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Transborder Trucking: Institutional Barriers To Canada–U.S. Trade of Agricultural Goods

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INTRODUCTION

Freight costs have an important influence on patterns of exchange and industrial location. The effect of freight costs varies, however, with the ratio of the finished product's delivered price to the total transportation bill. For industries, such as agriculture, where freight costs are a relatively high proportion of the finished product value, transportation can provide a significant level of protection for domestic producers, or stand as a major barrier to export market development. The focus of this study is the importance of transport cost barriers to the trade of agricultural and food products between Canada and the United States.

Agricultural trade between Canada and the United States differs significantly from the profile of each country's trade with the rest of the world. Whereas grain dominates both countries' agricultural trade with third countries, it is relatively unimportant between Canada and the United States. Instead, Canada-U.S. agricultural trade is comprised of mainly processed and/or highly perishable items, such as livestock and meats, horticultural crops and canned or frozen foods.

Differences in the makeup of Canada-U.S. agricultural trade have had a profound effect on the means of transport used. While rail and water are the major modes of transportation used for exporting agricultural products to the rest of the world, trans-border trucking has emerged as the most important facilitator of trade between Canada and the United States. With the exception of fish, which may be delivered to U.S. destinations directly from fishing vessels, more than 90 percent of Canadian agricultural exports to the U.S. are presently transported by truck. Consequently, a study of transport related barriers to Canada-U.S. trade of agricultural products is for all intents and purposes an analysis of barriers associated with trans-border trucking.

Studies of freight rates in Canada and the U.S. have found significant differences between trans-border freight rates and domestic freight rates for equivalent shipping distances in either Canada or the U.S. (Munro; Skorogchod and Bergevin). Such differences tend to be reinforced by the disparities in the regulatory environment and enforcement practices in the two countries. Although transport regulations, such as operating authority or weight and dimension regulation seldom prohibit trade, they may add significantly to the cost of traded goods. For the products of agriculture, which are relatively sensitive to freight costs, the effects of transport related barriers to trade are much greater.

The paper begins with a brief synopsis of the main transport regulations and additional costs or charges associated with trans-border trucking of agricultural products. Following this descriptive summary, the results of a survey are presented which analyze the costs and importance of these various measures from the perspectives of Canadian and U.S. carriers which are active in trans-border trade. In the final section, a comparison of freight rates is used to estimate the protection created by these institutional factors for a range of commodities which are traded between Canada and the U.S.

The regulatory environment governing trans-border trucking is complex, overlapping and administered by various levels of government. It consists of legislative, regulatory, policy and procedural considerations which often act as obstacles to truckers from other jurisdictions as much as fulfilling their intended roles (Clayton and Sem).

In order to supplement the limited literature pertaining to trucking regulations, the next section is devoted to explaining the various regulations and other transport related barriers to trade which affect Canada-U.S. trans-border trucking. For purposes of exposition, these transport related barriers are grouped into somewhat arbitrary classifications that include regulations pertaining to vehicles, regulations relating to drivers, costs and practices associated with border crossings, and taxes and fees which affect the costs of trans-border traffic.

Vehicle Related Regulations

In general safety regulations in Canada and the U.S. are consistent. Where inconsistencies do arise, an operator from a foreign jurisdiction whose vehicle does not conform to local safety regulations has only two options, aside from compliance. The province or state in question may be avoided by refusing the load or interlining with another carrier for the necessary portion of the trip. Alternatively, the operator may proceed through the province or state in ignorance or defiance of the law.

Weight and dimension regulations, which are enforced at the state/province level, exhibit considerable variation. The main areas of discrepancy are the permitted width of trailers, the combined length of tractor and trailer, and the total gross vehicle weight. Also, but to a lesser extent, the permitted weights on specific axles is an area of inconsistency in regulation.

There are a number of different types of vehicle configurations in use across North American highways. Since the legally operable configurations vary among states and provinces, trucking firms tend to specialize in certain trailer types or configurations which are most suitable to their main routes. This tends to diminish rate competition between carriers in different geographic locations *or* countries with incompatible vehicle configuration legislation.

Vehicle licenses and insurance coverage are essential for operating on public highways. The total cost of truck licenses, and to some degree insurance, increases with the scope of operations. Licensing costs of operating in foreign jurisdictions are greatly reduced by reciprocal licensing agreements between provinces and states. For example, Manitoba currently has full and free reciprocity with 32 states. Thus, operators based in Manitoba with authority to operate in these reciprocal states are required to pay only a nominal ($10-$20) annual fee for license in each state. Alternatively, the cost of license for states without reciprocal licensing agreements may approach $1,000 per year.

Driver Related Regulations

U.S. Immigration regulations prohibit Canadian drivers from handling intra-U.S. shipments, while Canada has corresponding immigration rules that prohibit U.S. drivers from handling intra-Canadian shipments. Both countries also have customs regulations which place similar restrictions on equipment. As a result, carriers must either arrange trans-border movements in both directions or travel empty until crossing the border, at which time, a domestic shipment may be picked up. Clearly, the latter option carries a smaller economic penalty for U.S. carriers than for Canadian carriers. The major Canadian market are located within 100 miles of the international border which limits the potential empty miles for U.S. carriers. In contrast, the distribution of U.S. cities could leave a Canadian carrier stranded one thousand miles from the border without a load.

Costs and Practices Associated with Border Crossings

Trucking firms appear to be subject to increasing taxes and border crossing fees. Since 1986, the U.S. customs department has levied a $5.00 (U.S.) fee per truck for each crossing, which may alternatively be paid as a $100.00 (U.S.) annual fee.

The hours of inspection must be taken into consideration by carriers when scheduling pickup and departure times for exports of live animals and poultry products. Trucks that arrive at the border after regular office hours must pay a "callout" fee to have their loads inspected by Agriculture Canada veterinarians.

Certain agricultural products are subject to inspection by the U.S. Department of Agriculture, either at the point of destination or at a USDA inspection office enroute. In the case of meat, the entire shipment is unloaded and inspectors examine a random sample of cartons (known as a skip-lot). At this point, a random computer selection determines whether inspectors examine every carton in the shipment (known as a full-lot), a process which requires approximately six hours.

A shipment may be refused if the product is not sealed or preserved properly, or fails to meet quality standards. The quality may be unsatisfactory if there is too much fat or bone, the product is damaged or bruised, foreign matter such as hair is present, or if there are bones in supposedly boneless meat.

Shipments which fail the inspection must be reloaded and returned to the plant of origin. Even shipments which pass inspection are subject to added costs, since the carriers are required to await lab results before proceeding on their trip and often are delayed up to a day in the process.

Taxes and Fees Influencing Truck Transport

The U.S. congress passed a bill in 1987 which requires Canadian truckers to pay an annual highway use tax. The tax, known as the Heavy Vehicle Use Tax, applies to Canadian trucks that travel more than 5,000 miles per year in the United States. The threshold increases to 7,500 miles for carriers of agricultural products. U.S. carriers currently pay US$550 per truck per year. Canadian carriers are assessed 75 percent of the Heavy Metal Vehicle Use Tax, or $412.50 per truck per year.

Formal requirements imposed by the Interstate Commerce Commission (ICC) as well as individual states add considerably to the cost of motor carriers operations in the U.S. For example, Canadian carriers are required to maintain an address in each state for which they hold operating authority. Because of the limited number of U.S. terminals operated by Canadian carriers, this usually involves the services of professional associates in the various states who are referred to as resident agents. Although the duties performed by a resident agent may be minimal or nonexistent from one year to the next, the expense of their association becomes a part of the carrier's transport costs.

Fuel tax bonds are also required by individual states, the successful posting of which may constitute a major effort on the part of the carrier. Preparation and submission of the necessary forms involves insurance companies, brokers, and a resident agent, in addition to the administrative effort by the applying firm. To the consternation of Canadian applicants the forms may be returned for petty corrections on a repeated basis, thereby adding to the basic bonding rates which range upwards from US$300. Other taxes and fees applicable to transborder carriers are fuel tax remittance, vehicle trip fees and property taxes.

CARRIER VIEWS

The extent and importance of transport related barriers to agricultural trade were investigated using survey techniques and direct personal interviews. Trucking firms in both Canada and the U.S. were surveyed in order to obtain a balanced perspective of transport related barriers. In addition, trucking firms on both sides of the border were interviewed to gather information on the costs imposed by the myriad of regulations and other requirements affecting trans-border shipping. The number of firms surveyed, the number of respondents, percent response, and the percentage of total traffic made up by trans-border shipments is summarized in Table 1.

TABLE 1

Number of respondents, Percent Response and Percent of Total Traffic Made Up by Trans-border Shipment, by Country

Country	Number of Firms Surveyed	Number of Positive Responses	% Response	Respondents Average % Trans-Border Shipments
Canada	54	29	54	41.6
U.S.	175	64	37	18.7

Caveats

Before discussing the results of the survey, some limitations and qualifications should be made.

First, with minor exceptions, the survey includes only for-hire trucking firms that presently operate trans-border routes. This excludes several important groups, such as:

(1) Private trucking fleets, engaged in hauling a company's own product.
(2) Truckers who do not operate on trans-border routes because they lack the proper authorities. For example, U.S. carriers who wish to operate in Canada, but have either been deterred from applying for authorities, or had their requests denied.
(3) Truckers who have been discouraged by the regulatory and administrative burdens associated with trans-border trucking, and have ceased trans-border operations.

Second, the survey rate section of the report which examines freight rates, refers only to truckload shipments. Since agricultural products do not typically move in less than truck load (LTL) lots, the error in ignoring the LTL market is probably negligible. Nevertheless, the findings of this study may not be directly applicable to the LTL market, and should not be extended without further research.

Third, many of the carriers surveyed haul primarily exempt (or designated) agricultural commodities, which are not subject to the full range of regulatory forces applied to non-exempt commodities. Consequently, these results which are based on truckload shipments of agricultural commodities may under-estimate the transport-related barriers to trade of non-agricultural products.

Survey Results

Trucking firms were asked to rank the importance of various regulations, fees and other requirements imposed on trans-border traffic. These regulatory measures were divided into four categories, each of which contained three to five specific areas of regulation or fee assessment.

Within each of these categories, respondents were asked to rank the sub-categories in order of importance. The results are presented in Table 2 for Canadian respondents, and in Table 3 for U.S. respondents.

The ranking of the sub-areas within the four categories is nearly identical for the Canadian and U.S. respondents. For example, under vehicle related regulations, insurance costs are ranked most important in both countries, followed by licensing require-

TABLE 2

Importance of Regulations, Fees and Practices on Canada-U.S. Trans-border Traffic: Canadian Respondents (1 – Most Important)

Category	Area	Average Ranking	Modal Ranking
Vehicle Related Regulations	Insurance Costs	1.8	1
	Licensing Requirements	2.2	2
	Weights and Dimensions	2.8	2
	Safety Standards	3.9	5
	Configurations Restrictions	4.0	4
Taxes, Fees and other Charges	Taxes and other charges	1.7	1
	Operating Authorities	1.9	1
	Vehicle Trip Fees	2.2	3
Border Crossing Regulations	Inspections at Customs	1.6	1
	Hours of Customs Operations	1.7	2
	Lack of Bonded Warehouses	2.6	3
Driver Related Regulations	Hours of Work	1.6	1
	Driver Licensing	1.9	2
	Residence Requirements	2.0	3

ments, and so on. An interesting exception is the taxes and fees category, in which the first two subareas are reversed.

Despite the similarity of the Canadian and U.S. averages, the individual survey returns varied considerably. Each carrier is affected individually by the regulatory environment dending on the size of firm, geographic location, commodities hauled, etc. Regulations and practices which prove costly for certain carriers may be less important to others. This observation was reinforced by comments included in the survey returns, as well as by the comments made during the follow-up interviews. Nevertheless, the consistency of the average rankings do suggest the relative importance of these regulations in the industry.

Overall Importance of Four Major Categories

Carriers were asked to rank the four major areas of regulation in order of importance. The results for both Canadian and U.S. respondents are presented in Table 4.

For Canadian respondents, vehicle related regulations were ranked the most important, while this same area was ranked third by U.S. firms. This may be partially explained by the difference in weight, dimension, and configuration regulations in Canada vis-a-vis the U.S. On average, Canada has enjoyed somewhat more lenient regulations, particularly in Ontario. Although U.S. regulations have been relaxed in recent years, they are still more stringent in many jurisdictions than those in Canada.

Differences in insurance costs also help to explain the higher Canadian ranking. In general, the case of Canadian firms acquiring insurance protection for operation in the U.S. is a "small fish in the big pond" syndrome, which leads to costly insurance premiums. Conversely, the operation in Canada of U.S. firms was often viewed as a relatively minor addition to existing operations from an insurance protection point of view.

U.S. respondents ranked taxes and fees most important, which is partly a reflection of the cost and effort of acquiring operating authority in Canadian jurisdictions. Canadian firms, in ranking this area second, were most affected by the various user taxes assessed by U.S. jurisdictions. Of even greater importance however, will be the extension of the Heavy Vehicle Use Tax to Canadian trucks operating in the U.S. At the time of our survey, the bill

TABLE 3

Importance of Regulations and Other Cost Factors on U.S.-Canada Trans-border Traffic: U.S. Respondents (1 – Most Important)

Category	Area	Average Ranking	Model Ranking
Vehicle Related Regulations	Insurance Costs	1.79	1
	Licensing Requirements	2.25	2
	Weights and Dimensions	3.31	3
	Safety Standards	3.67	3
	Configurations Restrictions	3.96	5
Taxes, Fees and other Charges	Operating Authorities	1.77	1
	Taxes and Other Charges	1.96	1
	Vehicle Trip Fees	2.14	2
Border Crossing Regulations	Inspections at Customs	1.50	1
	Hours of Customs Operation	1.58	1
	Lack of Bonded Warehouses	2.88	3
Driver Related	Hours of Work	1.61	1
	Driver Licensing	2.07	2
	Residency Requirements	2.31	3

TABLE 4

Importance of the Four Major Categories of Regulation (1 – Most Important)

Category	average ranking: Canadian Firms	average ranking: U.S. Firms
Vehicle Related Regulations	1.85	2.56
Taxes, Fees & other charges	2.00	1.76
Border Crossing Regulations	2.73	2.13
Driver Related Regulations	3.40	3.43

proposing this extension was under debate in the U.S. Congress, but has subsequently been passed.

Border crossing regulations were ranked second by U.S. respondents and third by Canadian respondents. Comments by U.S. firms indicated an indifference on the part of Canadian brokerage houses to after-hours clearance, as well as an inability to clear customs around the clock at various border points. In general, the process of crossing the border appears to include a significant inconvenience factor for many firms, but was not particularly tangible in terms of added expense in most cases.

Driver related regulations were ranked last by both Canadian and U.S. respondents. Again, this area constitutes an inconvenience factor for certain firms in such areas as maintaining log books and acquiring proper licenses for Canadian drivers operating in the United States.

QUANTIFICATION OF INSTITUTIONAL BARRIERS

The survey results suggests that institutional barriers affecting trans-border transport are of considerable importance for most carriers. The magnitude of their importance, however, is not amenable to direct estimation. Individually, most institutional barriers have only minor effects on carrier operating costs. Although most carriers indicated that in aggregate regulations affected their costs, they underscored the difficulty of determining the extent for their own operations. Many of the regulatory requirements for trans-border shipping are jointly carried out by the staff that handle domestic requirements. Consequently few carriers can readily identify the actual costs incurred in operating trans-border.

The majority of carriers are affected by a unique combination of institutional barriers. This combination is determined by such factors as commodities hauled, geographical extent of operations, base jurisdiction, and types of equipment used. Thus, regulation and fees which are important to one carrier may be insignificant to others, and vice versa.

Certain institutional barriers are qualitative in nature, and from their perspective alone are nearly impossible to estimate accurately. For example, the effort expended to arrange loading and departure times to coincide with border crossing hours and customs inspections of agricultural products would be both difficult and impractical to measure. This type of inconvenience factor is not uncommon am ong carriers who deal with the various regulations and practices on a continual basis.

Institutional factors may be considered as "man-made" barriers to trade in contrast to the natural barrier to trade posed by actual transport costs (Conlon, Munro). Consequently, the aggregate effect of institutional barriers can be measured by separating transport costs into their natural and "man-made" elements.

The approach taken was to compare truckload rates for domestic and trans-border shipments, in Canada and the United States. To the extent that carriers accurately recover their costs on trans-border and domestic routes by the rates charged on those routes, the difference in these rates will approximate the difference in the costs of operating domestically versus trans-border; that is, the "man-made" barriers to trade.

Results of Using Rates to Approximate Institutional Barriers

Despite the potential weaknesses of using truckload rates as a first approximation to institutional barriers, excellent participation by survey respondents provided a solid base of data for analysis. Nearly 500 individual rates were compiled, approximately half from each of Canada and the U.S. In addition to the origin, destination and truckload rate, carriers were asked to indicate trailer type, and whether the route was a backhaul or fronthaul.

The rates for Canada and the U.S. are summarized in Tables 5 and 6, respectively. All rates were converted into Canadian dollars per mile, and are divided into four categories: domestic front haul, domestic backhaul, trans-border fronthaul, and trans-border backhaul. In each of these categories, average rates are provided for various trailer types, as well the overall average.

TABLE 5

Canadian Based Truckload Rates* (Canadian $ per mile)

Trailer	Domestic		Trans-Border	
Type	Fronthaul	Backhaul	Fronthaul	Backhaul
Dry Van	1.71	1.34	1.62	1.77
	(29)	(21)	(63)	(35)
Grain	2.31	.83	1.80	2.47
	(2)	(2)	(1)	(5)
Livestock	2.30	1.00	2.20	2.53
	(4)	(5)	(2)	(5)
Refrigerated	1.89	1.85	2.45	2.45
	(13)	(7)	(20)	(12)
Average	1.83	1.37	1.66	2.05
	(48)	(35)	(86)	(57)

*Number of observations in parentheses

TABLE 6

United States Based Truckload Test* (Canadian $ per mile)

Trailer Type	Domestic Fronthaul	Domestic Backhaul	Trans-Border Fronthaul	Trans-Border Backhaul
Dry Van	1.90	1.89	1.99	1.96
	(68)	(22)	(41)	(12)
Grain	2.35	1.31	2.21	1.36
	(10)	(3)	(11)	(5)
Refrigerated	1.72	1.64	2.16	1.59
	(22)	(31)	(16)	(12)
Livestock	2.40	—	2.41	—
	(10)	—	(4)	—
Average	1.95	1.72	2.09	1.70
	(110)	(56)	(72)	(29)

*Number of observations in parentheses

The reader is cautioned that several of the cells in the Tables are not statistically reliable. The overall averages, however, are made up of at least 29 observations, and most are made up of more than 50 observations.

(a) *Canadian Rates.* The average Canadian domestic rate from the data is $1.63 per mile while the average Canadian based trans-border rate is $1.82. This indicates an extra tariff on trans-border shipments of 19 cents per mile, or $190 per 1,000 miles. Expressed on a per pound basis, and assuming a 42,000 lb. payload, the additional cost on a 1,000 mile trans-border shipment would be .45 cents per pound.

(b) *U.S. Rates* The average U.S. domestic rate from the data is $1.81 per mile while the average trans-border rate is $1.97. This indicates an extra tariff on trans-border shipments of 16 cents per mile, or $160 per 1,000 miles. Expressed on a per-pound basis, the additional cost on a 1,000-mile trans-border shipment would be .38 cents per pound.

The above differences were tested using the t-test at 95 percent confidence level. In both cases, the differences were found to be significant.

Estimated Barriers versus Actual Barriers

The above estimates are first approximations to transport related barriers to trade in agricultural products between Canada and the United States. Discussions with trucking firms in both Canada and the U.S. provided evidence that estimates developed from rate data may be biased downward. This conjecture stems from two of the inherent weaknesses in using rates as a measure of institutional barriers and regulatory costs.

First, the practices by most firms to apportion overhead costs evenly among all routes, both domestic and trans-border, results in lower trans-border rates and higher domestic rates than if such costs were apportioned according to actual costs incurred. This reduces the spread between trans-border and domestic rates, and under estimates the actual institutional barriers to trade.

Second, the nature of competition in the market for trucking services may result in operation below a firm's total costs. This was found to be more common among small to medium sized firms, where fixed and overhead costs tend to be less clearly defined. When asked about relative costs for operating domestically or trans-border, the majority of firms indicated that their costs were higher on trans-border operations. Many of these firms added, however, that the competitive environment did not allow them to incorporate those extra costs into their rate structure. In other words, these carriers cross-subsidize their trans-border operations with domestic operations. Again, the effect is to reduce the spread between trans-border and domestic rates, and under estimate the magnitude of institutional barriers.

Relative Importance of Transport Costs to Agricultural Trade

Tariff and non-tariff barriers to trade exist on both sides of the Canada-U.S. border which limit the exchange of agricultural commodities. Menzie and Prentice catalogue the wide spectrum of barriers to trade in agricultural products between Canada and the United States. For some commodities, transport costs may have only a minor effect on the quantities of product exchanged because other barriers to trade supercede the small changes in price resulting from inflated transport costs. For example, quotas imposed by the United States on many cheese imports or Canadian quotas on poultry imports are restrictive to the degree that transport costs have no effect on the quantities imported. To the extent that transport related barriers are superceded by more powerful non-tariff barriers they can be considered insignificant in terms of affecting trade flows.

For those commodities that are relatively free from tariff or other non-tariff measures, transport costs may pose a significant barrier to trade. The actual barrier imposed by transport costs is dependent on several factors.

Length of Haul

The rates provided by survey respondents pertained to a specific origin-destination pair in all cases. To examine the effect of distance on rates, the various routes were divided into three mileage categories: less than 500, 500-1200, and greater than 1200. The average trans-border and domestic rates for each of these categories, as well as their differences are presented in Table 7.

Both countries show a considerably greater spread between trans-border and domestic routes which span less than 500 miles, as compared to routes over 500 miles. This indicates a greater importance of transport related barriers for commodities which typically move relatively short distances, and can be explained by considering rate structural in general.

A load moved between two points will incur the cost of loading, unloading and various administrative costs, which may be considered fixed and unrelated to the distance travelled. The remaining "line haul" costs of fuel, maintenance and driver's wages are directly related to the length of haul, and are thus variable.

Similarly, regulations, fees and practices which pertain to trans-border ' trucking can be classified as "fixed" or "variable" for a given load. For example, border crossing costs represent a fixed cost, while the chance of having to purchases a trip permit increases with the distance travelled, and is a variable cost.

In fact, the majority of regulatory costs are "fixed" for a given haul and thus are spread over the distance travelled. As a result, institutional barriers to trade are relatively higher for short hauls, although the absolute barrier continues to increase with distance.

Nominal Commodity Value

Transport costs tend to limit the economic trading radius of agricultural commodities. In general, sensitivity to transport costs is a function of the market price of the commodity. Table 8 provides volume and price data for various Canadian agricultural exports to the U.S., as well as the average transport cost for 500 mile domestic and trans-border hauls. The difference is the extra cost imposed by institu-

TABLE 7

Effect of Distance on Truckload Rates* (Canadian $ per mile)

	Canadian Firms			U.S. Firms		
Mileage	Trans-border	Domestic	Difference	Trans-border	Domestic	Difference
Π500	2.71	2.23	.48	2.21	1.94	.27
	(19)	(11)		(30)	(42)	
500-1200	1.86	1.81	.05	1.99	1.87	.12
	(51)	(14)		(30)	(39)	
>1200	1.61	1.41	.20	1.73	1.85	−.12
	(48)	(43)		(30)	(56)	

*Number of observations in parentheses.

TABLE 8

Volume, Price and Transport Costs* For Various Canadian Exports to the United States in 1985 (Canadian $)

Commodity	1985 Tonnage	Export Value $/Truck Load	DOMESTIC Transport Costs as a Percent of Value	TRANS-BORDER Transport Costs as a Percent of Value	Percent Increase in Value due to Regulations
Fresh or Frozen Beef	85,149	44,520	2.5	3.0	.5
Fresh or Frozen Pork	164,006	42,420	2.6	3.2	.6
Fresh Apples	28,770	11,340	9.8	11.9	2.1
Fresh Carrots	61,567	5,880	18.9	23.0	4.1
Frozen Potato Products	27,188	13,020	8.6	10.4	1.8
Flaxseed	120,972	6,720	16.6	20.2	3.6

*Based on a 500 mile haul and 42,000 lb. payload. Per mile rates are listed in Table 8, and equal $1,115.00 for domestic shipments and $1,355 for trans-border shipments.

tional barriers to transborder trucking and is expressed as the resulting percent increase in commodity value. This increase ranges from 0.5 percent for fresh or frozen beef to 4.1 percent for carrots.

The results in Table 8 should be interpreted with caution, keeping several points in mind. First, the Canadian based freight rates for hauls of less than 500 miles from Table 7 exhibit the largest spread (48 cents per mile) between trans-border and domestic rates of any mileage category. This is considerably larger than that of the corresponding U.S. rates (.27 cents per mile) and the average spread for all Canadian rates (19 cents per mile). However, the trend towards lower rates of transportation barriers as length of haul increases is consistent.

SUMMARY AND CONCLUSIONS

This study was undertaken to examine the regulations, fees and practices which pertain to Canada-U.S. trans-border trucking, and their effect on trade of agricultural products. Survey techniques and direct personal interviews were used to determine the importance and extent of the various transport related barriers from the perspective of both Canadian and U.S. trucking firms. Carriers provided truckload rates for both trans-border and domestic routes, which were used to approximate the relative importance and magnitude of current institutional barriers. The analysis led to the following conclusions.

i) With the exception of lack of proper operating authority, no barrier is absolute in its ability to prevent a carrier from conducting trans-border operations. Although the barriers vary in importance, most may be hurdled by some combination of time and money.
ii) The aggregate effect of regulatory costs is significant. Using average truckload rates, they were estimated to add approximately 15 to 20 cents per mile to transport costs of trans-border shipments versus domestic shipments. This level of tariff is more important for low value commodities, and limits the geographical extent to which certain commodities are traded. Agricultural products are generally low in value in comparison to manufactured goods, and thus suffer the greatest penalty.
iii) It is not practical to suggest that regulatory costs could be entirely eliminated. An international boundary such as exists between Canada and the U.S. must monitor trans-border traffic, and in so doing constitutes a barrier to trade. It would be feasible, however, to eliminate many of the inequities and inconsistencies which exist, and thereby reduce the level of institutional barriers.
iv) This study does not address regulatory costs or institutional barriers between provinces and between states. Discussions with carriers revealed that although regulations have been standardized to some extent in recent years, domestic transport barriers remain a major consideration for most carriers.

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ENDNOTES

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