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**COMMUNIQUÉ**

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# *Nonprofit entity should electronically auction access to railcars for grain shippers, says C.D. Howe Institute study*

**Toronto, May 3, 2001** — The federal government should transfer its fleet of 13,000 hopper cars to a not-for-profit entity, which would lease them to users through an electronic auction, says a *C.D. Howe Institute Commentary* released today. Such a move, the study says, would overcome a key obstacle to deregulation of the Canadian grain handling and transportation system: Ottawa's inability to guarantee farmers that a more commercial system will work to their advantage. Much of the history of Canada's prairie grain policy reflects the struggle to find such an institutional structure, with access to railway cars for western Canadian grain shippers being a key point of contention.

The study, "An Electronic System for Railcar Market Access," was written by Barry E. Prentice, Director of the University of Manitoba's Transport Institute and an Associate Professor in the Faculty of Agricultural and Food Sciences, and by Tamara Thomson, a research associate at the Transport Institute.

How the federal government's railcar fleet is replaced over the next few years will affect competition and costs within the grain industry, the authors say. Ideally, government policy should encourage competition, but the highly concentrated nature of the grain handling and railway industries itself discourages such competition. Prentice and Thomson propose transferring the railcars to a not-for-profit entity they call Grain Car Canada (GCC), which would lease the cars to users through a competitive electronic auction. Such a bidding process would determine railcar access, and GCC would use the proceeds of the auction to maintain the fleet.

The study notes that the railcars — acquired between 1972 and 1982 to support grain marketing in western Canada and provided free of charge to the grain industry — will be approaching the end of their service lives over the next 10 to 20 years. Ottawa has announced its intention to dispose of the fleet, and thus end its implicit subsidy to grain transportation.

The authors argue that GCC could force the railways to engage in indirect competition. Under the current system, each railway has a share of the government-owned railcar pool. Although farmers can truck their grain to the railway of their choice, if the pool of railcars is fixed, the railways have scant incentive to try to gain market share. The GCC allocation

method would allow railcars to flow to shippers on the basis of the highest bid. This market control would create a new competitive dynamic between the railways and among the grain handling companies, which would attract farmers to use their facilities.

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# COMMUNIQUÉ

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## *Selon une étude de l'Institut C.D. Howe, un organisme sans but lucratif devrait vendre aux enchères électroniques l'accès des expéditeurs de céréales aux wagons de transport*

**Toronto, le 3 mai 2001** — Le gouvernement fédéral devrait transférer son parc de 13 000 wagons-trémies à un organisme sans but lucratif, qui pourrait les louer aux utilisateurs par le biais d'enchères électroniques. C'est du moins ce qu'indique un *Commentaire de l'Institut C.D. Howe* publié aujourd'hui. Selon l'étude, une telle mesure viendrait à bout d'un obstacle de taille à la déréglementation du système de manutention et de transport des céréales au Canada, à savoir l'incapacité d'Ottawa de garantir aux agriculteurs qu'un système plus commercial serait avantageux pour eux. Une grande partie des politiques canadiennes passées à l'égard du grain des Prairies témoignent de la difficulté à établir une telle structure institutionnelle, l'accès des expéditeurs de grain de l'Ouest canadien aux wagons de transport constituant un point litigieux important.

L'étude, intitulée « An Electronic System for Railcar Market Access » (« Un système électronique pour l'accès au marché des wagons »), est rédigée par Barry E. Prentice, directeur du Transport Institute de l'Université du Manitoba et professeur agrégé à la Faculté des sciences agricoles et alimentaires, et par Tamara Thomson, attachée de recherche au Transport Institute.

D'après les auteurs, la méthode utilisée au cours des prochaines années par le gouvernement fédéral pour remplacer son parc de wagons aura des répercussions sur la concurrence et les coûts de l'industrie des céréales. L'idéal serait que la politique gouvernementale favorise la concurrence; or, la nature très concentrée de l'industrie de la manutention du grain et de l'industrie ferroviaire décourage cette concurrence. M. Prentice et M$^{me}$ Thomson proposent de transférer les wagons à un organisme sans but lucratif qu'ils appellent Grain Car Canada (GCC), lequel louerait les wagons aux utilisateurs par le biais d'une vente aux enchères électronique concurrentielle. Un tel processus d'adjudication déterminerait l'accès aux wagons-trémies, et le produit issu de ce processus permettrait à GCC de voir à l'entretien du parc.

L'étude révèle que les wagons — achetés entre 1972 et 1982 pour appuyer la commercialisation des céréales dans l'Ouest canadien et fournis gratuitement à cette industrie — arriveront au terme de leur vie utile au cours des 10 à 20 prochaines années. Le

gouvernement fédéral a déjà annoncé qu'il avait l'intention de se départir du parc et de mettre ainsi fin à sa subvention implicite du transport des céréales.

Les auteurs sont d'avis que GCC pourrait forcer les sociétés ferroviaires à se faire une concurrence indirecte. En vertu du système actuel, chaque société ferroviaire détient une part du parc de wagons appartenant à l'État. Même si les agriculteurs peuvent transporter par camion leurs céréales à la société ferroviaire de leur choix, le parc de wagons étant fixé d'avance, les sociétés ferroviaires sont peu motivées à s'approprier une part du marché des céréales. La méthode d'attribution utilisée par GCC permettrait aux wagons d'être remis aux expéditeurs qui ont soumis la meilleure offre. Ce contrôle du marché donnerait lieu à une nouvelle dynamique entre les sociétés ferroviaires et les entreprises de manutention du grain, ce qui aurait pour effet d'encourager les agriculteurs à se prévaloir de leurs services.

* * * * *

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# An Electronic System for Railcar Market Access

Barry E. Prentice
Tamara Thomson

***In this issue...***

*Western Canadian grain shippers' access to rail transport for their product could be enhanced if the federal government's fleet of 13,000 hopper cars were transferred to a not-for-profit Grain Car Canada, which would lease the cars to users through competitive bidding in an electronic auction.*

## *The Study in Brief*

Deregulation of the Canadian grain handling and transportation system has been stalled by government's inability to guarantee farmers that a more commercial system will work to their advantage. Much of the history of Canada's prairie grain policy reflects the struggle to find such an institutional structure. Access to railway cars has played an important role in the search for workable competition in the grain industry. Without a railcar, a grain shipper has no commercial access to the market. Consequently, the system of determining shipper access to railcars is an important public policy issue.

The federal government owns 13,000 covered hopper cars, acquired between 1972 and 1982 in an effort to support the marketing of grain in western Canada. Over the next 10 to 20 years, these railcars will be approaching the end of their service life. Today, these cars are provided free of charge to the grain industry. But the government has announced its intention to dispose of its railcar fleet, and thus to end the implicit subsidy to grain transportation.

How these cars are replaced will affect competition and costs within the grain industry. Ideally, government policy should encourage competition, but the highly concentrated nature of the grain handling and railway industries itself discourages such competition. This *Commentary* proposes that the government-owned railcars be transferred to a not-for-profit entity called Grain Car Canada (GCC), which would lease the cars to users through an electronic auction. A competitive bidding process would determine railcar access, and GCC would use the proceeds of the auction to maintain the railcar fleet.

GCC could force the railways to engage in indirect competition. Under the current system, each railway has a share of the government-owned railcar pool. Although farmers can truck their grain to the railway of their choice, if the pool of railcars is fixed, the railways have scant incentive to try to gain market share. The GCC allocation method would allow railcars to flow to shippers on the basis of the highest bid. This market control would create a new competitive dynamic between the railways and among the grain handling companies, which would attract farmers to use their facilities.

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The Canadian grain handling and transportation (GHT) industry is imperfectly competitive. A monopoly provider controls the sale of the largest single crop; a duopoly provides rail transportation services; an oligopoly provides grain storage and handling, plus merchandising of the major nonregulated crops; while grain production and agricultural trucking are highly competitive. Farm concerns about market power and workable competition in the GHT industry have generated over 100 years of government intervention. Since the mid-1970s, however, the federal government has been slowly reducing its role as an active participant and would, ostensibly, like to treat the GHT industry as it does other sectors of the economy.

The grain industry is adjusting to a less regulated and unsubsidized environment, with railway branchlines being abandoned and high throughput elevators (HTEs) being constructed. While the physical infrastructure is rapidly changing, the institutional setting, by contrast, seems to be frozen in a bygone era. The unique market structure of the GHT industry makes it difficult to strike the right competitive balance. No single solution exists for such a complex problem, but improving the competitive environment could help inch the GHT industry in the right direction.

This *Commentary* proposes that competition could be made more workable by focusing on the key point of market entry. By example, shelf space in a grocery store and a loading dock at an airport are examples of key market entry points. Although an airline may land at any airport, if it cannot get access to a loading gate, it cannot compete for customers. Similarly, food manufacturers are shut out of markets, unless their products can get space on the grocery shelves. Whoever controls these key points of market access also controls competition and has an opportunity to earn monopoly rents.

In the case of the GHT industry, the key to market access is the railcar. The economic viability of grain shippers is directly related to their having access to enough railcars to move all the grain they purchase. If access to railcars became more competitive, so should the entire market. In particular, a highly fluid market in railcars could improve the indirect competition among the railways and their corresponding supply chains.

Railcar supply is central to two major policy decisions that confront the logistics system of the western Canadian grain supply chain. The federal government must decide on the fate of its 13,000 hopper cars, and the industry must develop a new framework to determine shipper access to the railcar supply. We recommend a new institutional relationship for railcar ownership that would be efficient and promote competition. We identify and discuss two specific issues. First, a public interest exists in a market-based, not-for-profit system of railcar ownership. Second, advances in electronic commerce (e-commerce) make it

This report is based on an earlier study completed under a general contract between the Manitoba Department of Highways and Government Services and the University of Manitoba. The authors of this study have worked independently and the opinions expressed, therefore, are their own and do not necessarily reflect those of the province. The authors wish to thank four anonymous reviewers and to acknowledge the many helpful comments and criticisms received on earlier drafts of this report.

economically feasible to establish an electronic railcar market that will force indirect competition between the rail lines.

*In this* Commentary, *we set out the rationale for a transfer of the government's railcar fleet to a publicly accountable, not-for-profit organization called Grain Car Canada.*

The federal government has administered its hopper car fleet according to political rather than financial considerations. In this *Commentary*, we set out the rationale for a transfer of the railcar fleet to a publicly accountable, not-for-profit organization, hereafter called Grain Car Canada (GCC).[1] GCC would preserve the use of these hopper cars for the betterment of farmers and society in general. It would operate a railcar leasing pool on a purely commercial basis, and it would be precluded from using railcars to pursue other mandates, such as social and political goals dealing with branchlines and elevators, or economic development goals, such as sustaining the municipal tax bases of communities or negotiating freight rates. Access to the railcars would be transparent, open, and determined by competition among the shippers, without bias due to size or location.

The new commercial environment would increase railway competition and promote efficiency in grain handling. The railways would no longer be assured of a fixed share of the publicly owned railcar pool. The hopper cars would be offered to shippers through an electronic auction market in which demand and supply would dictate price. Stakeholders requesting railcars would express their needs through the amount bid. A Dutch auction could ensure that transactions occur in a timely manner, dispersing the 13,000 hopper cars efficiently during peak demand.

The optimal use of covered hopper cars lies between the two periods of peak and nonpeak demand. Theoretically this provides an economic basis on which GCC could operate as a self-sustained entity. GCC would optimize the existing railcar use by creating commercial relationships among the participants.

In the GCC model, the aggregate value of railcar bids would determine the railcar fleet capacity. The system could operate on the basis of a simple decision rule. Consistently high bidding on railcars would signal a shortage in the fleet's capacity and provide revenues to make necessary additions. Consistently low bids would signal that the railcar fleet is adequate or should be reduced. Negative revenues for GCC would lead to a net decline in the fleet and ultimately to higher bids, creating a new equilibrium.

This discussion of GCC is set out in four parts. First, we summarize the policy framework that governs access to grain hopper cars in western Canada. We also review the history of railcar policy, establishing the public interest for GCC. Second, we present the economics of railcar supply and demand, the case for GCC, and some models of commercialization. Third, we discuss how e-commerce could be used to obtain a socially optimal quantity of railcars. In that section, we show how GCC would induce indirect competition between the railways as a side benefit of creating an open and transparent market for railcar services, and we discuss the value of such indirect competition as a further outcome of this institutional arrangement.

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1 Similar works on this subject refer to Grain Car Canada as a railcar authority. It is the authors' understanding that the word *authority* brings with it thoughts of regulation and rules. The goal of this study is to propose an alternative to the restrictive policies that have previously been placed on the Canadian grain handling and transportation system.

## The Policy Framework

Although the fate of the government-owned hopper car fleet is uncertain, it is inevitable that some decision must be made. The cars are now 20 to 30 years into their 40-year life span. Who will take over and maintain the supply of these cars? And what will that mean for the competitiveness of the western Canadian grain industry? This section briefly sketches the events that led to the current circumstances, and establishes the public interest in railcar provision and access.

Box 1 shows a chronology of the events that have shaped public policy on railcar provision and access. The changes in the dominant grain handling technology are used to divide the timeline into four periods, as discussed below.

### *Sacks in Boxcars; Flat Warehouses*

*Farmers have had an interest in railcar access back as far as the famous* Sintaluta *case of 1902, and thus very nearly as long as the grain industry itself has existed.*

Farmers have had an interest in railcar access back as far as the famous *Sintaluta* case of 1902, and thus very nearly as long as the grain industry itself has existed. Wilson (1978) documents the *Sintaluta* case and the circumstances that led up to the first regulation of railcar access. Railcar regulation first became an issue in 1897, when the Canadian Pacific Railway (CPR) began to favor bulk movements over sacks. The railway gave the elevator companies exclusive loading rights on their tracks. By denying access to railcars, the railways effectively prohibited the loading of sacks from flat warehouses. Farmers petitioned for the continued use of flat warehouses because they represented the only competition to the local monopoly of the elevator companies.

Farm protests led to the first Royal Commission on the Shipment and Transportation of Grain in 1900, and the subsequent *Manitoba Grain Act* of 1900 (MGA). The MGA forced the railway to allow the construction of flat warehouses on its property at appropriate site rents, and prohibited it from refusing to supply railcars. The MGA also required the railway to supply cars to farmers for loading at platforms in its station yards.

The railway's failure to comply with the MGA's instruction to provide railcars to farmers led to an amendment to the MGA in 1902. The amendment required the railway to maintain an order book at each station and to provide cars on a first-come, first-served basis. The railway continued to disregard the act, however, and was charged on a complaint registered by farmers at Sintaluta, Saskatchewan. The railway was found guilty; when it appealed to the Supreme Court of Canada, the verdict was upheld. The *Sintaluta* case enshrined the principle of producer access to railcars. It did not, however, solve the problem of competition.

Following the *Sintaluta* case, flat warehouses, which represented an obsolete technology, began to disappear. Instead, farmers established elevator cooperatives in an effort to gain bargaining power in the grain handling system. The *Canada Grain Act* of 1912 provided assurance for farmers and stakeholders of a fair, impartial grain system. The act was responsible, as it is today, for governing the quality and quantity of Canadian grains.

**Box 1:** ***Railcar Access Policy for Grain in Western Canada***

*Sacks in boxcar; flat warehouses*
1897: Crow's Nest Pass Freight Rates Agreement
1900: *Manitoba Grain Act* (MGA)
1902: MGA amendment and *Sintaluta* case

*Bulk in boxcars; small elevators*
1912: *Canada Grain Act*
1918–20: Canadian National Railways formed
1925: Statutory Freight Rates replace the Crow's Nest Pass Agreement
1955–73: *Temporary Wheat Reserves Act*
1968: Canadian Wheat Board (CWB) takes over railcar administration
1973: Federal government begins purchase of hopper cars
1976: Snavely Commission

*Bulk in 100-tonne hopper cars; medium-sized elevators*
1982: Gilson process
1984: *Western Grain Transportation Act* (WGTA) replaces Statutory Freight Rates
1984: Grain Transportation Agency (GTA) replaces CWB car allocation
1995: *Canada Transportation Act* replaces WGTA
1995: Senior Executive Officers (SEO); Car Allocation Policy Group (CAPG) replaces GTA car allocation
1996: SEO car fleet consultations

*Bulk in 110-tonne hopper cars; high throughput elevators*
1998: Estey review
1999: Kroeger process
2000: Goodale-CWB memorandum of understanding
2000: CAPG disintegrates; CPR introduces MaxTrax car access

## *Bulk in Boxcars; Small Elevators*

The advent of small elevators ushered in a new system of handling grain in bulk. The bulk handling system expanded rapidly in the early decades of the twentieth century, as two more transcontinental railways were built (the Canadian Northern, and the Grand Trunk Pacific). Overexpansion of the new railways ultimately led to their financial collapse, however, and to the 1918 creation of the publicly owned Canadian National Railway.

The additional railways became a source of inequity because only those railcars that had access to the CPR lines were subject to the 1897 Crow's Nest Pass freight rates. Crow's Nest Pass rates were legislated rail freight rates that applied to grain. The agreement between the CPR and the federal government enabled the construction of a railway from Lethbridge through the Crow's Nest Pass to the Kootenay area of British Columbia. In 1925, therefore, the fixed freight rate for grain was made statutory (1925 *Amendment to the Railway Act*, 1919) and extended to all elevator points in western Canada. Grain handling capacity finally peaked in the 1933–34 crop year at 5,485 elevators.

The railways lost interest in investing in grain transportation over the last half of the boxcar era. This waning interest was related directly to growing competition from the trucking industry, and indirectly to freight rate policy.

Before the construction of an extensive road network, railway boxcars had carried all forms of general merchandise. Branchlines in western Canada had two-way traffic flows, with general merchandise flowing inbound and agricultural products outbound. Railway earnings, including those from their profitable passenger services, were sufficient to provide all the rolling stock needed for grain transportation.

But, by 1950, grain transportation was becoming less profitable for the railways. As trucking eroded the base of nonagricultural traffic, the railways became more dependent on grain revenue to cover their fixed costs. The difficult situation for the railways was compounded by the Statutory Freight Rates (1925), which imposed maximum freight tariffs based on 1897 costs. The logical response was for the railways to cease investing in branchlines and to defer replacing the boxcar fleet.

Until the late 1960s, the railways administered cars to shippers on a first-ordered, first-served (FOFS) basis. During that period, the railways were deluged with orders for more cars than the system capacity.[2] With the railways facing an impossible financial situation and rising shipper complaints, grain industry leaders were forced to search for a more efficient system of railcar access. As the result of concerted effort on the part of the entire grain industry, car allocation was turned over to the administration of the newly created Canadian Wheat Board (CWB). Subsequently, the railcar access system as administered by the CWB came to be known as the "block shipping" method.

*Although western Canada adopted bulk handling early in its development, it was slow to shift from boxcars to hopper cars.*

Although western Canada adopted bulk handling early in its development, it was slow to shift from boxcars to hopper cars. The regulatory environment delayed investment in and modernization of the grain handling and transportation system. Earl (2000) documents the perverse effect that the wheat storage subsidies (the *Temporary Wheat Reserve Act*, 1955–73) had in retarding change and diverting attention from the needed adjustment.

The rapid inflation of the late 1970s combined with continued transportation of grain below cost increased the financial burden on the railways. Transportation problems escalated as production grew, because of the commodity price boom of 1973–79. With farm sector complaints rising, Ottawa introduced subsidies to rehabilitate branchlines, and commissioned studies to assess the problem.

Grains other than those governed by the CWB (referred to here as "non–CWB grains") were increasingly being shipped across the Prairies, and shortfalls of rail transport became even more apparent. Canola and wheat producers alike complained of shipping capacity shortfalls.[3] Shippers of non–CWB grains suspected the CWB of causing part of their car shortage problems, believing that the CWB had a conflict of interest in the administration of the railcar supply.

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2 Phantom orders are common in FOFS systems because shippers have an incentive to order excess cars in the hope of getting enough to fill their needs. In this case, with high-value freight, low-value freight, and phantom orders all traveling with the same priority, efficiency was compromised, and shipper complaints became an annual occurrence.

3 The canola industry became organized in 1967 as the Rapeseed Association of Canada. As the problems of transportation became more acute, leaders of the rapeseed industry took the initiative in searching for regulatory reform (Earl 2000).

## *Bulk in 100-Tonne Hopper Cars; Medium-Sized Elevators*

As the railway system deteriorated, and in an attempt to provide logistical capability for grain movements, the federal government began to purchase hopper cars in 1973. It continued to support the railways by buying hopper cars until 1982 and financing the rehabilitation of railway branchlines until 1985. But by 1984, after ten years of *ad hoc* measures to shore up railcar supply and four major studies,[4] Ottawa was forced to accept that a gap of $650 million existed between revenues the railways received from grain transport and the cost of providing that service.[5]

*By 1984, after ten years of* ad hoc *measures to shore up railcar supply, Ottawa was forced to accept that a gap of $650 million existed between revenues the railways received from grain transport and the cost of providing that service.*

In 1984, therefore, the federal government enacted the *Western Grain Transportation Act* (WGTA), replacing the Statutory Freight Rates and removing railcar administration from the CWB's jurisdiction. The WGTA legislated a federal subsidy for the railways, to bridge the gap between the statutory rates and the total railway costs for shipping grain. In addition, Ottawa continued to supply its fleet of 13,000 covered hopper cars free of charge for grain movements to designated export ports.[6] In return, the WGTA was to shape the grain freight system to support Ottawa's two policy goals:

- that all farmers should have equal access to grain markets and the transport system; and
- that all farmers should receive the same price for the same type and grade of grain designated for export.

The WGTA also created the Grain Transportation Agency (GTA) to ensure that grain from western Canada would be moved in an efficient, reliable, and effective manner. The GTA had three objectives: to be an impartial coordinator for the entire grain handling system (both CWB and non–CWB), to ensure grain movements to domestic and export positions, and to minimize grain handling and transportation costs to producers.

The number of railcars available for shipping in any week depended on several factors, including, but not limited to, the overall size of the car fleet. Railcars were allocated to the CWB and non–CWB shippers by the GTA on the basis of their availability. Weekly meetings between the GTA, the railways, and the CWB would determine the number of cars available for loading. With the number of cars for each destination determined, the GTA would make the initial split between CWB and non–CWB grains. This split was referred to as the "initial allocation." The CWB, grain companies, and railways would then carry out the remaining allocation steps.

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4 The major reviews included the Snavely Commission (1976; 1982), the Hall Commission (1977), the Prairie Rail Action Committee (1979), and the Gilson process (1982).

5 The railways claimed losses for many years, but would not open their accounts for independent costing until the Snavely Commission (1976). Once losses were determined, it took another six years before the federal government initiated the Gilson process (1982) to end the Statutory Freight Rates.

6 Vancouver, Prince Rupert, Churchill, and Thunder Bay.

In 1993, the GTA convened a first meeting of a group referred to as the Senior Executive Officers (SEO). The group included chief executive officers (CEOs) from the grain companies, the chief commissioner of the CWB, senior grain managers from the railways, and three farm representatives. The SEOs' goal was to identify problems in grain transportation and to develop long-term solutions.[7]

In 1995, however, the federal government enacted the *Canada Transportation Act* (CTA), discontinuing the WGTA subsidies and terminating the GTA.[8] The Car Allocation Policy Group (CAPG) was assigned the task of administering high-level car allocation rationing. The CAPG operated as a voluntary organization of industry stakeholders without any legislative authority.[9] Cars were distributed to shippers according to a system of rules and entitlements. For example, approximately 30 percent of the cars allocated for non–CWB grains were dependent on being shipped to an offshore buyer with a valid sales contract,[10] and 25 percent of CWB cars were allocated on the basis of shipper performance.

In the 1995 budget, Ottawa announced that it would sell its fleet of 13,000 hopper cars as a further deficit-cutting measure. During the summer of 1995, the SEO group was asked to determine the fate of the railcar fleet. The SEO consultation process led to a proposal to sell the car fleet to the railways for $100 million. The railways, in turn, would be compensated by a $1 per tonne increase in freight rates, for up to five years, with a maximum freight rate for ten years, to be followed with the CTA regulations.

The SEO recommendation quickly became a highly publicized political issue. In protest, in 1996 farmers formed the Farmer Railcar Coalition (FRC). The coalition's goal on its inception was to acquire the government hopper car fleet. The group includes organizations related to farming and the agriculture industry. The coalition's position was that, if the railways owned the fleet, they would charge enough for railcar use to generate profits. The railways, in turn, would pass on those charges to the producers. The coalition also worried that producers of grains not within the domain of the CWB, such as canola, would not have access to cars for transport. As a result of protests from farm lobby groups, such as the FRC, the proposal to allow the railways to purchase the cars was dropped. In December 1996, the minister of transport issued a notice terminating the railways' right of first refusal on the sale of the car fleet, effective June 30, 2002.

*No system that has evolved in the presence of over $700 million in annual subsidies could remain unchanged when those supports are removed.*

No system that has evolved in the presence of over $700 million in annual subsidies could remain unchanged when those supports are removed. Eliminating the WGTA subsidy in 1995 left the grain handling system to adjust to a new commercial environment within an old regulatory framework. Two years of high grain prices in 1996 and 1997 helped to ease the transition, but a severe winter, which disrupted grain shipments, was enough to expose the limitations of the grain handling and transportation system. The CWB began a long "level of service

7 Further discussion can be found in University of Manitoba Transport Institute (1997).

8 Obligations to end export subsidies under the World Trade Organization (1994) provided the opportunity, while the need to staunch the federal deficit provided the motive.

9 CAPG guidelines flow from the SEO group representing western Canadian grain handling firms, the CWB, railways, and three producer groups. See Hayward (1997).

10 The industry refers to this situation as "shipped to sale."

obligation" case against the railways under the CTA. In response to a chorus of complaints, the government commissioned Mr. Justice Willard Estey to thoroughly examine the grain handling system and recommend for changes.

## *Bulk in 110-Tonne Hopper Cars; High Throughput Elevators*

*The Estey review (1998) and the subsequent Kroeger proceedings (1999) represented Ottawa's attempt to find a new competitive balance for the grain handling and transportation system.*

The Estey review (1998) and the subsequent Kroeger proceedings (1999) represented the federal government's attempt to find a new competitive balance for the grain handling and transportation system. Most stakeholders involved in the proceedings agreed that the most complicated segment of the grain handling industry is the allocation of hopper cars to shippers, as and when required, and their recovery in the shortest possible time from the port of export. Among Mr. Justice Estey's 15 recommendations, two pertain directly to the ownership of the government railcar fleet and the railcar allocation process.

Recommendation 5 calls for a transferral in ownership of the government railcar fleet. Mr. Justice Estey observes that ownership of the hopper car fleet is one of the few issues of consensus. He concludes that it would be in the interest of Canadian grain transportation as a whole to dispose of the cars, at their fair market value, as long as the sale were conditional on the cars remaining available to the western Canadian grain industry.

The issue of railcar allocation, where the Estey report finds no consensus, became a focus in the Kroeger process. Recommendation 6 of the Estey report was to be used as a base on which a working group could build an acceptable process for replacing the current method of railcar access.[11] The Estey report recommends that the CAPG be discontinued and that the cars be allocated on the basis of conditions published by the railways. It is proposed that, when cars are scarce, a standing referee system should adjudicate complaints.

The working group, trying to satisfy most of the stakeholders' needs with regard to car access, developed two options. Option 1, both commercial and contractual, calls for expanding the CWB's involvement in contracts with the railways and grain companies. Option 2, also a commercial and contractual option, completely removes the CWB from any operational role in the handling and transportation of grain. Both options agree with the original Estey recommendation, to disband the CAPG. Both options envisage a common fleet of grain cars to be dedicated to the western Canadian grain industry. Both options call for the CWB to use tenders and performance awards to distribute its logistics needs among its logistics contractors (grain companies, producer car shippers, and other shippers).

Following the consultation process, Transport Canada (Canada 1999) released a report on the disposal of the government hopper cars. The report assessed three proposed sale options in the context of the Estey recommendations. Under the first option, interested parties would bid on the cars, and Ottawa would award them to the highest bidder. To ease any market hesitation about bidding on the cars due to the railway's right of first refusal, Ottawa offered to assist the new owner if the

11 The three working groups in the Kroeger process were Rates and Revenues, Commercial Relations, and Competition and Safeguards.

railways chose to exercise that right.[12] The cars would be sold for fair market value with the ownership charges factored into the revenue cap.

The second option would allow open bidding with a renegotiated operating agreement in place. The federal government would negotiate a transitional lease with the railways, then award the cars to the highest bidder with the lease in place. The cars would be sold for fair market value with the car ownership charges being factored into the revenue cap.[13]

The third option would include a deferred sale, with or without an interim lease charge. This option would allow the government to commence an interim lease revenue for cars based on the market value ownership costs. Under this option, the cars would not be disposed of. Alternatively, the option allows for the cars to be sold in the future with no lease payments in the interim.

*Although the 1999 Transport Canada report sets out three options for disposing of the government-owned car fleet, it is mute on the issue of car access.*

Although the 1999 Transport Canada report sets out three options for disposing of the government-owned car fleet, it is mute on the issue of car access. It set no timetable for the disposal of the car fleet. The subject was confined for the time being to a Transport Canada internal review.

After two years of extensive public consultations,[14] Ottawa announced Bill C-34, *An Act to Amend the Canada Transportation Act*, effective July 26, 2000. At the same time, the CWB and Ralph Goodale, the minister responsible for the CWB, signed a memorandum of understanding giving the CWB the right to negotiate contracts with the railways and grain companies for the movement of all the grain it markets. It instructs the CWB to commercially tender for the movement of 25 percent of its business through the ports, and it dictates that the level of tendering will rise to 50 percent in 2002–03.[15]

The CWB has developed contracts to govern its relationships with the railways and grain companies. However, the contracts proposed to the grain companies for tendering services have not been well received. The grain companies allege that the penalties for noncompliance are asymmetric. Specifically, for nonperformance, the CWB contracts give the marketing board much wider tolerance than they do the grain companies. The Western Grain Elevator Association (WGEA) has reacted strongly to the power given to the CWB to control car supply.

The process of disbanding the CAPG slowly lost credibility with the grain industry. Various parties proposed that it be replaced in part or in whole, including CPR (its MaxTrax system is discussed below), the WGEA, and the CWB with its proposals for tendering and car allocation. None of these was fully accepted by other players. For all intents and purposes, CAPG ended in October 2000.

Following the deregulation of the railways in the United States, US railways developed systems that enabled shippers to bid for access to railcars. For example, since 1988 the Burlington Northern Santa Fe has operated a program called Certificate of Transportation, or COT, that permits shippers to buy and sell access

12 The right of first refusal gave the railways the exclusive right to purchase the cars before anyone else.

13 The transitional agreement would reflect all applicable Kroeger principles.

14 The Estey review (1998) and the subsequent Kroeger process (1999).

15 The memorandum of understanding can be found on the CWB Internet website: www.cwb.ca/grainmov/transportation_reform/index.htm.

to railcars. The COT program gave the railway operational planning benefits that improved its use of equipment and enabled it to base its pricing on market values.[16]

The MaxTrax system introduced by CP Rail may represent the future of railcar allocation. MaxTrax includes a flexible range of service, price and product options, and discounts.[17] ShuttleMax allows shippers to book CPR grain cars 3 to 12 months in advance in 100-car blocks, to be used in a continuous cycle; AdvanceMax allows shippers to gain commitment from CPR for empty grain cars two to eight weeks in advance, for multicar blocks; and ReadyMax serves grain car orders one week in advance of the shipment date. CPR's new system of car allocation has exposed a long-standing dispute between the grain companies and the CWB: each party claims that it is the "shipper," and thus that it should control the negotiation with the railways on CWB grain shipments.[18]

Auction markets provide an efficient alternative to first-ordered, first-served rationing of the system of car allocation administered by the GTA and the CAPG. Mulligan (2000) points out that the question is how much service providers should be allowed to obtain in terms of private gains from market-like institutions.

For the moment, the future of the government-owned railcars has faded from the center stage of grain transportation policy. But it is likely to return to the spotlight as the expiration date of the railways' right of first refusal to purchase the cars draws near. The public's interest in the disposition of the government-owned railcar fleet lies in its impact on farmers. Any increase the market power of the railways to control car supply in an already concentrated industry is worrisome. But because the market is also subject to large seasonal fluctuations in demand, the potential for a misallocation of resources becomes a public policy problem.

## The Economics of Railcar Supply and Demand

While the foregoing section gives a brief sketch of the history of railcars in Canada, pointing out why their disposition is a matter of public importance, this section sets out the economics of railcar supply and demand as it relates to a price-based system of railcar access.

*Hopper car rationing is inevitable in the export of Canadian grain because of the seasonal imbalance in freight traffic.*

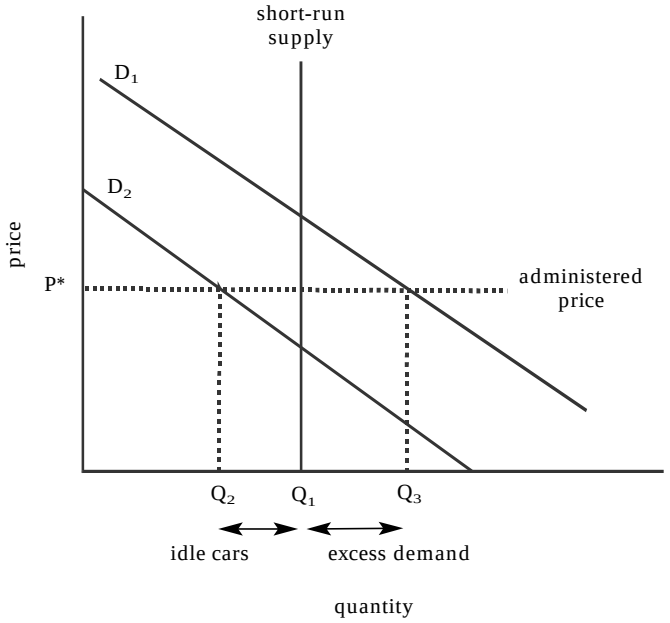
Hopper car rationing is inevitable in the export of Canadian grain because of the seasonal imbalance in freight traffic. Over 60 percent of shipments travel during the five-month period from September to January. At the peak in shipping demand, all the available equipment is pressed into service, whereas in the off-season, surplus equipment is idle. This dynamic means that an operator can never

16 Frequently asked questions and answers about the COT program may be found on the railway's website: www.bnsf.com/business/aqcom/cots/cotsmenu.html. Wilson and Dahl (1997) also discuss the COT system and the economic merits of a bidding system for railcar access.

17 In a CPR press release, Ray Foot, assistant vice-president of grain, states that, "Given the lack of consensus within the industry, CP was required to institute an alternative order fulfillment process that allows grain shippers to place car orders. CP's new program will introduce an increased level of efficiency, transparency, flexibility and accountability — all the characteristics of a modern, commercial and competitive marketplace." October 25, 2000.

18 CNR has recently (January 2001) begun to offer half of its 1,500 grain cars through three new programs: GT (Grain Train) Secure, GT Pro, and GT Shuttle. These programs benefit the shipper by reducing freight rates and locking in car supply and delivery period. See Dawson (2001).

**Figure 1:** ***Administered Car-Rationing Model***




afford to purchase enough cars to serve more than the average peak volume. An operator choosing to maximize profit may instead supply fewer cars during peak periods, collect monopoly rents, and reduce the opportunity cost of idle equipment in the off-season.

When the demand for a good or service is not uniform over time, the analysis of peak-load pricing may be used. The market for covered hopper cars in western Canada is a case of the peak-load demand problem. Public intervention is common in markets that exhibit a peak-load demand, such as public transit services. Government intervention can range from the administered rationing of publicly owned equipment to the use of public utility peak-load pricing systems.

Figure 1 presents an administered car-rationing model. The demand for grain transportation is separated into peak demand and non-peak demand curves, $D_1$ and $D_2$, respectively.

During the peak-period season shipping demand (D1), capacity is rationed to shippers by an administered system of rules and entitlements. The supply of rail service becomes perfectly inelastic as the system reaches capacity at $Q_1$.[19] At P*, the administered price,[20] shippers in the peak period would like $Q_3$ cars. The excess demand, $Q_3 - Q_1$, is a source of shipper complaints and pressure to alleviate the perceived car shortage. During the non–peak-period shipping demand ($D_2$), the administered price is such that all shippers get access to all the cars they desire, and $Q_1 - Q_2$ cars remain idle.

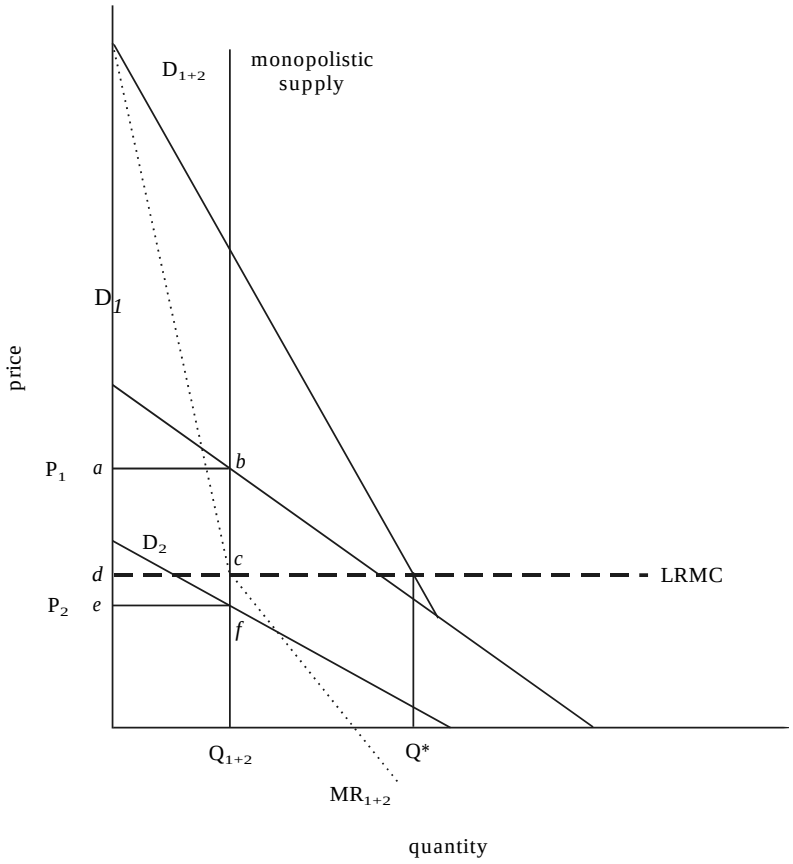
A price-based system of allocation can alleviate car shortages because prices rise to ration demand. Prices can also help to smooth out peaks and troughs in demand. If users know that they can get lower prices by waiting, some will try to delay shipments to the lower-priced period. The problem of the peak-load market is who gets to determine the supply.

Figure 2 presents the case of a monopolistic supplier. To set prices for the peak and non-peak periods, the demand curves are added vertically, allocating costs over the full year. In this illustration, $D_1$ represents the peak demand period from September to January; $D_2$ represents the non-peak demand period from February to August. A monopolist supplier can maximize its profits by setting the supply of

19 As peak capacity is approached, some actions could be undertaken to alleviate constraints, such as selecting appropriate origins (closer to a port, on mainlines, or favoring larger elevators), and controlling the actual commodities shipped. The analysis does not change, however, in part because no party is likely to give up its right for the improvement of the whole. Moreover, the constraint is still likely to be binding — that is, $Q_1$ will still fall to the left of $Q_3$.

20 In western Canada, the government-owned-cars are provided free of charge, but access to the cars is bundled with a freight rate that represents the administered price.

**Figure 2:** ***Monopolistic Pricing Model***




cars so that the long-run marginal costs (LRMC) equal the combined marginal revenues of the two markets. The combined marginal revenue ($MR_{1+2}$) is determined by the vertical addition of the peak and non-peak marginal revenues to obtain the total marginal revenue curve. The monopolist sets the supply of cars at $Q_{1+2}$, and charges prices $P_1$ during the peak period and $P_2$ during the non-peak period.

During the peak demand period ($D_1$), the price rises to $P_1$, which is well above the LRMC. The non-peak price falls to $P_2$, which in this case leaves no cars idle.[21] A monopoly supplier has an opportunity to capture supranormal profits by undersupplying the railcar market. The net economic rent is *abcd* (the revenues earned in the peak period above the LRMC), less the economic losses, *dcfe* (the revenues earned in the non-peak period that are below the LRMC).

The monopolist car supply reduces social welfare. The socially optimal car supply, Q*, is where total demand, $D_{1+2}$, equals the LRMC.[22] A private operator, if given unfettered railcar ownership, can aggressively build commercial relationships to capture the benefits of demand fluctuations. At the same time, no administered system without perfect information on shipper freight and railway capacity can allocate railcars as efficiently as a price system. An alternative used by governments to generate the benefits of market pricing, without transferring those benefits to a private monopoly, is to create a not-for-profit agency that can operate as a public utility.

Public utility systems that use peak-load prices are common in electricity and communication industries. Systems that use prices to determine service priority can yield benefits of efficiency, equity, and stability. Figure 3 presents the ideal pricing system for the peak-load market problem.

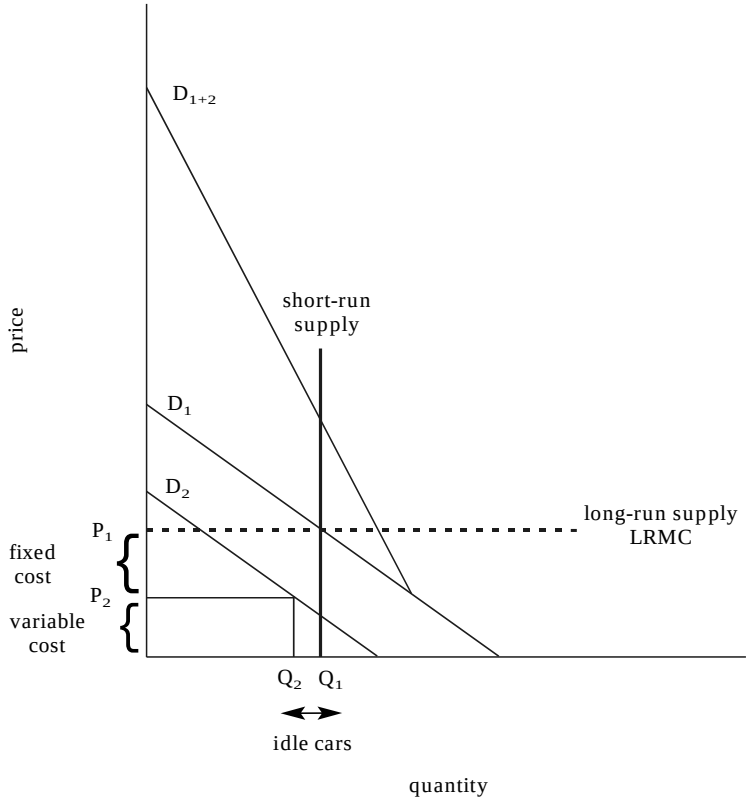
In a perfectly adjusted peak-load market, users in the non-peak demand period pay less ($P_2$) than the peak demand users. In this case, the peak demand users bear the fixed costs of the total supply at $P_1$.[23] The extra cars, $Q_1 - Q_2$, are needed only during the

21 Whether the monopolist has idle cars in the non-peak season depends on the nature of the demand. As long as the price is above the variable costs, cars will be supplied, otherwise the monopolist is better off leaving them idle.

22 Technically, this is the point where the marginal social cost (LRMC) is equal to the marginal social benefit that is the combined demand. At any other point, society will suffer a dead-weight loss of efficiency.

23 If the seasonality were less pronounced, the non-peak users would also share some part of the fixed costs. In general, if this were to occur, no cars would remain idle in the non-peak period.

**Figure 3:** ***Optimal Peak-Load Pricing Model***




peak demand period, and otherwise are idle. If the size of the railcar fleet is optimally supplied, the short-run supply will cut the peak demand curve at the same point as the long-run supply. The combined revenues of the peak and non-peak demand users will equal the LRMC of the service. The railcar supplier can capture no economic rents.

## *The Case for Grain Car Canada*

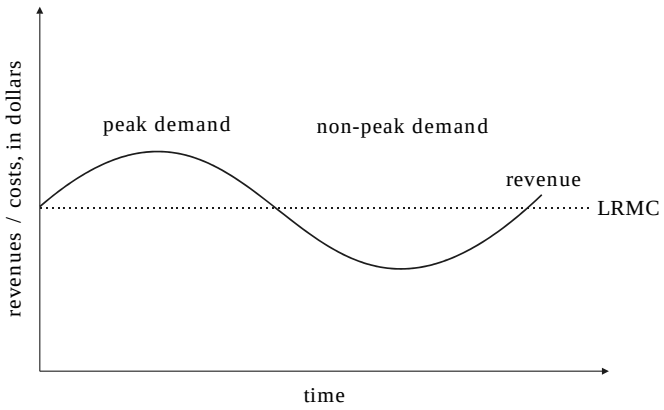
From a producer's perspective, an optimal railcar supply involves a tradeoff between service cost and fleet size. Unlike the peak-load theoretical model, which is static, year-to-year fluctuations in the peak market demand occur with the size of the harvest. The dynamic nature of the demand requires that the owner of the car supply react to the risk of having too many cars. Any public utility proposal must have a decision rule that determines the long-run supply as well as the short-run allocation.

The proposed institution to maintain the hopper car fleet would be a not-for-profit car leasing agency, such as Grain Car Canada (GCC). We envision GCC as having two prime functions: It would operate an electronic auction market to provide unbiased access to the railcars, and it would use the proceeds to maintain a railcar fleet for western Canadian grain farmers. Figure 4 shows how the auctioning of railcars by GCC could result in a self-sustaining market. During the peak demand period from September to January, leasing revenues would exceed the LRMC.[24] At peak demand, the car fleet would be used at capacity and supplied to those shippers prepared to pay the most. During the non-peak demand period, it is anticipated that some cars would sit idle. Shippers placing a call for cars at that time would not pay the full costs of usage. The LRMC is balanced between the extremes of these two periods, and supply would approach the optimal peak-load allocation.

The self-sustaining nature of the market could be achieved if GCC followed a simple decision rule. The revenue obtained by GCC through the market mechanism would guide it toward the optimal fleet size. If at the end of any fiscal year, GCC had a positive balance, it would add new cars to the fleet. By contrast, if costs exceeded the revenues of the auction, it would not add new cars. Because of

24 Technically this situation is referred to as a "first-degree price discrimination." Each buyer is forced to reveal its maximum willingness to pay. An efficient result occurs because the entire consumer surplus is appropriated by GCC. None of the welfare loss normally associated with monopolies occurs because GCC, through the auction, can perfectly price discriminate.

**Figure 4:** ***The Self-Sustaining Railcar Market***




depreciation, this rule would have the effect of a net reduction. Consequently, bids placed in the auction market would provide the signal for GCC to either expand or contract the car numbers to reach the optimal fleet size.[25]

In practice, the optimal fleet size of the GCC fleet depends on the car supply response of other parties, especially the railways. Given the railways' common carrier obligation, GCC is likely to be the residual supplier of grain cars. In addition, efficiency improvements, in particular high throughput elevators, could reduce the total number of cars required. Ultimately, the GCC fleet size would be determined by market forces.

## *Commercializing the Government-Owned Car Fleet*

Canada has had unprecedented success in commercializing transportation. Success has been attributed to a series of distinct initiatives tailored to best suit the industry, customer base, and mode of transportation to be commercialized. Three key areas are governance structure, pricing, and rents.[26] The structure and governance of GCC could follow one of three models of commercialization that Ottawa has recently used to transfer the ownership and operation of its assets: NAV CANADA, the Canadian airport authorities, and the Canadian port authorities.[27]

NAV CANADA was created as a non-share capital corporation to provide air navigation services. This entity was sold by Transport Canada to the new operators for $1.5 billion. The 15-member board of directors includes four representatives from the airlines, three from the federal government, two from the unions, and one from general aviation; as well, there are five board appointees — four independent and one chief executive officer, who is also the president. The board members are all unrelated to the company, with the exception of the president and chief executive officer. An additional 18-member advisory committee of aviation professionals meets four times a year; its mandate is to make recommendations to the board of directors. In theory, the advisory committee should make the board more responsive to the needs of its stakeholders.

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25 Given the long service life (40 years) of railcars, any expansion or contraction would be gradual.

26 The status and current challenges facing the Canadian transport sector were discussed at the 2000 annual meeting of the Canadian Transport Research Forum (FORUMation 2000).

27 It is worth noting that the new *Canadian Wheat Board Act* creates another example of commercialization to the extent that it changes the governance of the CWB. Rather than being appointed commissioners, two-thirds of the CWB directors are now elected. Furthermore, the CWB is expected to act more like a commercial entity than an agency of the government. See Canadian Wheat Board (2000).

NAV CANADA charges fees to the airlines for its services, and it has the lowest cost of capital of any major corporation in North America. Because there are paying customers on its board, the focus of the provision of air navigation services has shifted away from the traditional profit motives and toward cost and quality of service. John Crichton, president and chief executive officer, states that benefits achieved by NAV CANADA's privatization include improved salaries, a lower payroll, a lower cost of flying, and raised productivity (*FORUMation* 2000).

The Canadian airport authorities (CAAs) represent a second model of commercialization. Canada's 26 largest and busiest airports, forming the National Airports System (NAS), have been transformed into the Canadian airport authorities through long-term lease agreements. The assets of each airport are transferred to the new CAA via a 60-year lease with a further 20-year renewal. The CAAs are subject to strict accountability rules. These not-for-profit corporations are headed by boards of directors comprising local community representatives and two federally appointed members. Each board consists of a maximum of 15 members, which may not include elected officials, civil servants, or commercial customers of the airport (for example, airlines). The airports pay the federal government an annual rent, but no corporate taxes. The airports in turn charge landing fees, sublease space, and impose passenger fees to maintain and improve the facilities. Profits from operations are used to fund airport capital investments.

The Canadian port authorities (CPAs) present a third model of commercialization. The CPA system enables participating ports to modernize and to streamline their management. Commercialization makes it possible for the CPAs to conduct business in a commercial, efficient, and timely manner. The federal government appoints all the CPAs' directors. Like the CAAs, the CPAs pay an annual rent for the use of government-owned assets.

Each of these models has its merits. The CAA and CPA systems do not require new operators to engage in debt financing to purchase assets. NAV CANADA, however, has greater freedom to manage its concession through asset ownership.

It is worth mentioning that, for GCC to fulfill its intended role in commercializing western Canadian grain transportation, its board will have to have sufficient industry representation. For GCC to meet market needs as they arise, it will need the industry to help it avoid policies that might lead to technical inefficiency. The structure and governance of GCC deserves a focused study that is, however, beyond the scope of this paper.

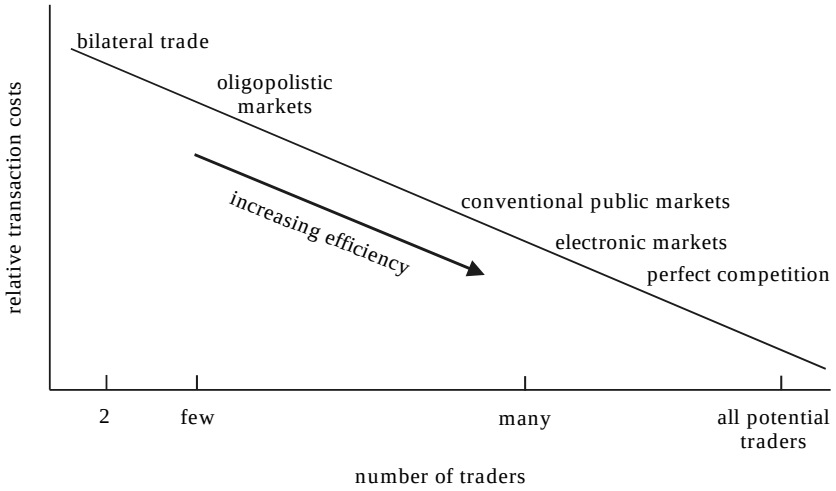
## The Economics of Electronic Markets

*Technological advances in telecommunication and information processing make it economic to operate auction markets over the Internet.*

Technological advances in telecommunication and information processing make it economic to operate auction markets over the Internet. E-commerce would allow GCC to operate its auction at low cost, while remaining inclusive. In electronic markets, individuals are atomistic in their ability to influence price.[28] Atomistic access to railcars would mean that the relationship between shipper and railway

28 Atomistic competition could be defined as a market structure in which no buyer, or seller, is large enough to influence the price level by its actions, or has enough market power to form a special relationship in which it is treated more favorably than others.

**Figure 5:** ***Industry-Specific Relative Transaction Costs***




would have no bearing on railcar allocation. Shippers that lowered handling costs, or found the best export prices for each and every freight load, would be able to express their valuation of the use of the railcars necessary to deliver grain.

Electronic markets, because they reduce transaction costs, can produce the private and public benefits normally associated with the theoretical model of perfect competition. Transaction-cost economics defines a continuum that begins with a single supplier firm and ends with a perfect market institutional structure. Commercial relationships may be placed along the continuum, as shown in Figure 5. Transaction costs are, in effect, the costs of freeing the flow of information. E-commerce reduces transaction costs to the point where commercial examples approach the theoretical extremes of the market model and the integrated firm.

Movement down the continuum represents the reduction in relative transaction costs. In markets with only a few traders, buyers and sellers must spend considerable effort searching for an acceptable match and negotiating a price. In conventional public markets, there are more buyers and sellers, making it easier to find a match, but the price may be subject to "local" conditions. In electronic markets, buyers and sellers can easily search for the best match without any geographic constraints, and can observe all the available prices simultaneously.

Reimers (1994) connects e-commerce to economic theory by asking the question: What are the institutional component parts of an electronic market? His theory offers grain industry stakeholders a standard on which discussions can take place, with regard to a competitive electronic market for the allocation of hopper cars. Reimers's hypothesis is that electronic markets have the underlying social and economic institutions critical to organizing such economic activity.

Reimers sets out a series of precondition institutional structures for the successful operation of an e-commerce market. These include membership rules, classification and quality checking, price-generating mechanisms, standardized contracts, and centralized transaction processing. It is important that each of these criteria is met. For example, if an electronic trading system were to be institutionally deficient, say, in the discovery of prices, it might be biased and not serve the public interest as intended.

A case study of the administered railcar allocation system found that four of the five criteria set out by Reimers were sufficiently met (Mulligan 2000). The exception was a missing price-generating mechanism. A not-for-profit corporation set up to fulfill that role would complete Reimers' preconditions. GCC could satisfy that role, being responsible for sustaining a fleet of covered hopper cars for

the transport of western Canadian grain, and for ensuring equitable and efficient access by shippers to those railcars through an auction market.

The technology for electronic trading presents no serious barrier to the development of GCC. The greater challenge is to create rules of engagement. Safeguards and reporting systems would be needed to ensure that anticompetitive strategies are prohibited, while each party has an incentive to maximize its operational efficiency.

## *The Electronic Model of the Railcar Market*

It is worthwhile considering in a little more detail the institutional structures that, as Reimers points out, are necessary preconditions for the successful operation of such an e-commerce market.

### Membership Rules

Membership rules encompass many roles to support electronic trading. The controlling body of GCC — its board of directors — would represent a broad range of the western Canadian grain industry. GCC would maintain the railcar fleet and operate the car auction. Membership rules would be used to qualify shippers, who would have to pass capital solvency criteria and comply with the obligations of the exchange contracts.

The primary obligation of membership would be to fulfill financial commitments and abide by the rules for fair trading of railcar contracts. For example, membership rules could include disclosure provisions that would prevent any trader from cornering the market. Other rules would pertain to the operations and set out conditions for loading and unloading within a specified period of time.

*GCC would become the trustee of the hopper car fleet, rendering the cars to the exclusive use of the western Canadian grain industry.*

GCC would become the trustee of the hopper car fleet, rendering the cars to the exclusive use of the western Canadian grain industry. The railways would not be required to allocate their cars through GCC. Although the inclusion of railway equipment in the auction would not pose a problem, the railways would be free to offer special services to those grain shippers willing to pay more than the GCC market price. For example, some shippers might be willing to pay a premium for CPR's ShuttleMax railcar service.

### Classification and Quality Checking

Classifications allow traders to summarize the description and quantity of a good or service. Such classifications can be communicated electronically with the expectation that the good or service will match the contractual product description. Classification problems would be minimal in the case of railcars because standardized equipment is used. For example, new hopper cars that have a larger capacity could easily be identified and auctioned accordingly.

Operational efficiency would require that the railcars be treated as a common fleet. GCC cars could be swapped for railway-owned equipment. The cars would be fungible, and the shippers would essentially purchase the "right" to a car, rather than a specific railcar.

### A Price-Generating Mechanism

A price-generating mechanism is needed at the point in the negotiating phase where buyers and sellers make legal commitments to exchange property. The electronic auction offered by GCC could be either an "English" or a "Dutch" system.[29] The English auction system would offer cars in various lot sizes, with the contract going to the highest bidder. The Dutch auction would also offer cars in various lot sizes, but car prices would be auctioned in a declining series. The Dutch auction would begin at a price indicative of the peak demand period (the highest possible price); from that point, the price would fall until a participant optioned to bid. That person — that is, the first one to bid —would receive the contract. Dutch auctions have been successful in hog and flower markets. Results from those markets suggest that, for auctioning railcars, a Dutch auction would be better than an English auction, primarily because of the speed with which transactions can be competed in the Dutch auction setting.

GCC could set reserve prices equal to the variable railcar costs during the non-peak demand period. Economics dictates that, at any price below variable costs, cars should be idle. A reserve price would be unnecessary during the September-to-January peak shipping period. Contract lot sizes would be determined by market demand and the efficiency of spotting equipment for loading.

### Standardized Contracts

Standardized contracts introduce a set of commonly understood contractual conditions into negotiations. The standardized contract would set the terms for a contractual failure. For example, the contract could set out penalties for demurrage and liability in the case of damage. To avoid power and crew shortfalls, contracts might also depend on railway capacity.

### Centralized Transaction Processing

*GCC would assume a wide range of transaction processing and information service functions, including public access to market information.*

Centralized transaction processing acknowledges the exchange of property rights and releases funds to the seller. GCC would assume a wide range of transaction processing and information service functions, including public access to market information. The core functions would cover the clearing of shipper property rights against the obligation to pay GCC. Ideally, GCC would publish weekly statistics on volume, price range, and other information that would help shippers manage their risk. Once fully established, the price information could be used to form a price index for futures trading that would allow shippers to hedge their price risk on the transportation service.

The smooth flowing operations of a market might require the presence of a secondary market where railcar "rights" could be resold, if necessary. Such details are not addressed in this report, but might need to be considered in an operating market.

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29 As an alternative. some have suggested a Vickrey auction, whereby the winning bid pays the (lower) price of the last bid.

## The Concept of Indirect Competition

*The challenge is to create a grain handling environment in which highly concentrated industries will act as if they are in direct competition.*

Government has hesitated to deregulate the grain handling and transportation system because of its inability to guarantee farmers that the railways would not abuse the freedom they would have under deregulation to set their own freight rates. The challenge is to create a grain handling environment in which highly concentrated industries will act as if they are in direct competition. Much of the history of Canada's prairie grain policy has been the struggle to find such an institutional structure.

The concept of rail competition, in the Kroeger process, became hinged on the so-called open access recommendation of the Estey report, which would change the conditions under which the railways let other operators use their network. Although no evidence exists to prove that open access would have the desired effect on railway competition, it became the *quid pro quo* for greater deregulation of the grain industry that determined the federal government's policy course.

This report takes no position on the desirability, or feasibility, of an open access regime for the railways. GCC would encourage the railways to engage in more competition and provide better service, regardless of the protection given to the rail network owner. GCC would enhance indirect competition between the railways by pitting one supply chain against the other. A policy of indirect competition requires that the key entry point to the market be made highly contestable.

Deregulation of the airline industry provides an insight into a workable model of indirect competition for the railways. In the economic deregulation of airlines in the United States, the US government failed to see that the key to competition was the control of airport gates and landing slots. As a result, the large airlines acquired dominant positions at key airports (for example, Northwest Airlines at Minneapolis) and used those "fortress hubs" to acquire monopoly power in their local markets.

In the case of grain transportation, the key point of competition is the railcar.[30] Like the airport gate, access to the railcar fleet (and whoever controls that access) will profoundly affect competition within the industry. If the railways have no control over which shipper gets access to a railcar and cannot restrict the transfer of railcars from their supply chain to a competing supply chain, they will be able to maintain their market share, only indirectly.

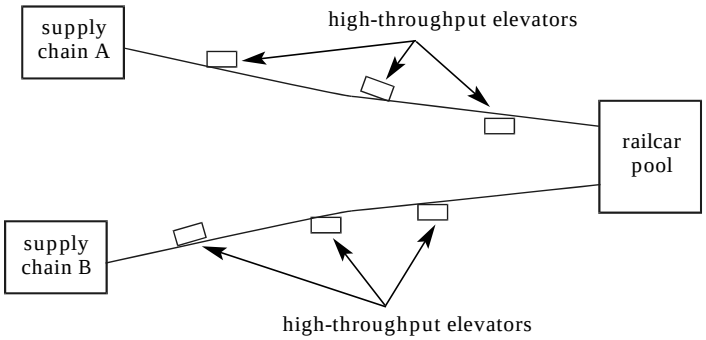
Figure 6 illustrates the concept of indirect competition between competing supply chains. The supply chains indicate the two primary rail lines that cross the Prairies, supply chain A being CN and supply chain B being CP. Each line has high throughput elevators capable of handling unit trains.

Under the administered system, government-owned railcars are allocated to the individual lines and grain companies on the basis of performance, and sales are dependent upon delivery. Each railway has a fixed share of the car pool, which is rebalanced at five-year intervals. This process limits the competition for cars between the two supply chains.

The proposed GCC allocation method would allow railcars to flow to the location of the shippers in response to the highest bid. The auctioning process instills competition between the two supply chains (railways) as well as among

30 This was demonstrated as early as 1902 in the *Sintaluta* case.

**Figure 6:** ***Competing Supply Chains in Western Canada***




shippers situated on the different rail lines. A rational shipper cannot afford to bid more for a car than it will yield in revenues. If one railway decides to charge higher rates, or its service deteriorates, shippers located on its track will not be able to bid as high as shippers located on the competing rail line. As railcars begin to migrate to the more efficient line (indirect competition), the other rail line is forced to become more competitive to maintain its market share.[31]

The concept of indirect competition can be observed in many parts of the economy. Shopping centers, for example, do not compete directly for consumers; instead, through their store leases and general appearance, they vie intensely for traffic. Similarly, most jurisdictions are unable to compete directly for population or investment, but through taxation policies and social programs, they try to make their locations more attractive. Although more subtle in its mechanisms than direct competition, indirect competition can be just as effective in keeping prices and service fees aligned.

## Concluding Comments

The deregulation of the Canadian grain transportation and handling system must include an evolution away from the existing institutional structure. The concentration of market power in the existing institutions undermines the belief of farmers that unfettered competition is likely to work in their interest. Deregulation is necessary because the supply chain for grain must adapt to an unsubsidized environment and reduce its costs. The existence of 13,000 government-owned railcars is a residual of a regulatory system that represents an implicit subsidy to producers. In the long term, a decision must be made to replace this fleet and to engage a system of railcar access that serves the pubic interest.

To take over the ownership of these railcars, we recommend a public-utility model based on an e-commerce auction market. The not-for-profit corporation we suggest, Grain Car Canada, would lease the cars and use the funds generated to maintain and replace the car fleet.

The federal government has experimented with a range of commercialization models that could be applied to the GCC model. The design of the governance and structure of GCC is important if the institution is to be able to foster a competitive environment in the grain transportation industry.

GCC would be an attractive policy option if its only merit were as a means of sustaining the fleet of government-owned cars, while providing unbiased access to

31 Some observers might argue that the railways each have captive markets that will not force them to compete. That may have been true during the early development of the Prairies, but today the advent of semi-trucks and B-trains leaves few areas without competitive delivery points. Parson (1998) provides a thorough analysis of the new competitive setting. See also Prentice (1999).

shippers. The added benefit of GCC, however, would be its impact on competition. First, an alternative market-based source of railcars would reassure farmers that a commercialized system can be competitive. Any shipper that could obtain a railcar from GCC would pay no more for a railway-owned car unless it were provided with additional services. GCC need not provide all the railcars, only a fleet sufficient to give shippers an option. If leasing rates were bid above the long-run marginal costs, GCC would have revenues to add cars to its fleet.

Second, GCC could enhance indirect competition between the rail lines and among the grain companies. The ability of the cars to flow between the railways to the location of the highest bidder would encourage the railways to compete, providing rates and service that would attract shipments to their lines. The electronic market also would reduce the market power of the large grain companies to influence the carriers. E-commerce reduces the advantages of size, while anonymity guarantees that all parties compete from a common base.

The design of a less regulated and more competitive grain handling and transportation system has been an unsolved policy issue in western Canada since the late 1950s. Successive governments have attempted to find a balance between the social concerns of the farm population and the commercial necessities of the grain supply chain. Car supply disputes stem from the natural seasonal fluctuations in the demand for grain transportation. This is aggravated by year-to-year fluctuations in the size of the harvest. In a system as complex as the logistics of grain transportation, no single institution can solve all problems. The creation of GCC could, however, move the entire industry toward a more stable and, in the long term, efficient equilibrium.

*The creation of GCC could move the entire industry toward a more stable and, in the long term, efficient equilibrium.*

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