

FUTURE TRANSPORTATION DEVELOPMENTS IN THE U.S./CANADA/MEXICO GRAINS/LIVESTOCK SUBSECTOR UNDER NAFTA AND WTO

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INTRODUCTION

North American grain and livestock subsectors are becoming more integrated as barriers to trade are eliminated under the North American Free Trade Agreement (NAFTA) and the World Trade Organization (WTO). Increased trade creates a demand for further economic harmonization and focuses attention on the obstacles that remain. Transportation stands out as one of these anomalies. Customs and immigration legislation, and regulatory regimes of each country continue to impede the transportation of agricultural products.

Cross-border transportation services for grain and livestock operate in separate markets. Live animals and livestock products are carried almost exclusively by truck transport in specialized trailers that do not generally carry grain. Refrigerated meat products form the largest value and most geographically dispersed volume of NAFTA livestock product trade. Live cattle and hogs are trucked across borders for slaughter, as replacements in feeder operations, and for breeding purposes. Live animal moves are more concentrated geographically and volumes vary significantly over time. Truck movements of livestock are generally unobstructed except by health inspection and safety regulations.

The transportation of grain among the NAFTA countries is less integrated than the trade of livestock and meat products. Truck, rail and marine carriers compete intensely for domestic grain movements, but Canadian and U.S. carriers only compete indirectly in the origination of grain shipments for third countries. The lack of transborder competition for grain transport is a result of differing agricultural policy instruments and approaches to commodity marketing.

This paper examines the status of agricultural transportation among the NAFTA countries, and provides an outlook on future developments. The analysis begins with an overview of the macro changes affecting transportation in the NAFTA countries. This includes such issues as privatization/mergers, deregulation and the cancellation of subsidy programs. Subsequently, the focus turns to commodity movements and progress made to integrate and harmonize grain and livestock trade. The impact of remaining regulations and policy differences are highlighted. The paper concludes with thoughts on transportation and economic harmonization of the grain and livestock sectors.

MACROECONOMIC SETTING

Institutional barriers make it difficult for the transport sector to orient its traditional east/west operations to the new north/south trade flows. Transportation services were not included in the Canada-U.S. Trade Agreement (CUSTA, 1988). The U.S. government cited national security reasons to exclude its marine sector from the negotiations. The Canadian government demanded an “all-or-nothing” treatment of the transportation sector. At the time, the exclusion of the transportation sector was considered offset by the economic deregulation of the domestic transport industries that was occurring simultaneously.

Extension of CUSTA to include Mexico (NAFTA, 1994) did little to create freer trade for transport services. In the main, NAFTA served only to bring Mexican treatment of cross-border

transportation to the equivalent procedures practiced between the United States and Canada. A schedule was developed that permitted reciprocal entry of trucking to the border states, and subsequently to all states after seven years. In addition, the Land Transportation Standards Subcommittee (LTSS) was established to pursue more compatible standards and regulations for rail and highway transportation within the NAFTA partnership.

The overall objective of LTSS is the elimination of barriers in trade and facilitation of cross-border movement of goods and services. Under the umbrella of LTSS, specialized working groups were formed to review the state of standards and regulations in a range of areas, including driver and vehicle licensing, vehicle manufacturing standards, transportation of dangerous goods and safety. The LTSS has agreed to: a legal age for operating a vehicle in international commerce; a common log book for hours of service; bi-national agreements on medical standards; steps toward harmonized regulations on hazardous materials transportation; and a comparison of vehicle weights and dimensions. Notwithstanding these advances, land transport between Mexico and its NAFTA partners has yet to live up to either the letter, or the spirit of the accord. By now Mexican trucks should have free access to all U.S. border states, but technical barriers (e.g., licencing) continue to block their passage.

The U.S. Intermodal Surface Efficiency Act of 1991 (ISTEA) set aside funds to establish north/south trade corridor routes. Several proposed routes have been named high priority highways under the *National Highway System Designation Act* of 1995. Reauthorization of the ISTEA legislation under TEA-21 is expected to yield "Intelligent Highways" technology and infrastructure improvements for border gateways.

Canadian and Mexican governments have pursued transportation policies that complemented the competitive U.S. industry. Since 1995, the Canadian government has privatized the Canadian National Railway, liberalized rail regulations (*Canada Transportation Act*), and eliminated the \$600 million annual transportation subsidy for grain movements under the former *Western Grain Transportation Act* (WGTA). Further Bill C-4, an act to amend the *Canada Wheat Board Act*, could have implications for transportation.

After more than 70 years of government ownership, the Ferrocarriles Nacionales de Mexico (FNM) was divided into concessions that are being sold. In 1997, the Laredo-Mexico City rail link, known as the Northeastern rail concession, was purchased in a joint venture between the Kansas City Southern and TMM, which is the largest marine transportation company in Mexico.

The Class I railways have responded to the new environment of NAFTA with mergers that provided north/south linkages. CN has announced plans to merge with the Illinois Central that will expand its reach to six key ports and make the CN-IC the fifth largest railway of NAFTA. The CN-IC can provide single line services that avoid switching costs and delays between most major points in Midwest U.S. markets and Canada. In April 1998, the CN-IC announced a marketing agreement with the Kansas City Southern Railroad that enables single line movement from Canada to Mexico.

The U.S. railways have undertaken mergers to expand their north/south networks. The Burlington Northern-Santa Fe merger and the Union Pacific-Southern Pacific mergers have created giant railways that span the entire United States west of the Mississippi River. Although the railways have experienced some "indigestion" in these mergers, such as the recent embargo of the UP-SP at Laredo, the network economies should ultimately give shippers improved rates and service. The

Mexican border embargo also points out the problem of capacity constraints at key transshipment points that limit traffic growth, at least in the short-run.

The transport sector is challenged to serve a rapidly evolving agricultural customer and to address the technological changes that are revolutionizing global trade. Genetic engineering is providing a plethora of grain varieties and promises to give processors the ability to tailor their inputs precisely. As more buyers seek “Identity Preserved Grains,” the bulk handling system is confronted with the threat of more congestion. The rapid growth of intermodal rail service may relieve the pressure on the bulk handling system for specialty grains. Containers also offer opportunities to ship grain over transborder routes where institutional barriers preclude bulk movements.

Producers have been reacting to changing grain transportation costs and falling price supports. Greater investment in the red meat industry has been matched with record exports of pork and beef. North American farmers are becoming more interested in the development of value-added processing. The desire to improve value-added content has led to an explosion of “new age” cooperatives in the northern United States and similar investment in food processing on the Canadian prairies. As a result, the trucking industry has now displaced rail in the movement of U.S. grain (Milling & Baking News, 1998). No doubt, this trend will lead to greater demand for cross-border trucking of grain, too.

REGULATORY BARRIERS TO TRADE

Barriers to agricultural trade posed by transportation comprise “natural” obstacles and “man-made” hindrances. Natural obstacles are the logistical costs associated with the equipment, labour and fuel necessary to move goods from origin to destination. Man-made hindrances are the government programs and regulations that limit the ownership and operation of foreign vehicles, or discriminate in favour of domestic carriers. Despite NAFTA, each country continues to operate under differing regulatory regimes that have evolved through domestic pressures. Salient features of regulatory barriers are described below and subsequently, implications of these differences are discussed.

Motor Vehicle Weights and Dimensions Regulations

Incompatible vehicle-weight limits are the most important impediments to north/south long-haul trucking. Weight limit regulations vary by province and state along all routes between Canada and Mexico. Iowa and Missouri have the most restrictive regulations, at 36,387 kilograms (kgs) maximum gross vehicle weight (GVW) for tractor semi-trailer configurations. Mexico has the most liberal weight limits (48,500 kgs), but where no effective enforcement exists observed weights are much higher. Western Canada is the next most liberal truck weight limit at 46,560 kgs GVW. A list of north/south weight regulations is presented in Table 1 for the Mid-Continent International Trade Corridor (MITC) that follows the 1-29/1-35 highway route from Winnipeg to Mexico City.

Table 1 Mid-Continent International Trade Corridor Volatile Weights and Configurations

Highway Routing	Weight Limits		Configurations		
	Tractor Semi-Trucks (KGS)	Double Trailer (KGS)	Rocky Mountain Double	Turn-Pike Double	Combo Trailer Triple
75 Manitoba	46560	62500	X	X	X
I-29 North Dakota	36287	47855	X	X	X
I-29 South Dakota	36287	56700	X	X	X
I-26 Iowa	36287				
I-29/I-35 Missouri	36287				
I-35 Kansas	38783	38783	X	X	
I-35 Oklahoma	40824	40824	X	X	
I-35 Texas	36287				
85 Mexico	48500	66500	X	X	
54 Mexico	48500	66500	X	X	

Source: Compiled by Authors.

Besides differences in weight limits, the various jurisdictions may have incompatible regulations regarding truck configurations. Usually, the northern U.S. states permit heavier vehicles, while the southern U.S. states allow higher cube trailers. Very heavy trucks are permitted in Western Canada, but lighter U.S. trucks may not necessarily enter. Though these trucks may meet all the height, weight, and length regulations, depending on where the axles are positioned, or whether they have a lift axle, U.S. trucks may be prohibited (or be required to purchase a “special permit”) (Prentice,1997).

Differences in truck weights and dimensions pose a great problem for coordinating movements. For example three jurisdictions do not permit double trailer combinations. Canadian carriers who serve the transborder market must have separate fleets of trucks that meet the 80,000 pounds, eighteen wheel, standard vehicle for U.S. movements. Mexican carriers face other barriers including a debate over equipment safety standards and driver qualifications. Shippers bear a higher cost of underutilization than would exist if vehicle regulations were uniform at a higher gross vehicle weight.

Cabotage Restrictions

The right to operate foreign owned vehicles in a domestic market is known as cabotage. Customs regulations and immigration rules limit the freedoms of foreign transportation companies. Often these regulations are poorly understood by the carriers, and are inconsistently enforced. These rules can add to operational costs and getting caught breaking the rules can incur a \$5,000 penalty

for a first offence. As a result, most carriers do not attempt to compete for loads that involve solely foreign origins and destinations. The motor carriers are plagued with empty moves when foreign freight could be carried. The railways are less affected by cabotage, but are not immune. Crews, and at times locomotives, are forced to change at border locations that may be inconvenient and costly.

U.S. and Canadian customs and immigration policies for transport have had significant differences. For the motor carrier industry, Canadian customs rules permitted empty trailers to be repositioned by any driver after a full trailer was delivered. U.S. rules required that same drivers reposition the empty trailer who had originally delivered it. Other differences exist in the pickup of an incidental load as part of an international movement. Canadian rules generally allow more flexibility for foreign carriers than the U.S. regulations.

After three years of discussions, the U.S. Customs Service has recently changed its interpretation of cabotage. Previously, Customs looked at the transportation routes involved to determine whether a movement was international in character, or an illegal domestic “point-to-point” violation. As of December 1, 1997, U.S. Customs revoked prior interpretations and now consider the nature of the merchandise carried to decide whether the shipment is international or not.

Access to international merchandise does not create an opportunity for Canadian truckers to carry other U.S. domestic merchandise. The entire load must be international to be legal in the United States. Customs has clarified its rule regarding the transfer of empty trailers. The new ruling allows switching of empty trailers between points in the United States.

According to the new rules, Canadian-based equipment can be used to transport goods between U.S. points if the goods are international—that is, the load either originated from or is destined for a point outside the U.S. Previously, Canadians were not permitted to pickup Mexican goods on the U.S. side of the border destined for, say, Chicago. Although the U.S. Customs’s interpretation has changed, U.S. Immigration has not made the appropriate corresponding changes to regulations affecting Canadian drivers. The use of Canadian-based equipment would be lawful under the new U.S. Customs interpretation of cabotage, but the use of the driver to make the same movement would be illegal under Immigration laws (Smyrlis and Smith, 1998). Informal assurances have been given that the two U.S. agencies would enforce the regulations the same way, but no formal announcement from U.S. Immigration has been made, and none is expected.

Despite Canadian and U.S. success in harmonizing Customs regulations, Immigration rules may be getting more divergent. In 1996, the *Illegal Immigration Reform and Immigrant Responsibility Act* (IIRIR) was passed by the U.S. Congress. Section 110 of IIRIR would require documentation of the entry and departure of every alien crossing the U.S. borders. Implementation of visa requirements for Canadians has been delayed, but not abandoned. Concern exists that Section 110 would create delays in trade that adds to inventory, processing and freight costs. At busy border crossings, like Windsor-Detroit, considerable investments would be required to accommodate expanded facilities and automate processes to achieve the current flow of traffic.

RAIL REGULATIONS ON RATES AND SERVICE

Both Canada and the United States are experiencing the effects of regulatory changes in the rail sector, albeit the dynamics differ. These effects are particularly important in the grains sector in which rail plays an important role in shipping. The process of deregulation in the United States began in the early 1980s, whereas in the Canadian grain sector it is really just beginning. The major features of the regulatory system in each country are discussed briefly. Those of the United States are emphasized because these are referenced as a benchmark for changes in Canada.

United States

Many changes that occurred in the U.S. grain marketing system were concurrent with the Staggers Rail Act (SRA) of 1980. The SRA introduced important regulatory changes in overall rate levels. Effects on the grain shipping and handling industry are discussed below along with, where appropriate, the pre-SRA institutional environment.

Rate Regulation: Captive Shippers, Market Dominance and the SRA The SRA imposes two tests that must be met before the ICC (now the STB)¹ has jurisdiction to regulate rate levels. The first is a threshold level of revenue to variable cost ratio (R/VC)². Specifically, if the R/VC exceeds the threshold, the STB may have jurisdiction to regulate rates in that movement.

The shipper is not necessarily captive simply because the R/VC exceeds the threshold. The second test is a finding of *market dominance* in the relevant market. This is defined as “an absence of effective competition from other carriers or modes of transportation for the transportation to which a rate applies” (49 § U.S.Gc. 10701a[b]1) (Supp.IV 1980). It is intended to be a test or screening device for rate reasonableness. Guidelines have evolved to allow for evidence of direct competition including inter and intramodal, as well as two forms of indirect competition, product and geographic. These are more than administrative criteria and are evaluated in the context of competitive markets considering inter and intramodal, as well as product and geographic effects. If the carrier is found to be market dominant, the shippers could be defined as “captive” and then the STB would have jurisdiction to regulate the rate.

Rate reasonableness is evaluated on a case by case basis. There have been few cases in which rate levels have been appealed under these criteria. Most notable and relevant here is the McCarthy Farms shipping case³. Briefly, that case has had several rulings since it was originally filed in 1978. In 1987, the ICC ruled that the Burlington Northern was dominant in wheat and barley shipments to the Pacific Northwest and that the shippers were captive. However, the most recent ruling (August 14, 1997) indicated these contested rates were not unreasonable and did not exceed the maximum reasonable level. This decision was based on the constrained market approach and stand alone costing procedures.

¹ These roles and functions have since been replaced by the Surface Transportation Board (STB).

² In 1984 that threshold was 1.80 but it now depends on the extent the railroad is earning an adequate return.

³ See Surface Transportation Board Decision No. 37809, August 14, 1997: *McCarthy Farms v. Burlington N.R.R.*

Rate Changes Were Liberalized Prior to 1980, rate changes required 90 days notice for increases and there were fairly liberal procedures to challenge proposed changes. The net effect of this was that rates were largely very rigid and changes were introduced only infrequently. Proposed changes were typically subject to a very long notice about the rate increase. As a result shippers had little risk related to rate changes.

The SRA changed the dynamics of rate changes. Specifically, rate increases (decreases) required a 20(1) day notice. The effect of this was to allow greater flexibility for railroads to respond to market conditions, but also increased the exposure to increases in rail rates for shippers.

Contracts Contract shipments were an important feature of the service environment during the 1980s. In addition, some evolving contract terms likely influenced the pricing and car allocation practices that subsequently evolved.

Contract rates were widely used in the United States in the first years following the SRA. The SRA explicitly encouraged carriers and shippers to enter into confidential contracts for grain shipments subject to informational disclosure⁴. Shippers could challenge contract rates on grounds of competitive harm or impairment of common carrier obligation. In addition, the SRA allowed agricultural shippers to challenge contract rates on grounds of the carrier's refusal to offer similar terms to them (which would constitute unreasonable discrimination). The legal process to intervene required that the complainant must first prove they would prevail and that the dispute cannot be resolved otherwise.

Premium Rates for Premium Service An important feature of the SRA was a clause to allow railroads to charge premium rates for premium service. Specifically, Congress stated that "rail carriers shall be permitted to establish tariffs containing premium charges for special services of specific levels of services not provided in any tariff otherwise applicable to the movement" (Section 10734 of Title 49, United States Code). As a result of this provision, railroads actively pursued market-driven allocation mechanisms, besides addressing shippers complaints of car availability and to foster productivity gains. This was important because the clause facilitated development of more elaborate guaranteed forward shipping mechanisms and service competition (see below).

Before the mid 1980s, tariffs did not contain service options or alternatives for car allocation. Railcar allocation was generally established on a "first-order-first-serve" basis. Uncertainties in railcar availability and lack of penalties for car cancellations encouraged persistently over ordering and a phenomenon known as "phantom orders" (Wilson, 1989). The SRA facilitated development of this mechanism by allowing (and encouraging) charging of premium rates for premium services, and by allowing a portion of shipments under bilateral contracts. The BN was the innovator in developing of these mechanisms which have now been developed by virtually all of the U.S. Class I railroads.⁵

⁴ Summary information about contract terms were filed by the carrier with the ICC. This information was fairly general and was publicly disseminated including information about railroad, commodity, general origins and destinations, number of cars, type of movement, base tariff rate, any special features and the minimum annual volume.

⁵ Wilson and Priewe (1997) provide a comprehensive description of the development of these mechanisms.

Each railroads' car allocation system has evolved toward a system comprising multiple mechanisms. Generally, these include a mechanism for allocating cars for general tariff service, one with a shorter-term guarantee and one with a longer-term guarantee and bilateral equipment obligations. Each of these is characterized generally below:

- General Tariff allocation methods have been redesigned to assure access and to discourage persistently over ordering and eliminate the need for shippers to be first in line. Carriers have taken two approaches to accomplish this: 1) random selection and 2) penalizing cancellations.
- Short-term Guarantee programs (e.g., COTs, PERX) reward forward logistical planning. Common features of these programs include forward order period, shipper bidding process, transferability, shipper cancellation penalties, and carrier performance guarantees.
- Long-term Guarantee programs promote greater efficiency by placing the management of private railcar fleets in the hands of rail carriers. Carriers can expand fleet size while offering logistically differentiated services to shipping customers. In addition, Long-term Guarantee programs provide incentives to level shipping patterns and extreme seasonal swings in grain movements (Priewe and Wilson, 1997). Shippers receive guaranteed services, and rail carriers benefit from more consistent shipments. In addition, this program implies a risk sharing between shippers and carriers in expanding car fleets and railcar efficiency (cycle times). Transferability is also an important element of Long-term Guarantees since most programs rely on participation from larger grain companies to facilitate these instruments through secondary markets.

The important features of these systems from a grain shipper perspective are that: 1) multiple mechanisms are allowed for shippers to choose from; 2) forward shipping options are offered; and 3) differing degrees of guarantees are provided by the carrier. None of these options were available before deregulation. These systems have already had very important implications for the evolution of grain marketing and the railroad industry (see Priewe and Wilson (1997) for a summary of implications of these mechanisms on grain shippers).

Rail Incentive Mechanisms The evolution of the rail incentive mechanisms has been very crucial to the changes that have occurred in the grain handling and transportation industry. Differentials implied in these mechanisms reflect economies of rail operations and are passed on as rate discounts. In the process these rate discounts provide incentives to induce more efficient grain handling and shipping practices.

The grain rate structure has evolved to include trainload, single and multiple-origin rates, and programs to enhance efficiencies in the total movement—commonly called origin-destination efficiency programs. Each of these are very important features that affect rate spreads, providing differentiation and incentives among rail service levels. It is important that these are not necessarily an outgrowth of the SRA, and in fact could have been and in some cases were introduced prior to

the SRA. Generally, these include: 1) origin efficiency, or, trainload rates; 2) origin-destination efficiency programs; 3) per car rates; and 4) rates and requirements for shipments in higher-cube (286,000 lb.) covered hopper cars.⁶

Effects of Deregulation on Rail Rates While rate increases have been a major concern for shippers, most of these have been unfounded. In fact, several studies have indicated that because of deregulation, cost savings have accrued and rail rates have fallen in real terms. Wilson (1997, p. 23) found that “the effects of deregulation on costs and productivity gains are tremendous with costs in 1989 estimated to be 40 percent lower under partial deregulation than they would be under a regulated regime.” In a related study focused on rail pricing, Wilson (1994, p. 20) found that though there were some initial increases in rates following deregulation (1980), by 1988 “deregulation produced lower prices in most commodity classifications and did not increase prices in other classifications, suggesting that advances on productivity have dominated any adverse market power effects.”

Finally, even in some regions of the United States with relatively less station-to-station intramodal rail competition rail rates have decreased because of deregulation. In particular, Montana is a state in which rail rates are highly contested by shippers. However, since deregulation in 1980, the effective rail rate (from Great Falls to Portland) has increased from 71 to 86 U.S. c/bushel. In real terms, this has been an effective rate reduction of 31 percent. Another comparison is that the rail rate has declined by 31 percent, whereas the price of bread has increased by 15 percent. No doubt this is a highly contested area and a point of reference for change in Canada, but it is notable that these rates have declined due to major forces: productivity gains and intermarket competition.

Canada

A separate set of regulations affects grains for movement within the prairies. Changes in the WGTA increased rail shipping costs paid directly by shippers (previously, the total cost was comparable, but a portion was paid directly by the government of Canada to the railroads). It is important that the new higher rail rates (specifically, that portion paid by the shipper) are still substantially less than comparable rates in the United States. However, the legislation (*Canada Transportation Act, Division VI Transportation of Western Grain*) states specifically that these rates are for the movements of “any grain or crop included in Schedule II that is grown in the Western Division... (p. 70) for movements to Thunder Bay or Armstrong... and specifically excludes shipment to British Columbia ports for shipment to the United States.”

The underlying legislation provides the formula for rate determination and describes its application. Specifically, it establishes a maximum rate scale. These rates are frozen to the year 1999 when they become subject to the CTA conditionally upon the results of an efficiency review, unless challenged otherwise.

Railcar allocation in Canada is highly administered based on past shipping practices. One important distinction is between the allocation of cars for shipment of Canadian Wheat Board (CWB)

⁶ Details of these mechanisms, as well as their evolution over time are described in Wilson (forthcoming). There are numerous forms of rate discounts that evolved in the U.S. rail system. It is critical that any comparison of rates over time, as well as between U.S. and Canadian regions account for the cumulative effects of these discounts.

grains versus non-board commodities.^{7,8} CWB cars are allocated by the Board to its designated shippers and train runs (zones are being implemented) for the movements of CWB grains (Prentice and Campbell, 1998). The other portion is allocated by the CAPG (Car Allocation Policy Group, a temporary mechanism to replace a previous regime called the Grain Transportation Authority) as non-board allocator, for the movement of non-board grains (i.e., for movements not controlled by the CWB). Normally, these are oats, canola, etc., but would also include any shipments of U.S. grains to or through the Canadian grain marketing system.

The regulatory regime governing rate levels and service for grain in Western Canada is very different, than for other commodities shipped by rail in Canada, or for grains shipped in Eastern Canada. For these commodities the CTA regulatory regime is more similar to that in the United States.

FUTURE ISSUES

As the agricultural sectors in the NAFTA countries become more integrated through the respective bilateral trade agreements, pressure will increase for commercial and policy harmonization of the facilitating functions. One of the more important ones is the transport sector.

Commercially, the grains sector of North America is becoming harmonized more rapidly than is the policy environment. The commercial integration will likely be a two-stage process. First, firms will become more integrated through asset ownership. As this is being done, the next stage will be pressure to standardize commercial practices across the geographic region. This is the stage that has yet to evolve. It is interesting that the commercial integration is leading, even though it would likely be more ideal if the policy environment was harmonized first. The commercial sector is leading the way toward integration which suggests that eventually business interests will provide added pressure to harmonize the policy differences.

The transport sectors in each country have evolved essentially independently of that in the neighbouring country, but are increasingly being forced to become more integrated. As this occurs, several important issues will emerge. These are described below briefly.

Rail Service and Car Allocation Systems

Railcar service problems, which stem from the underlying car allocation systems, have evolved differently in each country. The fundamental problems are similar on both sides of the border, but the approaches to resolve these conflicts are distinct.

Many changes in the grain shipping industry of the United States evolved in response to competitive pressures and to some provisions of the *Staggers Railroad Act* of 1980. Of particular interest has been the evolution of railcar allocation policies, rail service strategies and problems, and the heightened importance of transportation and logistics management for grain shippers (Gelston and

⁷ This system is under dispute in Canada and is under pressure for change. For an extensive review of the evolution of car allocation in the United States, see Prieue and Wilson (1997).

⁸ This notwithstanding the potential implications of various forms of government-owned cars in Canada.

Greene, 1994; Baumel and Van Der Kamp, 1996)⁹. Before 1980, few changes occurred in railcar allocation. Railroads had always been free to initiate service proposals under the general tariff system. However, regulatory procedures and rate bureaus stifled such innovation. Service proposals were subject to regional rate bureaus consisting primarily of carrier representatives.

In the late 1980s, the U.S. railroads began the development of alternative car allocation procedures as a cumulative result of competitive pressures, shipper demands and some features of the SRA. Generally, the major features of these systems are 1) a multitude of mechanisms are offered shippers; 2) a portion of each carriers' fleet is reserved for tariff allocation; 3) alternatives are offered shippers for forward and guaranteed service; and 4) risk sharing alternatives between carriers and shippers are offered. During the last decade, virtually every Class I U.S. railroad has developed comparable systems encompassing these features.

These systems have not been without problems. Indeed the initial systems were challenged in a lengthy legal battle. In addition, there are ongoing concerns about the common carriage obligation under these systems, that some mechanisms remove cars from the fleet that would otherwise be available for tariff obligation, and that even guaranteed cars are sometimes not placed (though guaranteed payments are made from the carrier to the shipper) resulting in uncertainty for shippers.

Comparable transition is yet to unfold in Canada, but much of what is at issue in the current CTA case (CWB vs CN and CP) relates to service failures during 1996/97 and trying to define service obligation for shipping CWB grains. In addition, the *Federal Grain Review*, under Mr. Justice Estey, is scheduled to provide recommendations for change by the end of 1998.

As these systems unfold and are adopted, major issues are emerging in each country. In the United States this relates to the interpretation of *common carriage*, and in Canada it has been referred to as *service obligations*.¹⁰

Operational/Capacity Limits in the Pacific Ports

An apparent evolving US/Canada problem is that of the likely operating/capacity constraint in Canadian West Coast ports. This has exacerbated over time in response to changes in WGTA rates, growth in Asian economies, reduced shipments to Russia, etc., and worsened due to some operating practices at those ports. As these limits are reached, pressure increases to ship some marginal shipments through U.S. West Coast ports (1996/97) and U.S. Gulf. Indeed during the 1996/97 shipping problems, Canadian grain was shipped through the U.S. West Coast (though the costs were substantially greater), and experiment shipments were made through the U.S. Gulf by barge.

This capacity problem is also being challenged by the differentiated marketing strategy being pursued by export marketers. It is becoming increasingly apparent that the number of segregations in the Canadian marketing system has been increasing, as has that in the United States (but to a lesser

⁹ This has been a topic of growing concern. See Becker (1985), Harding (1995) and Kaufman (1994) for various views.

¹⁰ To emphasize, common carriage in the United States is alleged not to be meaningful under its current interpretation (NGFA, 1998).

extent). The effect of increased segregations on the logistics system constructed for more homogenous crops is for reduced efficiency and increased frequency of capacity constraints (Prentice, 1998).

Rail Regulatory Differences

Differences in the underlying regulatory mechanisms governing rail shipping is an issue that will likely become apparent in the future. In general, the U.S. treats grains the same as all other commodities and relies more on market pressures (intra and intermodal, as well as product and intermarket) to govern rate levels. Service levels (being reflected through rail car allocation systems) are generally governed by competitive pressures, and shipper demands. In contrast, railway freight rates for grain in Western Canada are fixed and service is highly administered. Generally, these rates are at levels less than those in the United States, and are highly rigid through time and with respect to geographic (distance-based) and temporal considerations.

The effect of these different approaches to regulation ultimately results in economic distortions, with pressure to converge, or, result in further intervention.

Reciprocal Access¹¹

The establishment of handling facilities at U.S. border points with rail access makes cross-border shipping more efficient and attractive. These include the joint ventures between Alberta Pool and General Mills at Sweetgrass and the venture between Saskatchewan Wheat Pool and General Mills at Northgate. While some have initially promoted these as primarily for shipment from Canada to the United States, their strategic development has been to develop and facilitate trade in both directions, varying by commodity and depending on market conditions over time. These are likely natural logistical channels for shipping U.S. feed grains into Western Canada and potentially for shipping U.S. grains through Canada to export offshore.

A related change that has potential long-term implications is the expansion of export-handling capacity at Roberts Bank in southern British Columbia. This is notable because West Coast handling capacity in Southern Canada has been constrained which, in fact, is likely an important cause for the escalation of movements of Canadian grain to/through the United States. This constraint has also generally limited the ability of U.S. grains moving to/through Canada. In the future, this expansion could provide the needed capacity relief necessary to expand Canadian west coast exports.

Differences between the rail shipping systems in the two countries could affect future trade flows. Though Canadian rail rates have been increased, they are still less than those that apply from similar U.S. shipping points. These differences are particularly notable in the Northern tier regions or North Dakota and Montana.¹² If everything else is the same with equal access, this difference is important because it should induce some U.S. grain to move to or through the Canadian marketing system. Through this process, the potential for cross-border trade would provide competition to shipping regimes for U.S. grains. Currently, there is minimal movement of U.S. grains to/through

¹¹ See Wilson (1998) for a summary discussion of the motivation and issues surrounding reciprocal access.

¹² Fulton and Gray (1997) indicated that these differences are as much as \$1/bushel.

Canada; however, in the future (with expansion of West Coast ports and more direct cross-border and bilateral linkages), the likelihood/frequency of U.S. grains moving to/through Canadian infrastructure will increase.

The Joint Commission indicated that a longer-term objective should be to provide reciprocal access over time (p. 95). One vision of the Joint Commission was that ultimately, pressures will escalate for greater integration between the marketing systems in Canada and the United States. The commercial process toward integration of these systems has escalated, which, in the future, will add to pressures to harmonize as much as possible marketing, and possibly policy, mechanisms. For these reasons, the term *reciprocal access* was promoted as a concept for discussion about changes to reduce trade frictions.¹³

Notwithstanding the trade barriers, reciprocal access should be viewed as a longer-term goal. One interpretation of reciprocal access is that growers would have reciprocal access to certain features of each country's marketing mechanisms and infrastructure. In a marketplace with greater reciprocal access, cross-border trade may occur due to differences in marketing costs. However, some important competitive functions of the marketing system in each country are denied cross-border participants.

As Canadian grain is exported to/through the United States, it has full nondiscriminatory access to comparable U.S. functions. The U.S. handling and shipping system generally has adequate capacity and is efficient enough to induce cross-border shipments. These are purely commercial and nondiscriminatory with respect to country of origin.

Potential benefits of the U.S. marketing system include access to transport infrastructure (rail, road infrastructure, barges and port infrastructure), elevators, and risk transfer through U.S. futures markets. While these are primarily a result of commercial relationships and mechanisms, the public sector is involved through providing infrastructure, services, and a regulatory framework. Canadian shippers are not treated differently when using the U.S. transportation system and generally have equal access to its capacity at nondiscriminatory rates. This would not be true for U.S. shipments through Canada. In addition, allocation of railcars in Canada for shipment of U.S. grains could affect the viability of trade flows to the extent that there are differences between CWB and non-CWB grains. This is in contrast to U.S. railroads that do not distinguish country of origin in allocation of cars, i.e., Canadian shippers have equal access to U.S. railcars through tariff and contractual allocation mechanisms.

SUMMARY AND CONCLUSIONS

The transport of grain and livestock between Canada and the U.S. should be very straightforward. The infrastructure is compatible, business operations are similar and trade barriers have been falling under the Canada-U.S. and North American Free Trade Agreements. The problems that affect the transportation of grain and livestock are subtle in nature and are largely the unintended result of other domestic policy considerations.

¹³ In trade discussions reported in January 1998, the United States suggested a pilot project to allow U.S. grain to be shipped to Canadian elevators. This is obviously an effort toward effectuating the possibility of reciprocal trade (*Western Producer*).

Unlike other sectors of the economy, transportation services were essentially excluded in the negotiations of freer trade in North America. Pressure to incorporate the transportation sector into a comprehensive free trade agreement was diminished by the deregulation of the transport that was occurring simultaneously. Although deregulation created a more liberalized environment for transport, its shortcomings now stand out. Inconsistencies in vehicle weights and dimensions and restrictions on cabotage activity add to the cost of transborder movements.

Differences in trucking regulations affect Canadian shippers more than American shippers. Short moves to local transborder markets can generally be accommodated from either Canada or the United States. Longer movements to the southern half of the United States and Mexico are more difficult. U.S. cabotage restrictions reduce the opportunities for Canadian carriers to obtain return loads. Consequently they are less interested in serving these markets and/or demand freight premiums to offset the risk of an empty return.

The problem in rail transport is also asymmetrical. Canadian grain has open access to the U.S. transportation and handling system on a nondiscriminatory basis, while U.S. grain shippers are not given *reciprocal* access. U.S. grain can move through Canada, but these shipments are ineligible for the regulated freight rate. Moreover, the rail car allocation system in Canada discriminates on a country of origin basis.

The lack of harmonization in the transportation sector has direct and indirect impacts on the grain and livestock sectors. The direct impact is shipping costs that are higher because the transport sector has to operate around these regulatory differences. The indirect impact is the reduction in competition in the logistical channels. Reduced competition means that service and/or rates for transportation are less favourable to the grain and livestock sector than would be the case in a harmonized environment.

REFERENCES

- Baumel, C. Phillip, and Jerry Van Der Kamp. 1996. "Major Changes in Grain Car Ownership Will Require Shippers To Consider Options." *Feedstuffs*. 66(2): 12-13.
- Becker, Vince. 1985. "Impact of the Staggers Rail Act: Shippers Express Concerns About Lack of Competition." *Harvest States Journal*. Spring: pp. 8-10.
- Cawthorne, David M. 1988. "BN Brings Futures Contracts Into The Railroad Business." *The Traffic World*. 213(3): 8-9.
- Fulton, Murray, and Richard Gray. 1997. "Railways, Competition and the Hold-Up Problem." Paper presented at Agricultural Research Symposium titled *The Economics of World Wheat Markets: Implications for the Northern Rockies and Great Plains* Trade Research Center, Montana State University, Bozeman. June.
- Gelston, William, and Scott Greene. 1994. *Assessing the Potential for Improved Functioning of the Grain Merchandising/Transportation System*. Washington, DC: USDOT, Federal Railroad Administration.

- Harding, William C. 1995. "The NGFA Grain Book". Changing Dynamics in Rail Transportation. Washington, DC: National Grain and Feed Association.
- Harvest States Cooperatives. 1996. *Rail Equipment Supply Program Facsimile: Rail Equipment Supply Program Offers*, St. Paul, Minn. February 8.
- Kaufman, Larry. 1994. "Rail-Shipper Dispute on Grain Car Supply Embroils ICC Again." *Journal of Commerce and Commercial*. 400(28203): 2B.
- Kerber, Mike. 1995. "The Transportation Crunch: The Effect of Tight Ocean Freight Barge, and Rail Supplies." *Grain Journal*. May/June, p 35.
- Kober, Rodman, and C. Phillip Baumel. 1990. "Transportation Forward Contracting of Options: A Description and Analysis of An Application to Railroads" *Transportation Practitioners Journal*, 58(1): 51-63.
- Milling & Baking News. "Trucks displace rail movement of US grain" July 28, 1998, p.1.
- National Grain and Feed Association v. Burlington Northern Railroad Company, et al. 1992. *Interstate Commerce Commission Reports*. April 20.
- Norton, Jerry D., and Keith A. Klindworth. 1989. *Railcars for Grain: Future Need and Availability*. USDA, Office of Transportation. Washington, DC.
- Prentice, Barry E. 1997. "North American Grain Transportation and NAFTA" *World Grain*. Volume 15, Number 6, (July): pp. 6-12.
- Prentice, Barry E. 1998. "Emerging Trends in Western Canadian Grain Transportation," *Annual Proceedings*. Canadian Transportation Research Forum, Volume 34.
- Prentice, Barry E. and Doug E. Campbell. 1998. "Allocation System Incentives to Improve Grain Loading and Unloading Performance in Western Canada." *Annual Proceedings*. Canadian Transportation Research Forum. Volume 34.
- Schmitz, John, and Stephen W. Fuller. 1995. "Effect of Contract Disclosure on Railroad Grain Rates: An Analysis of Corn Belt Corridors." *Logistics and Transportation Review*. 31(2). pp. 97-124.
- Smith, S.K. 1996. *CSX Transportation Tariff 6010-A: Rules and Prices on Express Guarantee*. March 15.
- Smyrlis, Lou, and John G. Smith. 1998. "Managing Growth". *Regulatory Update*. February, pp. 26.
- Wilson, Wesley. 1994. "Market Specific Effects of Rail Deregulation." *Journal of Industrial Economics*. Vol XLII, (March) pp. 1-22.
- Wilson, Wesley. 1997. "Cost Savings and Productivity in the Railroad Industry." *Journal of Regulatory Economics*. pp. 21-40.

- Wilson, William W. 1989. *Posted Prices and Auctions in Rail Grain Transportation*. AE 89020 Department of Agricultural Economics, North Dakota State University, Fargo.
- Wilson, William W. *Forthcoming*. *Car Allocation Systems of U.S. Class I Railroads* Department of Agricultural Economics, North Dakota State University, Fargo.
- Wilson, William W. *Forthcoming*. *Post Deregulation Rail Incentive Mechanisms in the U.S. Great Plains*. Department of Agricultural Economics, North Dakota State University, Fargo.
- Wilson, William W. *Forthcoming*. *Reciprocal Access in U.S.-Canada Grain Trade*. Department of Agricultural Economics, North Dakota State University, Fargo.
- Wilson, William W. and B. Dahl. 1997. *Bidding on Railcars: A Strategic Analysis*. AE 376 Department of Agricultural Economics, North Dakota State University, Fargo.
- Wilson, William and S. Priewe. 1997. "Forward Shipping Options for Grain by Rail: A Strategic Analysis." AE 97000 Department of Agricultural Economics, North Dakota State University, Fargo.
- Zdrojewski, Ed. 1995. "Grain Transportation Through 2000: Moving Grain To Market Will Take Increasingly Creative Thinking." *Grain Journal*. May/June, p. 30.