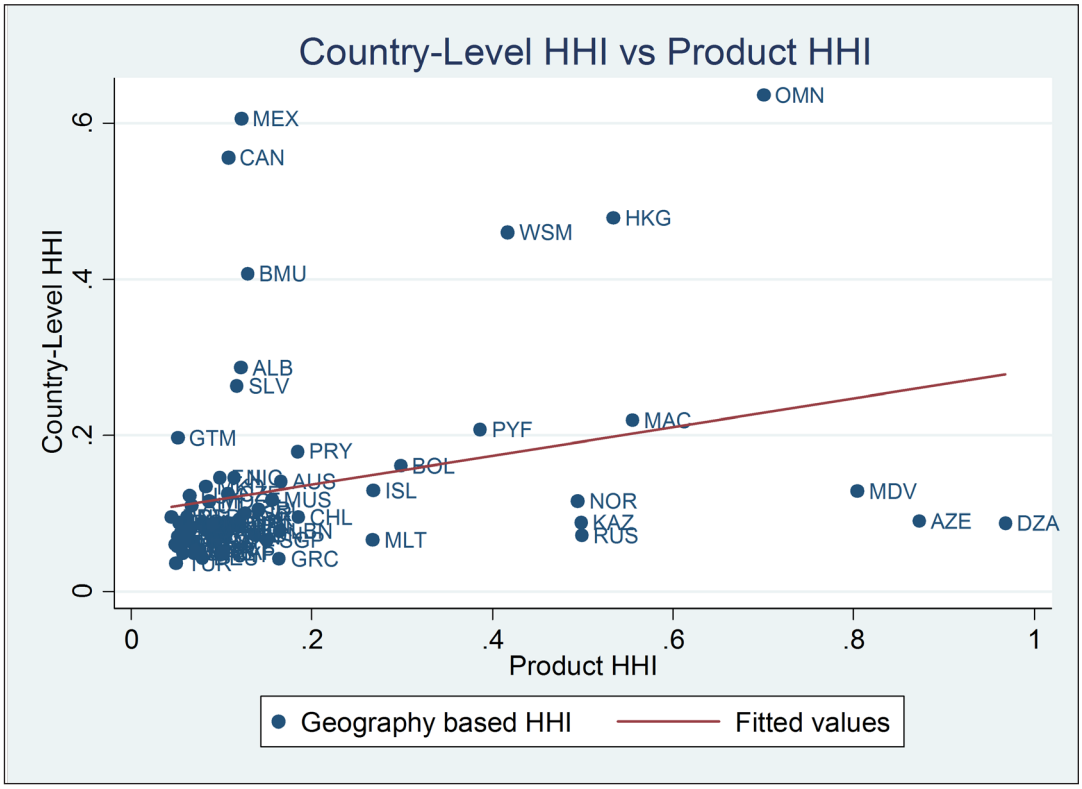
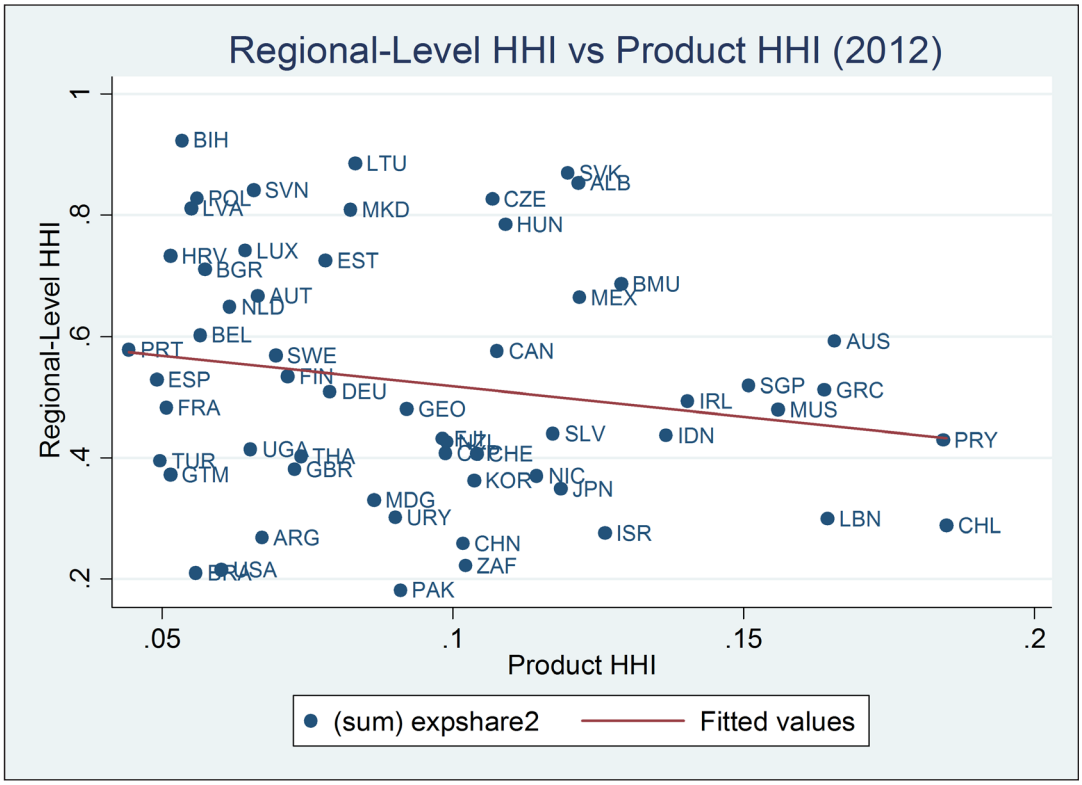


FIGURE 15 GEOGRAPHIC HHI (REGIONAL-LEVEL) AND PRODUCT HHI



This finding provides us with a different lens through which to consider Canada's trade diversity. In carefully examining the concentration of Canada's bilateral trade, we have learned that Canada is an extreme outlier in terms of bilateral geographic concentration. But we also learned that regional trade is the dominant trade pattern geographically. Australia trades a lot within Asia and Canada trades a lot within North America. This is consistent with the pattern in Figure 12: each region trades at least 50 per cent within its own region. Geographic trade patterns are determined by the size and proximity of trading partners and are predominantly regional in nature. Through this lens, Canada is not an outlier in terms of geographic concentration. We also learned that Canada is a relatively diversified exporter from a product perspective: it is ranked 51 out of 121 countries in terms of the product-based HHI measure.

The regional nature of Canadian trade and the relatively diversified product mix of Canadian trade allows us to focus not on a question of "are we too dependent in trade with one country?" but instead, "what is the nature of Canadian trade?" The next section addresses the question of trade diversification from the perspective of firms and global value chains.

4. THE NATURE OF TRADE

Our focus until now has been on Canada's aggregate trade patterns and we have learned some valuable insights. Although Canadian bilateral trade is extremely concentrated in trade with the U.S., the fundamental story of Canadian trade can be characterized by three factors: 1) the driving determinants of bilateral trade patterns reflect the gravity model of trade: trading-partner economic size and proximity; 2) international trade is regional in nature; and 3) Canadian trade is relatively diversified across products or industries. These three factors shift the focus from aggregate trade patterns to the nature of the goods and services that are traded. Together they lead to the important conclusion that businesses — not government or countries — conduct international trade. The gravity model of trade predicts that businesses will tend to conduct trade relationship with geographic areas that represent large markets that are geographically close. Moreover, international trade is predominantly in intermediate goods, rather than final consumer goods. The production process has become fragmented geographically whereby firms move and trade intermediate goods internationally and a final good is composed of intermediate inputs from various countries. This fragmented production has become widely known as value chains — typically, global value chains (GVCs). However, most of the global value chains are regional in nature. In this section we explore the nature of trade focusing first on the thousands of Canadian firms that export and then on the GVC nature of Canadian trade.

Since the 1990s, global value chains have rapidly emerged as production processes via international trade and have become more geographically fragmented. A value chain includes the following activities: design, production, marketing, distribution and support to the final consumers. These activities can be performed within the same firm or divided among different firms. The fact that they are increasingly spread over several countries explains why the value chain is regarded as "global." The fragmentation of value chains has been motivated by sourcing intermediate inputs from more cost-efficient producers, foreign or domestic, in order to enhance efficiency. Consequently, domestic production has increasingly relied on foreign intermediate inputs.

Trade in intermediate inputs accounts for roughly two-thirds of international trade.[15] Countries rely more and more on imported inputs to produce their exports. For instance, by using 1990 input-output tables for 14 countries, Hummels, Ishii and Yi estimated imported content on average accounted for nearly 21 per cent of the exports' value,[16] and Miroudot and Ragoussis[17] estimated that the average import content of exports rose for OECD countries from 26 per cent in 1995 to 31 per cent in 2005. In Canada, by contrast, the import content of exports fell from 31 per cent in 2005 to 26 per cent in 2008.

Van Assche analyzes the stages at which Canada imports and exports goods and services and identifies the trade patterns.[18] Canada is a net exporter of primary goods both to developed countries (the U.S. and European Union countries) and developing countries (China and Mexico). For non-primary goods, Canada disproportionately exports intermediate goods to China and Mexico, while it primarily imports final goods from these developing countries. These results are in line with Goldfarb and Beckman's findings that Canada's exports to developing countries are more intensive in intermediate goods than its exports to the rest of the world, while its imports from developing countries are more intensive in final goods.[19] Canada is specialized in knowledge-intensive R&D services when compared to the rest of the world. Boileau and Sydor also find evidence that Canada is a net exporter of R&D services.[20] Canada's exports to developed countries (and especially to the U.S.) are highly similar in composition to its imports from these countries. Excluding primary goods, Canada is specialized in the upstream value-chain stages of R&D activities and intermediate-goods production, while offshoring final assembly activities to developing countries such as China and Mexico. In addition, Canada and the U.S. are highly integrated into the same GVCs.

Miller, Dillon and Robertson argue that trade via global value chains accounts for at least 40 per cent of global trade for North America, so that to reduce transaction cost through supply chains is truly necessary and important.[21] In addition, we should build up a transparent supply-chain program to protect and reward our trusted trade partners and also to reduce related risks more accurately.

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[15] R. Johnson and G. Noguera, "Accounting for Intermediates: Production Sharing and Trade in Value Added," *Journal of International Economics* 86, 2 (2012): 224-36.

[16] D. Hummels, I. Ishii and K.-M. Yi, "The Nature and Growth of Vertical Specialization in World Trade," *Journal of International Economics* 54, 1 (2001): 75-96.

[17] Miroudot, S., Lanz, R., & Ragoussis, A. (2009). *Trade in intermediate goods and services* (No. 93). OECD Publishing.

[18] Ari Van Assche (with commentary by Todd Evans), "Global Value Chains and Canada's Trade Policy: Business as Usual or Paradigm Shift?" *IRPP Study* 32 (Montreal: Institute for Research on Public Policy, 2012).

[19] D. Goldfarb and K. Beckman, *Canada's Changing Role in Global Supply Chains* (Ottawa: Conference Board of Canada, 2007).

[20] D. Boileau and A. Sydor, "Global Value Chains in Canada," in *Trade Policy Research Special Edition: Global Value Chains — Impacts and Implications*, ed. A. Sydor (Ottawa: Department of Foreign Affairs and International Trade, 2011): 157-78.

[21] Eric Miller, John Dillon and Colin Robertson, "Made in North America: A new agenda to sharpen our competitive edge" (Canadian Council of Chief Executives, 2014).

5. CONCLUSIONS

Canada is a very open economy, and like other small economies Canada is heavily engaged in international trade. This is not new and is well understood. However, the concentrated nature of the Canadian trade pattern has led to calls for using policy to diversify Canada's trade. Until now we have not had a very clear understanding of how concentrated Canadian trade is. We measure the concentration of trade three ways: based on bilateral trade with countries, country exports by region, and the product concentration of trade. We compare Canada to other countries and find that Canada is an extreme outlier in concentration of exports to destination markets based on bilateral trade patterns. However, we observe that world trade is extremely regional in nature, and measuring the concentration of Canadian exports based on regional trade we find that Canada is not an outlier. Similarly, when we examine Canadian exports based on export products, we find that Canada has a relatively diverse trade portfolio.

Given these results, we wonder how imperative it is that Canadian policy focuses on trade diversification. If one concludes that policy should still be directed to diversifying trade, what are the policy objectives? What is a desired level of trade diversification? Should policy try to increase diversification of trade to increase trade with other regions? Should policy focus on generating more trade diversity geographically and not on product diversity, since Canadian trade is more diverse in terms of products?

The proponents of a trade diversification agenda have an easy target: Canada's trade is extremely concentrated with the U.S. But is Canada somehow *too dependent* on trade with one country? We show that most trade in the world is regional in nature, and that Canada (and Mexico) is not an outlier in terms of its concentration of trade on a regional level. It is more accurate to conclude not that Canada is too dependent on trade with the U.S., but that Canada is part of an integrated North American economy and this regional concentration is not unusual. Moreover, perhaps surprisingly, Canada is not overly concentrated in terms of the products exported. In fact, Canada is diversified in terms of products exported. We argue further that it is important to consider the nature of trade, not just the concentration of trade. The Canadian trade pattern reflects a regional nature that was enhanced by the Canada-U.S. FTA and NAFTA, which had the desired effect of creating an integrated North American economy with North American value chains.

Therefore, Canada is not "too dependent" on trade with the U.S. This deflates the argument for a trade diversification policy based on the "all eggs in one basket" adage. Moreover, we argue that it is Canadian firms — and not governments — that undertake exports and imports. In that sense, the "all your eggs in one basket" argument is fallacious. Aggregate trade patterns reflect the decisions of thousands of firms and markets involving millions of people and are not conducted by countries. Moreover, profit-maximizing firms conduct their business across international borders and the resulting aggregate trade patterns are determined by geography. The predominant pattern of bilateral trade is with larger, nearby economies. In the case of Canada and Mexico this means the inexorable gravitational pull of the large, nearby U.S. economy. It is difficult to imagine an argument that government policy should attempt to undo this. Moreover, it is not clear how effective policy could be at overturning these patterns.

Although we find no basis for a trade diversification policy based on the "all eggs in one basket" argument, we do argue that due to the changing nature of the world economy it is important for government policy to open doors and encourage Canadian firms to look outside of North America. We conclude that, from a policy perspective, it is important to pursue both deeper North American integration and encourage a broader geographical diversification. These two objectives are

complementary. Deeper North American integration is required to enhance and develop the North American value chains. For Canada to be successful outside of North America, Canadian firms will need to work within an integrated North American economy. We need deeper ties with the U.S. *and* more diversified trade. This policy has been endorsed by others such as Mathias Hartpence (of the Canadian Chamber of Commerce), who argues that deepening economic ties with the U.S. is the first pillar of Canadian trade policy, but that "... more than ever, governments and business must work together to build a solid second pillar, that of greatly boosting economic exchanges with key markets around the world such as China, India, the European Union and others."[22] The conclusion that policy should be directed at diversifying trade is much more complex than the often-heard adage that we "shouldn't put all our eggs into one basket." But Canada's Global Markets Action Plan has it right: deeper North American integration *and* improved trade and investment relations with the rest of the world. Canada has to pay greater attention to the North American file and work together with the U.S. and Mexico to further develop the North American economy — and North American value chains. This is crucial in order for Canadian firms to be successful globally. Canada also needs to pursue and conclude bilateral and regional trade and investment agreements with other countries. Until recently, Canada had the groundbreaking and momentous NAFTA, followed by a number of bilateral agreements with smaller countries. More recently, Canada has concluded an important agreement with Korea, while CETA has been negotiated with the European Union and is awaiting ratification. These are important steps. The ongoing negotiations in the TransPacific Partnership are important for Canada and so are the ongoing free-trade negotiations with Japan and India.

[22] Hartpence, "Canada's trade."

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