

Toward One North American Transportation Market: The Open Prairies Proposal

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Introduction

The world's two largest economic blocks, the European Union (EU) and the NAFTA, both were formed to exploit efficiencies inherent in having larger markets that permit the freest possible flows of capital, labor, and goods and services. In this regard, the EU is ahead of NAFTA, particularly with respect to transportation (Lafontaine and Valeri, 2005). A French motor carrier can deliver a load from Metz to Dusseldorf and thereafter make hauls within Germany, on the same footing as its German counterparts, before returning to France. In other words, throughout much of the EU, member state motor carriers enjoy cabotage. Despite many prior concerns, Lafontaine and Valeri find no evidence of disproportionate bias or favour to any country.

The economic efficiency of the EU system is superior to the restricted approach among the North American nations where regulations preclude cabotage in virtually all cases.ⁱ Notwithstanding regulatory inconsistencies, the more liberal approach has few potential problems that are not already being dealt with including security considerations, labor laws, weight and size limits, and tax regimes. As with economic deregulation of trucking within the U.S. and Canada, political realities may slow or entirely preclude liberalization long after the preponderance of scientific opinions is that it would be beneficial. Consider, for example the likely pace of economic deregulation in the two countries if Florida had deregulated its intrastate trucking in 1960, instead of 1980. An actual example

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would have been existed to judge the effects, rather than just the speculations of academics, practioners, and bureaucrats.

In this paper, we propose a limited experiment in motor carrier cabotage in North America that we call “Open Prairies”. Open Prairies would allow cabotage for U.S. and Canadian motor carriers throughout the Prairie Provinces and several Upper Great Plains U.S. states. The plan would include a sunset provision to require both nations to reaffirm the arrangement after a specified period. Variants of the plan are discussed that have different rules regarding permissible cabotage depending upon the previous international movement and origin or destination in the Open Prairies area. The likely costs and benefits of the scheme are examined.

Theoretical Framework

The absence of cabotage means that Canadian trucks that carry goods across the border are not allowed to carry goods within the United States. In Canada, customs and immigration laws create similar restrictions on American truckers who wish to carry loads with an origin and destination in Canada (Saul, 2000). As a result, trucks experience more empty miles and on average charge higher freight rates to cover their costs.

The outbound and inbound movements of a truck’s round trip are joint product. The outbound trip cannot be created without the creation of a return trip. By convention, the direction that has the strongest demand (D_f) for trucking services is referred to as the fronthaul, and the other with the weaker demand (D_b) is referred to as the backhaul. With joint products, demands are summed vertically, as illustrated in Figure 1, to obtain the total demand. Based on this total demand (D_{f+b}) the freight rates in each direction are determined.

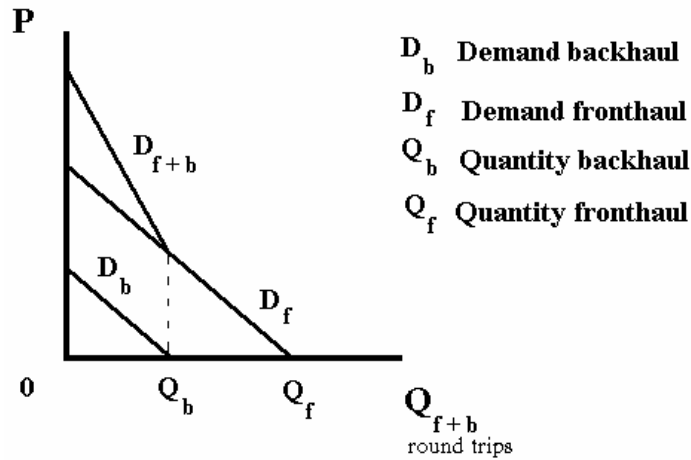


Figure 1 Joint Production of Fronthaul and Backhaul

Figure 2 illustrates the calculation of freight rates in an unbalanced market in which a large number of trucks are forced to return empty ($Q_f - Q_b$). Freight moving in the direction of the fronthaul bears the bulk of the costs. The freight rate for the fronthaul (P_f) covers the cost of the fronthaul movement plus the cost of returning empty. This follows because freight rates must be sufficient to attract the marginal trucker. With freight imbalances, that trucker would not have a backhaul and would, therefore, need to be compensated for empty return costs. Higher fronthaul freight rates that include the marginal costs of the front haul and the empty return (MC_{f+be}) discourage trade.

In sharp contrast, the backhaul freight rate (P_b) only covers the marginal cost of returning full, rather than empty. These costs include: search for the backhaul load, repositioning, loading and unloading of the load, and additional fuel and wear and tear associated with running full, rather than empty.

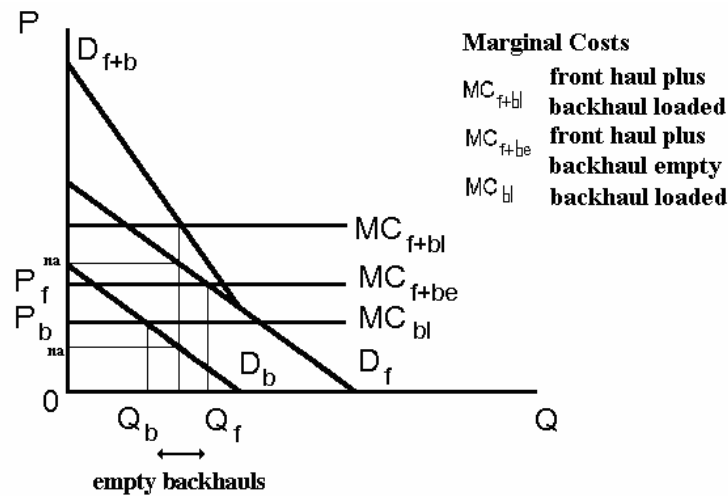


Figure 2 Calculation of Front haul and Back haul freight rates in an unbalanced market

It could be argued that the direction of trade that gets the “cheap” backhaul freight rates receives an incentive for trade that helps compensate for the higher freight rate barrier on the fronthaul. This is certainly true. But there are limits to which lower freight rates can stimulate trade in the ‘light’ direction. Unbalanced freight lanes can have many causes, including differences in resource endowments, income distribution and population. Just because freight rates are low does not mean that freight volumes will balance quickly or, indeed, ever.

In praise of triangulation

Trucking companies try to avoid low paying back haul rates by employing routes that provide better paying loads over three or more legs.ⁱⁱ The trucking industry refers to this as triangulation. Figure 3 represents a common triangulation route that Canadian truckers use to avoid the Winnipeg to Toronto back haul traffic lane. Carriers can earn front haul rates on loads from Chicago to Toronto, pick up another front haul load to Toronto, and finally return to Winnipeg

with a front haul load. The route from Winnipeg to Chicago may still be a backhaul, but at least it is shorter than the alternative.

Deregulation of the Canadian trucking industry helped truckers find these sorts of alternatives. Similar patterns are available to US carriers, except the base of the triangle has to be within their own national jurisdiction. The difference in the United States is that more triangular route opportunities are available within their own borders.

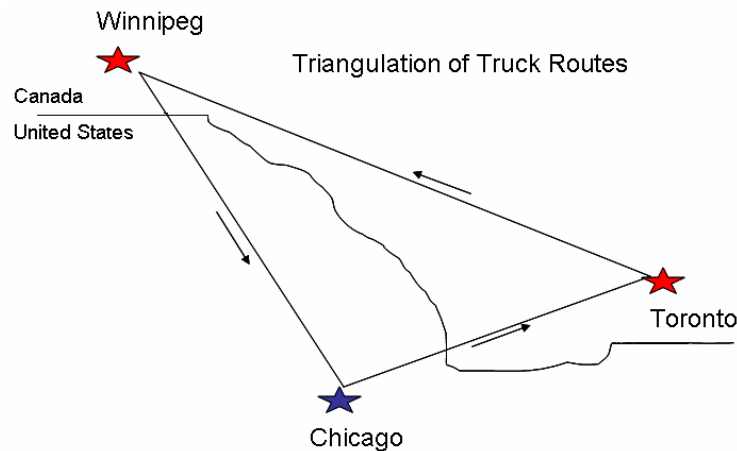


Figure 3 Triangulation of Truck Routes to avoid Back haul Freight Rates

The economic and environmental benefits of triangulation should be stressed. Low backhaul rates along a route reflect low economic value for marginal (i.e., additional) truck services. For trucks running empty along a route, due to insufficient load availability, there are no positive benefits from the movement, and monetary, environmental, and safety costs are still incurred. With triangulation, a fronthaul and a backhaul situation can be improved. The lose-lose situations of empty movements are minimized. Moreover, downward pressure is exerted on freight rates on the triangulation routes. Recall that in typical fronthaul-backhaul situations, the freight rate for the

fronthaul incorporates the costs of the fronthaul, as well as the empty backhaul movement along the routing. If there are fewer backhauls, that element diminishes. That is, P_f declines from MC_{f+be} to MC_f . In simple terms, with triangulation fewer trucks handle the same amount of freight for higher per unit distance returns to themselves, but lower total costs to shippers and lower total costs to the environmental and lower safety risks.

Suppose that loads are available along and in the directions indicated in Figure 3. If a Canadian trucker secures the loading from Winnipeg to Chicago, that trucker, potentially could take advantage of the triangular movement back to Winnipeg, via Toronto. On the other hand, however, suppose a U.S. carrier secures either the loading from Winnipeg to Chicago or that from Chicago to Toronto. That carrier would be precluded from avoiding the backhaul movement because the Toronto to Winnipeg portion of the triangle would involve cabotage. The same would be true for Canadian drivers with respect to triangulation possibilities with point-to-point movements on the U.S. side of the border, for example, a Winnipeg-Chicago-Kansas City triangle. Triangulation helps truckers make the best use of their assets for their own sakes, society's, and the environment. Restrictions against cabotage limit triangulation.

Elusive benefits and non-elusive costs of not allowing cabotage

Suppose the only opportunity for a triangular routing between Canada and the U.S. were the one depicted in Figure 3. Under current laws, with cabotage precluded, only Canadian truckers would have the opportunity to use it. If underlying operational costs of trucking firms on both sides of the border were the same, Canadian trucking firms would dominate. This follows because Canadian trucking firms would be able to offer haulage along each leg of the triangle, including those crossing the border, for MC_f . U.S. trucking firms would be precluded entirely from the intra-Canada movement (i.e., Toronto-to-Winnipeg) and at best could offer service on the cross border routings for MC_{f+be} . Under these conditions, Canadian trucking firms would have incentives to lobby for continuance of cabotage restrictions as it artificially gives them a cost advantage

relative to their U.S. counterparts for the cross border movements and a monopoly for the intra-Canada movement.

Monopolies and cost advantages resulting from the laws of man, rather than those of nature or technology, may bestow relative advantages on some, but virtually always at the cost of greater disadvantages to society. If restricting use of the Figure 3 triangle to carriers with owners owing some allegiance to Queen Elizabeth makes sense for society, perhaps even greater gains could be realized from the further stipulation that those owners be left handed. Of course, that is ludicrous. Given the fiction of only one possible triangular routing, 'protected' Canadian carriers might benefit, but with overall net losses to society over a free-transport market solution. In the real world, the potential for losses would be magnified and the 'protected' carriers may realize little or even negative benefits from their protection.

In reality, at any moment there would be tens or hundreds of thousands of possibilities for triangular routings between the U.S. and Canada and these would be changing across time. For example, a Canadian carrier's vehicle might arrive in Chicago with a load from Winnipeg and, only then, the carrier become aware of possible, but legally precluded, lucrative loads from Chicago to Fargo and another from Fargo to Winnipeg. As trade sanctions almost always are reciprocal, opposing cabotage freedoms to protect triangles over which your and your countrymen's firms have exclusive use denies you access to triangles having more than one terminal point in the other country. Every opportunity denied, reduces the net gain from the protected triangles. Some players might enjoy a net gain if it were a zero sum game. But the self-imposed limits for the sake of protection would also tend to limit opportunities for exploiting economies of size and scope.

Even without economies of size or scope, if there actually were economic profits to be had from denying cabotage to others, this would mean higher than technically necessary freight rates. Over the medium and long term, such rates would erode the competitiveness of

the shipper/receiver firms and, ultimately lower freight levels. Over the long run, protected trade inevitably means less economic activity. Protections might grant you a larger portion of the economic pie, but that pie will be smaller, as might be your slice of it.

This is particularly true as the other giant trading block, the EU, allows cabotage. An apt analogy is the Canadian experience during the 1980s. Beginning in the late 1970s, economic regulations in the U.S. trucking system were being greatly reduced,ⁱⁱⁱ while the Canadian system remained largely unchanged. After a sharp recession in the early 1980s, the nearly deregulated U.S. trucking industry entered a period of significant growth and productivity gains (Jones, Fullerton, and Beilock, 1992). In part due to perceived and realized fears of the corrosive effects on the Canadian economy from a more competitive U.S. transportation system and, hence, cheaper U.S. goods, as well as diversions of Canadian freight through the U.S., Canada soon began deregulating its trucking.

A Cabotage Experiment for Trucking in North America

For the reasons just presented, it behooves North American policymakers to consider moving toward the more liberal EU system. Just as the Florida/Arizona complete deregulation examples provided valuable input to other state and U.S. Federal authorities in determining proper directions for their reforms, a limited North American experiment in free cabotage could be of significant value.^{iv} The following are three basic or minimum characteristics for a Canadian/U.S. experiment in cabotage for trucking:

1. The experiment should be reversible. Indeed, to prevent the experiment from passively morphing into the status quo, from the onset the mechanism for its termination should be in place.
2. Over large enough areas in both countries to facilitate real and detectable effects from allowing cabotage.

3. As the experiment would be intended to be limited, the directly affected regions should account for relatively small shares of both economies and populations.

The first requirement can be dealt with, simply, through a sunset provision indicating a date after which the experiment is ended unless reaffirmed through new legislation.^v Given that this would require timely action by two federal governments and, possibly, various states and provinces, it seems likely that it would be continued only if the results had been markedly and broadly favorable.

The Prairie Provinces and the U.S. Upper Great Plains

We propose all or part of the Prairie Provinces and the U.S. Upper Great Plains as the best candidate region for a cabotage experiment. Hereafter, we will refer to a cabotage experiment in this region as Open Prairies.

For there to be significant potential benefits from allowing cabotage, there needs to be significant savings in empty movements. The three Canadian Prairie Provinces and the five U.S. States to their south (Minnesota, North and South Dakota, Montana, and Idaho) are geographically vast, accounting for, respectively, a fifth and an eighth of the areas of their countries. A test of cabotage that altered equipment utilization rates across this area would be discernable.

While the region is geographically large, it accounts for modest shares of each nation's population and economy.^{vi} Just over a sixth of all Canadians live in the Prairie Provinces and they earn roughly one fifth of the nation's income. The five U.S. states are even smaller, accounting for about one percent of U.S. population and production. If there were a desire to have the two regions more be more equal, relative to their nations, Alberta might be omitted. This would reduce the Canadian region to around seven percent of the total population and six percent of production.

The exact boundaries of the region for Open Prairies would depend, of course, upon political considerations. The attraction of the Prairie

Province-Upper Great Plains area is that it provides large land areas over which to test the benefits of allowing cabotage, while directly involving relatively small portions of the populations and economies of the two nations. Another attraction of the region is that it is relatively poor. With the exception of Alberta, the states and provinces in the proposed region have lower per capita incomes and have slower population growth rates than the averages for their countries. Open Prairies would involve temporary cessation of some restrictions. In other words, carriers and shipper/receivers within the region would have some prerogatives not enjoyed by others. As such, it is highly likely that the overall economic impacts to the affected regions would be positive. For equity reasons, it would be appealing if that favored area was, in ways, economically distressed and Open Prairies could double as regional development.

The assertion that the overall effects would be positive is not meant to imply that there would not be losers, or that there might not be other, unexpected, problems. Identifying the nature and extent of such problems, indeed, is the underlying rationale for a limited experiment.

Alternative rules for allowable cabotage

Several possible alternative rules could determine what movements would qualify as permissible cabotage. These will be explained with the aid of Figure 4, which presents a schematic of the two countries. The horizontal line in the middle of the figure represents the boundary, the gray area is the Open Prairies region, and the crosses denoted by letters are origin of destination points.

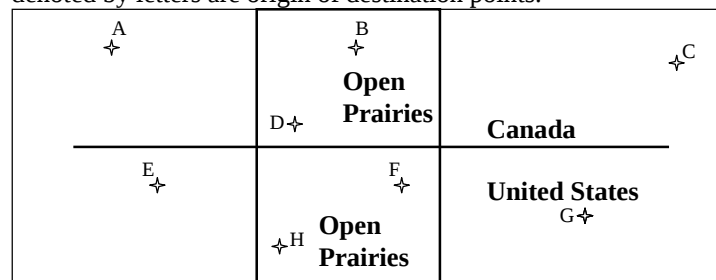


Figure 4 Schematic of Canada and U.S. with Open Prairies Area

(Note: “O” and “D” below denote, respectively origin in Open Prairies region and destination in Open Prairies region) Some potential alternatives for permissible cabotage include:

- OD International, OD Cabotage: Only allowing cabotage if both the prior international movement and the cabotage are entirely within the Open Prairies region. For example, a Canadian carrier would only be eligible for a cabotage movement within the U.S. if the movement to the U.S. was from B or D and to either F or H. Further, that cabotage could only be between F and H.
- D International, OD Cabotage: This is identical for the preceding, with the exception that any origin for the preceding international movement would suffice. So, the aforementioned Canadian carrier could have brought a load from A or C, in addition to B or D, prior to permissible cabotage between F and H.
- OD International, O Cabotage: Like the first variant, the international movement would have to be within the Open Prairies region, such as a movement by a U.S. carrier from H to B. The carrier would then be allowed to make a movement within Canada as long as at least the origin were within the Open Prairies region. So, that a carrier could make a haul from B to D, A, or C. Or deadhead to D and make a haul to B, A, or C.
- D International, O Cabotage: This is identical to the previous variant except that there would be no limitation with respect to the origin for the international movement.
- O International, D Cabotage: The origin for the international movement would have to be within the Open Prairies region, but the destination could be anywhere in the other nation, such as G for a Canadian carrier. To qualify as permissible cabotage, that carrier would then have to make a haul to a destination within that country’s part of the Open Prairies region. So, for example, the Canadian carrier with the international haul to G could then make a haul to F or H, but not E.
- O and D Cabotage: The origin or destination of the prior international movement would not matter, but both the origin and destination for the cabotage movement would have to be in the Open Prairies region.

- O or D Cabotage: The origin or destination of the prior international movement would not matter, but at least the origin or destination for the cabotage movement would have to be in the Open Prairies region.

There are many potential variants, including combinations of some of those already shown. Selection could depend on two elements. First, the degree of freedom deemed desirable for the experiment. Second, the controls mandated by the regulating authorities. In most cases, the authorities could use the driver's daily log books and supporting documentation to determine whether or not the move was eligible.

Potential Problems

No experiment can be free of potential problems or complications. For example, cabotage would allow Canadian (U.S.) firms and labourers to operate within the U.S. (Canada). This occurs frequently in various industries, in the border communities. The complication with trucking is that the location and duration of work would be difficult to predict. To deal with this, systems would have to be developed to address relevant tax issues.

While it is important to recognize and prepare systems to deal with issues such as taxation, it is also important not to characterize as problems factors which may be related to international movements, but would be materially unaffected from allowing cabotage. Into this category fall three important considerations: national security; vehicle standards, including weight and length requirements; and traffic safety. National security issues related to foreign carriers, basically, concern the danger of allowing undesirable individuals or materials to cross your nation's borders. Open Prairies would not affect security procedures at borders. Likewise, vehicle standards, including weight and length limits, are checked at border crossings, as well as at check points within each country. These would be unaffected. Finally, whether for an international movement or permissible cabotage, all carriers are subject to that country's safety regulations, including Hours of Service.

Measurement

The measurement of the Open Prairies experiment would depend on the nature of the cabotage allowed. The authors have experience in the measurement of regulatory change that can be drawn on for such a study (Prentice, 1992 and Beilock, 1990). Clearly, a base case would need to be established prior to the experiment, with a follow-up study that allowed sufficient time for adjustment. The required time period is somewhat arbitrary, but five years should be sufficient for the majority of the impact to become measurable.

In addition to the broad measures of trade, freight rates and equipment impacts, a longitudinal study could be undertaken with a sample of carriers on both sides of the border. The samples could be stratified by carrier size and balanced to provide geographically representative areas. These micro studies would help determine the industry impacts and management issues. This information could help in the design of a more extensive program, if this were desired.

Summing Up

The near-total exclusion of transportation from the Free Trade Agreement and, subsequently, from the NAFTA almost surely has negative effects regarding overall efficiency and production in North America. Of particular interest in this paper has been the effective banning of cabotage for trucking. The EU, which allows cabotage for trucking, could serve to as an example to judge the merits of freer international trade of trucking services, but it is, for most observers, too far removed.

It would seem that free trade in transportation services is viewed as a policy taboo in North America. It is worth noting that the Treaty of Rome (1957) envisioned free trade in transportation, but it was the end of the 1990s before it was finally implemented (Lafontaine and Valeri, 2005). It seems unreasonable for NAFTA to wait until 2033 to embrace trucking cabotage, if the problem is simply information. Without some guidance of its impacts, stakeholders on all sides may be reluctant to embrace an unknown and irreversible change. If

information is the problem, then it is time to deal with the problem head on.

We have put forth an approach for instituting a limited, reversible experiment in cabotage for trucking in Canada and the U.S.. It would be centered on the Prairie Provinces and U.S. Upper Great Plains. This is a geographically large area that accounts for relatively small portions of each country's populations and economic activities. It seems likely that the experiment would have positive overall effects for the economic development of this region. Moreover, as the region accounts for small portions of the two economies, costs from any negative distributional effects would be minor.

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ⁱ Cross-agency conflicts limit cabotage by foreign carriers. Such problems were summed up, succinctly, in a Canadian industry journal: "U.S. Customs regulations allow for Canadian-based vehicles to transport domestic shipments (point-to-point in the U.S.) when the shipment is incidental to an international movement. ... Because the INS regulation prohibits this type of move, in effect, the U.S. Customs regulation is moot at the present time." *Highway Star Magazine* May 2005

ⁱⁱ In this discussion "triangle" or "triangular route" will refer roundtrip routings with more than two legs. So, a "triangle" may geometrically be a literal triangle (3 legs), rectangle or trapezoid (4 legs), etc..

ⁱⁱⁱ The first and most major legislation leading to deregulation was the Motor Carrier Act of 1980. However, beginning around 1977, the ICC began liberalizing its administration of existing regulations.

^{iv} Reflecting the importance of the Florida and Arizona examples, the U.S. Federal government funded studies of their pre- and post-deregulation experiences, e.g., Beilock and Freeman (1985) and Freeman and Beilock (1984).

^v There is an interesting precedent for this. Florida's total economic deregulation of intrastate motor carriage was due to the last minute failure of its legislature to avoid sunseting of its regulations.

^{vi} Information based upon Statistics Canada and U.S. Census and Bureau of Economic Analysis websites.