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Canada's Productivity Challenge:

The Hidden Costs of Resource Abundance and U.S. Dependence

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Canada's Productivity Challenge: The Hidden Costs of Resource Abundance and U.S. Dependence

Julien Martin

EXECUTIVE SUMMARY

Canada's labor productivity growth has lagged 19 percentage points behind the United States between 2001 and 2021. This policy brief reveals how Canada's apparent economic strengths—abundant natural resources and privileged U.S. market access—may paradoxically constrain productivity growth.

The Canadian economy remains highly specialized: 55 per cent of exports are resource-based, 75 per cent are directed to the U.S., and energy efficiency lags behind other OECD countries due to persistently low energy costs. These dynamics limit opportunities for complex product development, dampen maritime and trade infrastructure investment, and reduce incentives for efficiency-enhancing innovation.

To close the productivity gap, Canada should foster production of more complex goods in sectors adjacent to existing strengths, while implementing mixed incentives and scheduled taxation to accelerate adoption of energy-efficient technologies. Improving existing transport infrastructure will be key to expanding international trade, and targeted financial assistance can sustain private investment despite ongoing trade policy uncertainty.

INTRODUCTION

Productivity growth in Canada is lagging behind that of the United States and other advanced economies. Between 2001 and 2021, labour productivity increased by 19 percentage points less in Canada than in the United States (Gu and Willox, 2023), coinciding with a decline in investment per worker (Gu, 2024). A lack of competition, along with constraints such as a heavy regulatory burden and interprovincial trade costs, is frequently cited to explain the productivity lag of Canadian firms (Rogers, 2024).

This Policy Brief proposes a different perspective: while abundant natural resources and privileged access to the U.S. market are often seen as key economic strengths for Canada, we examine how these very advantages may also act as constraints on productivity growth.

Specifically, we explore how resource abundance and U.S. market access interact with productivity dynamics in the context of international trade—a key element of Canada’s economy, where the trade-to-GDP ratio is approximately 67 per cent (Global Affairs Canada, 2024). We argue that these forms of abundance have encouraged Canadian firms to specialize in low-complexity products, reducing the scope for innovation. In addition, they may have dampened investment in trade infrastructure and discouraged firms from pursuing more productive opportunities beyond the U.S. market.

To be clear, this is not to suggest that abundant resources and U.S. proximity are inherently harmful, nor to dismiss the impact of regulation or weak competition. Rather, we aim to highlight how these advantages may generate unintended adverse effects on investment and innovation—and, by extension, on productivity growth. Based on these observations, we propose several policy directions governments in Canada could pursue to enhance productivity.

CANADA’S SPECIALIZATION IN RESOURCE-BASED, LOW-COMPLEXITY PRODUCTS

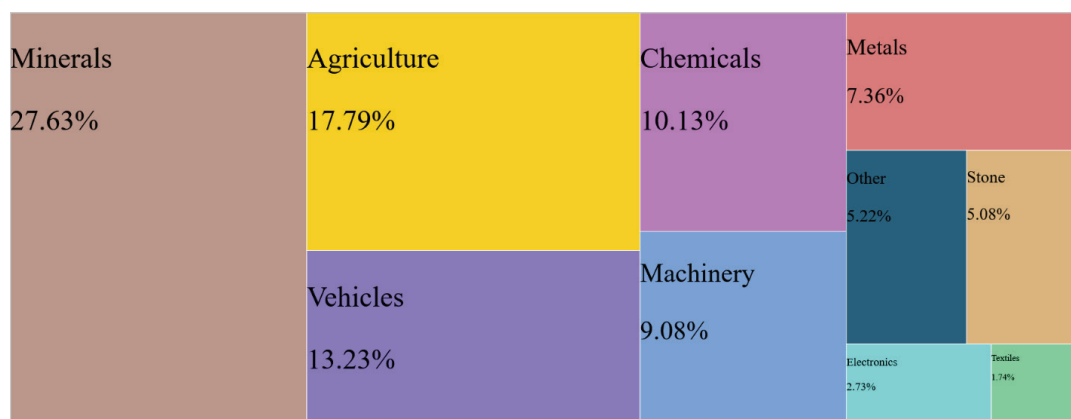
Canadian exports are highly specialized in resource-based products. Figure 1 shows the sectoral composition of Canadian exports. Canadian exports rely heavily on natural resources, with resource-based products—minerals, agricultural goods, metals, and stones—accounting for over 55 per cent of total exports. Petroleum oils alone makes up 20 per cent of exports. The rest is primarily composed of vehicles (13 per cent), chemicals (10 per cent), and machinery (9 per cent).

The notion that abundant resources may have adverse effects on a country’s economy is well documented in the literature (Sachs and Warners, 2001).¹ We emphasize one channel: the specialization in resource-based products is done at the expense of a specialization in more complex products. To gauge the level of complexity of Canadian exports, we use an indicator of economic complexity developed by Hidalgo and Hausmann (2009). It reflects the amount of knowledge that is embedded in the productive structure of an economy (Hausmann et al., 2014).²

¹ The Dutch disease mechanism states a rise in commodity prices leads to an exchange rate appreciation that hurts manufacturing. More directly related to productivity, Gylfason (2001) shows natural resources limit investment in education. Mehlum et al (2006) suggest that income raises in resource abundant countries with high-quality institutions. However, they do not discuss the implications in terms of productivity. Glaeser et al. (2015) show that coal mines dampen entrepreneurship and growth in neighboring regions.

² For example, among the most complex products are machine tools for working metal or metal carbide, instruments and appliances for physical or chemical analysis, and appliances based on the use of X-rays. Among the least complex products are raw cotton, tin ores and concentrates, and cocoa beans (Hausmann et al., 2014, Information Box 2.1).

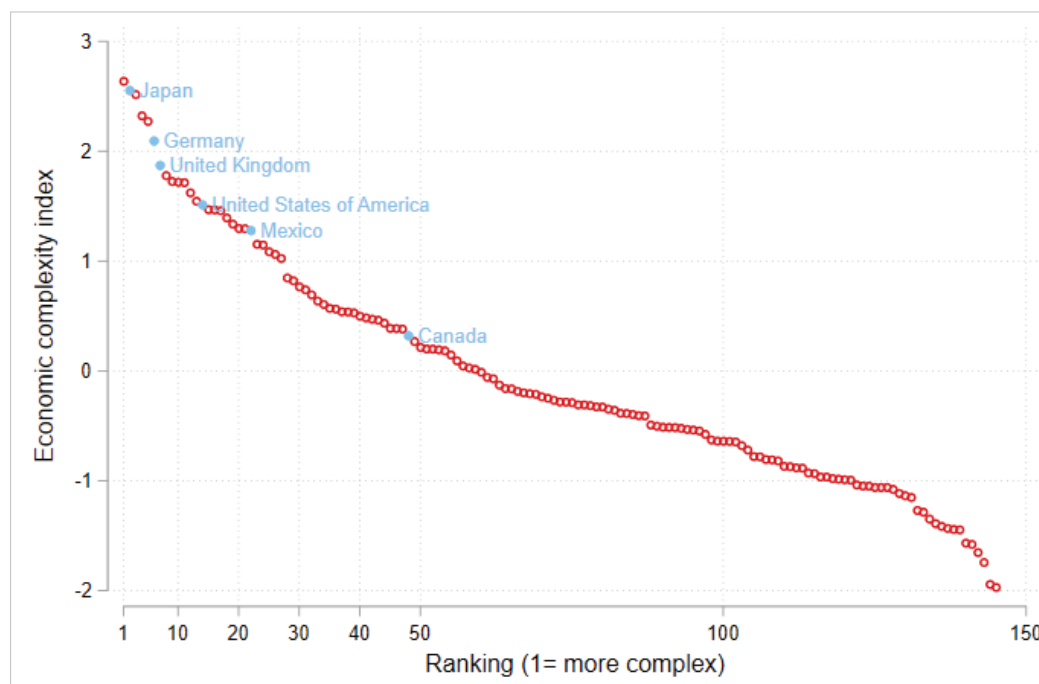
Figure 1. Composition of Canadian exports in 2023



Source: [Atlas of Economic Complexity](#) Each rectangle indicates the contributions of sectors in the exports of Canada in 2023. Services are excluded.

Figure 2 displays the ranking of countries according to their economic complexity. Among the countries exporting the most complex products are Japan, Germany, the United Kingdom and the United States. Canada ranks 48th, significantly behind the leading nations. The specialisation of Canada in resource-based products clearly explains part of this ranking. However, it is worth noting that even within resource-based products, there exists differences in the level of complexity.³ In contrast, most of Canada's imports are in complex products such as machinery and electronic products.

Figure 2. Ranking countries based on their level of economic complexity



Source: Author's visualization using the Economic Complexity Index data from the [Atlas of Economic Complexity](#). Each dot is a country. A higher score indicates greater complexity of exports.

³ For instance, refined petroleum products are more complex than crude oil. Canada exported eight times more crude oil than refined petroleum products in 2023.

A large number of academic studies have shown that complexity matters for growth: specializing in more complex products offer more growth prospects than less complex products.⁴ The abundance of resources in Canada generates sizable export revenues and provides cheap raw materials to Canadian firms, but it may hinder innovation and growth by limiting specialization in more complex products.

Furthermore, resource abundance fosters Canada's low energy prices (low trade costs on petroleum products, and cheap hydroelectric power), which may help explain its lower levels of energy efficiency with end-effects on productivity. Recent evidence suggests that firms respond to higher energy prices by improving energy efficiency (Fontagné et al., 2024). A portion of the resource-based products produced in Canada consists of energy. This provides Canadian firms with access to low energy prices. While low energy costs are a competitive advantage, they may also reduce the incentive for firms to innovate and improve energy efficiency, an important component of productivity.

Canada's energy efficiency, measured as the ratio of total energy supply to GDP, stands at 6.9 megajoule (MJ) per dollar, significantly higher than the OECD average of 3.7 MJ per dollar. Canada ranks poorly in energy efficiency in manufacturing, agriculture, and investment in research and development (R&D). Part of this gap can be explained by differences in sectoral composition. However, even in energy-intensive industries, Canada tends to perform worse than other OECD countries. For example, Canadian wood pulp mills—among the most energy-intensive industries—are less energy efficient than those in Scandinavia (Klugman et al., 2006). Similarly, Canada has abundant water resources. This abundance likely explains why its agriculture sector is not as water-efficient (measured by the value-added of production per cubic meters of water) as countries such as Brazil, Australia or the Netherlands.⁵

CANADA'S DEPENDENCE ON THE U.S. MARKET

Canada also exhibits a high degree of geographical specialization in trade. The United States is by far its most significant trading partner, accounting for approximately 75 per cent of Canadian exports. In contrast, China and the European Union each represent only about six per cent of Canadian exports. No other developed country displays such a high level of trade dependence on a single-partner economy.

This dependence aligns with the gravity theory of international trade, which posits that trade flows are positively correlated with the economic size of trading partners and negatively correlated with the distance between them. Canada shares a 6,000-kilometre border with the United States, the world's largest economy, making this strong trade relationship both geographically and economically rational. However, this proximity and American demand for natural resources have reinforced Canada's specialization in resource-based exports.

Canada's dependence on the United States is also evident on imports. More than 55 per cent of goods imported into Canada are produced in the United States. Beyond production dependence, Canada is also logistically reliant: approximately 20 per cent of Canadian imports originate from other countries but transit through the United States and enter Canada via the U.S.-Canada border. This implies that 75 per cent of Canadian imports depend on the U.S. (Martin and Mayneris, 2022).

⁴ See among others: Hausmann et al. (2007), Hidalgo and Hausmann (2019), Poncet et al. (2013), Atkin et al. (2024).

⁵ Source: UN FAO AQUASTA reproduced in <https://www.fcc-fac.ca/en/knowledge/economics/water-efficiency-canadian-agriculture>

The recent trade tensions with the United States have intensified the efforts of Canadian governments to diversify trade partnerships beyond the United States. Geographically, diversification implies a greater reliance on maritime transport. However, Canada's current logistics infrastructure is insufficient to support a rapid shift (National Supply Chain Task Force, 2022).

Access to the U.S. market has likely influenced Canada's investments in logistics infrastructure. Despite having the longest coastline in the world—bordering three oceans—Canada is not considered a maritime power, and the investment in trade infrastructure has not been a priority. Indeed, Canadian ports are relatively inefficient compared to their international counterparts. The Port Liner Shipping Connectivity Index developed UNCTAD ranks all Canadian ports beyond the 100th rank, far behind Shanghai, Singapore, Rotterdam, Antwerp or Hamburg.⁶ Similarly, the Container Port Performance Index of 2023, ranks Canadian ports beyond the 100th rank.⁷

The under-development of maritime infrastructures partly contributes to Canada's dependence on the U.S., and it limits business opportunities outside of the U.S. both in terms of buyers and suppliers. These missing trade relationships are potential missing vectors of knowledge diffusion and innovation.

RECOMMENDATIONS

Based on these observations, we make the following recommendations.

Investing in the development of high-complexity products. The production of high-complexity products is associated with greater potential for innovation and productivity growth. Of course, such development must be integrated into Canada's broader economic environment.

One promising direction for this upgrading is directly related to natural resources. On the one hand, Canada could promote the development of more complex products derived from its raw materials. For example, increasing the domestic production of refined petroleum products—which have a higher market value than crude oil—would reduce Eastern Canada's dependence on imported refined fuels and facilitate export diversification, since refined products are less constrained by fixed infrastructure such as pipelines. On the other hand, Canada could support the development of machinery used in resource extraction and energy production. This would reduce the country's reliance on imported capital goods while fostering the domestic production of complex technologies.

Another direction is the development of other complex products and services. Encouraging such development would stimulate R&D as well as investment. It would also help Canadian firms better withstand international competition and expand into new markets, contributing to the diversification of Canadian exports. To support this innovation, we recommend the federal and provincial governments rely more on direct subsidies—and less on tax credits—to better target policy interventions (see Martin et al., 2024). The sectors to target should be related to existing Canadian capabilities and product space. Sectors close to existing capabilities include medical instruments and instruments for chemical analysis, various chemical products, or different parts of machineries.⁸

⁶ Source: <https://unctadstat.unctad.org/datacentre/reportInfo/US.PLSCI> .

⁷ Source: <https://documents1.worldbank.org/curated/en/099060324114539683/pdf/P175833-38923075-0337-4387-be64-a5ea7b90e0e6.pdf> .

⁸ See <https://atlas.hks.harvard.edu/explore/productspace?exporter=country-124> .

Trading-off low energy prices and high energy efficiency. Low energy prices offer a competitive advantage for Canadian firms but also reduce the incentive to invest in energy-efficient technologies. Improving energy efficiency would clearly contribute to productivity growth. While taxing energy would be a straightforward way to encourage such investment, it would impose high short-term costs on firms—something particularly harmful in the current economic context. A more balanced approach would be to offer a mix of positive incentives—such as tax credits or subsidies—for the adoption of energy-efficient technologies, along with a clearly defined schedule for taxing low-efficiency firms. This taxation could begin two to three years after the policy is announced, providing a predictable regulatory environment and giving firms time to adapt their production technologies.

Investing in trade infrastructure. The efficiency of the transport sector is a key component of a country's overall productivity (Coşar et al., 2024). In Canada, trade infrastructure is currently not developed enough to support the goal of diversifying trade away from the United States. Investment in trade infrastructure—particularly maritime infrastructure—is essential to enhance both the productivity and resilience of the Canadian economy.

It is important to recognize that investment in trade infrastructure should not focus exclusively on building new “greenfield” projects. For instance, Canada's long coastline along seas and rivers does create opportunities for new port facilities, as illustrated by the planned expansion of the Port of Montreal in Contrecoeur, about 30 kilometres downstream from the current port. While such initiatives can be justified, they should not overshadow the potential gains from enhancing the efficiency of existing infrastructure. The National Supply Chain Task Force (2022) has emphasized the importance of improving current assets through operational enhancements. In addition, better dialogue with labor unions—through social innovation—can also contribute to more effective use of existing infrastructure.

More broadly, efficiency gains in transport infrastructure through robotization, digitalization, artificial intelligence, and other technologies are particularly important considering the current bottlenecks in Canada's construction sector, which often lead to long delays and extremely high costs for infrastructure projects across most provinces.

Investing despite uncertainty. The recommendations focus on investment in the development of new, high-complexity products and services; in the adoption of energy-efficient technologies; and in trade infrastructure. Many of these investments should be undertaken by Canadian enterprises. However, such investments have largely been absent over the past decade—partly, we argue, due to Canada's abundance of natural resources and privileged access to the U.S. market. Without targeted action, the current uncertainty stemming from a second Trump presidency may further discourage investment by Canadian firms, as uncertainty is known to delay investment in capital goods, innovation, and trade relationships (Bernanke, 1983; Bloom, 2009; Handley & Limão, 2017; Martin et al., 2023). Policies must therefore support strategic investment despite uncertainty. This includes financial supports by the different orders of government, coordination of strategic investments and support programs between federal and provincial governments. As most of the current uncertainty is driven by U.S. trade policy, one could also imagine automatic support for firms making such capital investments if tariffs increase above a certain threshold.

REFERENCES

- Atkin, D., Costinot, A., & Fukui, M. (2024). Globalization and the ladder of development: Pushed to the top or held at the bottom? *The Review of Economic Studies*, forthcoming.
- Bernanke, B. S. (1983). Irreversibility, uncertainty, and cyclical investment. *The Quarterly Journal of Economics*, 98(1), 85-106. <https://doi.org/10.2307/1885568>
- Bloom, N. (2009). The impact of uncertainty shocks. *Econometrica*, 77(3), 623-685. <https://doi.org/10.3982/ECTA6248>
- Coşar, A. K., Osotimehin, S., & Popov, L. (2024). *The long-run effects of transportation productivity on the US economy* (No. w33248). National Bureau of Economic Research.
- Fontagné, L., Martin, P., & Orefice, G. (2024). The many channels of firm's adjustment to energy shocks: Evidence from France. *Economic Policy*, 39(117), 5-43. <https://doi.org/10.1093/epolic/eiae011>
- Glaeser, E. L., Kerr, S. P., & Kerr, W. R. (2015). Entrepreneurship and urban growth: An empirical assessment with historical mines. *The Review of Economics and Statistics*, 97(2), 498-520.
- Global Affairs Canada. (2024). *Canada's state of trade 2024: Supply chains*. Office of the Chief Economist. <https://international.canada.ca/en/global-affairs/corporate/transparency/reports-publications/chief-economist/state-trade/2024>
- Gu, W. (2024). *Investment slowdown in Canada after the mid-2000s: The role of competition and intangibles* (Analytical Studies Branch Research Paper Series, No. 474). Statistics Canada. <https://doi.org/10.25318/11f0019m2024001-eng>
- Gu, W., & Willox, M. (2023). The post-2001 productivity growth divergence between Canada and the United States: The role of the information and cultural services industry. *Economic and Social Reports*, 3(12). <https://doi.org/10.25318/36280001202301200006-eng>
- Handley, K., & Limão, N. (2017). Policy uncertainty, trade, and welfare: Theory and evidence for China and the United States. *American Economic Review*, 107(9), 2731-2783. <https://doi.org/10.1257/aer.20141665>
- Hausmann, R., Hwang, J., & Rodrik, D. (2007). What you export matters. *Journal of Economic Growth*, 12(1), 1-25. <https://doi.org/10.1007/s10887-006-9009-4>
- Hausmann, R., Hidalgo, C. A., Bustos, S., Coscia, M., Chung, S., Jimenez, J., ... & Yildirim, M. A. (2014). *The atlas of economic complexity: Mapping paths to prosperity*. MIT Press.
- Hidalgo, C. A., & Hausmann, R. (2009). The building blocks of economic complexity. *Proceedings of the National Academy of Sciences*, 106(26), 10570-10575.
- Klugman, S., Karlsson, M., & Moshfegh, B. (2007). A Scandinavian chemical wood-pulp mill. Part 2: International and model mills comparison. *Applied Energy*, 84(3), 340-350. <https://doi.org/10.1016/j.apenergy.2006.07.004>
- Martin, J., & Mayneris, F. (2022). The factory and the hub: An anatomy of Canada's import dependence on the US. *Canadian Public Policy*, 48(3), 375-394. <https://doi.org/10.3138/cpp.2021-072>
- Martin, J., Mayneris, F., Mohnen, P., & Aklobo, S. (2024). *Efficacité des politiques de soutien aux entreprises pour la recherche et développement* (Rapport de projet 2024RP-10). CIRANO. <https://doi.org/10.54932/ROFA3061>

- Martin, J., Méjean, I., & Parenti, M. (2023). Relationship stickiness, international trade, and economic uncertainty. *The Review of Economics and Statistics*, 105(4), 1–45. https://doi.org/10.1162/rest_a_01396
- Mehlum, H., Moene, K., & Torvik, R. (2006). Institutions and the resource curse. *The Economic Journal*, 116(508), 1–20. <https://doi.org/10.1111/j.1468-0297.2006.01045.x>
- National Supply Chain Task Force. (2022). *Action. Collaboration. Transformation: Final report of the National Supply Chain Task Force*. Transport Canada. https://tc.canada.ca/sites/default/files/2022-10/supply-chain-task-force-report_2022.pdf
- Poncet, S., & Starosta de Waldemar, F. (2013). Complexité économique et croissance: Une application au cas chinois. *Revue économique*, 64(3), 495–503.
- Rogers, C. (2024, March 26). Time to break the glass: Fixing Canada's productivity problem [Speech]. *Bank of Canada*. <https://www.bankofcanada.ca/2024/03/time-to-break-the-glass-fixing-canadas-productivity-problem/>

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