

# IMPLICATIONS OF AN INFRASTRUCTURE CORRIDOR FOR ALBERTA'S ECONOMY

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## SUMMARY

Improving access to domestic and international markets can create large economic benefits. Multimodal infrastructure corridors of road, rail, utilities and communications can improve accessibility by reducing interprovincial and international trade costs. Depending on the geographical area they serve and the modes of transport and types of connections they promote, infrastructure corridors can create trade-offs and synergies between different kinds of economic, social, and environmental outcomes. Yet the implied effects can vary across different regions, population segments and industries. A complete review of a proposed infrastructure corridor package involves a rigorous analysis of all of these potential effects. In this paper, we focus more specifically on quantifying potential gains from reductions in trade costs on Alberta's economy and identify the importance of improved access to lower cost transportation options like rail for select commodities. We find that lowering trade costs substantially increases Alberta's real GDP through its effect on international and interprovincial trade flows.

Although interprovincial tariffs on domestic goods are forbidden by the Canadian Constitution, the economic effect of internal non-tariff trade barriers is substantial. Albrecht and Tombe (2016) show that eliminating these interprovincial trade costs would increase Canada's GDP between three to seven per cent. These barriers represent additional costs on Canadian firms and adversely affect their competitiveness in domestic and international markets. High interprovincial trade costs may also pose an additional barrier to entry for foreign firms otherwise willing to enter the Canadian market. As a result of this, Canadian firms end up producing at a less efficient scale and pass the cost of these inefficiencies to consumers. Interprovincial trade costs therefore hurt both producers and consumers.

Gains from improved infrastructure are also amplified by the interconnected nature of industries. Output of one industry is often an input for another industry. Shipments cross provincial and national borders as part of these supply-chain relationships which allow for more efficient production but at the same time create additional trade costs on producers. Infrastructure corridors provide one option to lower these trade costs by increasing transportation capacity, creating savings in travel time and distance, creating better quality physical transport infrastructure, simplifying the regulatory and legislative differences across provinces and territories, and improving access to information, to name a few.

To quantify the potential effect of increased transportation infrastructure on trade costs, we combine rich data on interprovincial trade flows and shipment-level information on volumes, values, and transportation costs by mode. We empirically estimate the potential for increased rail shipment capacity on shipment costs between various internal trade pairs within Canada. Two key results stand out. First, we find that while distance is an important factor, a higher share of shipments by rail is associated with markedly lower trade costs. Specifically, we find a 10 percentage point increase in the share of value shipped by rail is associated with a 3.2 per cent lower aggregate cost of trade after controlling for commodity, source, and destination of shipments. Second, we also find important differences in the relevance of rail across commodities. We find larger trade costs reductions for coal, mineral products, and fuel oils. The focus on rail is an important one for Alberta since coastal or canal shipping is not a feasible alternative.

As a natural next step, we then evaluate the potential gains to Alberta's economy from increased access to internal and international markets that improved infrastructure might provide. We find that lowering trade costs substantially increases Alberta's real GDP through its effect on international and interprovincial trade flows, in both the short run and the long run. The results show that, in the short run, lower trade costs by one per cent increases real GDP by roughly 0.8 per cent and lower trade costs by five per cent increases real GDP by roughly 4.4 per cent. These correspond to approximately \$3 billion to \$15 billion per year in additional economic activity in Alberta. We find larger gains in the long-run, equivalent to roughly a one per cent increase in real GDP for each one per cent reduction in trade costs. Gains from lower trade costs come primarily through lower cost access to imported inputs and final goods. There are also gains from increased demand by purchases outside Alberta on goods produced by Albertans. This increases real incomes and productivity, which is captured by the increase in real GDP.

The combined results of lower import costs and an increase in GDP imply an about six per cent long-run increase in real personal income, equal to an extra \$6,423 annually for the median Alberta family. This is a level effect and represents a persistent increase, not a one-time bump. That is, GDP is permanently higher and by extension, annual personal incomes are also permanently higher. Although we don't explore the infrastructure investment options for lowering the trade costs by these levels, the corresponding impacts on real GDP of doing so indicate how high the costs of expanding infrastructure could be while still yielding net benefits to Alberta.

An infrastructure corridor could facilitate the expansion of Canada's rail shipment capacity. While many transportation modes could expand within such a corridor — including roads, pipelines, transmission lines and so on — our data allow us to specifically quantify the extent to which Alberta's economy could gain from more access to lower cost shipment options like rail. Rail shipment costs are lower than truck transportation when distances are sufficiently long. We find that each one percentage point increase in the share of non-air trade sent by rail is associated with a 0.32 per cent lower trade cost. This implies that if the share shipped by rail increased by 10 percentage points, then trade costs to and from Alberta would, on average, decline by 3.2 per cent.

Expanding the rail capacity is particularly valuable for Alberta, since increasing the share of exports shipped by rail by ten 10 percentage points may increase Alberta's GDP by nearly 1.5 per cent in the short-run and over 2.5 per cent in the long-run — equivalent to over \$9 billion per year in economic activity. This is a relatively large increase in economic productivity — equivalent to roughly \$4,500 per household, on average, per year — and, in addition, it abstracts from other potential sources of gains, such as increased labour migration into the province.

The combined increase in GDP and lower import costs from increased rail penetration imply an increase in real personal income. It is more modest here at approximately 3.3 per cent (rather than six per cent), but still very significant and equal to an extra \$3,419 annually for the median Alberta family. As before, it is important to note that this is a level effect and represents a persistent increase and permanently higher annual GDP and annual personal incomes.

Our analysis is only a first step and explores only one potential effect of expanding infrastructure capacity. Overall, the potential for positive economic effects from multi-modal infrastructure corridors is compelling and warrants additional investigation. Governments can play a role by supporting expanded research activities into the feasibility and potential benefits of dedicated multimodal infrastructure corridors in Canada. In addition, though we made progress using detailed shipment-level data, there are shortcomings in coverage and detail that constrain the scope for potential research. Governments should therefore increase the collection and reporting of relevant data on internal trade to facilitate research into the costs producers and consumers face, and the potential gains from internal trade liberalization. Despite the value of expanding research capacity, our analysis points clearly towards the potential gains from internal trade liberalization. Expanded transportation infrastructure capacity can lower trade costs, and therefore governments hoping to expand internal trade should explore means of increasing such capacity, especially the possibility of increased rail shipment capacity.