

The University of Manitoba

ELEMENTS OF TRANSPORT-RELATED BARRIERS  
TO CANADA-UNITED STATES AGRICULTURAL TRADE

A Thesis Submitted to the Faculty of Graduate Studies  
in Partial Fulfillment of the Requirements for the  
Degree of Master of Science

Department of Agricultural Economics and Farm Management

by



Marvin D. Hildebrand  
Winnipeg, Manitoba

May 1989

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## ABSTRACT

Freight costs have an important influence on patterns of exchange and industrial location. The influence 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 finished product value, transportation can provide a significant level of protection for domestic producers, or stand as a major barrier to export market development.

This thesis examines regulatory, procedural and other institutional factors that affect the transborder movement of agricultural products. Over 90 percent of agricultural trade between Canada and the United States is moved by truck. Consequently, a study of transport-related barriers is, for all intents and purposes, a study of transborder trucking.

Transborder trucking of agricultural products was investigated from Canadian and U.S. perspectives using a mail survey and direct personal interviews. The study revealed that vehicle regulations are the most important barrier to Canadian carriers, while taxes, fees and other charges (including the acquisition of operating authorities) are most important from the perspective of U.S. truckers.

The magnitude of transport-related barriers to agricultural trade was estimated by comparing domestic truckload rates in Canada and the United States with transborder shipping rates. The data indicate a negligible barrier to the transport of goods in dry vans, but a significant difference in transborder versus domestic rates for refrigerated vans. The data also indicate that when expressed on a per mile basis, the cost of the transport-related barrier to

trade decreases with trip length.

The liberalization of agricultural trade under the Canada-U.S. Free Trade Agreement increases the relative importance of transport costs. As tariffs and other institutional barriers to trade are removed in accordance with the Free Trade Agreement, transportation costs become the main restriction to trade. Regulatory and procedural factors that add to transborder shipping costs take on increased importance in this case, as do efforts to minimize these factors and the related barriers to trade they represent.

## CHAPTER 1

### INTRODUCTION AND OVERVIEW

Canada and the United States comprise the largest bilateral trade flow of any two countries in the world. Despite this voluminous trade relationship, barriers to trade exist in both countries, which influence patterns of exchange and ultimately limit the volume and range of commodities traded.

Trade barriers themselves, while often complex, can be divided into two broad categories: "naturally" occurring barriers and those that are "man-made". The cost of transportation, which is levied regardless of a commodity's destination, can be thought of as a naturally occurring barrier to trade. Examples of man-made barriers, on the other hand, are import quotas, duties, tariffs and other measures intended to restrict the flow of goods across regional or international boundaries.

An important characteristic of natural trade barriers (in the purest sense) is that they are outside the direct influence of policy makers, while man-made barriers are almost entirely determined by government policy. Many man-made barriers, however, are subtle in comparison to measures such as import quotas or tariffs. These more subtle barriers do not prevent the flow of goods, but rather add to the cost of transportation and thereby limit the extent of trade. It follows then, that while transportation costs may be classified as a naturally occurring barrier in the broadest sense, a closer examination suggests that they include both natural and man-made components.

Specifically, the natural component of transportation costs is comprised of items such as fuel, wages, and equipment, while the man-made

component refers to the extra charge attributable to regulations, practices, technical standards, and procedures that apply to certain commodities and trade routes.

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 the agricultural exports of both Canada and the U.S., trade in grain is relatively unimportant between these two countries. Instead, Canada-U.S. agricultural trade is dominated by processed and/or highly perishable items, such as livestock and meats, horticultural crops, and canned or frozen foods.

These differences in the nature of Canada-U.S. agricultural trade have had an 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, transborder trucking has emerged as the most important mode in agricultural trade between Canada and the United States. A breakdown of the Canadian agricultural exports to the U.S. by commodity group and mode of transport is presented in Table 1 for the period 1965 to 1985. With the exception of fish, which are delivered directly to U.S. destinations from fishing vessels, more than 90 percent of Canadian agricultural exports to the U.S. are presently transported by truck. These data also indicate that truck transport is continuing to increase its share of transborder agricultural traffic. Although comparable data for U.S. exports to Canada are not presented, it is assumed that the utilization of truck transport is similar. This reduces a study of transport-related barriers to Canada-U.S. agricultural trade to an analysis of barriers associated with transborder trucking.

Table 1

Quantity of Various Canadian Agricultural Exports  
to the U.S. by Mode of Transport; 1965-85

Commodity	Mode	percentages		
		1965	1975	1985
Live Cattle	rail	4.4	.8	.7
	truck	95.6	99.1	99.2
	water	0	0	0
Live Hogs	rail	2.0	1.7	.2
	truck	98.0	97.8	99.7
	water	0	0	.1
Meats	rail	7.6	1.3	.5
	truck	92.3	98.7	99.3
	water	.1	0	0
Fish	rail	2.8	.7	.5
	truck	31.7	40.2	56.1
	water	65.5	59.0	42.9
Fresh Fruits and Berries	rail	22.0	8.4	3.0
	truck	76.8	91.3	96.9
	water	1.2	0	.1
Canned Fruits and Products	rail	48.5	28.2	2.1
	truck	51.2	65.6	94.7
	water	.1	6.2	2.5
Fresh Vegetables	rail	23.7	2.9	.1
	truck	54.2	96.7	99.7
	water	22.1	.4	.1
Oilseeds	rail	47.4	46.6	11.1
	truck	52.6	53.4	88.3
	water	0	0	.6
Dairy Products	rail	.1	4.2	1.5
	truck	99.3	95.4	94.2
	water	.4	0	4.2

Source: Statistics Canada catalogues 65-202 Exports Merchandise Trade,  
and 65-206 Exports by Mode of Transport

## CHAPTER 2

### RESEARCH PROBLEM

#### 2.1 Problem Statement

The international trading system has, over the past ten years, been characterized by increased protectionism. Notwithstanding the Canada - U.S. Free Trade Agreement, which aims to reduce formal tariffs on a wide range of agricultural (and other) commodities, pressure to protect domestic industries from foreign competition has led to increasing trade barriers in North America. The elimination of formal barriers, however, increases the relative importance of the remaining, more subtle, non-tariff barriers that, to the extent they affect carriers, add to the cost of transport.

While some trade barriers are intentionally designed to discourage imports, not all barriers fall into this category. Other barriers are merely inconvenience factors for shippers, receivers, or carriers which add to the total cost of conducting trade. For example, state and provincial truck weight and dimension regulations are based on relevant information and criteria, and are not generally intended to create difficulty for carriers domiciled in other jurisdictions. Because of varying vehicle weight and dimension regulations across jurisdictions however, carriers who operate in numerous jurisdictions may operate less efficiently.

Weight and dimension regulations are but one example of discrepancies in procedures, regulations, and technical standards faced by carriers who operate internationally. Other factors that affect such operations, and

ultimately freight costs, are border crossing procedures and fees, safety standards, and regulations pertaining to drivers. This thesis examines the above factors as they affect transborder truck operators.<sup>1</sup>

Increases in freight costs have the effect of limiting the range of commodities traded, as well as the geographic extent to which they move. For industries such as agriculture, where freight costs are a relatively high proportion of the finished product value, the above effects are felt more quickly than for industries with low freight factors<sup>2</sup>, and thus are more important as a barrier to export market development.

## 2.2 Objectives

The objectives of this research are to:

- (1) identify the various areas of regulation, procedures, and practices applicable to carriers operating on transborder routes;
- (2) determine the relative importance of the institutional barriers affecting transborder trade (IBATT);
- (3) estimate the magnitude of IBATT's by comparing domestic and transborder freight rates, both in Canada and the U.S; and,
- (4) assess the results of objective 3 by discussing some of the related implications.

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<sup>1</sup>Besides the many regulations which apply to all carriers regardless of commodity hauled, this thesis focuses on those regulations which affect carriers of agricultural products.

<sup>2</sup>The freight factor is defined as the percentage of a products delivered price made up by transport costs.

### 2.3 Theoretical Basis For The Study<sup>3</sup>

In the market for any good, the quantity demanded by buyers tends to increase as the price of the good or service decreases and tends to decrease as the price increases, ceteris paribus.<sup>4</sup> The demand for freight transportation is derived from the services it renders, rather than the personal satisfaction or utility it creates for its users. Consequently, the level of demand for freight transport services, is a function of the demand for the commodities moved.

The demand for an individual commodity is influenced by its landed value (including the cost of transportation), consumer preferences, and a host of other factors. While the demand for freight transportation decreases as its cost increases and vice versa, the effect is via the landed value of the commodity transported. Because of varying levels of elasticity of demand among end products of all types, changes in transport costs effect varying changes in demand for these products and for transport services. The sensitivity of the demand for transport services resulting from an increase in its price is known as the elasticity of transport demand. The following equations show how this value may be calculated for a specific commodity.

In the simplest case, the supply of both transportation and the commodity in question are considered to be perfectly elastic. Essentially, this means that any increases in demand are fully

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<sup>3</sup>The theory of transport demand in this section is adapted from Wilson, pp. 7-8.

<sup>4</sup>Dolan and Vogt, p. 40.



accommodated by suppliers without an increase in price. By definition, the elasticity of transport demand:

$$E_T = \frac{\% \Delta Q_D}{\% \Delta P_T}$$

where  $P_T$  = the freight rate per unit of the commodity shipped

$Q_D$  = the number of units of the commodity shipped = the units of the commodity demanded

$\% \Delta$  = percentage change

To determine the percent change in quantity demanded (the numerator above) it is necessary to know the value of the freight factor (f), which has been defined as the proportion of the delivered price of a commodity made up by freight costs, and the elasticity of demand for the commodity transported ( $E_D$ ).

If it is assumed that the delivered price is equal to the cost at the origin plus the cost of transportation, then the percent change in the delivered price resulting from an increase in freight charges (s) will equal (f)(s). For example, if the freight factor (f) is .20 and the freight rate is increased by 10 percent, the delivered price of the commodity will increase by 2 percent (10% x .20).

The impact on the price of the commodity being shipped is therefore (f)(s) in percentage terms, which may be substituted for the denominator in the standard definition of the elasticity of demand:

$$E_D = \frac{\% \Delta Q_D}{\% \Delta P_T} = \frac{\% \Delta Q_D}{fs}$$

Rearranging yields:

$$\frac{\% \Delta Q_D}{s} = E_D f$$

and earlier the definition of the elasticity of transport demand was given as:

$$E_T = \frac{\% \Delta Q_D}{\% \Delta P_T} = \frac{\% \Delta Q_D}{s}$$

Thus, by substitution:

$$E_T = E_D f$$

That is, the effect on the demand for transport services for a specific commodity is equal to the product of the elasticity of demand for the commodity (in the market it is transported to) and the freight factor.

It follows that relatively high values for these parameters ( $E_D$ ,  $f$ ) will result in relatively high elasticities for transport demand. As Wilson notes, "In general, demand elasticities tend to be greater the lower the level of aggregation and the higher the ratio of freight charges to the delivered price of a commodity." (p. 7) As the level of aggregation is decreased to a specific commodity, the elasticity of demand tends to increase because of the range of available substitutes.

A further consideration here pertains to alternative sources of supply for a specific commodity. If a market has alternative sources of supply, freight rate changes that are reflected in the delivered price of a commodity may generate large increases (or decreases) in shipments from other supply sources. For example, if transborder freight rates are higher than those of a further removed domestic supplier to a given market, the potential for export may be diminished despite the comparative

advantage (in terms of mileage) of the exporter. This thesis examines some of the regulations and institutional aspects of transborder trucking in an effort to gain an understanding of their importance and effect on transportation costs, particularly in the movement of agricultural products.

#### 2.4 Terms of Reference

Trade barriers are defined by Bannock et.al. as any government limitation on the free international exchange of merchandise, such as tariffs, quotas, import duties, restrictions on the issue of import licenses or stringent regulations relating to health or safety standards.<sup>5</sup> These may be considered formal, explicit, and the most obvious of trade barriers. Yet even within this definition a qualitative dimension is evidenced by the word "stringent"; regulations and standards considered stringent by some may not be thought of as stringent by others.

The transport-related barriers examined in this thesis represent one dimension of trade barriers that relate to specific areas of irritation for transborder motor carriers. The thesis concentrates on the regulation and standards areas as they relate to vehicles, drivers, border crossings, taxes, and procedural requirements. The intent is to bring to light those regulations, standards, and procedures which are most important to carriers, rather than to search for the obscure. This group of transport-related barriers is subsequently referred to as "institutional barriers affecting transborder trade", or IBATT. The terms "transport-related

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<sup>5</sup>p. 430

barriers to trade" and "institutional barriers affecting transborder trade" are used interchangeably. The border referred to is, of course, the boundary between Canada and the United States.

## CHAPTER 3

### REVIEW OF RELATED LITERATURE

Literature pertaining to transport-related barriers to trade reviewed in the following section. The first article, by Clayton and Sem, examines the area of disparate regulations affecting transborder trucking for a specific traffic lane. Skorochood and Bergevin examine difficulties encountered by small shippers in Ontario and Quebec exporting to the U.S. The report by the United States General Accounting Office examines the imports of disparate U.S. and Canadian policies governing transborder trucking. These papers are the most relevant to the present study as the other authors do not deal directly with transborder trucking. They examine the effect of distance on international competitiveness, and the effect of government policy on transport costs.

#### Clayton and Sem

Clayton and Sem's 1985 article examines regulatory issues affecting transborder trucking between Manitoba and Minnesota. It identifies and categorizes the types of regulations affecting transborder trucking, and provides some assessment of their relative significance.

The authors begin with a descriptive summary of the regulatory environment governing transborder trucking. They list the important legislative, regulatory, policy and procedural considerations and the level or levels of government with authority in the various areas. This is followed by an overview of Manitoba - Minnesota transborder trucking, based on four 1 - week border surveys conducted by the Manitoba Department of Highways and Transportation between 1974 and 1981. Data pertaining to

the number of truck movements and commodity mixes are presented for hauls to Manitoba from Minnesota as well as from states east of the Mississippi, and for hauls to Minnesota from Manitoba as well as from provinces west of Manitoba. Several other routes are considered, including movements between eastern and western Canada via the United States. This particular category appears to be declining in importance, apparently due to the relaxation of western Canadian weight and dimension regulations since 1973.

The focus of the article is to determine regulatory issues of importance to the Manitoba - Minnesota trucking lane. This is based on interviews with transborder carriers and government officials, factual information, and the knowledge of the authors. The following issues were judged to be of importance, and are discussed by the authors in some detail.

1. Weight and dimension regulations are substantially more restrictive in Minnesota than in Manitoba.
2. Custom inspection requirements effect some inefficiencies in the use of payload capacity for southbound international LTL movements.
3. International for-hire trucking operating authority can theoretically be more easily obtained in the U.S. than in Canada.
4. Differences in hours-of-work regulation tend to favour the use of Canadian vs. U.S. drivers in international trucking.
5. Driver residency requirements tend to favour the use of U.S. vs. Canadian drivers in international trucking.
6. U.S. private carriers have greater flexibility with the use of owner-operators than is permitted in Canada.

In addition to the above issues, five miscellaneous matters that impact on Manitoba - Minnesota trucking operations are considered.

In summary, Clayton and Sem make three general observations with regard to the Manitoba - Minnesota traffic lane. First, transborder trucking is dominated by the bulk hauling of grain and fertilizer by a number of small carriers, who are best described simply as "truckers". For this group, the regulatory environment is as much as anything a necessary evil and does not offer market stability or protection.

Second, between Manitoba and states east of the Mississippi, especially those beyond Minnesota, the southbound movement of lumber and the northbound movement of vehicles are also very important. These markets are dominated by a few well established carriers, who typically employ large numbers of owner operators. Such firms in effect rent the use of their operating authorities to owner-operators in exchange for their managerial and marketing strengths. For this group of carriers, economic regulation may be important to the extent that it provides protection in their established market.

Third, LTL movements on this traffic lane are relatively minor with an imbalance in the northbound direction. Most carriers in this market are well established, of medium to large size.

#### **Skorochod and Bergevin**

The 1984 article, entitled "Issues in Transportation-Distribution for the Small/New Exporter" examines difficulties encountered by small shippers in Ontario and Quebec who seek to export their goods to the United States. The study is based on a sample population of 73 manufacturing firms, the majority of which are located in the Toronto-St. Catherines corridor of Ontario.

The authors report that in general, the small business community exhibits a limited understanding of the transportation marketplace, particularly in the areas of freight rate structures and the regulations that govern rates. Their survey indicated that small shippers pay the highest rates in most instances because they are not aware that it is possible to negotiate commodity rates for regular shipments. Using several examples, Skorochood and Bergevin illustrate this low level of market intelligence among small shippers, the cause of which they cite as the inaccessibility and complicated nature of rate structures themselves.

The study makes a number of comparisons between transborder and U.S. domestic rates for hauls of similar length. The findings show transborder rates on manufactures to be considerably higher than U.S. domestic rates, a difference that Skorochood and Bergevin feel is unacceptably wide. The effect on Canadian shippers, they contend, is to restrict their ability to effectively penetrate U.S. markets. In general, Skorochood and Bergevin are critical of the system of establishing, publishing, and charging class rates. Most small shippers are unable to assemble sufficient volumes to operate private fleets, and thus are captive to LTL carriers, who the authors indicate are in the habit of charging maximum rates whenever possible. They suggest that a move to reduce LTL rates and thereby increase competitiveness and export volumes would be beneficial to both shippers and carriers.



United States General Accounting Office (GAO)

Research for this publication, entitled "Transborder Trucking, Impacts of Disparate U.S. and Canadian Policies", was initiated in 1985, five years after trucking deregulation in the U.S. It grew out of increasing concerns by U.S. truckers, who felt that differences in Canadian and American rules and regulations affecting trucking made it difficult for them to compete for transborder traffic. The report addressed the following questions:

1. How difficult is it for U.S. truckers to gain authority from provincial regulators to expand their operations into Canada?
2. Do differences in costs and restrictions on operations in the United States and Canada place U.S. truckers at a disadvantage when competing for transborder traffic?
3. Have these differences allowed Canadian truckers to capture a disproportionate share of transborder traffic?
4. What are the prospects for change in trucking regulations in Canada?

GAO found that Canadian regulations governing entry into the trucking industry make it more difficult to secure operating authority in Canada than in the United States. However, it found no evidence that provincial regulators discriminated against U.S. applicants or that they imposed on U.S. carriers any fees or standards not also required of Canadian operators. While there are a number of differences in U.S. and Canadian rules and procedures affecting trucking, GAO found only two that placed a greater burden on U.S. truckers than on Canadian based: workman's compensation premiums in three provinces, and the Heavy Vehicle Use Tax (HVUT). (The HVUT has since been altered to treat U.S. and Canadian carriers equitably.)

In terms of market share, the report found that American truckers had lost traffic to Canadian carriers in recent years, but that a number of factors other than regulatory policy could have accounted for such shifts. These include the decline in the Canadian dollar relative to the U.S. dollar, and the shift in the balance of trade in Canada's favour.

In terms of future prospects for regulatory reform in Canada, GAO reported that the Canadian government and the provinces had taken steps to deregulate the trucking industry, albeit at various paces. The report refers to proposed legislation in Canada intended to substantially deregulate extraprovincial trucking by 1993. This legislation was passed by Parliament in 1987.

This report does not address the effect of rules and procedures on freight rates, but rather examines the matter of discrimination against U.S. carriers by Canadian trucking policy. GAO found that in general, the Canadian system treats both American and Canadian carriers the same.

#### Conlon

Conlon's 1985 book, entitled "Distance and Duties: Determinants of Manufacturing in Australia and Canada", analyzes the effect of transport costs and tariff policy on trade and industrial structure in the manufacturing sectors of Australia and Canada.

After an examination of the development of commercial policies in both countries to 1974, Conlon provides a review of the theory pertaining to trade barriers. He states that transport costs may be considered as analogues of tariffs, and as one component of the total barrier to trade; and further, that both domestic and foreign trade barriers are likely to

affect the range of commodities produced, the size of markets, the number of and size of firms; in short, industry structure and performance.

Conlon then examines the effect of trade barriers on the structures and performance of Australian and Canadian manufacturing industries, and makes some comparisons of Canadian manufacturing with the manufacturing sectors of Australia and the United States. He concludes that there are significant costs associated with trade barriers of all types, particularly for isolated, small country economies.

The remainder of Conlon's study concentrates on the importance of the barrier to trade posed by transportation, relative to the barrier posed by tariffs. Evidence presented confirm that distance is an important determinant of transport costs, which in turn are an important determinant of trade flows. Moreover, he suggests that transport costs may well be more important barriers to trade than tariffs.

Conlon's disaggregation of the total barrier to trade into its natural and man-made components comprises one of the most useful areas of the book. Theoretically, tariffs and transport costs may be treated as being conceptually identical in their ability to limit trade. However, Conlon points out that tariffs are a "man-made" barrier to trade, which may be manipulated to achieve various policy objectives. Transportation costs, on the other hand, while easily influenced by government policy, are largely a function of the natural barrier posed by distance.

#### **Munro**

Munro's 1969 book, entitled "Trade Liberalization and Transportation in International Trade", examines the role played by transport in trade

between Canada and the United States. It attempts to analyze the impact of various government and industry policies on the international flow of goods within North America.

Munro begins by reviewing the theory pertaining to location, as well as the role of transportation in international trade. The remainder of this section of the book examines the level of transport sector harmonization in Canada, the U.S., and the EEC up to the time of writing. Of the 1960's era, Munro reports that while harmonization of transport policy within North America was limited, there were some advances such as joint administration of the St. Lawrence Seaway by Canada and the U.S.

The majority of Munro's book is devoted to intense investigation of Canadian and U.S. transport policy in the area of rail, highway, and water transport. This section provides a thorough exposition of government regulations and policies pertaining to these modes of transport, as well as the corresponding industry structure and performance. Although the twenty years that have elapsed since the time of writing render much of the technical information irrelevant to today's environment, it is interesting to note Munro's conclusion regarding the over-all impact of policy difficulties in the area of highway transport: "There is a great need for a better coordination of highway transport policy as it affects international operations. There is in many areas scarcely any coordination now - the policies that influence transborder truck transport are in many cases no more than spillovers of domestically conceived and implemented policies."

Munro goes on to make use of freight factors, or the proportion of a product's landed value made up by transport costs, to identify the

impact of transport policy on costs and rates. Although the magnitude of the influences brought by Canadian and U.S. transport policy is debatable, Munro concludes there can be no question as to their overall direction. It is to raise the rates charged for transporting goods between Canada and the U.S. He goes on to state that while the influence is often directly on rates, in other cases the impact occurs indirectly by impairing the quality of service.

While no conclusions are reached regarding the exact impact of transport policies on trade between Canada and the U.S., the overall direction of impact is to reduce trade between the two countries. Moreover, Munro suggests the interference with optimal trade flows will increase more than proportionately as total trade volume expands. This is because of the increasingly important role being played by the mode of international transport, trucking, that is subject to the greatest policy, or institutional barriers. This thesis is concerned with one dimension of the interference with optimal trade flows referred to above; namely the institutional barriers affecting transborder trade in agricultural products.

## CHAPTER 4

### DESCRIPTIVE APPROACH TO TRANSPORT RELATED BARRIERS

The regulatory environment governing transborder trucking is complex, overlapping and administered by many agencies in various levels of government (Clayton and Sem; p. 266). In some cases, the legislative, regulatory, policy and procedural considerations cause difficulty for truckers from outside jurisdictions as much as they fulfil their intended purpose.

This chapter provides a brief, "snapshot" view of the various regulations and other transport related barriers to trade that affect Canada-U.S. transborder trucking. For purposes of exposition, transport related barriers are grouped into 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 transborder traffic.

The purpose of this chapter is to provide examples that illustrate the nature of institutional barriers. It does not purport to be all inclusive or exhaustive. The importance of these institutional factors is likely to vary considerably depending on the traffic lanes and commodities carried.

#### 4.1 Vehicle Related Regulations

The first category of barriers to be discussed are those pertaining to the vehicles used in the trucking industry. These consist primarily of trailers (of various lengths and types), and the power units that pull

them. Both are subject to various regulations, some of which are discussed below.

#### 4.1.1 Safety

Tractors and trailers are subject to a host of safety regulations in both Canada and the U.S., most of which are consistent between the two countries. Where inconsistencies do arise, an operator from a foreign jurisdiction whose vehicle does not conform to local 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.

Discrepancies in safety regulations may serve merely as an inconvenience, or may require significant changes to vehicles. For example, certain over dimensional loads may not be transported through some states on weekends. A driver approaching such jurisdictions on a Friday night, has the inconvenience and cost associated with either driving around the state or absorbing the cost of spending the weekend there.

As another example, certain states require at least four tail lights on trailers (two per side), while some Canadian provinces require only two tail lights (one per side). As a result, trailers that do not meet the more stringent standards must either be altered or used only on selected routes.

Mandatory safety inspections have been imposed in some Canadian provinces in anticipation of the new regulatory reforms that will affect

the trucking industry. Since 1987, carriers in western Canada must have their power units inspected twice per year and trailers inspected annually. (The cost per inspection ranges from \$75 to \$150.) Once these programs are operational, full reciprocity between provinces is envisioned. Vehicles from outside these jurisdictions will be subject to roadside inspection. According to the Inspection Branch of the Manitoba Department of Highways and Transportation, U.S. vehicles with a valid Commercial Vehicle Safety Alliance (CVSA) sticker will not be examined unless the CVSA is close to its three-month expiry date. Vehicles which do not meet these standards will be given warnings, or impounded, until they are brought up to the CVSA standard.

#### 4.1.2 Weights and Dimensions

State and provincial weight and dimension regulations exhibit considerable variation. Three areas of varying regulation are the combined length of tractor and trailer, the total gross vehicle weight and the permitted weights on specific axles.

Differences in weight and dimension regulations between jurisdictions reduce the efficiency of trucking firms and add to shipping costs. First, carriers handling freight destined for states with reduced weight limits generally underload in order to operate legally in all states or provinces encountered. Second, carriers may incur extra miles in order to avoid (1) states with reduced weight limits, or (2) highway inspection stations within such states. Third, firms with trailers that are unusable on certain routes may experience equipment under-utilization.



Weight and dimension regulations also vary within jurisdictions. For example, California maintains a "designated highway system" which permits operation of (1) double trailer combinations exceeding 75 feet in length; (2) single trailer combinations exceeding 65 feet in length; and (3) single trailer combinations on which the kingpin-to-rear axle distance exceeds 38 feet [Heron; p.11]. The designated highway system in California is virtually limited to the Interstate System, since only 16 percent of California's non-interstate primary roads are included in the designated system. Furthermore, authorized vehicles may operate only one-half mile off the designated system for services such as fuel, food and lodging. Businesses located off the designated system that seek to be served by such trucks must obtain the appropriate permits, the cost of which Heron reports to be prohibitive. The alternative for these shippers is to use shorter trailers which comply with local regulations but have higher unit freight costs.

The use of soybean meal as an ingredient by the feed industry in Manitoba provides another example of additional transport costs resulting from varying weight restrictions within one jurisdiction. Feed mills are located predominately in small towns across Manitoba, many of which are accessed by the secondary network of paved highways. As a result of the lower weight tolerances on secondary roads, trucks carrying U.S. meal operate at less than maximum gross vehicle weight for the majority of their haul.

#### 4.1.3 Vehicle Configuration

Routes for international shipments with different vehicle configurations standards restrict the potential for truck utilization. For example, Minnesota Highway authorities are considering the use of a configuration of two 45 foot trailers between Minneapolis and the Canadian border.<sup>6</sup> In Manitoba however, no limited access highway exists between Winnipeg and the U.S. border. In order to use double trailer combinations for the U.S. portion of the trip, truck lines would be forced to engage additional power units at the border (or haul the trailers one at a time with the same tractor) to deliver individual trailers to Canadian destinations.

The specialization of a carrier's fleet to trailer types or configurations that are most efficient on main routes, may reduce its ability to compete in other regions with incompatible vehicle configuration legislation. This is but one possible example of a reduction in industry efficiency as a result of varying regulations. Where such inefficiencies apply to transborder lanes, they affect the cost of transborder shipments.

#### 4.1.4 Licensing and Insurance Costs

Vehicle licenses and insurance coverage are essential to operation on public highways. The total cost of truck licenses, and to some degree

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<sup>6</sup> Discussion with Cenex Oil representatives, June, 1987.

insurance, increases with the scope of operations.<sup>7</sup> Licensing costs of operating in foreign jurisdictions are greatly reduced by reciprocal licensing agreements between provinces and states. For example, Manitoba 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.<sup>8</sup>

For Canadian firms contemplating expansion into the U.S., or vice versa, the additional insurance and license costs must be weighed against the potential increased revenues. Similarly, owner-operators who contract with firms having both domestic and international operations often have the option of operating domestically or transborder, and are faced with similar cost-benefit considerations. Ultimately, the additional costs associated with operating in a neighbouring country must be reflected in higher freight rates.

#### 4.2 Driver Related Regulations

##### 4.2.1 Residency Requirements

U.S. Immigration regulations prohibit Canadian drivers from handling intra-U.S. shipments, while Canada has corresponding immigration rules

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<sup>7</sup> For Manitoba based carriers operating in the U.S., the cost of liability and cargo insurance is greater than for Canadian operations, while collision insurance premiums remain constant.

<sup>8</sup> A complete list of reciprocity agreements held by Canadian provinces with individual states is presented in Appendix 1.

that prohibit U.S. drivers from handling intra-Canadian shipments.<sup>9</sup> As a result, carriers must either arrange transborder movements in both directions or travel empty until crossing the border, at which time a domestic shipment may be picked up. The latter option normally carries a smaller economic penalty for U.S. carriers than for Canadian carriers because most major Canadian markets are located within 100 miles of the international border, and this 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 (or considerably more) from the border without a load.

For Canadian carriers hauling to southern U.S. cities, 'dead-heading' (travelling without a load) back to Canada has a large economic penalty; and even when backhauls are available, drivers may have to travel empty for hundreds of miles to make a pick-up. In such cases, a firm's costs will increase because of additional fuel consumption, wear on equipment and drivers' wages.

#### 4.2.2 Licensing of Drivers

In Canada and the U.S., prospective drivers must pass written examinations as well as a road test before being issued a license to drive commercial transport vehicles. In order for Canadian drivers to operate in the U.S., however, they must write several additional examinations pertaining to safety, air brakes, and general driving procedures. If

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<sup>9</sup> Both countries also have customs regulations which place similar restrictions on equipment. The effects are similar to those discussed for immigration regulations pertaining to driver residence.

successfully completed, drivers are issued wallet sized cards that must be produced upon request at any weight or safety inspection station in the United States. The U.S. driver license cards are more than a formality, as Canadian drivers are spot-checked by U.S. authorities from time to time.

#### 4.2.3 Hours of Work Regulations

One method of remunerating truck drivers is on the basis of miles travelled. In such cases, drivers wishing to maximize their earnings must therefore maximize the number of miles travelled. To maintain an acceptable level of safety on public highways, the Interstate Commerce Commission in the U.S. has legislated maxima for the number of miles and the number of hours an operator may drive each day (500 miles and 10 hours, respectively). In addition, drivers may work no more than seven days out of eight. Drivers are required to account for their time by logging accurate records in driver log books.

Hours of work regulations are strictly enforced.<sup>10</sup> U.S. weight and safety inspectors routinely require both Canadian and U.S. drivers to produce their log books, which are scrutinized for validity, accuracy and most importantly, the daily and weekly limits. Significant violations are seldom dealt only a warning; rather violators are assessed fines. Blatant or negligent violators may draw more serious measures.

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<sup>10</sup> Whether or not the regulations bring about the intended results is another matter. A recent article on truck safety suggests they are ineffective in preventing abuse and notes that log books are commonly referred to as "comic books" by truckers [Labich; p.85].

Although similar regulations exist in Canada, they have been aimed at achieving fair and equitable labour standards, with little or no concern about highway safety (Gough). Canadian standards for hours of operation similar to those in the U.S. are part of the National Safety Code (1988) and are scheduled for introduction in March, 1989.

#### 4.3 Costs and Practices Associated with Border Crossings

##### 4.3.1 Border Crossing Costs

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. Truck drivers, who were interviewed during the course of this research, suggested that U.S. Customs officials prefer to collect the annual fee. Truckers who insist on paying the individual crossing fee complained of being kept waiting for an unusually long time.

The inherent nature of long distance trucking results in random use of border crossings throughout the day and night. Drivers who arrive at the border outside of normal office hours must generally pay additional brokerage fees of \$25 to \$65.<sup>11</sup> This fee is paid by either the trucking firm or individual drivers and, unless the driver elects to wait at the border for a number of hours, is often unavoidable.

##### 4.3.2 Customs Inspection: Less than Truckload Shipments

Canada and the U.S. policies on customs clearance of freight moved by truck vary considerably. Trucks destined for the U.S. must pass

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<sup>11</sup> In exception to this, brokers at high volume border crossings offer 24-hour service.

inspection at the international border before proceeding to their destinations. In order for less than truckload (LTL) trailer contents to be thoroughly inspected, U.S. customs officers must be able to walk inside the trailer; that is, the trailers must be loaded no higher than four or five feet high in order to allow physical inspection from front to back.

In many cases, depending on the density of the freight, the inspection requirements result in underloading of trailers with respect to exports from Canada. For certain areas and trade flows such as the Minneapolis-Winnipeg corridor, natural freight imbalances reduce the importance of this regulation. In other areas along the international border, however, freight imbalances may not be as well suited to inspection procedures, and may result in considerably higher transport costs for certain Canadian exports.

Imports into Canada, on the other hand, are inspected by Canadian authorities as trucks are unloaded at sufferance warehouses located in major cities. Northbound trucks may therefore be loaded to capacity in terms of volume. This eliminates possible increased transport costs due to inspection-related under-utilization of equipment.

#### 4.3.3 Customs Inspection of Agricultural Products

Exports of live animals and poultry products must be inspected by Agriculture Canada officials before leaving Canada. The hours of inspection must be taken into consideration by carriers when scheduling pick-up and departure times, as trucks that arrive at the border after regular office hours must pay a "call-out" fee to have their loads inspected by Agriculture Canada veterinarians.

Once inside the U.S., 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 station 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 that fail the inspection must be reloaded and returned to the plant of origin.<sup>12</sup> Even shipments that pass inspection are subject to added costs, because the carriers are required to await lab results before proceeding on their trip and often are delayed up to a day in the process.

#### 4.3.4 Level of Commercial Customs Operation

There are currently some 80 border crossing points between Canada and the U.S. for commercial shipments requiring inspection. The availability of customs services is a major consideration for transborder carriers since considerable costs may accrue in situations where truckers

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<sup>12</sup> According to carriers surveyed, rejected loads must be returned to the plant of origin, despite opportunities that might exist to re-sell these meats to other Canadian plants closer to the border.



must wait at crossings, or travel additional miles to access border points with 24 hour service.

This aspect of transborder trucking has recently been brought to public attention as a result of U.S. customs intentions to reduce the number of commercial border crossing points, as well as the number of officers per border point [Border Unease; p.3]. Whether these reductions will actually be implemented is uncertain; however, such a move would have its greatest effect on shippers that are located in less populated regions. Eliminating smaller border points would require certain carriers to travel an extra distance to serve neighbouring centres.

#### 4.4 Taxes and Fees Influencing Truck Transport

##### 4.4.1 Heavy Vehicle Use Tax

The U.S. congress has passed a bill that will require Canadian truckers, along with Mexican and U.S. carriers, to pay an annual highway use tax. The tax, known as the Heavy Vehicle Use Tax, will apply 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. As of July 1, 1987, Canadian carriers will be assessed 75 percent of the Heavy Vehicle Use Tax or \$412.50 per truck per year.

##### 4.4.2 Formal Requirements

Formal requirements imposed by the Interstate Commerce Commission (ICC) as well as individual states add considerably to the cost of motor carrier operations in the U.S.

For example, Canadian carriers are required to maintain an address in each state where 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 non-existent 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 repeating basis thereby adding to the cost of bonding, which ranges upward from US\$300.

#### 4.4.3 Vehicle Trip Fees

The license to operate in a province or state may take the form of an annual license, or in the case of occasional trips through a given jurisdiction, a vehicle trip permit. The cost of a specific trip permit, which may vary from \$20 to several hundred dollars, generally determines whether an operator purchases a trip permit or an annual license. For example, an Ontario based carrier operating in North Dakota, would have to purchase 40 trip permits before spending the equivalent of an annual license plate fee. Alternatively, the cost of as few as four trip permits

in some states is equivalent to the cost of an annual license plate fee. In the latter case, even an occasional trip into such a state would favour the purchase of an annual licence.

#### 4.4.4 Fuel Tax Remittance

Most of the 48 contiguous states require Canadian carriers to remit a fuel tax every three months, based on mileage travelled. The lack of a standardized system of taxes and fees by the various states has resulted in a different rate and method of calculation for each state. While the actual fuel tax remittance may be minimal, the administrative costs of calculation and remittance often exceed the amount remitted.

#### 4.4.5 Other Taxes

In addition to the fuel tax described above, various states have seized upon additional transport related taxes as a means of raising revenue. For example, Texas, Arkansas and Kansas impose a property tax based on mileage travelled in the respective states. As is the case with state fuel taxes, the administrative cost of calculating and submitting the tax may easily exceed the actual remittance. Yet another state, Pennsylvania, levies an axle tax on all out-of-state commercial trucks that operate on its highways.

Through these and other taxing practices, states have engaged in a bureaucratic muddle of their own to the detriment of domestic and foreign motor carriers in the U.S. Such taxation wars impose the greatest burden upon Canadian carriers because they cannot petition their provincial legislatures to react in an effective manner. The present requirements

add a significant measure of complication and expense to motor carrier operations in the U.S.

## CHAPTER 5

### CARRIER VIEWS

#### 5.1 Method of Analysis

The extent and importance of transport related barriers to agricultural trade were investigated using a mail survey and personal interviews. In order to obtain a balanced perspective of transport related barriers, trucking firms were surveyed in Canada and the United States. Subsequently, follow-up interviews were conducted to gain a more complete understanding of the various regulations and other requirements affecting transborder shipping.

##### 5.1.1 The Survey Approach

The primary selection criterion of the survey was involvement in transborder trucking of agricultural or food commodities. The sample frame of Canadian firms was developed from (1) knowledge of firms involved in transborder trucking, (2) the Manitoba Trucking Association Official Ship by Truck Directory, and (3) concentrated advertising sections in the telephone Yellow Pages. In all, the survey questionnaire was sent to 54 Canadian trucking firms based in the provinces of Ontario, Manitoba, Saskatchewan, Alberta and British Columbia.

Developing a sample frame of U.S. trucking firms presented a different challenge. While the population of U.S. firms is much larger, it is also less accessible from the Canadian perspective. Assistance in compiling the names and addresses of U.S. firms involved in transborder trucking was provided by the Manitoba Motor Transport Board and the Ontario Highway Transport Board. Both agencies provided a list of firms

with authority to operate in the respective provinces. The combined lists totalled 575 firms, of which 175 were chosen to receive the survey form.<sup>13</sup>

The large difference in the size of Canadian and U.S. samples was offset by efforts to improve the response rate of the smaller group. Each Canadian firm was contacted by telephone, and if active in transborder trucking of food products, was asked to participate in the survey. Given the larger size of the U.S. carrier base, a sufficient response could be obtained by a mail survey without pre-contacting each U.S. firm.

Table 2 summarizes the above information by listing the number of respondents, percent response, and their percentage of total traffic made up by transborder shipments. As expected, given the pre-selection procedure, the Canadian firms' portion of transborder traffic was on average considerably higher than that of the U.S. respondents.

Additional information detailing the profile of respondents is provided in Figures 1 and 2. Figure 1 shows the respondent firm size by country as measured by the number of power units. In general, the Canadian respondents were comprised of relatively large firms. Approximately 70 percent of the firms operated 25 or more power units, while 45 percent operated over 100 power units. In contrast, 55 percent

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<sup>13</sup> The list of U.S. trucking firms was narrowed to a workable sample by removing firms that had no connection with agriculture (e.g., carriers involved with petroleum or household goods movement). Any firms with an agricultural connection (e.g., a name that suggested grain or livestock haulage or firms which held authorities to haul agricultural commodities into Canada, were included in the survey sample). Subsequently, additional firms were chosen at random to complete the sample frame. Appendix 2 includes a copy of the U.S. survey form, which varied slightly for Canadian respondents.

Table 2

Number of respondents, percent response and percent of total traffic made up by transborder shipments, by country

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

of U.S. firms operated more than 25 power units, and only 20 percent operated more than 100 power units.

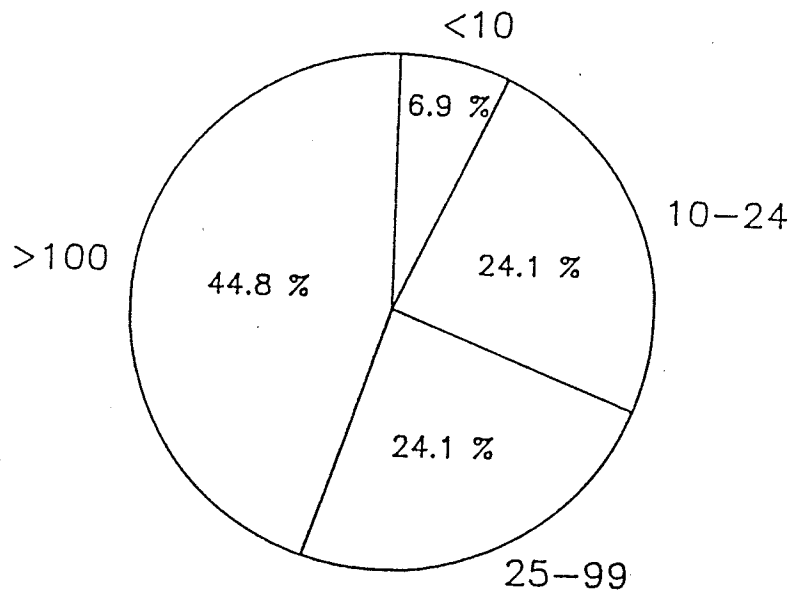
Figure 2 shows the respondent location by region. While the U.S. respondents represented all regions of the country, the majority were located in north central and northeast United States. The regional bias evident in the survey of Canadian carriers represents a major weakness of the overall survey. Eastern Canada is under-represented, while Quebec and the Atlantic Canada were omitted.

Three weeks after the initial mailing a follow-up letter was sent to those firms who had not yet responded. To assist in the process of interpreting the survey results, personal interviews were conducted with a number of respondents in Canada and the U.S. This provided a greater awareness and understanding of the regulations and other requirements imposed on trucking firms in both countries, as well as some of the important implications.

Figure 1 Canadian and U.S. Respondent Firm Size by Country and Number of Power Units

### Canadian Respondents: Firm Size

Number of Power Units



### U.S. Respondents: Firm Size

Number of Power Units

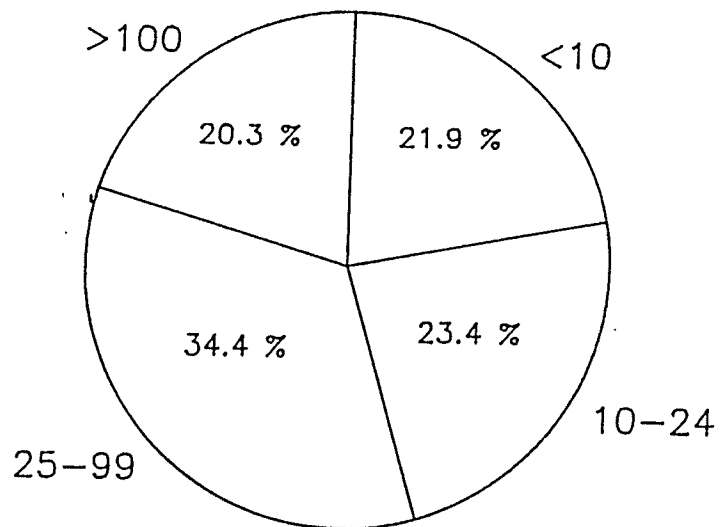
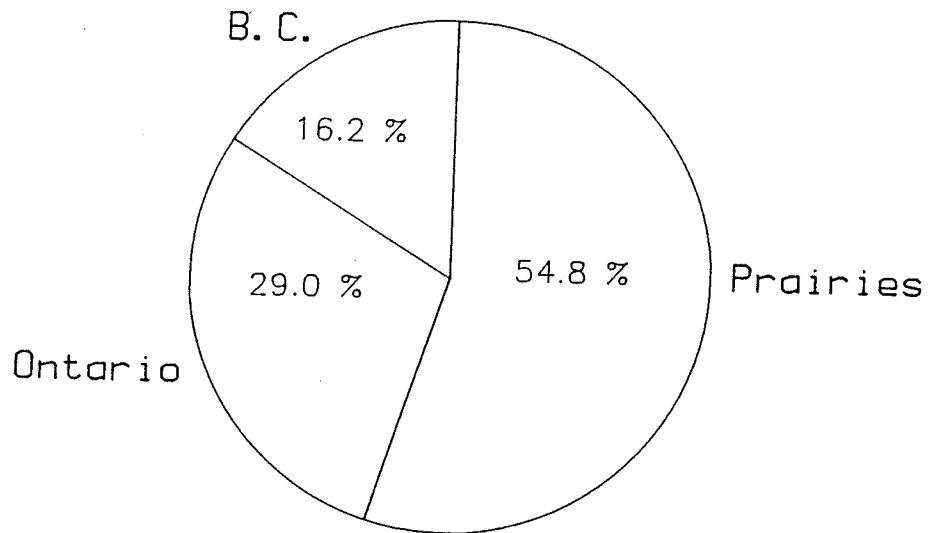


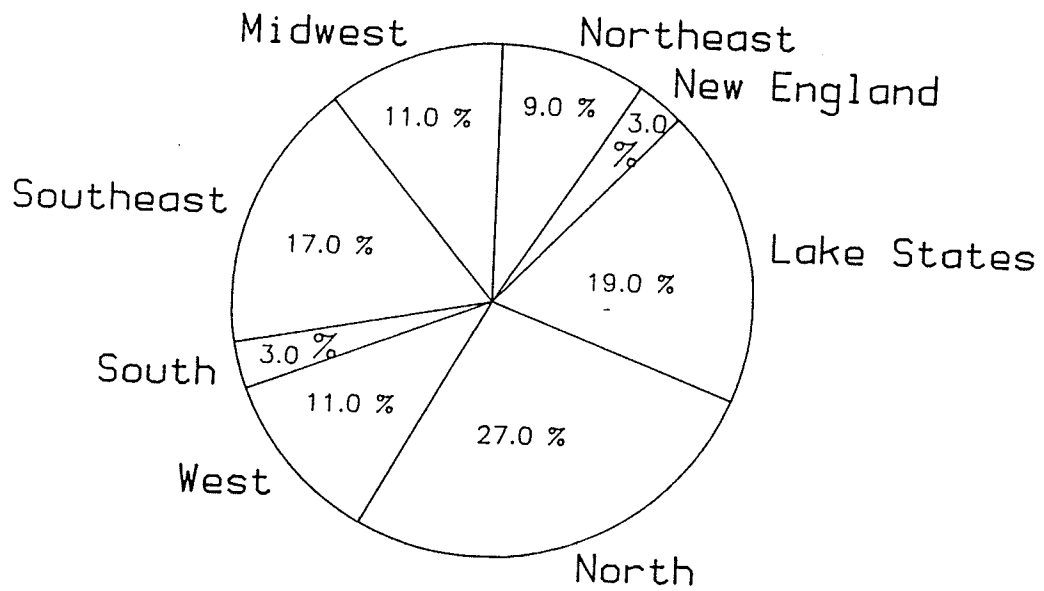


Figure 2 Canadian and U.S. Respondent Location by Region

### Canadian Firms



### U.S. Firms



### 5.1.2 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 transborder 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 transborder 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 transborder trucking, and have ceased international operations.

Second, the survey rate section of the report which examines freight rates, includes only truckload shipments. Since agricultural products do not generally move in less than truck load (LTL) lots, the error in ignoring the LTL market may be negligible. Nevertheless, the findings of this thesis are not applicable to the LTL market.

## 5.2 Survey Results

### 5.2.1 Carrier Perspectives on Regulations, Fees and Practices

Trucking firms were asked to rank the importance of regulations, fees and government practices that affect transborder traffic. These regulatory measures were divided into four categories:

- (1) vehicle related regulations
- (2) driver related regulations
- (3) border crossing regulations
- (4) taxes, fees and other charges

Within these general categories, respondents were asked to rank individual components in order of importance. The results are presented in Table 3 for Canadian respondents, and in Table 4 for U.S. respondents.

The ranking of the sub-areas within the four categories is nearly identical for Canadian and U.S. respondents. For example, under vehicle related regulations, insurance costs are ranked most important in both countries, followed by licensing requirements, and so on. An interesting exception is the taxes and fees category, in which the first two sub-areas are reversed.<sup>14</sup>

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 depending on the size of firm, geographic location, commodities hauled, etc. Regulations and practices that 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 comments made during the follow-up interviews. Nevertheless, the consistency of the average rankings indicate the relative importance of these regulations in the industry.

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<sup>14</sup> The rankings are reported as single averages (1=most important) and as modal values. The mode is the rank which was most frequently assigned to the sub-category by respondents. With only minor exceptions, the modes are consistent with the rankings as determined by arithmetic averages.

Table 3

Importance of Regulations, Fees and Practices  
on Canada-U.S. Transborder Traffic:  
Canadian Respondents  
(1 = most important)

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

Table 4

Importance of Regulations and other Cost Factors  
on U.S.-Canada Transborder Traffic:  
U.S. Respondents  
(1 = most important)

Category	Area	Average Ranking
Vehicle Related Regulations	Insurance Costs	1.8
	Licensing Requirements	2.3
	Weights and Dimensions	3.3
	Safety Standards	3.7
	Configuration Restrictions	4.0
-----		
Taxes, Fees and other Charges	Operating Authorities	1.8
	Taxes and Other Charges	2.0
	Vehicle Trip Fees	2.1
-----		
Border Crossing Regulations	Inspection at Customs	1.5
	Hours of Customs Operation	1.6
	Lack of Bonded Warehouses	2.9
-----		
Driver Related Regulations	Hours of Work	1.6
	Driver Licensing	2.1
	Residency Requirements	2.3

The following sections provide further detail regarding the four categories above, and highlight some of the comments made by survey respondents.

#### 5.2.1.1 Vehicle Related Regulations

Among vehicle related regulations, licensing and insurance costs are clearly the most important additional cost factors for transborder operations.

Several factors are pertinent to the comparison of transborder versus domestic licensing and insurance costs. First, the additional license cost is dependent on a firm's base province or state, and the provinces or states with which the base jurisdiction holds a reciprocity agreement. Manitoba for example, has full reciprocity agreements with 32 states whereas Saskatchewan is not party to any such agreements (See Appendix 1 for a complete list of provincial reciprocity agreements). Several carriers indicated that reciprocal licensing agreements are an important consideration when deciding in which jurisdiction to locate their firm.

Second, the cost and terms of insurance policies vary among insurance firms and among regions. Several carriers said their insurance premiums were no higher for transborder than domestic operations, because the insurance policy allowed for a specific geographical radius regardless of borders. In fact, a large Minnesota based carrier commented:

"I don't feel that any of the vehicle related regulations add to our cost on transborder vs. U.S. proper traffic."

Other U.S. carriers claimed that their insurance costs increased as much as 100 percent when they began transborder operations. Increases of this magnitude should be interpreted with caution, however, as they may have been compounded by the recent global rise in virtually all areas of insurance coverage.

Vehicle weights and dimensions regulation appear to be a source of frustration and added cost to many carriers. Profits in the trucking industry are maximized (legally) by loading trucks to the maximum gross vehicle weight. This tends to be more difficult when routes span several jurisdictions. Discrepancies in maximum vehicle weights, differences in the allowable distribution of weight among axles, and limitations on primary-secondary road weight classifications force carriers to underload their vehicles for transborder routes relative to their "home base" jurisdiction.<sup>15</sup>

Carriers observed that variances among jurisdictions impose costs in the form of underloading, extra miles travelled to avoid highway inspection stations, and fines. As one U.S. operator lamented:

"...we can haul 80,000 lbs. for 500 miles, then only 74,000 lbs. when we get to Highway 311 going the last three miles into Niverville. All highways in Minnesota [we use] are 80,000 lbs. except during restrictions. If Manitoba could correspond, it would be most beneficial."

It is impractical for this carrier to unload 6,000 pounds three miles from his destination, and as a result, he must carry 6,000 pounds less for the

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<sup>15</sup> By trans-border this can mean inter-state and inter-provincial as well as Canada-U.S. routes. Although there is more likelihood of problems in Canada-U.S. routes, domestic routes in Canada and the U.S. are far from uniform in terms of vehicle weights or dimensions.

first 500 miles on each trip to Niverville. It is worth noting that this restriction actually reduces the truck's payload by about 15 percent. To the extent permitted by competition, this payload loss is passed on by the shipper in the form of higher product prices.<sup>16</sup>

The distribution of weight among axles is usually referred to from front to rear of a unit; for example, steering - tractor - trailer for a single trailer unit. A Minnesota based carrier who hauls into Canada voiced his opinion on axle weights as follows:

"It would be nice if weight laws were standardized. I prefer the Canadian method of 11-35-35 as opposed to the U.S. 12-34-34, as 12,000 lbs. is too much on the steering axle. "

The weight distribution among axles was not cited as a major issue by most carriers. This may be at least partly explained by a reported tolerance factor of 500 lbs. per axle group at many highway inspection stations.

Fines for vehicle weight infractions impose costs on transborder traffic, but are likely included in general overhead. Many carriers related examples of bizarre, or unfair behaviour by officials. For example, one U.S. livestock carrier received an overweight fine because one axle was too heavy. After driving around the scale (and causing the cattle to shuffle position) all axles were under the weight maximum. Nevertheless, the state highway officials levied a US \$1,000 fine on the carrier. In another case, a Canadian carrier held up a stack of unpaid

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<sup>16</sup> A follow up with the Manitoba Department of Highways and Transportation revealed that such carriers can apply for a blanket "over-weight vehicle" permit to make short trips on secondary routes. This suggests that some "costs" may be more correctly identified as information gaps, rather than regulations per se.



tickets that were mainly for trivial infractions such as failure to properly place registration decals on tractors and trailers. The owner suggested that he would be imprisoned if he was personally apprehended in the province that issued the fines. Although transborder routes are not in themselves more prone to such fines, the associated increase in regulation variability increases the potential.

Vehicle configuration restrictions and safety standards were cited as the least important of all vehicle related regulations. With regard to safety standards, most carriers felt that current standards were either lax or at best only adequate, while no carriers indicated that current standards were too stringent. A number of carriers explained that they welcome safety inspections at company facilities rather than enroute, because this allows them to make necessary repairs in the convenience of their own shops, and promotes a company image of safety consciousness. Such an image is desirable from many perspectives, but particularly because safety inspectors must often make judgement calls at inspection stations located hundreds of miles from a company's maintenance facilities.

Although vehicle related restrictions result in lost revenue and added inconvenience for some carriers, discussions with various firms revealed at least two major reasons why their importance has diminished in recent years. First, many U.S. jurisdictions have and continue to relax their standards for both vehicle width and length. For example, all states now permit 102" wide trailers on the U.S. Interstate highway system.

Second, firms operating a limited number of routes on a continual basis may purchase equipment according to the respective regulations, often with a higher level of efficiency than a firm with a vast customer base and no regular routes, who must be prepared to conform with the most restrictive weight and dimension regulations.

#### 5.2.1.2 Taxes, Fees and Other Charges

Of the four major categories, this area of regulation and fee assessment displayed the most variance between Canadian and U.S. respondents. On the U.S. side, the acquisition and maintenance of operating authorities was ranked as most important. This may be partly attributed to the system of obtaining operating authorities in Canada at the time of survey (1987), whereby applications for non-exempt commodities had to pass a "public need and convenience test", and were subject to opposition by carriers presently serving the jurisdiction<sup>17</sup>. U.S. carriers complained about the expensive and time consuming efforts required to obtain Canadian authorities. As one Minnesota based carrier explained:

"Our trucks often return to the U.S. empty because we don't have the proper authority to transport some goods out of Canada. We could save receivers here in the U.S. some transportation costs if we were allowed to haul their products out of Canada, as the Canadian carriers are charging our receivers here an exorbitant tariff. We have tried for the authority but were denied the grant after a hearing."

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<sup>17</sup>While it is true that the Canadian system of granting operating authorities is similar for Canadian and U.S. carriers, it was easier for established Canadian domestic carriers to become transborder carriers from 1980-1988 than it was for established U.S. domestic carriers during the same period.

Canadian carriers ranked the area of taxes most important, and voiced considerable discontent over the myriad of taxes and reporting systems that currently exist among U.S. jurisdictions. A large Manitoba based firm reported that the fuel tax calculations were different in each of the 44 states they operated in, and that the quarterly task of completing fuel tax returns alone required eight working days for one person. Other taxes that are considered burdensome in terms of administration, although usually minimal in terms of actual remittance, were the various property taxes in such states as Kansas, Arkansas and Texas, and the Pennsylvania Axle Tax.

Canadian carriers were not alone in their complaints of fuel tax systems, as several U.S. carriers commented on the collection and use of fuel taxes:

"Fuel reporting could be made easier for U.S. truckers reporting in Canada. Converting gallons and miles to metric is stupid."

"Equal standards among all provinces as to weight, licenses and fuel taxes would be very helpful."

"Our fuel taxes keep going up, but the roads are not being kept up."

Vehicle trip fees were ranked equally important by both U.S. and Canadian respondents. Several carriers explained that since trip permits are often expensive, they are more likely to turn down loads destined for jurisdictions that require trip permits. The option of inter-lining with other carriers to avoid such fees was described by one Illinois based carrier as "most inconvenient". In cases where routes might normally encounter jurisdictions requiring trip fees, the use of alternative routes

may be more economical. For example, a large Ontario based carrier with reciprocal licensing agreements in Minnesota but not North Dakota described how their major routes were planned to bypass "trip fee" states such as North Dakota. Other Canadian carriers have been careful to cultivate freight movements to and from states that hold reciprocal licensing agreements with their base province.

#### 5.2.1.3 Border Crossing Regulations

As might be expected given a survey of this nature, the area of border crossing regulations and practices drew the majority of comments, both positive and negative, from respondents. Regarding inspections at customs, which were ranked the most important area of border crossing regulations, several carriers commented on the attitudes of customs officers:

"Someone should remind the customs agents on both sides of the border that they are working for the governments, U.S. and Canadian, that are made up of tax-paying citizens. These citizens should not be treated like common criminals when crossing the border."

- a Montana based carrier

"I feel that customs officers should treat us more like humans, not criminals, both U.S. and Canadian sides."

- a Minnesota based carrier

"U.S. customs officers are too owly as a rule."

- a Minnesota based carrier

Follow-up interviews showed that truck drivers vary considerably in their outlook and attitudes toward customs officers. The general feeling

however, was that officers could be more helpful, particularly to inexperienced drivers unfamiliar with the required documentation.

One Minnesota based carrier expressed his complaint with Canadian officers this way:

"Searching U.S. trucks for radar detectors that are in tool boxes, not in use, is going a little too far."

Conversely, several carriers expressed only positive viewpoints on border crossings and other regulations:

"In the past 15 years that we have been involved in transborder trucking, we have had no serious problems of any kind. Customs officials, both U.S. and Canadian, have been efficient and pleasant and our waiting time has been minimal."

- a small Minnesota based carrier

"I have been hauling bananas and produce from Texas to Winnipeg for about 10 years. I am an exempt carrier and have no problems with the current regulations."

- an Arkansas based carrier

"Regulations have not been too complicated for us, and Canadian transportation authorities have co-operated with us very well."

- a Minnesota based carrier

"Everything is working real smooth."

- a small Minnesota based carrier

Another area important to many transborder operators is the hours of customs operation. This is more of a problem in western regions, where 24-hour service is less common than for the high volume eastern crossings. An Alabama based carrier commented:

"Hours need to be extended for crossing, as trucks need to be able to cross all weekend long. We cannot cross Monday at 8:00 a.m., make a delivery and reload the same day. By allowing trucks to cross without a late clearance charge, transportation will be speeded up."

A Montana based carrier using the Coutts-Sweetgrass border point suggested:

"Canadian customs hours of service should be 24 hours, same as the U.S. Canadian customs brokers should not be allowed to charge after-hour fees (averaging \$50 per call). This would reduce consumer costs, eliminate weekend tie-up of equipment, and reduce extensive co-ordination required to work around Canadian customs."

A further area of concern to respondents was the complexity and amount of paper work required to clear customs. This has deterred some domestic carriers from pursuing transborder operations, and resulted in some U.S. carriers keeping their transborder operations as simple as possible. For example, a Florida based carrier wrote:

"Our present transborder trucking is limited to pick-up and deliveries to and from Ontario and crossing the border at Detroit-Windsor. We used to truck to other parts of Canada but gave up on this as it was too difficult to locate return freight and clear the border crossing paperwork."

Two other carriers, based in Minnesota and Illinois commented:

"Quicker inspection and paper work at customs offices would be very helpful."

"We need a way to cross the border with less hassle."

Survey respondents were asked to indicate which country their border crossing concerns (such as inspections, hours of operation, etc.) were directed towards. The majority of respondents indicated that both countries were equal offenders. However, of those who singled out one country or the other, it is noteworthy that the majority of Canadian

respondents singled out the U.S., while the majority of U.S. respondents pointed the finger at Canada.

#### 5.2.1.4 Driver Related Regulations

Among the driver related regulations, hours of work regulations were cited as the most important by Canadian and U.S. respondents. This area of regulation requires drivers to rest for at least eight hours following a ten-hour period of duty, and also limits the number of work hours per week to 60. The absence of consistent enforcement in Canada makes it possible for Canadian operators to gain an advantage over their U.S. counterparts by interspersing domestic and transborder trips, but logging only transborder trips. Such reporting enables Canadian drivers to exceed the maximum 60 hours of work per week, and will continue to do so until new regulations under The National Safety Code are enforced.

It seems intuitively correct that the importance of hours of work regulation should increase with the length of routes operated.<sup>18</sup> This conjecture was supported by the survey results. Firms specializing in relatively short hauls between the northeast U.S. and southern Ontario, for example, ranked hours of work regulation lower than firms specializing in long transborder hauls of 1,000 miles or more.

One of the driver related cost factors identified by survey respondents, time spent waiting at border crossings, also affects carriers

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<sup>18</sup> It may also vary with the commodity hauled. For example, livestock haulers are subject to time limits for shipping animals before providing rest, water and feed. In order to satisfy the hours of work regulation and the livestock regulations, either two drivers must be employed, or some relay system must be developed for the drivers.

according to their length of haul. In this case, the short haul carriers who use border crossings more intensively indicated that driver waiting time was an important cost factor, while those firms specializing in long transborder hauls were obviously less affected. One Michigan based carrier operating short hauls via the Detroit-Windsor border point voiced his concern as follows:

"The time delay at U.S. customs is the most costly aspect of our transborder operation."

The other two areas of driver related regulations, driver licensing and residency requirements, were considered to be relatively unimportant by the U.S. respondents. In the case of Canadian residency requirements, this can be explained by the close proximity of most major Canadian cities to the U.S. border. This results in a short (albeit empty) trip back into the U.S. for carriers unable to solicit transborder backhauls. At this point, domestic backhauls may be obtained. A Canadian trucker's predicament is, however, generally much different as described by a large Canadian based carrier:

"U.S. carriers are in a position to compete on a lower cost basis due to more favourable equipment prices and their ability to handle interstate traffic. We are precluded from doing any interstate business because we do not employ U.S. drivers or U.S. tax paid equipment. A U.S. carrier need not worry about getting his equipment back out of Canada because he is rarely more than 200 miles from the border when in Canada. Conversely, when our equipment is in the U.S., we could be 1,000 miles or more from the U.S. border and must wait until we can find a Canadian bound load to get our equipment back to Canada."

The U.S. restrictions on Canadian equipment and drivers have resulted in aggressive marketing strategies by many Canadian firms to



solicit Canadian bound return loads. Furthermore, this situation is alleviated to some extent by natural freight imbalances that favour northbound movements into Canada over Canadian exports to the U.S.

#### 5.2.2 Overall Importance of Four Major Categories

The preceding sections described the importance of various regulations and fees within the four broad areas of regulation. In addition to this information, 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 5.

For Canadian respondents, vehicle related regulations were ranked most important, while this same area was ranked third by U.S. firms. This is partly due to the difference in weight, dimension, and configuration regulations in Canada vis-a-vis the U.S. Since the early 1970's, Canada has enjoyed more lenient regulations. Although U.S. regulations have been relaxed in recent years, they remain 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 case of the "small fish in a big pond", 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.

Of the four major categories, U.S. respondents ranked taxes and fees most important, a reflection of the cost and effort of acquiring operating

Table 5  
Importance of the Four Major Categories of Regulation  
(1 = most important)

Category	Canadian Firms	U.S. Firms
--- <u>average ranking</u> ---		
Vehicle Related Regulations	1.85	2.56
Taxes, Fees and other charges	2.00	1.76
Border Crossing Regulations	2.73	2.13
Driver Related Regulations	3.40	3.43

authority in Canadian jurisdictions. Canadian firms, in ranking this area second, are most affected by the various user taxes assessed by U.S. jurisdictions including the new Heavy Vehicle Use Tax. In discussing the implications of Heavy Vehicle Use Tax, Canadian carriers indicated they would have to take a much closer look at the number of trucks licensed for the U.S. One carrier predicted that a number of their owner operators would cease U.S. operations.

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 the acquisition of necessary driver licenses. A further point mentioned by several carriers was the problem of hiring drivers who had at some time committed a felony. Drivers who have a criminal record may be denied access into the U.S. or Canada, and cannot be bonded.

#### 5.2.3 Carrier Perspectives on a New Canada-U.S. Free Trade Agreement.

The survey included a section pertaining to the Canada-U.S. Free Trade negotiations taking place at that time. Carriers were asked how they expected such an agreement would affect the operations of their business, and answered either "yes" or "no" to four specific areas of change. These areas, along with the results for Canadian and U.S. respondents are presented in Table 6.

The first area, increased transborder traffic, drew a positive response from both Canadian and U.S. carriers: 88 percent of U.S. carriers and 70 percent of Canadian carriers expected volumes to increase.

Trucking firms are aware of the effect of tariffs and other border measures on the location of industry. Over time, they have observed that small changes in freight rates or tariffs impact directly on the volume of freight and direction of travel. As a result, firms involved in transborder traffic have become sensitive to changes in government policy

Table 6

Canadian and U.S. Carriers' Views on the Impact of  
a New Canada-U.S. Free Trade Agreement

Area of Change	Canadian Firms		U.S. Firms	
	- percentages -			
	Yes	No	Yes	No
Increased Transborder Traffic	70	30	88	12
Longer Transborder Hauls	77	23	60	40
Lower Equipment Costs	56	44	34	66
Lower Wage Demands	50	50	12	88

on such matters as trade liberalization and industrial expansion. As one Saskatchewan based carrier pointed out:

"Free trade with the U.S. would make for increased transborder shipping and allow manufacturers lower overall production costs by locating their facilities in the most logical location and shipping finished products to the consumer, instead of forced operation of plants in areas due to pressure created by tariffs and duties or outright government demands."

The second question, pertaining to longer transborder hauls, drew a positive responses from 60 percent of U.S. carriers and 77 percent of Canadian carriers. The higher Canadian response in this instance may be explained by the distribution of major cities in the U.S. and Canada. The few Canadian cities more than 100 miles from the U.S. border make longer transborder hauls more difficult to achieve for U.S. carriers coming into Canada than for Canadian carriers hauling south.

In addition to longer transborder hauls, several carriers commented on the possibility of shifting trade flows as a result of a free-trade agreement. A large Ontario based carrier commented:

"...I anticipate significant changes in transborder trucking with the advent of 'free-trade'. Clearly, 'free trade' will cause the present east-west flow pattern to change to a north-south flow. This fundamental alteration will force motor carriers operating in transborder markets to change their strategic planning and methods of operation."

Respondents were asked whether they thought a free trade agreement would lead to lower equipment costs. The majority of Canadian respondents (56 percent) expect lower equipment cost, but only one-third of the U.S. respondents agree. The current tariffs on U.S. manufactured equipment exported to Canada presently deter many Canadian firms from buying U.S. equipment. The data suggest that the elimination of these tariffs under a new free trade agreement would make the purchase of foreign equipment more attractive to Canadian users.

The last area, the possibility of lower wage demands, shows a perception of higher actual wages in Canada as compared with the U.S.: half of Canadian firms expect lower wages under a free-trade agreement, while only 12 percent of U.S. carriers expressed a reciprocal view. Empirical evidence for the conjecture of relatively higher Canadian wages is unavailable; however, in view of the degree of regulation in the Canadian trucking industry vis-a-vis the U.S., the conjecture may in fact be correct.

#### 5.2.4 Carrier Perspectives on Regulatory Reform of Canada's Transportation Sector

The Canadian government has passed legislation (Bill C-19) which introduces a major regulatory reform of Canada's transport sector. The legislation provides for a more liberal system of granting operating authorities for both domestic and transborder routes. As is currently the case in the U.S., foreign trucks will still be precluded from operating domestic routes but would enjoy much easier access to the market for transborder trucking services.

In order to develop a profile of industry perceptions regarding the effects of regulatory reform, Canadian carriers were asked whether it would improve, worsen or have no effect on their competitive position vis-a-vis U.S. transborder carriers. U.S. carriers were asked the same question vis-a-vis Canadian carriers. The results are presented in Figure 3.

##### 5.2.4.1 Canadian Views

As indicated in Figure 3, the majority of Canadian respondents feel that regulatory reform would worsen their competitive position. The rationale for this view is twofold. One view expressed concern about an influx of small carriers with minimal administrative costs, who would be in a position to bid freight rates down. As one Vancouver based carrier commented:

"Single unit operators do not have the administrative expenses that we incur, therefore our rates would be somewhat higher."

An Alberta based carrier added:

"Deregulation would worsen our competitive position because of the non-contracted owner operators in the U.S. who would then have the opportunity to haul into Canada. With no overhead expense for them, they would be able to move the freight cheaper."

The other major concern regarding competitive position vis-a-vis U.S. carriers pertained to various costs of operation, such as fuel, depreciation and labour. A large Manitoba based firm commented:

"In order for Canadian carriers to be competitive, they must have access to the same cost of equipment, parts, and fuel as U.S. carriers. As well, the tax base and depreciation schedule must be the same for both."

This view was reinforced by an Ontario based carrier, who stated:

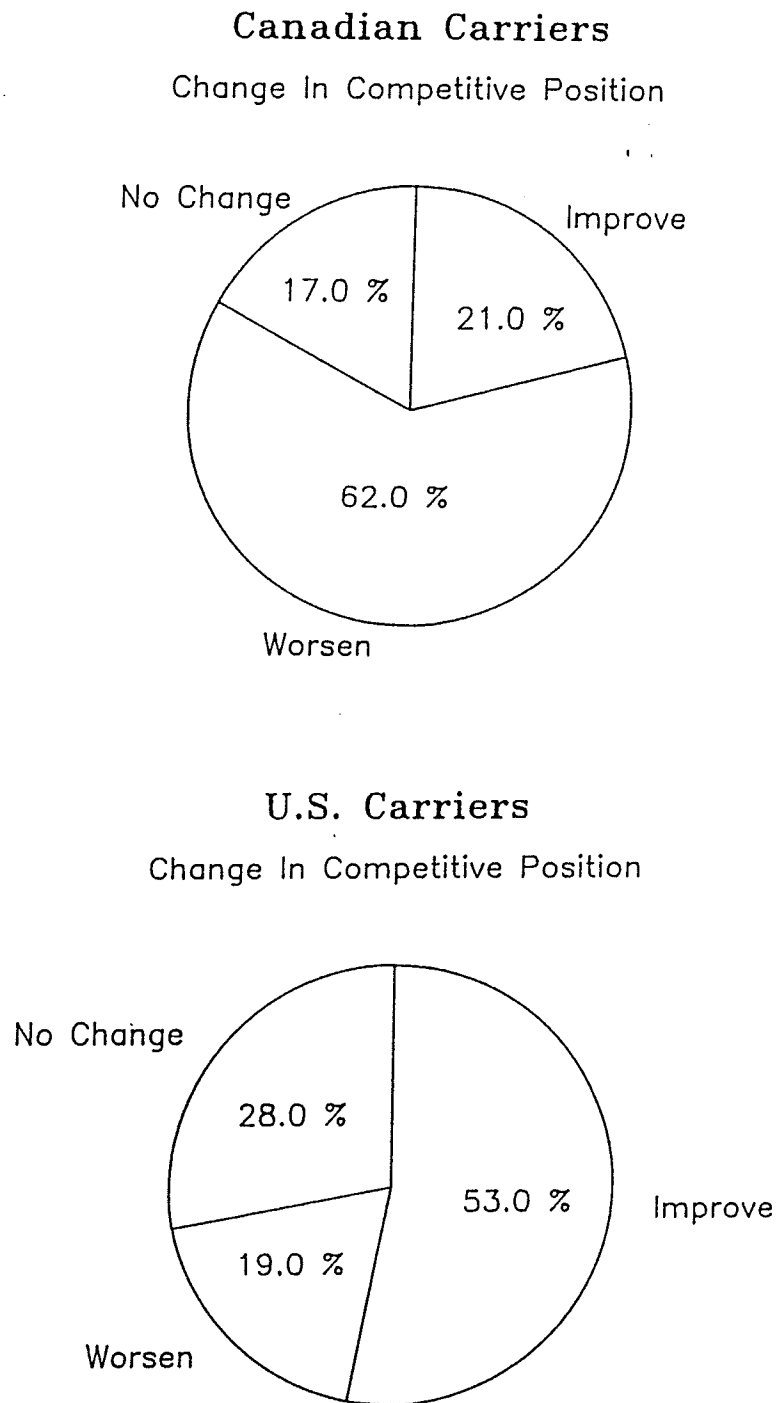
"U.S. carriers are in a position to compete on a lower cost basis due to more favourable equipment prices and lower labour rates."

Despite the pessimism expressed by the majority of carriers, about twenty percent of Canadian respondents foresee an improvement in their competitive position as a result of deregulation. A large Ontario based carrier explained the opportunities he perceived this way:

"We would welcome deregulation as we have structured our operations to operate under those conditions. We have gone to the U.S. market and set up major lanes in all states east of the Mississippi, effectively doing to the American carriers what many Canadian companies fear having to face on their home ground. We feel that competition from U.S. carriers is an opportunity to prove our abilities, rather than something to be feared."

An argument often cited in opposition to a highly regulated transportation industry by both Canadian and U.S. firms is the high cost

Figure 3 Canadian and U.S. Carriers' Views on the Impact of a New Canadian Transportation Policy on Their Competitive Positions in Transborder Trade





of obtaining and defending operating authorities. With regard to this point and other inefficiencies inherent in the present system, a Saskatchewan based carrier observed:

"[Under] deregulation, all trucking firms would be able to compete on a level playing field. As it now stands, large amounts of Canadian trucking dollars are spent in acquiring operating authority and defending against authority applications. The Canadian authority situation does more harm to Canadian trucking trying to protect itself from American competition than good, as it makes it impossible for Canadian trucks to return to Canada with freight unless they have authority in the province where the loads may be consigned to. This severely encumbers smaller carriers with huge cost of sales looking for the proverbial needle in the hay stack."

Several carriers' comments regarding deregulation went beyond competitive position by embracing socio-economic concerns such as regional service and financial stability of individual firms. A Vancouver based firm predicted:

"[The] majority of transborder freight will be controlled by 'fly by night' freight brokers, which will mean lower rates and loss of revenue."

With regard to the future of regional service under deregulation, a large Manitoba based firm queried:

"Any American entrants to the Canadian domestic market will only want to provide service on long haul lanes such as Toronto and Montreal to and from Winnipeg, Calgary, Edmonton and Vancouver. If carriers who now provide a good regional service but rely on long-haul traffic for their base see their base erode--how long will they provide good regional service?"

Perhaps the effect on Canadian firms was best summed up by the carrier who wrote:

"In the U.S.A., the basic acid test is how well a company is managed. If well-run Canadian firms are allowed to compete on an equal footing with U.S. firms without government interference, we could all be better off."

#### 5.2.4.2 U.S. Views

Figure 3 includes the U.S. results regarding the perceived effect on competitive position resulting from deregulation. The majority of firms surveyed feel that their competitive position vis-a-vis Canadian carriers would be improved. The main reasons for this feeling were the prospects of an increased customer base and an expanded list of commodities. As one Michigan based carrier explained:

"We would be able to expand our list of commodities hauled, increasing two-way hauls, as we are now restricted to named commodities."

In addition to comments on the nature of perceived competitive advantages, several carriers indicated that the process of Canadian regulatory reform was overdue. A Michigan based carrier explained:

"While it is expensive and difficult to obtain authority in Canada, it has been very easy for Canadian carriers to get authority in the U.S.A., giving Canadian carriers an unfair advantage."

A similar comment came from this Illinois based carrier:

"It is time for Canada to allow U.S. carriers to compete on an equal basis for this transborder business."

In addition to expressing his concern, the following Minnesota based carrier offered a solution to the inequities he perceived:

"At the present time it is a one-way street. Canadian carriers have all the advantage, even when it comes to paying for our highways. There is no equity whatsoever and we don't believe there will be any until the U.S. takes definite steps to treat Canadian carriers the same as the U.S. carriers are treated in Canada. We believe the U.S. should cancel all agreements and start over."

While Canadian carriers are currently able to obtain 48 state authorities with a minimum of effort and expense, a reciprocal arrangement may soon be available to U.S. carriers for Canadian operating authorities. Under the new National Transportation Act (1988) a "reverse-onus" test will be used to determine operating authority extensions for a five year phase-in period. Subsequent to review of the effects of Bill C-19, operating authorities may be granted on the basis of a "fitness" test.

Many of the U.S. carriers who indicated they would benefit from Canadian regulatory reform haul only exempt commodities, and would thus be in a position to expand into new markets under deregulation. This possibility was underscored by the nineteen percent of U.S. carriers who indicated that Canadian deregulation would worsen their competitive position. An Alabama carrier elaborated as follows:

"[Under de-regulation] more carriers would be allowed into transborder shipping, thus causing a broad influx of new carriers. This would make it harder on us now going across the border."

Another Alabama carrier stated:

"[De-regulation] would provide more U.S. carriers with access to Canada."

In both the Canadian and U.S. survey groups, a minority of carriers feel that Canadian regulatory reform would have no effect on their

competitive position (17 and 28 percent, respectively). Most of these firms did not elaborate, although a few indicated that they had developed markets which they felt would be unaffected by de-regulation.

## CHAPTER 6

### ESTIMATION OF INSTITUTIONAL BARRIERS AFFECTING TRANSBORDER TRADE

#### 6.1 Difficulty of Quantifying Barriers

The survey results suggest that institutional barriers affecting transborder transport (IBATT) are important to carriers. The magnitude of their importance however, is not amenable to direct estimation. Many of the regulatory requirements for transborder shipping are jointly carried out by staff that handle domestic requirements. Consequently carriers could not readily identify the additional costs incurred in operating transborder.

Even if it were possible to develop a quantitative estimate of individual institutional barriers, the results are likely to be misleading. The majority of carriers are affected by a unique combination of the various IBATT. This combination is determined by such factors as base jurisdiction, geographic extent of operations, equipment operated, and commodities hauled. Regulations and fees that are important to one carrier may be insignificant to others, and vice versa.

Certain IBATT are qualitative in nature, and from this 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 is difficult, if not impractical to measure. Nonetheless, this type of inconvenience factor is common among transborder carriers.

The institutional factors discussed above may be considered as a man-made barrier to trans-border trade in contrast to the natural barrier

to trade posed by such costs as fuel, equipment and wages. While direct estimation of the institutional barrier affecting transborder trucking is infeasible, it can be approximated by indirect means. The method chosen to measure the aggregate effect of IBATT involves a comparison of transborder freight rates with domestic freight rates for equivalent loads. Per mile truckload rates for domestic shipments in Canada are compared with southbound transborder shipments, while U.S. domestic shipments are compared with northbound transborder shipments.

## 6.2 Freight Rates as a First Approximation to Transport Barriers

To the extent that carriers accurately recover their costs on transborder and domestic routes by the rates charged on those routes, the rates have the potential to approximate the differences in the costs of operating domestically versus transborder; that is, the man-made or institutional barrier to trans-border trade. Before proceeding with the results of the analysis, it is important to note that the approach described is but a first approximation of IBATT. Some weaknesses of this approach are discussed in the following sections.

### 6.2.1 Overhead Costs

Overhead costs represent a significant percentage of total costs for most trucking firms. As noted in Chapter 5, survey respondents indicated that the administrative load is generally heavier for transborder operations than for domestic operations. It does not follow, however, that the resulting costs are allocated to the applicable hauls. Rather,

most firms indicated that overhead costs were divided equally among the total miles travelled, both domestic and transborder. Only one survey respondent indicated that actual administrative costs on transborder and domestic operations were calculated separately and incorporated into the respective rates.

Differences in overhead costs for transborder versus domestic operations were reported to be large in some cases. For example, one firm described the process of obtaining operating authority for an additional jurisdiction. Before they acquired the authority and began operations, \$60,000 had been spent in the process. This expense could not be recovered from higher than "normal" freight rates because of competition for transborder trade. The costs of gaining the operating authority was viewed as a capital investment by this firm, and in this particular case was paid from revenues on both transborder and domestic routes.

#### 6.2.2 Trucking Firms As Price Takers

Another weakness in the approach of using rates as a measure of IBATT relates to the ability of truckers to recover the total costs of operation. Trucking firms in Canada and the U.S. often consider themselves to be in the position of price takers. A shipper may offer a load to a trucking firm at a certain price, which is either accepted or turned down, or solicit the lowest bid from amongst available carriers.

The segments of the trucking industry that tend towards price taking are generally those which are least regulated. In addition, small trucking firms are more likely to be price takers than medium and large firms. As a result, it is the small firms that most often switch to

alternative shippers and commodities as the opportunities for more favourable returns arise. The weakness of using rates obtained from firms which are price takers is that they are not likely to reflect the true costs of operations in either domestic or transborder markets.

#### 6.2.3 Negotiable Aspect of Rates

Several carriers cautioned against placing too much confidence in quoted rates, as they felt that in reality most rates are subject to negotiation. Although this contention is difficult to verify, several carriers declined to provide rates because they had been negotiated with major shippers and were confidential.

To the degree that quoted rates are overstated, the rates cited by carriers in the survey will be too high. More importantly, if either domestic or transborder rates are affected to a greater extent than the other, their use as a first approximation of the magnitude of IBATT is diminished.

### 6.3 Presentation of Rates

#### 6.3.1 Relevance of the Data Collected

As a result of weaknesses in the survey format and scope, the results should be interpreted with caution. As a general criticism, the survey was spread too thinly both in terms of the geographic extent of respondents and the range of information it sought to extract from participants. It would have been more beneficial to concentrate on a specific freight corridor or region, and perhaps a specific commodity group or trailer type within the geographic area of interest.



Nevertheless, the survey did yield some useful data, including domestic freight rates for both countries as well as northbound and southbound transborder movements.

The survey requested rates for four different trailer types involved in the carriage of agricultural products: dry van, refrigerated van, grain trailer, and livestock trailer. As a result of the difficulties mentioned above, the response for livestock and grain trailer rates was so low that these two trailer types are excluded from further analysis.

The rates for dry and refrigerated vans are presented with the number of observations in parenthesis. Because of the broad geographic range of respondents and the lack of data for certain categories, the data should be considered illustrative of the differences that exist among domestic and transborder rates rather than an authoritative base for further analysis. Furthermore, because of the evolving nature of trucking regulations and particularly the regulatory reform in Canada since the time of the survey, the absolute institutional barrier to trade is constantly changing. Thus, even highly accurate results are subject to increasing irrelevance with the passage of time.

#### 6.3.2 Truckload Rates for Dry and Refrigerated Vans

Participation by survey respondents provided a base of data for analysis consisting of 343 rates for refrigerated and dry vans, approximately half from Canada and half from the U.S. In all cases the rates are expressed in Canadian dollars per truckload mile, and are divided according to the following hauls: Canadian domestic, U.S.

domestic, southbound transborder, and northbound transborder.<sup>19</sup> In addition, domestic hauls are divided into backhauls and fronthaul rates. These data, which have been converted to Canadian dollars for purposes of comparison, are presented in Table 7.

Beginning with Canadian domestic rates, dry vans are \$1.71/mile (fronthaul) and \$1.14/mile (backhaul). The comparable rates for refrigerated vans are \$1.89/mile and \$1.55/mile. Fronthaulls are generally considered to be more important in terms of revenue, and this consideration is supported by the data. Southbound transborder rates are listed as \$1.67/mile for dry vans and \$2.25/mile for refrigerated vans.

The rates for U.S. domestic hauls are \$1.91/mile (fronthaul) and \$1.80/mile (backhaul) for dry vans, with the comparable refrigerated rates listed as \$1.72/mile and \$1.55/mile. Northbound transborder rates are \$1.99/mile for both dry and refrigerated vans.

One of the relationships in the data that is difficult to account for is the relative rates for dry and refrigerated vans within the U.S. For both backhauls and fronthauls, the rates for dry vans are higher despite the higher purchase and maintenance costs associated with refrigerated vans.

Beyond this anomaly however, other rates appear to reflect commodity flows and regulatory differences between Canada and the U.S. In terms of operating authority, most of the 1980's have been characterized by relatively easy access to new 48 state operating authority in the U.S.,

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<sup>19</sup>In most cases, southbound rates were provided by Canadian carriers and northbound rates by U.S. carriers.

Table 7  
Average Truckload Rates for Domestic and Transborder  
Hauls by Trailer Type\*

Type of Haul	Dry Van	Refrigerated Van
	(Canadian \$ per mile)	
Canadian domestic (fronthaul)	1.71 (29)	1.89 (13)
Canadian domestic (backhaul)	1.14 (10)	1.55 (2)
Southbound Transborder	1.67 (83)	2.25 (30)
U.S. domestic (fronthaul)	1.91 (69)	1.72 (22)
U.S. domestic (backhaul)	1.80 (8)	1.55 (13)
Northbound Transborder	1.99 (41)	1.99 (23)

\* number of observations in parenthesis

but much more restricted access to new Canadian operating authority. As a result, many Canadian carriers were able to expand operations into the U.S. during the 1980's, but relatively few U.S. carriers were able to add Canadian jurisdictions to their list of authorities. Furthermore, many U.S. carriers hauling into Canada are limited to a narrow range of low value "exempt" commodities (e.g. peatmoss) for return hauls to the U.S.

In the case of Manitoba, which is well represented in the survey, commodities not on the list of exempt (or designated) commodities include processed fish, fresh or frozen beef, and fresh or frozen pork. In 1987,

these commodities represented Manitoba's most important refrigerated agricultural exports to the U.S., and were hauled predominantly by Canadian carriers. This domination may gradually change, as the new National Transportation Act makes provision for easier access to Canadian operating authority; but at present it remains difficult for U.S. carriers to gain access to this market. In summary, the above scenario is a factor in relatively higher southbound rates for refrigerated commodities listed in Table 7 (\$2.25/mile versus \$1.99/mile), as compared to the more competitive market for similar northbound movements.

The relationship between north-south rates for dry vans is approximately the mirror image of refrigerated van rates. There is an imbalance of dry freight moving between Western Canada and the U.S., with more northbound freight than southbound. This results in an excess capacity of southbound equipment. Furthermore, southbound commodities such as honey, canary seed, and peat moss are listed as "designated" in Manitoba and other provinces. In practice, this allows both U.S. and Canadian carriers to compete in this market. As a result, U.S. truckers are better represented in this market than the refrigerated commodities market. Referring to Table 7, the southbound transborder rate for dry vans is \$1.67/mile, compared to a northbound rate of \$1.99/mile.

#### 6.3.3 Estimation of IBATT

As noted earlier, the difference between domestic and transborder rates is used as a first approximation of IBATT. Specifically, Canadian domestic fronthaul rates are compared with southbound transborder rates to estimate the barrier to Canadian exports while U.S. domestic fronthaul

rates are compared with northbound rates to estimate the barrier to U.S. exports. Calculating the difference yields the results in Table 8.

Table 8  
Differences in Domestic Fronthaul and Transborder Rates

Barrier to:	Dry van	Refrigerated van
	(cents/mile)	
Southbound movements	-4	36
Northbound movements	8	27

In the case of dry vans, the data indicate a negligible transport barrier specific to transborder trade. For northbound movements, the transborder rate is 8 cents/mile higher than the U.S. domestic rate; the southbound transborder rate is 4 cents/mile less than the Canadian domestic rate, indicating a negative barrier.

For refrigerated vans, the barrier to trade is considerably higher. Southbound rates are 36 cents/mile higher than Canadian domestic rates; northbound rates are 27 cents/mile higher than U.S. domestic rates. In the case of refrigerated vans, the differences are statistically significant when tested using a t-test at the 95 percent confidence level.

These data indicate that institutional and regulatory factors pose a negligible barrier to the transborder movement of freight in dry vans, but a considerable barrier to the movement of refrigerated products. Chapter 7 examines the plausibility of this result, as well as some of the related implications.

#### 6.3.4 Length of Haul

The rates provided by survey respondents pertain to a specific origin-destination pair. To examine the effect of distance on rates, rates for refrigerated vans were divided into three mileage categories: less than 500, 500-1200, and greater than 1200. The average transborder and domestic fronthaul rates for each of these categories, as well as their differences are presented in Table 9.

There are two general conclusions that may be drawn from Table 9. First, transborder rates are, on average, higher than domestic fronthaul rates. In the Canadian-southbound category, the difference is 24 cents per mile, while in the U.S.-northbound category, the difference is 29 cents per mile. Second, the barrier per mile decreases with trip length. For hauls of less than 500 miles, both northbound and southbound transborder rates are considerably greater than domestic rates. For hauls longer than 500 miles, the spread decreases dramatically, and is negative for three of the four remaining differences. The results for the individual mileage categories do not taper smoothly, and this is a function of the lack of data for this disaggregation. More confidence should be placed in the average column which, as stated above, shows the cost of transborder movements to be higher than equivalent domestic fronthaul movements. Further research with larger samples of freight rates for specific regions and trailer types is needed in order to develop a more definite profile of the magnitude of barriers.

The concept of a decreasing barrier per mile as trip length increases is not unique to this study, for it can be compared to the

Table 9  
Effect of Distance on Refrigerated Van Rates

Type of Haul	Distance			Weighted Average
	<500	500-1200	>1200	
	(Canadian \$/mile)			
Southbound Transborder	3.43	2.16	1.68	2.11
Canadian Domestic Fronthaul	2.50	2.42	1.62	1.87
Difference	.93	-.26	.08	.24
Northbound Transborder	2.79	1.78	1.63	2.00
U.S. Domestic Fronthaul	1.74	1.82	1.64	1.71
Difference	1.05	-.04	-.01	.29

general effect of distance on the establishment of freight rates. A load moved between two points incurs the cost of loading, unloading and various administrative costs, which may be considered fixed and are largely 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 vary with trip length. Since the former fixed costs are divided among the mileage for a given haul, the total cost per mile should decrease with the length of haul. This hypothesis is supported by the data in Table 9.

Similarly, regulations, fees and practices that pertain to transborder 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 purchase a trip permit increases with the distance travelled, and is a variable cost.

The survey results and follow up interviews indicated that most IBATT are fixed for a given haul, and thus are spread over the distance travelled. The result is relatively high barriers to trade for short hauls. Although the total barrier continues to increase with distance, when expressed on a per mile basis, the barrier to trade decreases as length of haul increases.



## CHAPTER 7

### DISCUSSION OF RESULTS, IMPLICATIONS, AND FUTURE PROSPECTS

#### 7.1 Estimated Barriers versus Actual Barriers

The data presented in Chapter 6 estimate the magnitude of transport-related barriers to Canada-U.S. agricultural trade. Discussions with trucking firms in both Canada and the U.S. indicated that estimates developed from survey data may not represent the full additional cost imposed by IBATT. This results from the following considerations.

First, the practice by most firms to apportion overhead costs evenly among all routes, both domestic and transborder, results in lower transborder rates and higher domestic rates than if such costs were apportioned according to those actually incurred. This reduces the spread between transborder and domestic rates.

Second, the nature of competition in the market for trucking services may result in operation below long run total cost. When asked about relative costs for operating domestically or transborder, the majority of firms indicated that their costs were higher on transborder operations. However, many of these firms added that the competitive environment did not allow them to incorporate those extra costs into transborder rates.

Third, trucking firms also face institutional, regulatory, or other "man-made" barriers within their domestic markets. Comparisons of domestic and transborder freight rates likely underestimate the total value of the "man-made" barriers on transborder hauls; but such

comparisons could estimate the additional barrier applicable to transborder traffic.

Notwithstanding these limitations, it can be argued that from the shipper's perspective, the spread between domestic and transborder rates is the effective barrier to transborder trade. If the competitive environment, or other factors, do not allow trucking firms to charge the full cost of operating transborder, it may lead to internalized cross-subsidization and/or lower profits. It is the spread between domestic and transborder rates, however, that determines the relative profitability of serving the domestic and export markets. This argument concludes that policy makers should concentrate on what is, rather than on what might occur in theory.

Alternatively, it can be argued that whether or not carriers are able to recover the cost of institutional factors affecting transborder trade, these factors exist. Insofar as they restrict trade, efforts should be made to reduce complexities and irritation for carriers.

## 7.2 On the Relative Importance of IBATT

Tariff and non-tariff barriers that limit the exchange of agricultural commodities exist on both sides of the Canada-U.S. border. 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 supersede the effects of small changes in price resulting from inflated transport costs. For example, quotas imposed by the United States on 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 other restrictive non-tariff barriers pre-determine the volume of trade flows, transport related barriers can be considered as insignificant. For those commodities that are relatively free from customs tariffs or other non-tariff measures however, transport costs may pose a significant barrier to trade. The following section considers the effect industry structure can have on transport-related barriers.

#### 7.2.1 Industry Structure

The ability and desire of an importing country to produce and be self-sufficient in a given commodity, or to protect a domestic industry, may affect the importance of IBATT.

For example, consider two food commodity trade flows - livestock and meat products moving south versus horticultural products shipped north. The U.S. currently levies a countervailing duty on live hogs imported from Canada while beef imports are subject to a counter-cyclical import quota. These trade measures can be linked to the increasing volumes of Canadian imports that threaten the U.S. domestic meat producing and processing industry. On the other hand, Canada's climate restricts the number of horticultural products that may be produced domestically during the summer months, and renders it dependent on imports for most horticultural products for much of the year. Canada has elected to protect its horticultural industry in the summer months by imposing seasonal import tariffs.

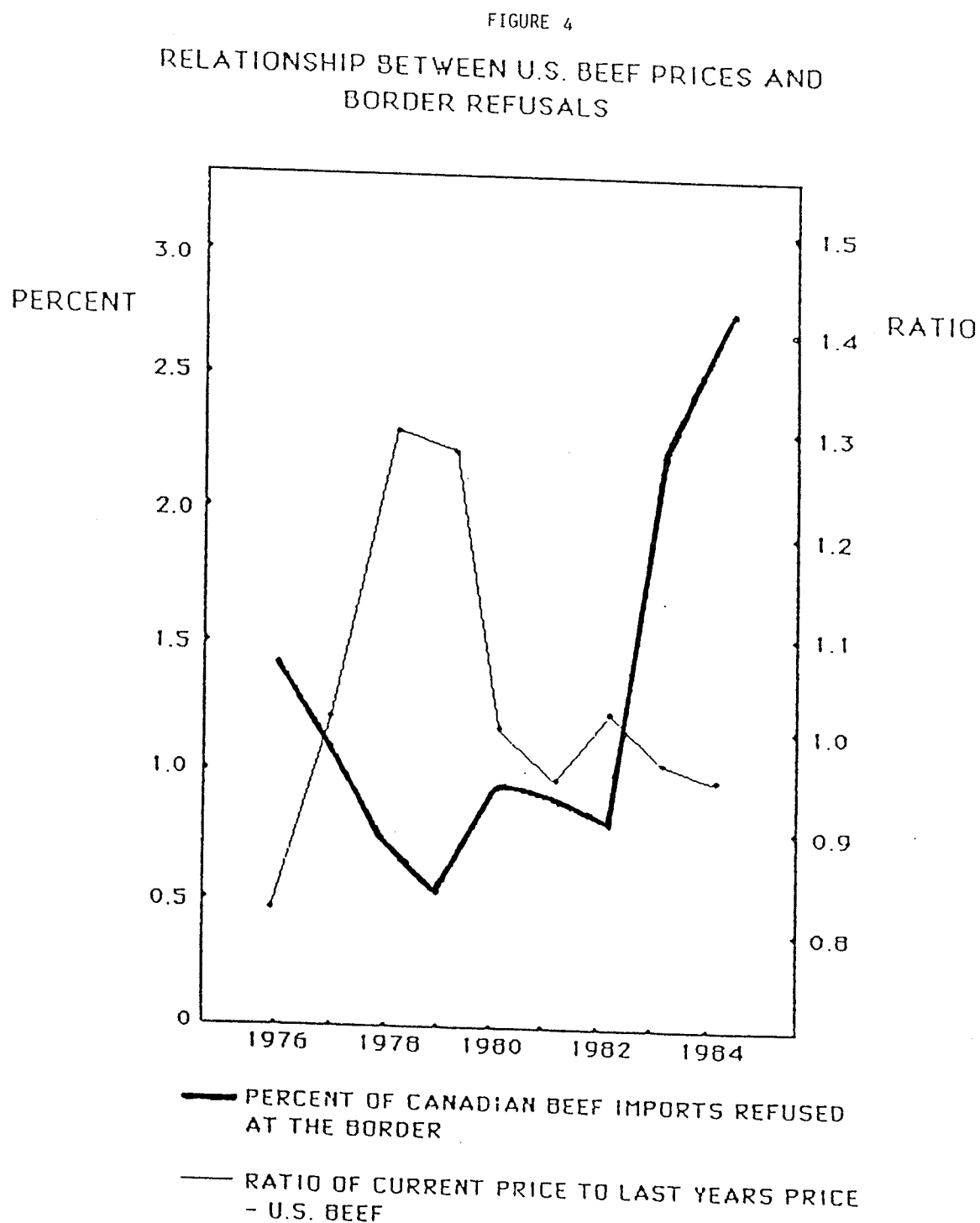
The scenario then, is that of a U.S. meat industry that has some protection from imports, and a Canadian horticulture market largely dependent on imports. Truckers involved in the transport of both commodities contended that IBATT, including various inconvenience factors, were considerably greater for meat products moving south than for horticultural products shipped north into Canada. While these practices and regulations may be related to the nature of meat versus horticulture, and the health hazards they are capable of harbouring, it appears that given an incentive to control the level of imports of a given commodity, the means can generally be found.<sup>20</sup>

This argument is supported by Kerr, et al., in a study of trade barriers and the western Canadian livestock industry. Kerr examines the relationship of the level of Canadian beef and pork imports refused by USDA officials and U.S. beef and pork prices. Certainly there will be legitimate refusals of product over time but one would expect these to be relatively constant from year to year. Kerr suggests that this does not appear to be the case for beef. Figure 4 plots the percent of beef imports refused against the ratio of current beef prices to the previous year's price. The data indicate that when U.S. prices are falling, refusals of product increase, and vice-versa. This trend apparently resulted from domestic pressure for stricter application of USDA inspections when prices were falling. Although the magnitudes are not

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<sup>20</sup> For example, in 1985 South Dakota banned the import of Canadian hogs on the basis of a CFDA license for the drug "Chloramphenicol" in response to the continued movement of Canadian hogs after the U.S. countervailing duty took effect.

Figure 4 Relationship between U.S. Beef Prices and Border Refusal



Source: Statistics Canada, Catalogue 65-202, Annual  
Meat and Poultry Inspection, Report of the Secretary of Agriculture  
to the U.S. Congress, Annual.

strictly symmetric and the evidence is inconclusive, there appears to be an inverse correlation in the movement of prices and refusals for beef.

#### 7.2.2 Commodity Flows between Manitoba and the U.S.

Commodity flows between Canada and the U.S. vary greatly among the regions between the two countries. Aggregate import and export data for the two countries are unlikely to be representative of any particular region. To gain an appreciation for the implications that IBATT have for a specific jurisdiction, this section examines agricultural trade flows between Manitoba and the U.S.

Table 10 presents major agricultural exports from Manitoba to the U.S. for 1987.<sup>21</sup> The three most important commodities listed are pork, fish and beef, which together generated over \$100 million in export revenue. Other less important commodities include honey, canaryseed, fresh potatoes and frozen potato products. The last column in Table 10 lists the principal destinations for these exports, and shows that the majority are destined for the Great Lakes states and the Northeastern U.S.

Table 11 lists major horticultural imports from the U.S. to Manitoba in 1987. Among the most important commodities in terms of tonnage are oranges, head lettuce, and tomatoes. The last column again indicates the principal source(s) for the various commodities, and shows that the majority of these products are shipped from California. More precisely,

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<sup>21</sup>Tables 10 and 11 exclude commodities transported in grain and livestock trailers. The observations and implications that follow pertain to the commodities listed in the tables.

Table 10

Major Agricultural Exports to the U.S.: Manitoba, 1987

Commodity	Tonnes	Principal Destination
Canaryseed	4,726	North-central U.S. <sup>(1)</sup> Oklahoma, Texas
Fish	10,070	Great Lakes States <sup>(2)</sup> California
Fresh or Frozen Beef	6,356	Great Lakes States Northeastern U.S. <sup>(3)</sup>
Fresh or Frozen Pork	21,635	Great Lakes States Northeastern U.S. <sup>(3)</sup>
Fresh Potatoes	4,946	Great Lakes States North-central U.S.
Frozen Potato Products	1,278	Great Lakes States North-central U.S.
Honey	2,390	Great Lakes States Northeastern U.S.

<sup>1</sup> Minnesota, North Dakota, South Dakota<sup>2</sup> Wisconsin, Illinois, Michigan, Indiana, Ohio<sup>3</sup> States north of MarylandSOURCE: Statistics Canada, Special Data Run

Table 11

Major Horticultural Imports from the U.S.: Manitoba, 1987

Commodity	Tonnes	Principal Source
Apples	3,200	Oregon
Broccoli	1,496	California
Cabbage	1,996	Texas
Celery	3,313	California
Grapefruit	2,897	Florida, California, Texas
Grapes	2,403	California
Head Lettuce	7,355	California
Yellow Onions	2,683	Washington, Texas, Oregon
Oranges	8,123	California
Potatoes	3,869	Minnesota, California
Tomatoes	5,198	Florida, California

SOURCE: Agriculture Canada, Annual Unload Report: Fresh Fruits & Vegetables, 1987.



further data taken from the 1987 Annual Unload Report shows that 72.7 percent of the commodities listed in Table 11 originate in California.

### Observations

Several additional observations can be made from these data. First, most of Manitoba's agricultural exports listed in Table 10 are hauled distances of 1000 miles or more. Chicago (860 miles) represents the closest major market within the Great Lakes states; most other major cities in states bordering the Great Lakes and states in Northeastern United States are over 1000 miles from Winnipeg.

Second, Manitoba horticultural imports from the U.S. are also hauled long distances, with the majority originating in California (approximately 2150 miles). Other sources include Texas (approximately 1600 miles), and Florida (approximately 2300 miles).

The third observation is an obvious result of the first two; export destinations for Manitoba's agricultural exports are almost entirely different from sources of imported horticultural products. Whereas most horticultural products originate in California, Texas and Florida, most exports are shipped to Northeastern United States, the Great Lakes states, and to a lesser extent, the tri-state area comprised by Minnesota, North Dakota and South Dakota. In exception to this, minor quantities of fish, beef and pork are shipped to California and several other western states, but this does not mitigate the basic observation.

### Implications

The analysis in Chapter 6 suggested a declining barrier to trade with distance. It follows that since the commodities listed in Tables 10 and 11 generally travel long distances, they face relatively low transport-related barriers to trade when expressed on a per mile basis. But this assessment is only partially correct.

In the case of exports from Manitoba, meat and fish are clearly dominant. Chapter 4 of this thesis describes the inspection procedures relating to Canadian meat exports. The perceived cost of these procedures, even when spread over long distances, can deter carriers from seeking entry to this market. This is particularly true for U.S. carriers that haul produce into Manitoba from the southern states. Of course, many of these carriers lack the proper operating authority to haul meat in Canada, or have had their applications for authority turned down. As noted earlier, access to such operating authority is becoming easier as a result of Canada's regulatory reform.

Another factor in this discussion is the preference of Manitoba exporters of meat and fish to use Canadian carriers. For example, a spokesman for the Manitoba Freshwater Fish Marketing Corporation (MFFMC), the sole exporter of fish from Manitoba, indicated that 100 percent of fish trucked to the U.S. is hauled by Canadian carriers. Because the MFFMC deals in a highly perishable commodity, they require carriers who can serve them on very short notice. This results in using Winnipeg based carriers as opposed to U.S. produce carriers who may not be available to pick up southbound loads when needed.

Similarly, the Canadian meat packers have become accustomed to the availability of refrigerated trailers waiting in their parking lot. Canadian trucking firms compete for loads by dropping off trailers and letting the shippers use these vehicles as "free" storage space, until they are summoned to haul the load to the final destination.

One of the results of IBATT and other institutional factors is that two groups of carriers are, in effect, serving Manitoba. One group of carriers hauls refrigerated products southbound to the United States, while the other is oriented towards hauling horticultural products north to Manitoba.

Most Canadian exports to the Northeast and Great Lakes states are hauled by Canadian firms. These markets are typically not far from the Canadian border, and backhauls can be obtained from the northern U.S. or eastern Canada.

In terms of northbound refrigerated movements into Manitoba, much of the produce originating in the southern states is hauled by U.S. carriers. In addition, some Canadian carriers haul honey, peat moss, meat and fish to the southern states and return with horticultural goods. The majority of produce, however, arrives in Manitoba on U.S. trailers. These operators generally reload in U.S. cities located reasonably close to the border, or pick up low value backhauls in Canada such as peat moss.<sup>22</sup>

Commodity flows suggest that lack of information can represent a major obstacle to truckers wishing to enter new markets. This is evident

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<sup>22</sup> The indication from U.S. operators is that they like the simplicity of hauling commodities such as peat moss, because it allows them to return home quickly and reload.

in the indifference of some U.S. carriers towards hauling meat, who feel that the process is overly complex, and generally "more trouble than it's worth". Such attitudes are not unreasonable or surprising, since U.S. produce haulers are geared towards their fronthaul (produce), and after unloading in a foreign country their main priority is to return home. If a backhaul in the bordering states of Minnesota or North Dakota is reasonably certain, the penalty of travelling 100-200 miles empty is not sufficient to encourage the effort to find a load in Canada.

At the same time, the movement of over 15,000 refrigerated loads of horticultural products from the U.S. into the three prairie provinces each year represents a significant opportunity for the shipment of value added agricultural products into the U.S., particularly California. The fact that a large proportion of these trucks now return to the U.S. empty or haul non-perishable goods from Canada accentuates this opportunity. This is an area that should be researched further, as mentioned in the section on further research needs in Chapter 8.

To summarize, the situation in Manitoba has evolved such that most agricultural products that move in dry or refrigerated vans are shipped to the Northeast and Great Lake states. These are hauled predominantly by Canadian carriers, mainly because of a historic near-monopoly on the necessary operating authority, and partly because of the informational barrier preventing U.S. carriers from pursuing this market. Horticultural imports to Manitoba, of which there were some 73,391 tonnes from the United States and Mexico in 1987, are largely hauled by U.S. carriers. To some extent, this stems from the natural advantage associated with being located at or near the source of the product. In both cases, the

transport-related barriers to trade become less formidable as carriers become more familiar with procedures, regulations, and other requirements. The most significant barrier seems to be initial entry into the market. And as described for fish and, to some extent, meat exports from Manitoba, this barrier is quite formidable, at least for U.S. carriers. Not only is the necessary operating authority difficult to acquire, there is a certain unwillingness to use U.S. carriers, albeit for practical reasons.

### 7.2.3 Canada-U.S. Free Trade

The Canada-U.S. Free Trade Agreement (FTA) will eliminate customs duties on a wide range of commodities and manufactured goods. While some tariffs are subject to immediate removal, the majority of reductions are to be phased in over ten years and up to twenty years in a few cases. In addition to the removal of customs duties, some of the non-tariff measures such as the institutional barriers discussed in this thesis, are subject to revision because of the FTA.

As noted in Chapter 4, technical standards are a source of frustration for many transborder operators. Under the FTA, both countries have agreed to work towards the harmonization of inspection standards on agricultural and food products. This element of the treaty is of special interest to those industries with significant export possibilities, as well as those affected by current inspection procedures, such as the transborder motor carriers.

Not only have principles been agreed upon to prevent the misuse of technical standards as barriers, but a number of specific border irritants have been resolved a well. Examples include the U.S. threat to implement

a full meat inspection station at the border; abolishing origin-staining requirements for seeds; setting criteria for regional recognition of disease free areas; and provision of mutual accreditation of certain government inspectors (Government of Canada, Free Trade and Agriculture; p. 16).

Carriers are well aware of present regulations and procedures pertaining to transborder hauls, and are often reluctant to enter markets that are perceived as unduly complex. This reluctance is compounded by the necessity to conduct business in a foreign country when hauling transborder. The harmonization of technical and inspection standards and the reduction of other border irritants are likely to be positive for carriers, shippers and consumers. Besides the obvious benefit for carriers of a less complex system, possible spin-offs from the reduction of transport-related barriers to trade include new carriers entering the market, better service for shippers, and larger, more extensive trade flows.

The FTA appears to go beyond the removal of formal tariffs by making progress towards the reductions of institutional barriers affecting transborder trade. At the same time, the eventual effects of the Agreement are uncertain. To some extent, future effects will depend on the attitudes and objectives of those who implement and administer the Free Trade Agreement, both in Canada and the U.S.

## CHAPTER 8

### SUMMARY AND CONCLUSIONS

This thesis was undertaken to examine the regulations, fees and practices that pertain to Canada-U.S. transborder trucking, and their effect on the movement of agricultural products. A mail survey and 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 transborder and domestic routes, which were used to approximate the relative importance and magnitude of present institutional barriers affecting transborder trade (IBATT).

Rules and regulations governing trucking are, to a great extent, established and enforced at the state and provincial levels. Historically, this has resulted in considerable variation in standards and requirements across jurisdictions. As well, these rules and regulations have been subject to considerable change over time, and continue to change in the present era. As a result, documenting and assessing trucking regulations is a formidable challenge (which can be likened to aiming at a moving target). The process of change in regulation has associated with it a further implication; research and analysis in this area does not remain "current" for a long time. This problem is not unique to the study of trucking regulations, but seems more pronounced in this area than in other areas of research.

Transportation costs limit the trading radius of most goods. When expressed as a percentage of commodity value, transport costs add more to

the total cost of low value commodities than for those of higher value. It follows that the limitation on trading radius attributable to IBATT, for example, is inversely proportional to commodity value.

For purposes of exposition and analysis, transport-related barriers were grouped into the following classifications: vehicle-related regulations, driver-related regulations, costs and practices associated with border crossings, and taxes and fees that affect the costs of transborder traffic. These areas were ranked by survey respondents in terms of their effect on the cost of transborder operations. The summary results, as discussed in Chapter 5, are presented below in Table 12.

Table 12  
Importance of the Four Major Categories of Regulation  
(1 = most important)

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

Vehicle-related regulations were ranked most important by Canadian firms, followed by taxes and fees, border crossing regulations, and driver-related regulations. U.S. carriers ranked taxes and fees most important,



followed by border crossing regulations, vehicle-related regulations, and driver-related regulations.

The magnitude of IBATT was estimated by comparing domestic and transborder truckload rates for dry and refrigerated vans. The results indicate a negligible barrier associated with dry vans; for refrigerated vans, the data indicate an additional freight charge of 27 cents for northbound transborder shipments, and 36 cents for southbound transborder shipments. These results are based on limited data and are qualified in Chapter 6. The effect of length of haul on the extra charge attributable to IBATT was also examined. The spread between domestic and transborder rates (per mile) was found to diminish with trip length. This is the result of spreading the cost of extra paperwork and border crossings over the length of a given trip; as trip length increases, the extra cost per mile decreases.

### Conclusions

1. Transport-related barriers vary in importance and range from minor inconveniences to the near-absolute. In terms of the latter, the most prohibitive barrier for an individual firm is the lack of necessary operating authority. Most barriers can be overcome by a reasonable combination of time and money.

2. The aggregate effect of IBATT is significant. Using average truckload rates, they were estimated to add approximately 27 to 36 cents per mile to transborder shipments in refrigerated vans. This extra charge

decreases on a per mile basis as trip length increases, and thus imposes the greatest relative penalty on commodities moving short distances.

3. The procedures, rules and other requirements are less formidable for carriers who become familiar with them. This familiarity comes with experience. However, this progression does not help carriers who feel sufficiently overwhelmed by IBATT to keep them from entering the market.

4. It is not practical to suggest that IBATT could be entirely eliminated. An international boundary such as exists between Canada and the U.S. is responsible for monitoring traffic of all types, and in so doing constitutes a barrier to trade. It is possible, however, to reduce the inequities and inconsistencies that exist, and thereby reduce the level of IBATT.

5. The process of reducing barriers to trade is an ongoing process. The area of transport barriers was addressed in the Canada-U.S. Free Trade Agreement (FTA), and the provisions in the FTA for progress in this area are significant. It is very possible that significant progress will be made in reducing the level of transport-related barriers; the extent of this progress will depend on the attitudes and objectives of those who implement the FTA, in Canada and the U.S.

6. Recent legislation implementing regulatory reform of Canada's transportation sector began the process of making extra-provincial

operating authority easier to obtain. After a five year transition period ending in 1992, the industry is scheduled to be deregulated to a similar extent as now prevails in the U.S. When the process of regulatory reform in Canada is complete, the fundamental barrier of acquiring operating authority for transborder operations between Canada and the United States should be eliminated. This will likely have considerable implications for the relative cost of transborder truck shipments.

## 8.1 Areas for Further Research

### 1. Value-added Backhauls from Western Canada

Canada is heavily dependent on U.S. imports of horticultural products. In 1987, the prairie provinces alone imported more than 300,000 tonnes or 15,000 truckloads of horticultural products from the United States. Many of these trucks return to the U.S. empty, or haul non-agricultural commodities. This represents a major lost opportunity for Western Canada to diversify its economy through the export of value-added agricultural products. The above data suggest significant logistical potential for value added exports to the U.S., and this potential has recently been enhanced as a result of Canadian regulatory reform. Research into the U.S. consumer market, domestic processing capability, and logistic and economic potential should be initiated for agricultural commodities produced in Western Canada.

### 2. Regional Transport Barriers

Research of transport-related barriers focusing on a single region, or transborder traffic lane, would overcome many of the limitations

encountered in trying to develop meaningful estimates of the IBATT. The scope of the present study encompassed such a large geographic area that the IBATT is only an indicative average of the barriers to transborder trucking rather than a useful scale that could be widely applicable. A study of single regions could also be useful to explain the relative comparative advantage of location and to provide policy analysts and planners with direction for the focus of regional development and trade initiatives.

### 3. Transport Barriers to Specific Commodity Groups

The present study began by aggregating four trailer types, which was subsequently reduced to two. Many of the institutional barriers examined apply to all trailer types, however, and thus this aggregation did not significantly diminish the usefulness of the study. At the same time research of transport-related barriers focusing on a specific commodity, commodity group, or trailer type would have the benefit of exploring the chosen area in greater detail.

### 4. Free Trade Impacts

The Canada-U.S. Free Trade Agreement has the potential to bring about significant change in the transborder trucking industry, as outlined in section 7.3. There are two related processes that should be monitored. First, the progression of the FTA and the extent to which technical and other barriers affecting transborder trucking are reduced. Subsequently, it would be useful to examine the effect of these reductions have in such areas as freight rates, commodity flows, and industry structure.

## 5. Regulatory Reform Impacts

The regulatory reform of Canada's transportation sector, which took effect on January 1, 1988, makes it easier to acquire extra-provincial operating authority until 1992. Beginning in 1993, such authority will be granted without opposition, provided applicants meet certain criteria pertaining to finances, and safety. These changes are likely to effect considerable change in both domestic and transborder markets. It will be useful to monitor new applications for authority, applications for additional authority, and the commodities that applicants wish to haul. The direction of these basic indicators will open up new areas for research as the new era of transport regulation unfolds.

## 6. Effective Rates of Protection

Several trade theorists, such as Cordon and Leith, have developed formal definitions and methods for developing Effective Rate of Protection (ERP) indices. The ERP concept is useful in analyzing the protective structure for outputs (final goods) versus inputs (intermediate goods and raw materials). For example, a tariff on imports of automobiles in a given economy can be expected to encourage domestic auto production, but a simultaneous imposition of a tariff on steel could partly offset the protective, resource-allocational effect of the tariff on automobiles. [Bhagwati; p. 126]

Research in the area of Effective Rates of Protection attributable to IBATT would be useful to assess the full impact of transport barriers for value added versus unprocessed commodities. This could be applied to

the livestock industry in Canada, which exports live animals (for feeding and slaughter), as well as meat at various stages of processing.

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## **APPENDICES**

## APPENDIX 1

### Reciprocity Agreements Between Provinces and States

#### 1. British Columbia

British Columbia has reciprocity agreements under the Uniform Compact Plan (UCP)<sup>1</sup> with the following states:

Alaska	Kansas	North Dakota
Arizona	Minnesota	Oregon
California	Missouri	South Dakota
Colorado	Montana	Utah
Idaho	Nebraska	Washington
Illinois	Nevada	Wyoming
Iowa	New Mexico	

#### 2. Alberta

Alberta has reciprocity agreements under the International Registration Plan (IRP)<sup>1</sup> with the following states:

Alabama	Michigan	South Carolina
Arizona	Minnesota	South Dakota
Arkansas	Mississippi	Tennessee
California	Missouri	Texas
Colorado	Montana	Utah
Connecticut	Nebraska	Virginia
Idaho	North Carolina	West Virginia
Iowa	North Dakota	Wisconsin
Kansas	Oklahoma	Wyoming
Kentucky	Oregon	
Louisiana	Pennsylvania	

Alberta has reciprocity agreements under the Uniform Compact Plan (UCP) with the following states:

Alaska	Minnesota	Oregon
Arizona	Missouri	South Dakota
Colorado	Montana	Utah
Idaho	Nebraska	Washington
Illinois	Nevada	Wyoming
Iowa	New Mexico	
Kansas	North Dakota	

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<sup>1</sup> Both the UCP and the IRP are based on a mileage pro-rate system. That is, carriers pay a proportion of a state's full registration fee, equal to the proportion of miles travelled in that state to total miles travelled.

3. Saskatchewan<sup>2</sup>

Saskatchewan has partial reciprocity agreements<sup>3</sup> with the following states:

Minnesota	- 28,000 16 Farm Trucks: full and free
	- P.S.V.: one half cent per ton mile
Montana	- P.S.V. and Commercial: half of normal registration
North Dakota	- P.S.V. and Commercial: \$10.00 per ton registration
Wisconsin	- one fifth normal registration fee

4. Manitoba

Manitoba has full and free<sup>4</sup> reciprocity agreements with the following states:

Alabama	Michigan	Pennsylvania
Arizona <sup>5</sup>	Minnesota	South Carolina
Arkansas	Missouri	South Dakota
California	Montana	Texas
Florida	Nebraska	Utah
Georgia	New Jersey	Virginia
Illinois	New York	Washington
Indiana	North Carolina	West Virginia
Iowa	Ohio	Wisconsin
Kansas	Oklahoma	
Maryland	Oregon	

Manitoba has partial reciprocity agreements with the following state:

North Dakota-reduced fee for license registration or single trip permit

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<sup>2</sup> In addition to the agreements listed here, several amendments and agreements are currently being negotiated.

<sup>3</sup> In addition, several agreements relating to charter buses exist.

<sup>4</sup> Under full and free reciprocity, carriers merely register with the various states. The registration cost per state is nominal.

<sup>5</sup> Arizona based vehicles have full reciprocity, and no registration fee. Manitoba based vehicles, however, pay single trip fees on entering Arizona.

5. Ontario

Ontario has full and free reciprocity agreements with the following states:

Alabama	Massachusetts	Oregon
California	Michigan	Pennsylvania
Colorado	Minnesota	Rhode Island
Delaware	Mississippi	South Carolina
Florida	Missouri	South Dakota
Georgia	Montana	Tennessee
Illinois	Nebraska	Texas
Indiana	New Hampshire	Vermont
Iowa	New Jersey	Virginia
Kentucky	New York	Washington
Louisiana	North Carolina	West Virginia
Maine	Ohio	Wisconsin
Maryland	Oklahoma	

6. Quebec

Quebec has full and free reciprocity agreements with the following states:

Alabama	Maine	Oklahoma
California	Maryland	Oregon
North Carolina	Massachusetts	Pennsylvania
South Carolina	Michigan	Rhode Island
Colorado	Minnesota	Tennessee
Connecticut	Mississippi	Texas
Delaware	Missouri	Vermont
Florida	Montana	Virginia
Georgia	Nebraska	West Virginia
Indiana	New Hampshire	Washington
Iowa	New Jersey	Wisconsin
Kansas	New York	
Louisiana	Ohio	

7. New Brunswick

N/A

8. Nova Scotia

Nil

9. Prince Edward Island

Nil

10. Yukon Territory

Nil

11. Northwest Territory

Nil

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Source: Canadian Conference of Motor Transport Administrators.

# APPENDIX 2

CONFIDENTIAL

## Trans-border Trucking Survey 1987

If questions cannot be answered in the spaces provided, please use the back.

1. a) Firm Size: Approximate number of highway tractors: Less than 10 \_\_\_\_\_  
 10 - 25 \_\_\_\_\_  
 25 - 100 \_\_\_\_\_  
 100 + \_\_\_\_\_

b) What city is the major base for your operations? \_\_\_\_\_

2. Which of the following food products does your firm carry?

- |  |   |
|--|---|
| a) designated/exempt<br>food products _____          | b) fresh/frozen foods<br>(non-exempt) _____ |
| c) canned/processed food<br>(non-refrigerated) _____ | d) no food products _____                   |

3. What percentage of your business is U.S.-Canada trans-border traffic?  
 \_\_\_\_\_

4. Which regulations on trans-border traffic add most to your costs of operation? For each group, please rank in order of importance (1 = most important):

a) vehicle related regulations:

example:

- |   |         |
|---|---------|
| i. vehicle safety standards _____             | 3 _____ |
| ii. weights and dimension restrictions _____  | 1 _____ |
| iii. vehicle configuration restrictions _____ | 2 _____ |
| iv. vehicle licensing requirements _____      | 5 _____ |
| v. vehicle insurance costs _____              | 4 _____ |
| vi. other (please specify) _____              | _____   |

b) driver related regulations:

- |  |
|--|
| i. driver residency requirements _____ |
| ii. driver licencing _____             |
| iii. hours of work regulation _____    |
| iv. other (please specify) _____       |

c) border crossing regulations:

- |                                |       | <u>Please Circle</u>      |
|--------------------------------|-------|---------------------------|
| i. hours of customs operation  | _____ | U.S. or Canadian or both? |
| ii. inspection at customs      | _____ | U.S. or Canadian or both? |
| iii. lack of bonded warehouses | _____ | U.S. or Canadian or both? |
| iv. other (please specify)     | _____ |                           |

d) taxes, fees, and other charges:

- |  |       |  |
|--|-------|--|
| i. operating authorities and associated fees | _____ |  |
| ii. vehicle trip fees                        | _____ |  |
| iii. taxes and other charges                 | _____ | <u>Please Circle</u><br>Highway use taxes<br>Border crossing charges |
| iv. other (please specify)                   | _____ |  |

5. Of the above four categories, which group of regulations adds most to your costs of trans-border traffic? Please rank the groups in order of importance (1 = most important).

- |                                   |       |
|-----------------------------------|-------|
| a) vehicle related regulations    | _____ |
| b) driver related regulations     | _____ |
| c) border crossing regulations    | _____ |
| d) taxes, fees, and other charges | _____ |

6. Please indicate whether the following cost factors have a positive, negative, or neutral affect on your competitive position vis a vis Canadian carriers in trans-border traffic?

- |  | <u>Positive</u> | <u>Negative</u> | <u>Neutral</u> |
|--|-----------------|-----------------|----------------|
| a) fuel tax differences                    | _____           | _____           | _____          |
| b) corporate income tax differences        | _____           | _____           | _____          |
| c) equipment purchase price differences    | _____           | _____           | _____          |
| d) equipment depreciation rate differences | _____           | _____           | _____          |
| e) vehicle registration fee differences    | _____           | _____           | _____          |
| f) labour cost differences                 | _____           | _____           | _____          |

7. Canada is currently proposing legislation which would de-regulate the transportation industry along the lines of the de-regulation which has already occurred in the United States. How would you expect the proposed Canadian de-regulation of transport to affect the competitive position of your firm with respect to Canadian carriers of international traffic?

- a) improve our competitive position \_\_\_\_\_
- b) worsen our competitive position \_\_\_\_\_
- c) no change in our competitive position \_\_\_\_\_

Please elaborate if possible.

8. The United States and Canada are currently negotiating a "free trade" agreement. How would you expect such an agreement to affect the operations of your business?

- a) increased Canadian trans-border traffic    yes \_\_\_\_\_    no \_\_\_\_\_
- b) longer Canadian trans-border hauls        yes \_\_\_\_\_    no \_\_\_\_\_
- c) lower costs for equipment and supplies    yes \_\_\_\_\_    no \_\_\_\_\_
- d) lower wage demands                        yes \_\_\_\_\_    no \_\_\_\_\_
- e) other (please explain)

9. Please circle the trailer types used by your firm.

refrigerated van	dry van
hopper bottom trailer	livestock trailer
bulk tanker	flat deck
other _____	

The next two questions request rate information (confidential) for the trailer type(s) which are most frequently used by your firm. Please indicate the type of trailer associated with the rates.



10. Please fill in the following rate information:

CONFIDENTIAL

Trailer type: \_\_\_\_\_ e.g. dry van

From: <u>Chicago</u>	Standard Truckload Rate	Please Indicate Whether This Is A Backhaul or Fronthaul Rate
TO: _____	_____	_____
	(\$/load)	(B or F)
Toronto		
Winnipeg		
Vancouver		
New York City		
Minneapolis		
Memphis		
Houston		
Miami		
Los Angeles		
<u>Other*</u>		
From:		
To:		
From:		
To:		
From:		
To:		

\* If your major routes do not appear in the above list, please add.

11. Please fill in the following rate information:

CONFIDENTIAL

Trailer type: \_\_\_\_\_ e.g. dry van

From: <u>Chicago</u>	Standard Truckload Rate	Please Indicate Whether This Is A Backhaul or Fronthaul Rate
TO: _____	_____	_____
Toronto	(\$/load)	(B or F)
_____	_____	_____
Winnipeg	_____	_____
_____	_____	_____
Vancouver	_____	_____
_____	_____	_____
New York City	_____	_____
_____	_____	_____
Minneapolis	_____	_____
_____	_____	_____
Memphis	_____	_____
_____	_____	_____
Houston	_____	_____
_____	_____	_____
Miami	_____	_____
_____	_____	_____
Los Angeles	_____	_____
_____	_____	_____
Other*	_____	_____
From:	_____	_____
To:	_____	_____
From:	_____	_____
To:	_____	_____
From:	_____	_____
To:	_____	_____

\* If your major routes do not appear in the above list, please add.

12. Do you have any other observations on trans-border trucking that you would like to make?

Optional

13. If you would like a copy of the report summary, please provide your name and address.

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14. Please return the survey to:

Transport Institute  
University of Manitoba  
Winnipeg, Manitoba  
CANADA, R3T 2N2

If you have any questions regarding the completion of this survey, please contact Dr. Barry Prentice at (204) 474-9766.

APPENDIX 3  
A General List of Designated Commodities  
(Extra-Provincial)

Province of Manitoba

1. Field crops
2. Fresh fruits and tree nuts
3. Fresh vegetables
4. Livestock, including live horses and mules and including race and show animals
5. Live poultry
6. Horticultural specialties, Christmas trees, and decorative evergreens, holly or mistletoe, excluding artificial
7. Fresh fish or other marine products, excluding processed
8. Metallic ores; coal and non-metallic minerals excluding fuels
9. Crude petroleum, when in an emulsion with salt water
10. Prepared animal, fish or poultry feed, other than dog, cat or pet food, excluding canned feed, and commodities which are to be used as ingredients thereof
11. Honey when transported internationally
12. Primary forest or wood raw materials, namely bolts, logs, piling posts, pulpwood, wood chips, etc.
13. Lumber or dimension stock
14. Miscellaneous sawmill and planing mill products, namely shingles, cooperage stock, etc.
15. Plywood, veneer and built up wood
16. Wooden containers
17. Treated wood products, creosoted or treated with other preservatives
18. Skids, pallets and platforms
19. Hardboard and wood particle board
20. Pulp
21. Fibreboard, paperboard and pulp board, insulating board and wallboard
22. Newspapers
23. Fertilizers and potash [does not include anhydrous ammonia]
24. Common salt, in bulk
25. Gypsum wallboard
26. Motor vehicles
27. Trailer coaches and parts, accessories and assemblies belonging to the trailer coach then being transported
28. Waste or scrap materials
29. Empty shipping or distribution containers
30. Erected buildings or structures
31. Farm machinery and equipment, excluding parts, attachments and accessories unless the parts, attachments or accessories belong to the machinery or equipment then being transported.