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Economic Insights

How Thick Is the Border?

by Mark Brown
Economic Analysis Division
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How Thick Is the Border?

By Mark Brown

This article in the Economic Insights series examines how much crossing the border adds to the cost of moving goods by truck. It quantifies the cost of border delays, border-related compliance costs, and other costs associated with moving goods to and from Canada’s main trading partner. It is based on the paper Trucking Across the Border: The Relative Cost of Cross-border and Domestic Trucking, 2004 to 2009, by William Anderson and Mark Brown.

Border-related costs can affect the ability of Canadian businesses to compete in the U.S. market. Most of the trade between Canada and the United States is carried by truck. This note provides a first-ever estimate of the magnitude and sources of these costs.

Ad valorem trucking costs

Chart 1 presents ad valorem trucking costs—the price charged to shippers measured as a percentage of the value of the goods being shipped—for domestic shipments as well as exports and imports. For domestic trade, ad valorem trucking costs ranged between 2.1% and 2.6% over the 2004-to-2009 period. This level was below that of exports and imports. Ad valorem rates for exports fell from 3.6% to 2.9%, while rates for imports rose from 2.6% to 3.5%.

Trucking costs tariff-equivalent

Ad valorem rates depend on the distance over which the goods are shipped and the value of the goods being shipped, which vary between domestic and cross-border shipments. The ad valorem costs shown in Chart 1 are adjusted to take into account the differing commodity composition of domestic and cross-border trade and variation in the distance over which goods are shipped.

The difference between adjusted domestic and export and import ad valorem costs can be interpreted as a transportation-system-related tariff on cross-border trade. That is, it is the additional cost associated with moving goods to and from the U.S. that are passed on to purchasers of trucking services.

At the start of the 2004-to-2009 period, the tariff-equivalent was 0.9% on exports and 0.4% on imports. Over the period, the ad valorem tariff-equivalent on exports and imports followed different trends, reversing positions by the end of the period (see Chart 2).

While these tariff-equivalents may seem small, they represent a significant addition to overall transportation costs. For instance, in 2004, it cost 31% more to ship goods to the U.S. than would be the case if the same goods were shipped the same distance within Canada. In that year, it cost 18% more to import
goods from the U.S. than to ship domestically on an *ad valorem* basis. By the end of the period, this relationship had reversed. The reversal occurred when there was an increasing unbalance of truck-borne trade in favour of the U.S. In 2009, it cost 15% more to export but 28% more to import than to ship the same goods domestically.

**Line-haul versus fixed tariff-equivalent costs**

At issue is not only the magnitude of the additional costs of moving goods across the border, but also the sources of these additional costs: higher fixed costs and/or higher line-haul costs per shipment. Each speaks to different aspects of the regulatory environment that influences the cost of cross-border trade.

Delays at the border and other border compliance costs (e.g., participation in ‘trusted trader’ programs)\(^2\) add to the fixed costs per shipment incurred by trucking firms, which also include facilities cost, insurance, and terminal (loading and unloading) costs.

For exports, the fixed-cost component of the tariff-equivalent remains essentially the same over the period, at about 0.5% of the value of the goods shipped (Table 1). The majority of the *ad valorem* cost of crossing the border stems from fixed costs, which are associated with the cost of delays at the border and border regulation compliance costs.

For imports, the fixed-cost component was much smaller, reflecting both a lower level of fixed costs for imports and a higher value per shipment, at least early in the period (see Table 1). Fixed costs on imports rose over the period, however.

Line-haul costs vary with distance and include driver costs, fuel costs, and vehicle depreciation and maintenance. They also depend on whether a trucking firm is able to obtain a return load, or backhaul. If carriers are unable to find a backhaul, they may raise their rates for the fronthaul portion of the journey.

The odds of obtaining a backhaul depend on the balance of truck-borne trade. In 2004, the value of truck-borne trade between Canada and the United States was balanced, but by 2009 exports were only 79% of the value of imports.\(^3\) As a result, the problem of obtaining a backhaul may have switched if it is now easier to find loads back to Canada than loads to the U.S.

The odds of obtaining a backhaul are also influenced by regulations that prohibit Canadian-based drivers from transporting goods between two points in the U.S. (cabotage rights). Canadian firms are, therefore, unable to accept shipments between U.S. points along their route back to Canada, potentially increasing the unpaid (deadhead) portion of their journey home.

### Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Export Fixed</th>
<th>Export Line-Haul</th>
<th>Export Total</th>
<th>Import Fixed</th>
<th>Import Line-Haul</th>
<th>Import Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>0.49</td>
<td>0.40</td>
<td>0.89</td>
<td>0.11</td>
<td>0.29</td>
<td>0.40</td>
</tr>
<tr>
<td>2005</td>
<td>0.48</td>
<td>0.34</td>
<td>0.82</td>
<td>0.12</td>
<td>0.34</td>
<td>0.46</td>
</tr>
<tr>
<td>2006</td>
<td>0.56</td>
<td>0.26</td>
<td>0.81</td>
<td>0.18</td>
<td>0.48</td>
<td>0.66</td>
</tr>
<tr>
<td>2007</td>
<td>0.53</td>
<td>0.16</td>
<td>0.68</td>
<td>0.19</td>
<td>0.50</td>
<td>0.69</td>
</tr>
<tr>
<td>2008</td>
<td>0.48</td>
<td>0.01</td>
<td>0.49</td>
<td>0.21</td>
<td>0.53</td>
<td>0.75</td>
</tr>
<tr>
<td>2009</td>
<td>0.47</td>
<td>-0.07</td>
<td>0.40</td>
<td>0.24</td>
<td>0.57</td>
<td>0.80</td>
</tr>
</tbody>
</table>

\(^2\) Trusted-trader programs such as the U.S. Customs-Trade Partnership Against Terrorism (C-TPAT) exchange more rapid clearance at the border with participants agreeing to invest in facilities, equipment, and staff devoted to improved supply chain security.

The line-haul cost portion of the tariff-equivalent on exports to the U.S. is presented in Table 1. It declined throughout the period, such that by 2008 line-haul costs for exports and domestic shipments were essentially the same. For imports, the opposite occurred. Line-haul costs rose through the period. The divergent trends in line-haul costs per kilometre for exports and imports are consistent with a change in the trade balance where the ‘empty backhaul’ problem had switched from affecting primarily exports to imports. That is, carriers may have switched from charging higher rates on exports (because they are less likely to obtain a load back to Canada) to charging higher rates on imports (because they are less likely to obtain a load to the U.S.).

Conclusion

It costs more to ship goods by truck across the border than to ship the equivalent goods by truck domestically. Cross-border trade costs more because of higher fixed costs per shipment, which is consistent with the costs of border delays and border-related compliance costs being passed on from trucking firms to their customers. It also costs more because of higher line-haul costs, which have trended upwards for imports and downwards for exports as the balance of truck-borne trade has shifted in favour of the U.S.

This article in the Economic Insights series is based on Economic Analysis Division research on the impact of trade on the Canadian economy. For more information, please see:
