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Diversifying Canadian trade: Mapping competitive advantages to alternative export markets

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Abstract

The volatility of United States' trade policy has underscored Canada's vulnerability to tariff shocks and highlighted the imperative of export market diversification. This study develops two complementary cost-based indicators to identify products and destination markets where Canada holds a competitive edge: Cost-Based Comparative Advantage (CCA) and Redirection Cost Advantage (RDA). Using product-level data for the top ten Canadian exports to the United States, we compute CCA and RDA for a set of alternative markets, employing UN Trade and Development's Trade and Transport data for product value and transportation costs. Our findings reveal a set of products and destination markets where Canadian exporters could reallocate shipments at lower cost than incumbent suppliers, thus informing policy strategies aimed at bolstering resilience. The dual-indicator approach advances the comparative advantage literature by integrating redirection costs, offering a practical tool for policymakers and firms to navigate an era of heightened trade uncertainty.

Keywords: trade diversification; comparative advantage; cost indicators; Canada; tariffs

Introduction

Canada's export performance has long been closely linked to developments in the United States market, rendering it susceptible to fluctuations in U.S. trade policy. Recent tariff measures threaten sectors with high bilateral exposure, prompting calls for a systematic exploration of alternative destinations. While the classic concept of Revealed Comparative Advantage (Balassa, 1965) provides a foundation for assessing export competitiveness, it does not explicitly account for the costs of redirecting shipments from one destination to another. This study introduces a redirection dimension to comparative advantage, developing two cost-based metrics—Cost-Based Comparative Advantage (CCA) and Redirection Cost Advantage (RDA)—to map Canadian products to markets where they can compete on a cost basis against incumbent suppliers. By applying this dual framework, we aim to furnish evidence to support policy decisions and firm strategies seeking to reduce overreliance on the U.S. market.

The two proposed metrics address complementary dimensions of export competitiveness and thus offer distinct but synergistic insights for both firms and policymakers. First, the Cost-Based Comparative Advantage indicator refines the traditional Balassa index by anchoring competitiveness in observable price differentials net of transportation charges. Whereas Balassa's (1965) revealed comparative advantage captures export share patterns, it remains agnostic to the underlying cost structure that firms actually face. By explicitly quantifying the gap between foreign import costs and Canada's delivered export prices, the Cost-Based Comparative Advantage measure isolates the role of unit costs—both production and logistics—in shaping market entry prospects. This focus on cost differentials renders the indicator immediately actionable for exporters seeking to calibrate pricing strategies or identify markets where their cost base confers a genuine edge (Balassa, 1965; Lall & Weiss, 2003).

Second, the Redirection Cost Advantage metric embeds the reality of trade rerouting under policy shocks into the comparative framework. Empirical studies of trade rerouting in response to sanctions or tariff escalations underscore that the feasibility of market switching hinges critically on the incremental costs of redirecting shipments, including alternative routing, customs procedures, and contractual adjustments (Bown & Crowley, 2013). By comparing the net cost of diverting exports from the United States to alternative destinations against incumbent suppliers' average import prices, the Redirection Cost Advantage indicator captures the real-world frictions that firms encounter when reallocating trade flows. This enables a more nuanced assessment of diversification opportunities than static measures alone (Limao & Venables, 2001; Bown & Crowley, 2013).

Together, these measures furnish a holistic diagnostic toolkit. The Cost-Based Comparative Advantage metric identifies markets where Canada's fundamental cost position is robust, while the Redirection Cost Advantage highlights where rerouting is economically viable under adverse trade conditions. In combination, they allow for prioritization of export diversification strategies that reconcile both cost competitiveness and rerouting feasibility. This dual perspective is essential for designing policy interventions—such as targeted export support or infrastructure investments—that enhance resilience to tariff volatility and strengthen Canada's integration into diversified global value chains.

Literature Review

The notion of comparative advantage has traditionally been operationalized through indices such as the Balassa RCA, which compares a country's export share in a given product to its global average share (Balassa, 1965). Extensions of this concept have incorporated quality differentiation and dynamic effects (Lall & Weiss, 2003; Greenaway & Milner, 1999), yet few studies have formalized the cost implications of redirecting trade flows once existing relationships are disrupted. Recent work on trade rerouting following sanctions and non-tariff barriers suggests that transportation and logistical costs critically shape the feasibility of market switching (Bown & Crowley, 2013). The present study contributes to this literature by embedding redirection costs directly into a comparative advantage framework.

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Methodology

We define two indicators for product i and destination j. The first, Cost-Based Comparative Advantage (CCA), measures Canada's cost competitiveness relative to the weighted average import cost in j, excluding Canadian suppliers:

$$CCA_{i,j} = P_{i,j}^{\text{import},-C} - (P_{i,j}^{\text{export}} + C_{i,j}^{\text{trans}}), \qquad (1)$$

where $P_{i,j}^{\text{import},-C}$ denotes the weighted average price paid by country j to all suppliers other than Canada, $P_{i,j}^{\text{export}}$ is Canada's average export price of product i to j, and $C_{i,j}^{\text{trans}}$ is the transportation cost from Canada to j.

The second indicator, Redirection Cost Advantage (RDA), captures the net cost benefit of redirecting shipments initially destined for the United States to market j:

$$\mathrm{RDA}_{i,j} = P_{i,j}^{\mathrm{import}} - \left(P_{i,\mathrm{US}}^{\mathrm{export}} - C_{i,\mathrm{US}}^{\mathrm{trans}} + C_{i,j}^{\mathrm{trans}}\right),$$

where $P_{i,\text{US}}^{\text{export}}$ and $C_{i,\text{US}}^{\text{trans}}$ denote Canada's export price and transportation cost to the United States, respectively, and $P_{i,j}^{\text{import}}$ is the average price paid by j to all suppliers.

Data and Empirical Implementation

The empirical analysis focuses on the top 10 Canadian products exported to the United States during 2021. We derive product value and transportation cost data from the UN Trade and Development's Trade and Transport dataset. This data is shaped into product-destination pairs to calculate CCA and RDA, identifying those with positive values that signal potential cost-competitive entry or redirection opportunities.

Findings and Limitations

Preliminary results indicate that several mineral products and intermediate manufactured products exhibit positive CCA and RDA values in European and Asian markets. For instance, Canadian unwrought aluminium demonstrates both cost and redirection advantages in France and Turkey, suggesting that these markets offer lower effective entry costs than incumbent suppliers. In contrast, aircrafts show fewer redirection opportunities, reflecting entrenched supply chains and higher transportation costs. These results highlight several distinct patterns: some products are well positioned to compete on cost in new markets, while others may require targeted logistical or quality enhancements.

This analysis treats products as homogeneous across destinations and does not account for vertical differentiation or quality grades. Furthermore, transportation costs are modelled as averages and may not capture firm-level contract efficiencies. Future research could integrate firm-level data to refine cost estimates and incorporate non-tariff barriers that affect market entry.

Conclusion

By augmenting traditional comparative advantage metrics with a redirection cost perspective, this study offers a practical framework for identifying alternative export markets for Canadian goods. The CCA and RDA indicators enable policymakers and firms to prioritize diversification efforts where they are most likely to be cost-effective. As trade policy uncertainty persists, such tools will be essential for building resilient export strategies.

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