A Single North American Trucking Market Experiment: The Open Prairies Proposal

by Richard Beilock and Barry E. Prentice

INTRODUCTION

The world's two largest economic blocks, the European Union (EU) and the NAFTA, were both formed to exploit efficiencies inherent in having larger markets. In this regard, the EU is ahead of NAFTA in at least two respects. First, the EU is an economic union intended to allow free movement of labor and capital, as well as goods and services. The NAFTA is a free trade agreement, limited to promoting the free flow of goods and services. Second, the cross-border flow of goods and services in North America is hampered, relative to Europe, by limitations on 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. In virtually all cases, cabotage in North America is forbidden.

U.S. law effectively precludes cabotage and Canadian customs and immigration laws create similar restrictions on American truckers who wish to carry loads with an origin and destination in Canada (Saul 2000).[1] To put the impact of cabotage restrictions in perspective, the trucking industry is the predominant means of transport in Canada-U.S. trade. By value, trucking mode accounted for 50.6 % of Canadian exports to the U.S. in 2005 and 76.8 % of U.S. exports to Canada in that year (Transport Canada 2006). In terms of border crossings, the number of trucks crossing the U.S.-Canada border (loaded and empty) increased from 4.6 million in 2002 to 6.8 million in 2005 (U.S. Department of Transportation 2007).

The argument seems almost self-evident that free trade of transportation services would facilitate greater economic efficiency in the trade of goods and services. Lafontaine and Valeri (2005) found that cabotage for trucking has yielded benefits in Europe and that there is no evidence of disproportionate bias against or favor to any country. 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 opinion 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 would have existed to judge the effects, rather than just the speculations of academics, practitioners, and bureaucrats.

In this paper, a limited experiment in motor carrier cabotage in North America is proposed called "Open Prairies." Open Prairies would allow cabotage for U.S. and Canadian motor carriers throughout the Prairie Provinces of Canada 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 outbound and inbound movements of a truck's round trip are joint products. The outbound trip cannot be created without the creation of a return trip. By convention, the direction that has the strongest demand for trucking services is referred to as the fronthaul, and the other with the weaker demand is referred to as the backhaul. In a competitively structured market, fronthauls are costly and backhauls are bargains. The difference in fronthaul and backhaul freight rates depends on the balance of traffic. In a very unbalanced traffic lane, the market equilibrium price for a fronthaul covers the full cost of that movement plus the cost of returning empty. In sharp contrast, freight rates for backhauls need only cover the additional costs of operating full, rather than empty, i.e., pickup and dropoff costs, additional fuel and wear and tear due to the weight, and possible climate control requirements of the load. The fronthaul/backhaul price differential encourages better equipment utilization in two ways: 1. lowering (raising) incentives for shippers to move freight in the direction of the fronthaul (backhaul) and 2. giving carriers incentives to find more lucrative alternative routings in the general direction of the backhaul. As the flow of traffic becomes more equal, the difference between fronthaul and backhaul freight rates will narrow, but it may still be more profitable to find alternative routing.

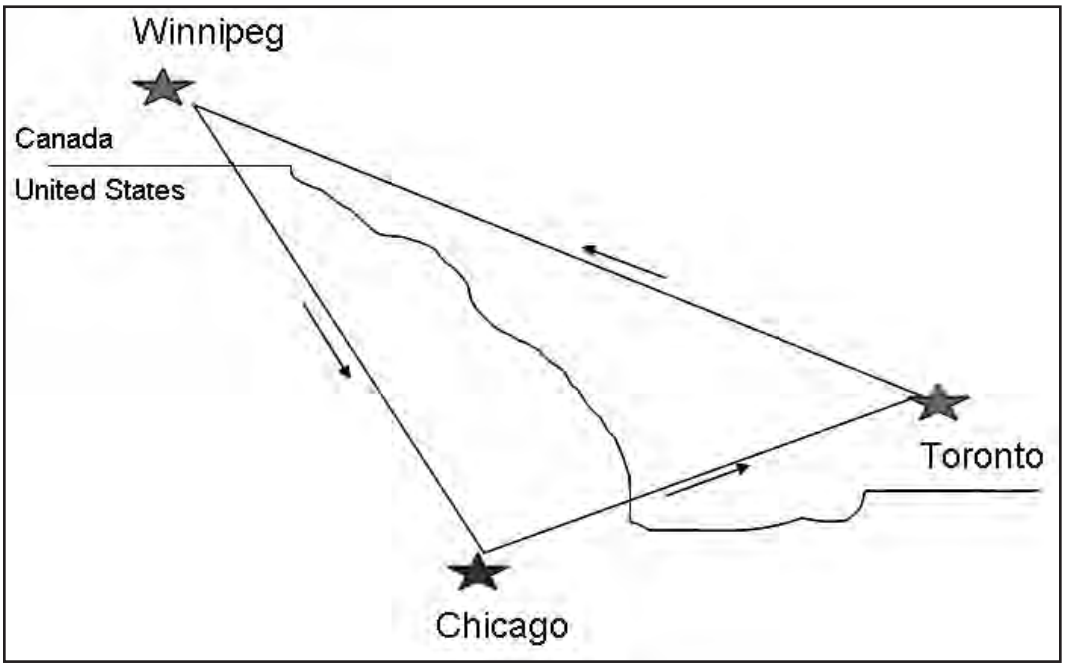
Suppose there are only two origin/destination points for freight, one in Canada and one in the U.S. With no intra-country movements, there obviously would be no advantage from cabotage. Reality, of course, is much more complex. Trucking companies try to avoid low paying backhaul rates by employing routes that provide better paying loads over three or more legs.[2] The trucking industry refers to this as triangulation. Figure 1 represents a common triangulation route that Canadian truckers use to avoid the Winnipeg to Toronto backhaul traffic lane. The route from Winnipeg to Chicago is also a backhaul lane, but it is shorter than the route to Toronto. Carriers can earn fronthaul rates on loads from Chicago to Toronto, and pick up another fronthaul load from Toronto for the return to Winnipeg.

Suppose that loads are (predominantly) available along and in the directions indicated in Figure 1. 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, suppose a U.S. carrier secures a load 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, economies, and the environment. Restrictions against cabotage limit triangulation and its associated benefits.

Deregulation of the Canadian trucking industry helped truckers find these sorts of alternatives. Similar patterns are available to U.S. 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.

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 risk of an empty backhaul movement along the routing. If empty backhaul risk is reduced, fronthaul rates can be more competitive, too. In simple terms, with triangulation fewer trucks handle the same amount of freight for higher per

Figure 1: Triangulation of Truck Routes to Avoid Backhaul Freight Rates



unit distance returns to themselves, and with lower total costs to shippers, lower total costs to the environment, and lower safety risks.

ELUSIVE BENEFITS AND NON-ELUSIVE COSTS OF NOT ALLOWING CABOTAGE

Suppose the only opportunity for a triangular routing between Canada and the U.S. was the one depicted in Figure 1. 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 prices which incorporate little or none of the costs of empty backhauls. Their U.S. counterparts, unable to take advantage of triangulation, would be forced to bear empty backhaul costs and, ultimately, to reflect these costs in the rates charged for fronthaul movements. Under these conditions, Canadian trucking firms would have incentives to lobby for continuance of cabotage restrictions because it artificially gives them a cost advantage relative to their U.S. counterparts for the cross border movements and exclusive access to the intra-Canada movement.

Market protection 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 1 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. Cabotage restrictions waste capital and labor resources. The trucking industry experiences a chronic driver shortage. The most acute truck driver shortage is in cross-border markets, where legal issues narrow the pool of eligible workers.

Wasting truck driver hours on empty returns exacerbates the labor problem, drives up costs and correspondingly, freight rates.

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, North Dakota, and another from Fargo to Winnipeg. As trade sanctions almost always are reciprocal, opposing cabotage freedoms to protect triangles over which your countrymen's firms have exclusive use denies 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 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 phased out,[3] 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. A limited North American experiment in cabotage could be of significant value, just as the Florida/Arizona intrastate truck deregulation examples provided valuable input to other state and U.S. federal authorities in determining appropriate directions for their reforms.[4] We propose the following as minimum conditions 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. Involve large enough areas in both countries to generate 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 through a sunset provision indicating a date after which the experiment is ended unless reaffirmed through new legislation.[5] 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 demonstrably and broadly favorable.

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

We propose all or part of the Canadian 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 from avoiding 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. By value, these border crossings accounted for 8.5% of Canada-U.S. trade carried by truck in 2005 (Transport Canada 2006). 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. Just over a sixth of all Canadians live in the Prairie Provinces and they earn roughly one-fifth of the nation's income (Statistics Canada 2007). The five U.S. states are even smaller, accounting for about 3% of U.S. population and production (U.S. Census Bureau 2007). If there were a desire to have the two regions to be more equal, relative to their nations, Alberta might be omitted. This would reduce the Canadian region to around 7% of the total population and 6% of production. However, it might be politically expedient for Canada to commit a larger share of its territory, population, and economy to this experiment than does the U.S. The reasoning behind this assertion is that, relative to U.S. carriers, Canadian carriers are likely to gain more from a cabotage across both countries. About 80% of Canadians live within 100 miles of the U.S. border. As such, the large majority of destinations for U.S. carriers going into Canada go to destinations close to the U.S. border. Therefore, the benefits of cabotage in order to reposition trucks back toward the U.S. origin would be modest, though not absent. In contrast, Canadian carriers may travel over a thousand miles into the U.S. Indeed, the Prairie Provinces include some of the most significant Canadian origin/destination points which are far removed from the U.S.-Canadian border.

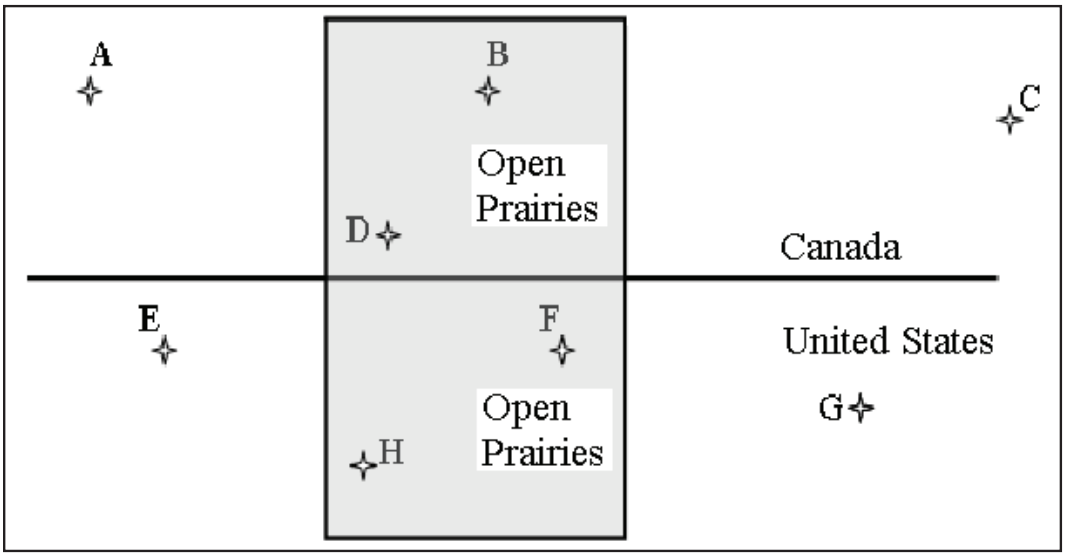
The exact boundaries of the region for Open Prairies would depend, of course, upon political considerations. The attraction of the Prairie Province-Upper Great Plains area is that it provides large land areas over which to test the benefits of allowing cabotage, while directly involving relatively small portions of the populations and economies of the two nations. Another attraction of the region is its agricultural importance. Agricultural products are relatively low in value and sensitive to freight rates. The benefits of more efficient trucking would have a positive impact on farm incomes since lower freight rates translate into higher prices paid to farmers.

While we assert that the overall effects would be positive, there may be losers and 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 are explained with the aid of Figure 2 that presents a schematic of the two countries. The horizontal line in the middle of the figure represents the Canada – U.S. boundary, the gray area is the Open Prairies region, and the crosses denoted by letters are origin or destination points.

Figure 2: Schematic of Canada and the 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 to 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 was within the Open Prairies region. So, a carrier could make a haul from B to D, A, or C. Or return empty 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 laborers 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. Open Prairies would allow carriers already permitted to haul cargos into or from a neighboring country, and in some cases, to haul cargos involving origins and destinations within that country. It seems unlikely that this would constitute an increased security risk. Likewise, vehicle standards, including weight and length limits, are checked at border crossings, as well as at checkpoints 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

Specific approaches to measure the effects of the Open Prairies experiment would depend on the nature of the cabotage allowed. Clearly, a base case would need to be established prior to the experiment, with periodic follow-up work to track the sequence and pace of adjustments. The required time period is uncertain, but five years should be sufficient for major impacts to become measurable.

There are numerous factors which such a study could track. Among these are freight rates, volumes moving across selected U.S./Canadian gateways, carrier entry/exit, and indicators of changes in cross-country ownership of carriers. Though few or no impacts would be anticipated regarding safety and security, relevant indicators could be included in a study. All of these are of minor importance, however, relative to the central indicator of success or failure of the experiment, equipment utilization rates. The main question would be if Open Prairies altered the percent of loaded miles to total distance traveled. Ideally, the study should investigate equipment utilization rates for:

1. Carriers in the Open Prairies area taking advantage of the experiment.
2. Carriers in the Open Prairies area not using the freedoms granted under the experiment. Of particular interest, in this regard, would be investigating the extent to which the domestic operations of carriers were impacted by the introduction of foreign carriers with cabotage privileges.
3. As a control, carriers operating domestically and internationally outside the Open Prairies area.

The potential for improvements in equipment utilization due to reduced restrictions could be considerable. For example, in the early 1980s, before the full effects of reduced interstate motor carrier regulations had been felt, a third of all trucks entering Florida to acquire outbound produce loads came into that state without a load. Steadily, that percentage fell to barely 10% entering Florida empty by the end of that decade. There is strong evidence that that change was, in fact, due to reduced regulatory controls (Beilock 2004). Data on empty truck moves in the Canada-U.S. cross border market are hard to obtain. Heads et al. (1991) report the finding of a special survey that was conducted as part of a major Transport Canada Task Force study. At that time, from 25% to 34% of all freight trucks crossing the Canada-U.S. border were traveling empty. While the performance of cross border trucking may have improved since that time, the potential for increased efficiency is likely still significant.

CONCLUSION

The near-total exclusion of transportation from the U.S.-Canada 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 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). Just as Florida's and Arizona's total deregulation of intrastate truck regulation provided information on which to base considerations of similar measures across the U.S. and, later, Canada, an experiment in cabotage could accelerate consideration of its potential.

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 Canadian 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.

Endnotes

1. 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.

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

3. 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.

4. 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).

5. 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 sunsetting of its regulations.

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