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Canada–U.S. trade in a globalized economy: Elasticities, asymmetries, and policy imperatives

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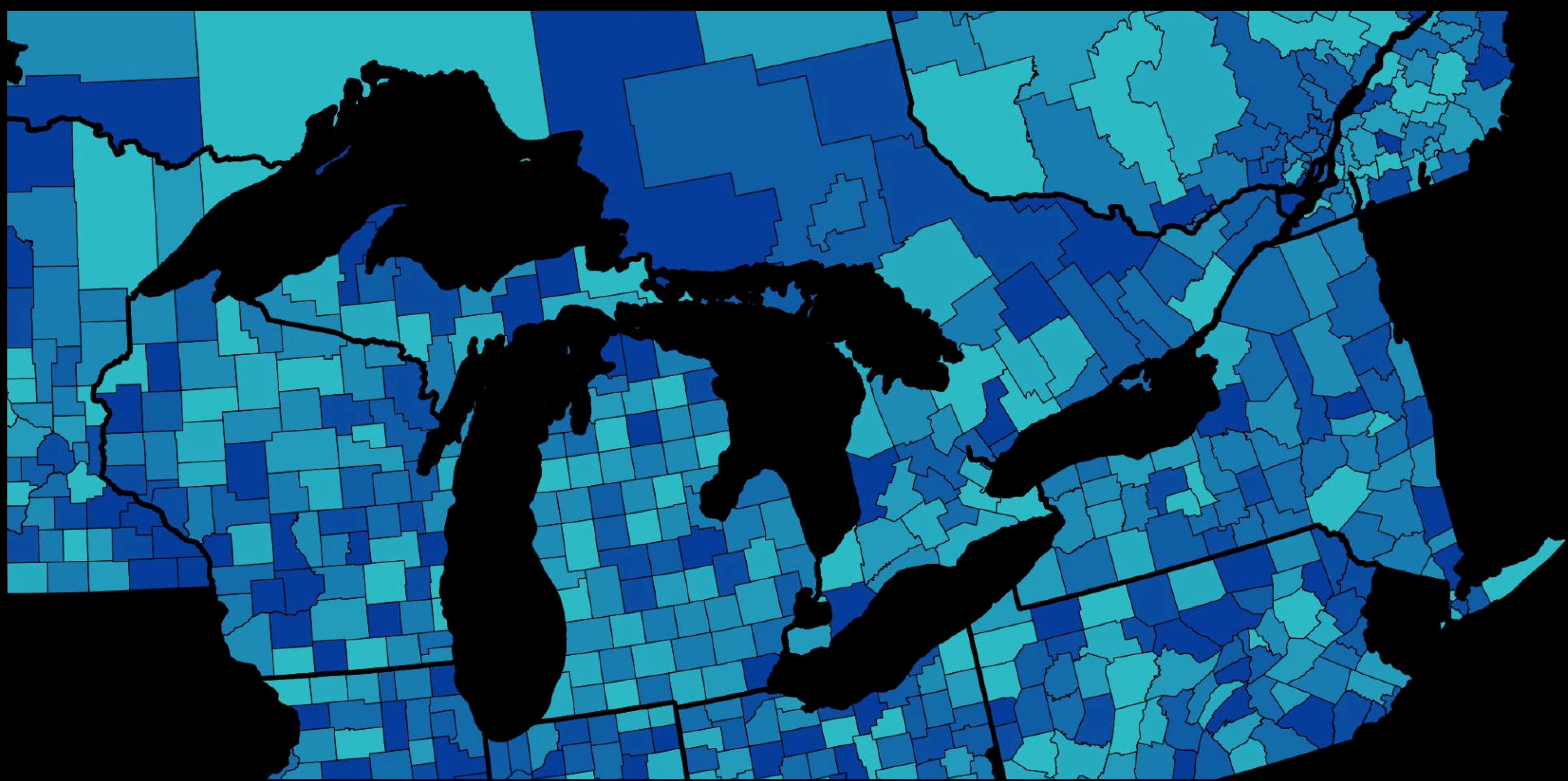


Aggregate trade data masks deeper interdependencies

Traditional trade metrics do not show the cross-border flows than define production today, where goods are co-produced across multiple countries. Bilateral trade balances provide a distorted view of economic relationships.

The U.S. trade deficit with Canada is largely driven by energy imports, while American firms benefit from services trade and embedded value-added components in Canadian exports. Much of this trade occurs within multinational enterprises, making simplistic categorizations of exports and imports misleading.

A shift in perspective is needed—away from zero-sum narratives and toward policies that enhance global integration.

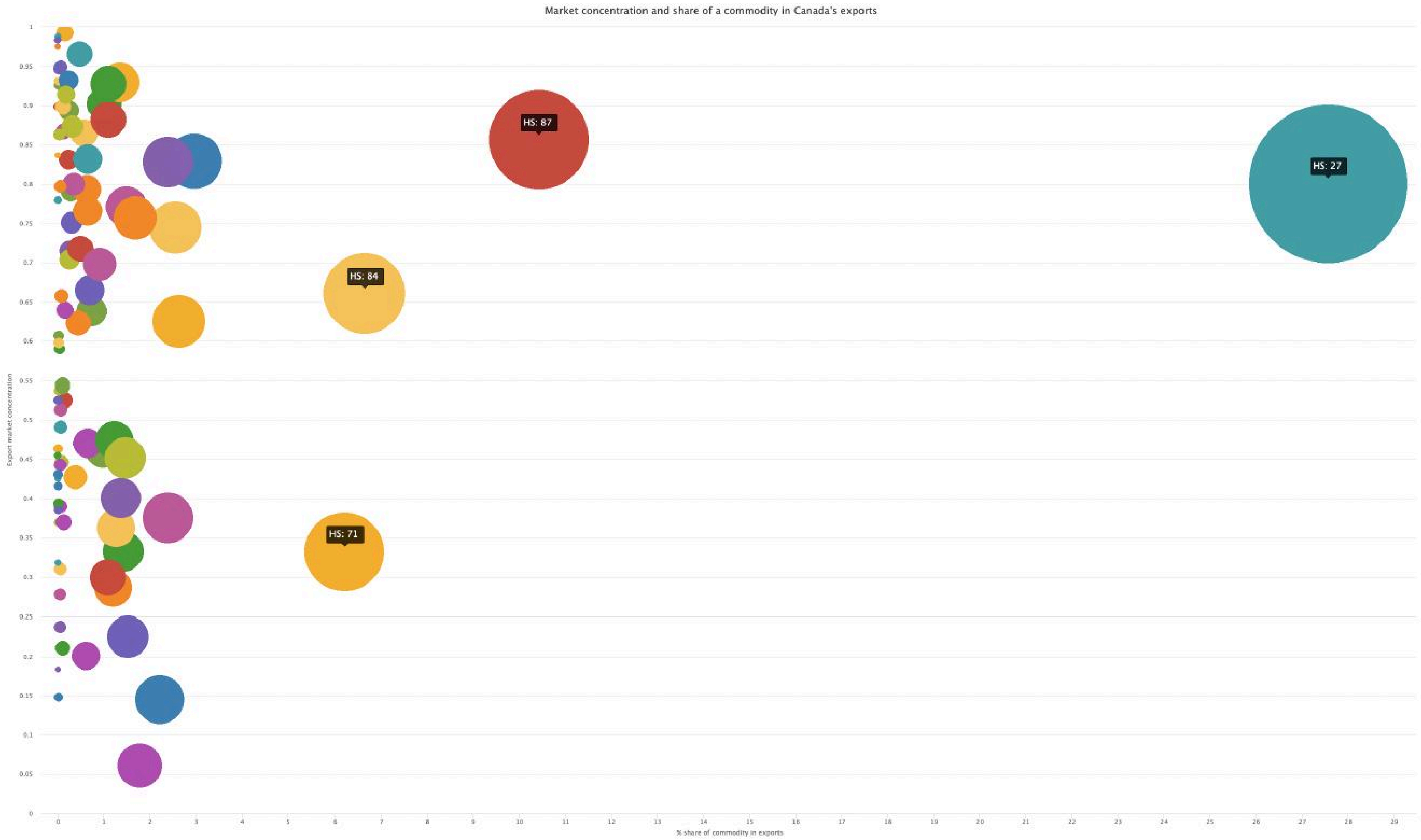
Descriptive Statistics on Canada-U.S. Trade

Indicator	Value (CAD)
Canada GDP	3,060 Billion
US GDP*	36,975 Billion*
Canada Exports to US	547 Billion
Canada Imports from US	376 Billion
Two-way Trade as % of Canada's GDP	30%
Two-way Trade as % of US's GDP	2.5%
Canada Total Exports	719 Billion
Number of employer business locations in Canada (Dec 2022)	1,200,000
Percent of businesses that produce goods	21%

Canada and the U.S. have a highly integrated yet asymmetric trade relationship

This is due to geographic proximity, well-established supply chains, and shared infrastructure. “Friendshoring” has further reinforced these connections, with Canada benefiting from U.S. initiatives to secure supply chains in critical sectors like minerals and energy.

Industries such as automotive manufacturing, machinery, and mineral fuel exports are particularly reliant on cross-border trade.



Sectors respond to tariffs based on their trade elasticity and substitution potential

A 25% tariff on Canadian goods could significantly reduce trade volumes in key export sectors, underscoring the need for targeted policies to mitigate such risks.

Over time, persistent tariffs could lead to supply chain reconfigurations, with both countries adjusting to new sourcing strategies.

Elasticity by Industry and Tariffs' Impact on Trade for Main Export Sectors from Canada to the U.S.

Sector	Total Value (CAD Millions)	Estimated Elasticity	Tariff Rate	Trade Reduction* (%)	Estimated Trade Reduction* (CAD Millions)	Post-Tariff Trade Value* (CAD Millions)
Mineral fuels & oils (27)	177,390	Inelastic (-0.21)	0.10	2.1	3,725	173,665
Vehicles (87)	69,413	Moderately Inelastic (-0.7)	0.25	17.5	12,147	57,266
Nuclear reactors, boilers, machinery (84)	38,864	Moderately Inelastic (-0.7)	0.25	17.5	6,801	32,063
Plastics and articles thereof (39)	19,390	Elastic (-1.1)	0.25	27.5	5,332	14,058
Wood and articles of wood (44)	15,852	Moderately Inelastic (-0.8)	0.25	20.0	3,170	12,682
Aluminium and articles thereof (76)	15,667	Inelastic (-0.4)	0.25	10.0	1,566	14,101
Electrical machinery and equipment (85)	14,945	Inelastic (-0.5)	0.25	12.5	1,868	13,077
Precious metals and stones (71)	12,413	Inelastic (-0.4)	0.25	10.0	1,241	11,172
Iron and steel (72)	10,512	Inelastic (-0.4)	0.25	10.0	1,051	9,461
Aircraft, spacecraft and parts thereof (88)	10,412	Inelastic (-0.5)	0.25	12.5	1,302	9,110
Total of Above Sectors	**384,858**				**38,204**	**346,654**

Regional differences exist in exports profiles

Ontario's auto-centric trade and Quebec's reliance on aluminum and aerospace goods exemplify varying elasticities. Ontario is more vulnerable due to its deep integration with U.S. manufacturing, while Quebec's exports, though inelastic, face substitution risks.

The elasticity of trade flows differs short-term versus long-term, with Ontario and Quebec showing how trade integration and overdependence on the U.S. can magnify risks.

Table 5: Ontario's Main Export Sectors to the U.S. (2024)

Section Description	Total Value (CAD Millions)	Estimated Elasticity	Tariff Rate	Trade Reduction* (%)	Estimated Trade Reduction* (CAD Millions)	Post-Tariff Trade Value* (CAD Millions)	Average GVC Length
Vehicles (87)	60,129	Moderately Inelastic (-0.7)	0.25	17.5	10,523	49,606	3.21
Nuclear reactors, boilers, machinery (84)	20,739	Moderately Inelastic (-0.7)	0.25	17.5	3,629	17,110	2.82
Plastics and articles thereof (39)	9,876	Elastic (-1.1)	0.25	27.5	2,716	14,058	2.76

Table 6: Quebec's Main Export Sectors to the U.S. (2024)

Section Description	Total Value (CAD Millions)	Estimated Elasticity	Tariff Rate	Trade Reduction* (%)	Estimated Trade Reduction* (CAD Millions)	Post-Tariff Trade Value* (CAD Millions)	Average GVC Length
Aluminium and articles thereof (76)	10,841	Inelastic (-0.4)	0.25	10.0	1,084	9,757	2.90
Nuclear reactors, boilers, machinery (84)	9,763	Moderately Inelastic (-0.7)	0.25	17.5	1,709	8,054	2.80
Aircraft, spacecraft and parts thereof (88)	8,186	Inelastic (-0.5)	0.25	12.5	1,023	7,163	3.35

Policy interventions must balance the benefits of economic integration and address vulnerabilities tied to this relationship

Diversification through alternative export markets or suppliers can reduce risks, but industries deeply embedded in cross-border supply chains face challenges in making swift adjustments.

Quebec's exports, such as aluminum and aerospace, have some diversification, but still remain highly U.S.-dependent. Ontario's automotive industry, a major exporter, also faces risks if disruptions arise, though some sectors show more elasticity.

In the face of tariffs, firms may adapt by relocating production or seeking alternative suppliers, but smaller, specialized regions may face greater difficulties. Over time, global sourcing and manufacturing practices may reduce integration, leading to clear winners and losers.

Policymakers should focus on granular data, understanding regional vulnerabilities, and adapting policies to foster resilience, especially in high-risk sectors like automotive and energy.

Protectionist policies disrupt global supply chains, leading to inefficiencies and ultimately harming overall economic growth. Instead, policymakers should embrace cooperation and integration to strengthen global value chains and promote shared prosperity.