A Profile of the Port Drayage Sector in B.C.'s Lower Mainland[1]

Overview

The drayage sector in B.C.'s Lower Mainland has received considerable attention recently following a disruption in service in the summer of 2005. For approximately five weeks truck drivers refused to work and picketed the port container terminals at the Port of Vancouver and Fraserport, disrupting both import and export shipments of containerized cargo through the ports. A similar withdrawal of service took place in 1999. This sector of the trucking industry has not been extensively studied in the past. This paper will highlight the basic features of the drayage sector in the Lower Mainland.

The drayage sector consists of firms transporting containers by truck between points within the Lower Mainland. The work consists primarily of transporting loaded import containers from the on-dock container terminals (Centerm, Deltaport, Fraser Surrey Docks, and Vanterm) to warehouses or distribution centres to be unloaded; transporting loaded export containers from shippers or transload centres to the deepsea terminals; and repositioning of empty containers. Containers are also transported to and from off-dock container terminals which provide services including container repairs, cleaning and preparation of containers for loading export cargo, and storage of empty containers. Containerized import cargo consists primarily of consumer goods from Asian factories.

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[1] From August through October 2005 the author served as Director of Research to the Task Force on the Transportation and Industrial Relations Issues Related to the Movement of Containers at British Columbia Lower Mainland Ports. The research presented in this paper incorporates analysis undertaken by the author in that role, and portions were published in Final Report of the Task Force on the Transportation and Industrial Relations Issues Related to the Movement of Containers into and out of Ports in the British Columbia Lower Mainland , October 26, 2005.

Containerized export cargo includes forest products, specialty grains and scrap.

Traffic through the Lower Mainland on-dock container terminals totaled almost 2 million Twenty Foot Equivalent Units (TEU's) in 2004. Container traffic through the Lower Mainland has grown rapidly in recent years, with an annual average growth rate of around 12% from 2000 to 2005.

Approximately 65% of Lower Mainland container traffic is transported to and from the port terminals by rail, leaving around 35% or 700,000 TEU's to be transported by truck. Of this, only a small percentage is transported by truck to areas outside the Lower Mainland.

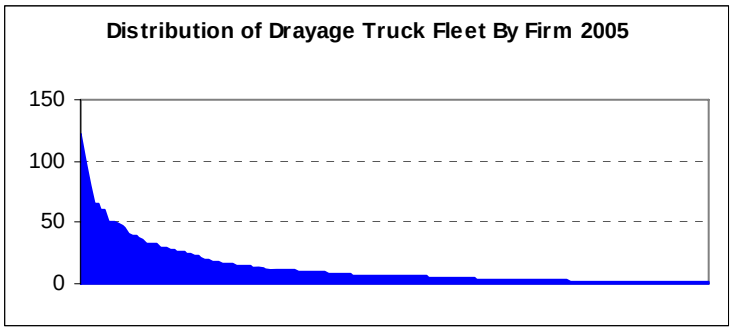
The majority of containers transiting the Lower Mainland ports are 40-foot containers, each accounting for 2 TEU's. Using average figures reported for Deltaport, the ratio of TEU's to containers is approximately 1.7, implying that 40-foot containers account for around 70% of the total. On this basis the annual demand for drayage services among the four terminals in 2004 can be estimated at around 410,000 containers.

Sector Profile

The drayage sector possesses the fundamental characteristics of a highly competitive market.

1. The industry is highly fragmented. In August 2005, the Vancouver Port Authority imposed a licensing system regulating access to port container terminals. Any firm serving the terminals must now be licensed. There are approximately 180 local drayage firms accounting for 2500 trucks registered under the Vancouver Port Authority licensing system. The largest firm has only a 5% share of the truck fleet, and the top 10 firms account for only 30% of the truck fleet. The distribution of firm size (measured by truck fleet) is shown

below:



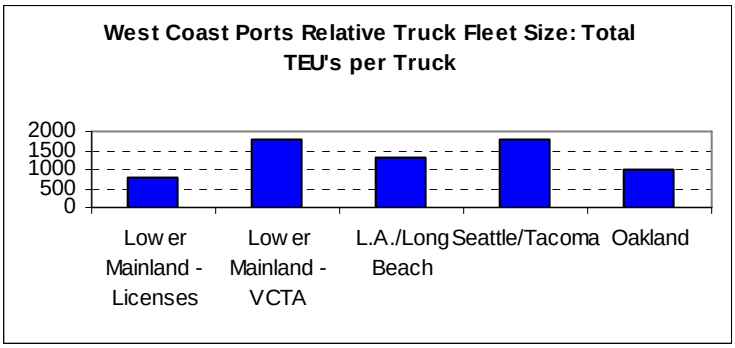
On the basis of the fleet data, the industry has a Herfindahl index[2] of 162, indicating an extreme level of fragmentation. On this basis, individual firms in the drayage sector would appear to have little ability to influence prices.

There appears to be a high rate of entry and exit of firms. The Vancouver Port Authority imposed a similar licensing system following the trucking dispute in 1999. There has been little change in the number of trucks or firms licensed at the ports since 1999. Initial registrations in 1999 totalled 202 firms and 2600 trucks, slightly higher than the current level. Of the 202 firms licensed in 1999, only around 50 are still licensed under the same business name in 2005. Six of the top 20 firms in 1999 remain in the top 20 in 2005. The firm with the largest number of trucks licensed in 1999, Emerald Transport, is no longer in business. Another significant change is the disappearance of a significant truck fleet operated by BC Rail.

It seems likely that the number of trucks intensively engaged in the drayage industry is significantly smaller than the number licensed to serve the port terminals. The Vancouver Port Authority captures all

[2] A technical index of industry concentration, calculated by adding the squared market shares of all firms in the market. The Herfindahl index ranges from 10,000 for a monopoly to a value approaching 0 for an atomistic market.

trucks accessing the port terminals, including long haul tractors which rarely serve the port. The Vancouver Container Truck Association estimates there are around 1000 owner-operators working full time in the drayage sector. On the basis of the relationship between container traffic and truck fleet, this would be more consistent with figures reported for US West Coast ports. The ports of Seattle and Tacoma are estimated to have around 2000 trucks to accommodate a combined container volume of 3.8 million TEU's.



2. There are low barriers to entry to this industry sector, at the level of both trucking firms and owner-operators.

Approximately 85% of the truck fleet is owned by owner-operators, which substantially reduces both capital investment requirements and risk for trucking firms. Capital investment requirements for trucking firms consist primarily of investment in chassis for the carriage of containers. Trucking firms typically maintain a chassis pool of 3 to 4 chassis per truck in the fleet employed. Average chassis costs are estimated at $15,000 per unit.

The cost of entry to owner-operators is very low. Trucks in the drayage sector are typically used high-mileage highway tractors. According to stakeholder interviews, the cost of a truck suitable for drayage service ranges from approximately $25,000 to $40,000. Skill

requirements to enter the industry are also low, with the major requirement being a Class 1 provincial driver's licence.

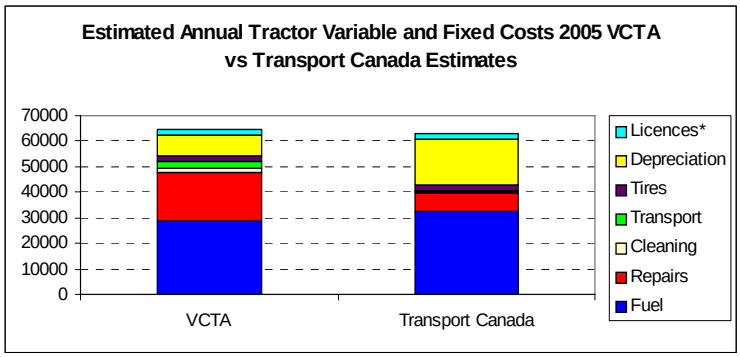
3. There is limited potential for scale economies among trucking firms. The transfer of risks of delay and cost increases to owner-operators limits the incentive for investments in technology to improve the efficiency of operations such as computer-aided dispatch systems.

There are no scale economies at the owner-operator level and the ratio of capital to labour is essentially fixed (i.e. one driver per truck). There is little opportunity for more intensive use of the capital stock (i.e. the truck) due to the limited operating hours of the container terminals (8 hours), off-dock facilities and warehouses. Driver hours of service are limited to 13 hours per day by provincial safety regulations.

4. As a provider of a commodity service to industrial users, the drayage industry has very limited scope for product differentiation.

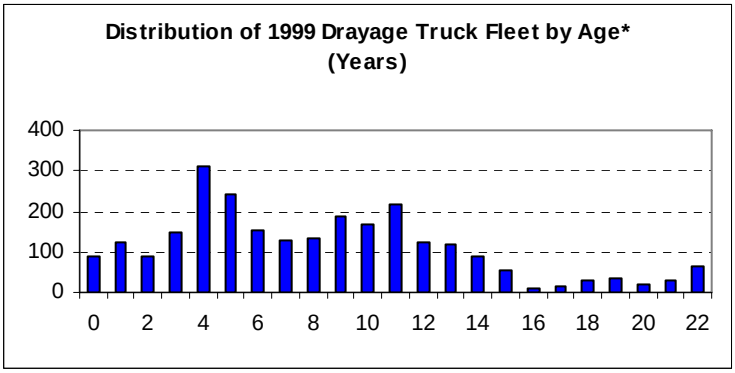
Industry Costs

The Vancouver Container Truck Association estimates total variable and fixed costs for each tractor in the order of $360 per day or around $87,000 per year. For verification, these estimates have been compared to estimates generated from the costing information contained in the 2003 edition of Transport Canada's Operating Costs of Trucks in Canada , adjusted for changes in fuel prices. The Vancouver Container Truck Association expenses have been categorized to be as consistent as possible with the methodology used in Operating Costs of Trucks in Canada. The results are illustrated below:



*Excludes insurance costs.

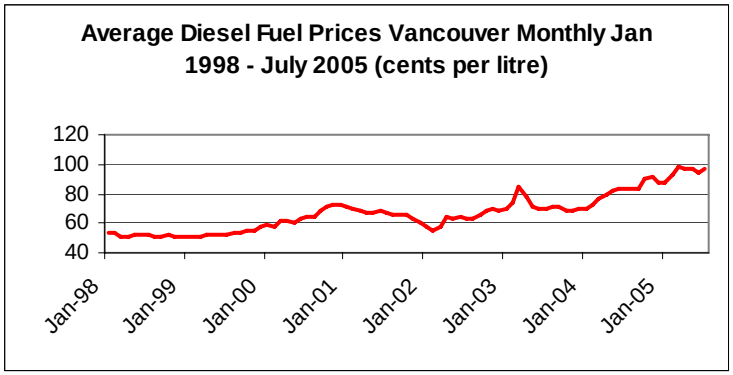
The Operating Costs of Trucks in Canada estimates costs based on a line haul truck operation using a three-year old tractor traveling 80,000 km per year. Depreciation costs are based on those applicable to a new tractor with a purchase price of approximately $112,000. Older high-mileage highway tractors are commonly used in the drayage sector. Data on the age composition of the fleet is not captured in the current VPA licensing system. Data from the 1999 licensing scheme, which included information on model years, is shown below:



* Includes long haul tractors accessing the port terminals on an intermittent basis.

The Vancouver Container Truck Association estimates are based on older trucks in predominantly urban service traveling around 65,000 km per year. The average purchase price of a used tractor for use in the drayage sector is $25,000 to $40,000. Consequently we would expect the Vancouver Container Truck Association cost estimates to reflect higher repair costs due to the age of the tractors, but lower depreciation than the Operating Costs of Trucks in Canada estimates, and this is indeed the case.

The figures depicted above indicate the sensitivity of total costs to fuel prices: fuel accounts for around 50% of total costs. Fuel costs have risen dramatically since 2003:



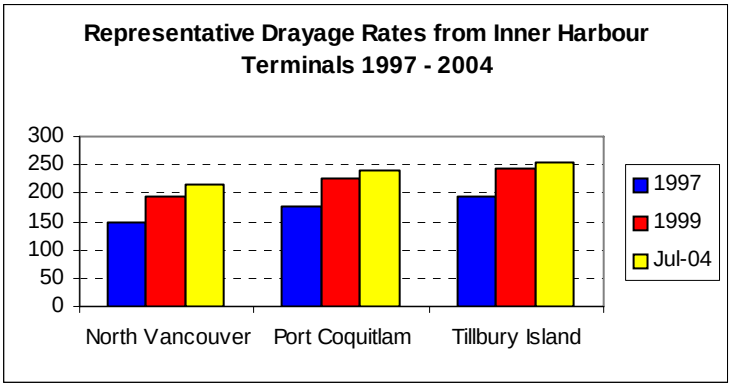
The Vancouver Container Truck Association cost estimates do not include administration and interest cost on working capital or any return on investment. The Operating Costs of Trucks in Canada estimates 2003 costs for administration and interest on working capital for a 5-axle tractor-trailer combination at $19,273. Interest costs for financing equipment purchase are estimated at $2,995. A 5% profit margin would add an additional $7,303. Taken together, these cost categories add an additional 43.6% to total truck costs. The lower capital requirements for second hand equipment for use in the drayage sector and limited administrative requirements mean that these costs would be significantly lower among owner-operators serving the ports.

Drayage Rates

Drayage rates are negotiated between trucking firms and their individual customers, which include importers, exporters, freight forwarders and shipping lines. These rates have traditionally been quoted on a round-trip basis i.e. including pickup of a loaded import container and return of the empty to the docks; or drop-off of a loaded export container and pickup of an empty. There are discount rates for large exporters, and one-way rates for repositioning of empty containers.

The industry has a history of cutthroat price competition. In recent times the only significant rate increases occurred as a result of the 1999 and 2005 work stoppages. Trucking firms announced rate increases of around 15% in July 2004 ostensibly to compensate owner-operators for increased costs, but it appears that the application of these increases was uneven.

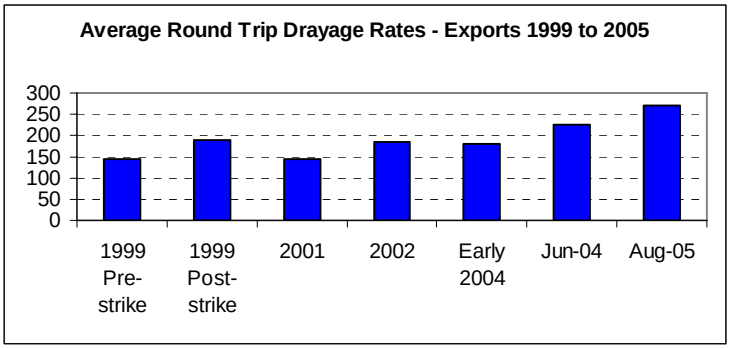
Representative listed rates from carrier rate sheets for three locations from 1997 through July 2004 are shown below:



Source: Carrier Rate Sheets

The pattern of rates actually paid by a large exporter since 1999 is illustrated below. Rates eroded quite rapidly following the 1999

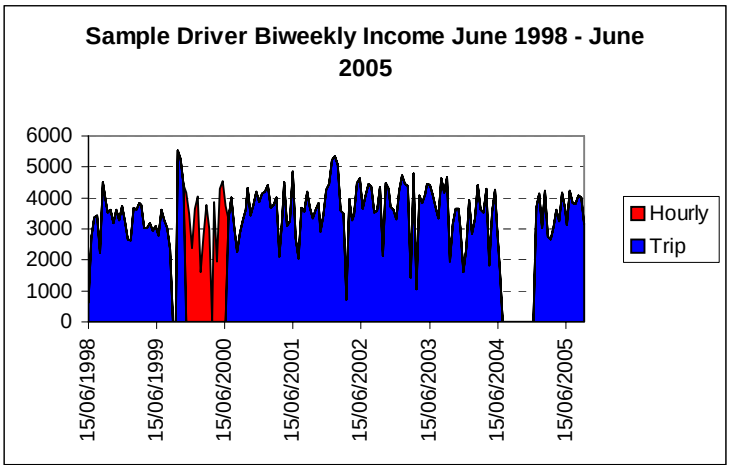
dispute. The rate shown for August 2005 is based on a Memorandum of Understanding negotiated between owner/operators and trucking firms during the dispute. The negotiated rates were imposed on trucking firms as a condition of entry to the port terminals through a federal government Order in Council to end the dispute.



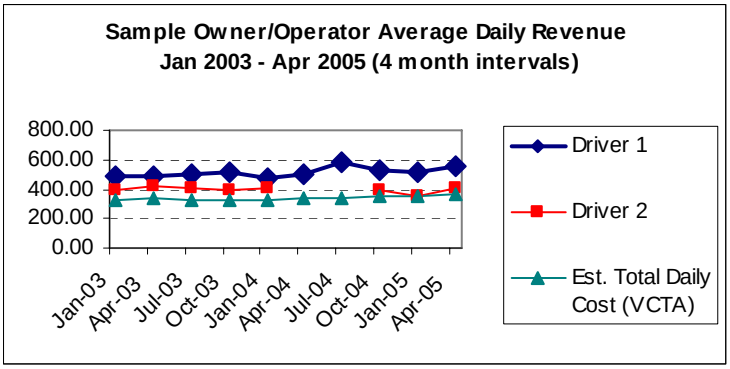
Source: Exporter Records

Owner/Operator Revenue

Except for a short period following the 1999 dispute, owner-operators have been paid on a revenue split basis with owner-operators receiving 70% and trucking firms 30% of the total dray rates. The graph below shows biweekly revenue for a sample owner-operator ("Driver 2") from June 1998 to June 2005. Following the strike in August 1999 the employer company was certified by the Teamsters and paid on an hourly basis until April 2000. This driver did not work for a good portion of 2004.

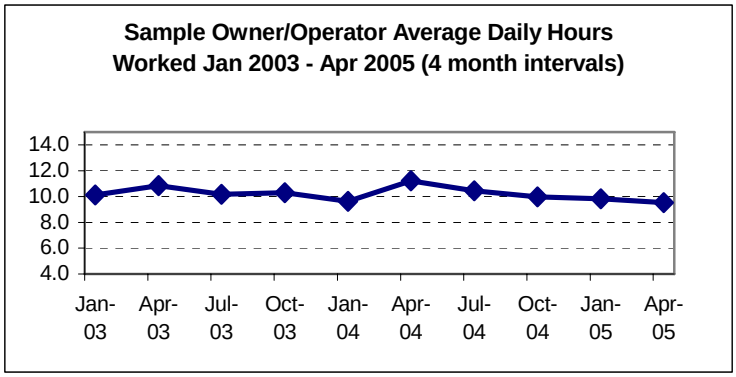


For comparison, the graph below shows average daily compensation at 4 month intervals from 2003 to 2005 for drivers from two firms, one unionized (Driver 1) and one non-unionized (Driver 2). Driver 1 has seniority at the firm which employs him so his income is higher than would be received by drivers lower on the seniority list; when work is not available the less senior drivers would not be dispatched and so would receive less revenue.

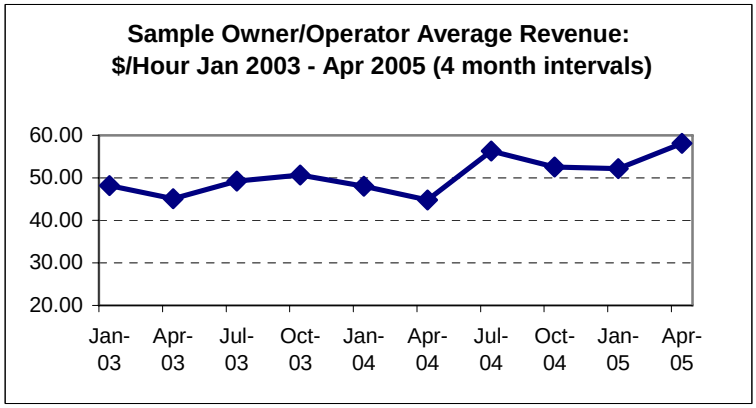


Total cost estimates are Vancouver Container Truck Association figures adjusted for fuel prices.

The average work day is approximately 10 hours, as shown from the sample (Driver 1) below:



Average hourly revenue for this driver is shown below:



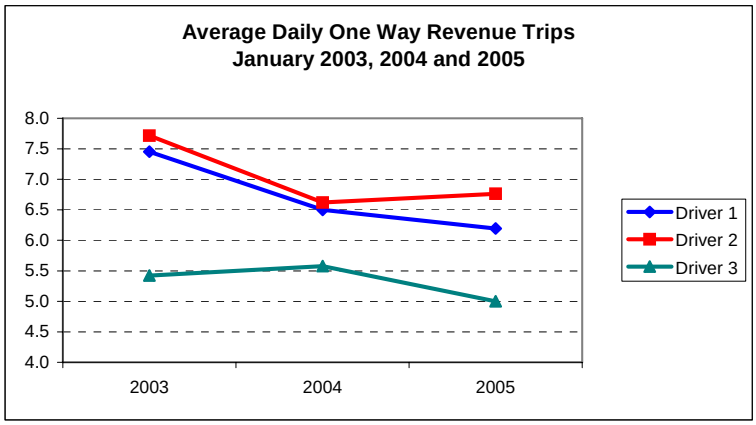
Average hourly compensation remained relatively stagnant from January 2003 through April 2004 but then increased to a higher level from July 2004 through April 2005, probably reflecting the rate

increase implemented in July 2004. At the average daily revenue of $550 recorded for April 2005 the annual revenue for this driver would be $134,750 assuming he worked 49 weeks per year. Based on the VCTA estimated annual costs (which exclude interest on working capital and any return on investment but include driver-related costs such as WCB premiums. Union dues and Medical Services Plan premiums) this would provide a net income of $46,550. As noted previously, this estimate is probably higher than the average compensation for owner/operators. Estimated cost of an employee driver in BC in 2003 according to OCTC was $40,640.

Industry Efficiency

Reduced efficiency in the container handling system was a major issue in both the 1999 and 2005 disputes. In 1999 the problems related primarily to excessive queuing delays due to congestion at the container terminals. In 2005 the trucking industry was again faced with delays at the container terminals due to congestion. However, a change in operating practices in the form of a move to off-dock storage of empty containers has imposed additional delays and costs on the trucking sector. The introduction of off-dock storage introduced a non-revenue "third leg" to trip patterns. Instead of a balanced haul to and from the docks, owner-operators are required to travel unloaded (i.e. without a container) to an off-dock facility to pick up an empty container. This can add significantly to trip mileage, and delays at off-dock facilities reduce the number of trips they can make in a day. Owner/operators are not compensated for this "third leg"; they are only compensated when they are transporting a container.

The burden of reduced efficiency falls entirely on owner-operators. A comparison of the number of average daily one-way revenue trips per day (smoothed using a one week moving average) for three drivers, from two different companies, for January 2003, 2004 and 2005 is shown below.



The decline in the daily average number of one-way revenue trips ranges between 8% and 17%.

Conclusions

The drayage sector is by virtue of its cost structure highly competitive. The low barriers to entry and large number of firms severely limit the market power of individual firms. Incentives for investment in technological innovation by drayage firms are absent, due to the revenue-sharing basis of their relationship with owner/operators. Capital resources to fund innovation are also absent due to the persistent low level of rates

Industry conduct has been consistent with theoretical predictions. Drayage firms in the Lower Mainland have consistently shown themselves to be unable to exercise sufficient pricing discipline to adjust rates, even to respond to input cost pressures and changes in industry operating practices which decrease the efficiency of trucking operations. Operating efficiency and environmental performance of the trucking fleet is reduced by the reliance on low cost used tractors.

The burden of rising input prices and inefficiencies throughout the container transportation system has been borne by the owner-operators due to the trip-based compensation system. The recurrence

of the 1999 withdrawal of service in 2005 led the Task Force to conclude that "the trucking industry's inability to respond to changing circumstances and cost increases in a manner that maintains a reasonable income to truckers is clear evidence of market failure"[3].

[3] Task Force Report, pp. 1-2.