Pupil Transportation: The Impact of Market Structure on Efficiency in Rural, Suburban, and Urban School Districts in Minnesota

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Abstract

This paper presents a cost function for the pupil transportation industry in Minnesota. In-house provision of transportation was not shown to be more costly than outsourcing. Large contractors may seek the most profitable contracts in urban and suburban areas, while showing little interest in contracting opportunities in rural school districts.

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This paper presents a cost function for pupil transportation for individual school districts in Minnesota. The cost function was used to analyze whether private contractors or school districts provide pupil transportation services more efficiently in rural, suburban, and urban school districts.

Background

The student transportation industry is the largest single carrier of passengers in the United States. During the 1998-99 school year, $12 billion of public funds were spent to transport 23 million students over 3.8 billion miles on 448,000 buses (School Transportation, 2002). Expenditures for transportation represent 6.1 percent of the nation's education budget (National Center on Education Statistics, 2002).

School finance reforms in Minnesota and in many other states during the 1990s encouraged school districts to reduce the cost of noninstructional activities, including pupil transportation, so that resources could be shifted to the core instructional functions of schools. In 1995, the Minnesota legislature enacted major changes in funding formulas. In Minnesota, pupil transportation was rolled into the general fund to "increase local flexibility in the use of resources and strengthen incentives for cost efficient operations" (Minnesota Department of Education, 2002, p. 21). This change might be expected to have given school districts an incentive to operate pupil transportation services in a more efficient manner. Separate categorical funding was eliminated for most student transportation categories. The outsourcing of pupil transportation was encouraged to reduce costs and at the same time permit school districts to "refocus their attention on educating the young people in their classrooms" (Finkel, 1998, p. 40).

School districts in the United States typically either operate the pupil transportation system in-house or outsource the service to a private contractor. Economic theory suggests that school districts that provide pupil transportation services in-house may have a tendency to operate in an inefficient manner due to the lack of competition and the bureaucratic nature of government agencies. Theory suggests that private contractors might be expected to provide transportation services at less cost than school districts because competition is assumed to occur when contractors bid on contracts. The resulting competition is supposed to provide an incentive for firms to operate in an efficient manner (Lavery, 1999).

Historically, school district residents with political connections would often buy a bus and the school board would award them a contract for a bus route (Ross, 1988). Some rural districts continue the tradition of hiring individual farmers or homemakers who each own one bus. A few large firms, however, dominate the pupil transportation contractor market in the United States. As shown in Table 1, each day Laidlaw, the largest school bus contractor in the U.S., transports 1.9 million pupils--while First Student, the second largest contractor, transports 1 million students. Figure 1 shows the number of pupils transported by each of the four largest firms in the United States for the ten-year period from 1993 to 2002. Laidlaw more than doubled the number of pupils that its buses transported over the time period. In 1993 Laidlaw transported slightly less than 900,000 pupils each day; by 2002, the firm was transporting more than 1.9 million pupils each day. First Student also grew rapidly over the time period and transported 1,000,000 pupils per day by 2002.

Market Structure

The market structure of an industry affects the way that firms operate. Every firm makes production and pricing decisions about what to produce, how to produce it, and for whom to produce the good. The decisions that any given firm makes are affected by the way in which firms in an industry compete with one other. The theory of market behavior of oligopolistic firms suggests that when a few firms dominate an industry there may be significant barriers to entry, collusion, and retaliation. The theory can be used to explain the social welfare implications if bus contractors alter their bidding and operating practices as a result of the industry structure.

Firms operate under three different market structure scenarios (pure competition, monopoly, and oligopoly). The conduct and performance of a firm differs depending upon the market structure of an industry. When there is perfect competition, firms operate at the level that maximizes economic efficiency since customers pay a price that is equal to the cost of production. A monopoly occurs when there is a single seller. A firm operating under conditions of monopoly may have little incentive to be innovative and may operate in an inefficient manner from a societal welfare perspective. Oligopoly can be defined as a situation where there are few sellers. When an oligopoly exists, the market activities of one seller have sufficient market power to cause repercussions for other firms. Each firm is dependent upon the actions of other rival firms in the industry, but is uncertain about what actions rival firms will take and therefore develops strategies to respond to the actions of rivals. The theory of market behavior of oligopolistic firms suggests that when a few firms dominate an industry there may be barriers to entry, collusion, and retaliation (Scherer and Ross, 1990). The pupil transportation industry may be characterized by these elements of oligopoly.

Even though a number of Minnesota state statutes regulate contracting practices, anecdotal evidence suggests there are barriers to entry, collusion, and retaliation in the pupil transportation industry in Minnesota. Anecdotal evidence of collusion and retaliation is revealed in the minutes of the Minnesota Transportation Issues Study Committee. The committee is composed of representatives from the Department of Education, private bus contractors, and school districts. The December 11, 2002 minutes of the committee recorded that:

> Members of the group stated that many times contractors do not bid on other districts' transportation services because they do not have facilities out of which to operate in the new district. Many times contractors do not aggressively bid on other districts' transportation services because then they become a target (Minnesota Department of Education, 2003, p. 2).

Previous Studies

Several previous studies have analyzed whether contractors or school districts provide pupil transportation services more efficiently, but the results were inconclusive. Four studies (Bails, 1979; McQuire and van Cott, 1984; Ross, 1988; Hutchinson and Pratt, 1999) concluded that private contractors are more efficient, while two other studies (Harding, 1990; Alspaugh, 1996) found in-house provision more efficient.

The previous studies did not fully account for differences in accounting practices between districts that used private contractors and those that provided the services in-house (Lazarus, 2004). School district accounting practices generally only attribute direct variable costs to the pupil transportation enterprise, while a private contractor's bid price to provide pupil transportation services to school districts would implicitly include not only the direct variable costs, but also ownership costs of capital assets such as buses and bus maintenance facilities (U.S. Department of Education, 1995). This study makes adjustments for the different methods used to report pupil transportation costs so that accurate efficiency comparisons can be made between districts that provide pupil transportation in-house and districts that use private contractors. Most of the previous studies also used data gathered prior to the school finance reforms of the 1990s and none of the studies analyzed what effect market structure might have on the efficiency of pupil transportation operations.

Methodology

The market structure of the pupil transportation industry in Minnesota and the regulatory environment in the state may affect the manner in which pupil transportation services are provided. Minnesota was selected for this analysis because districts in the state should have an incentive to provide regular transportation services as efficiently as possible since most state aid for pupil transportation is included in the general fund. School districts thus are permitted to make decisions about how to use state aid. That is, money not used for pupil transportation can be used for other expenses such as teacher salaries and textbooks.

A variable cost function was estimated for individual school districts in Minnesota using ordinary least squares (OLS) regression. A cross-sectional data set that contained detailed financial, geographic and management information about the pupil transportation operations for each district in the state was obtained from the Minnesota Department of Education for the 1999-2000 school year. The cost function for the transportation of pupils in an individual school district was specified as:

$$\begin{aligned} \ln VCOST = & ß_0 + ß_1{*}\ln PUPIL + ß_2{*}\ln ROAD + ß_3{*}\ln WAGE + ß_4{*}\ln FUEL \\ & + ß_5{*}\ln SBUS + ß_6{*}\ln LBUS + ß_7{*}\ln SPECED + ß_8{*}INHOUSE + \\ & + ß_9{*}COMB + ß_{10}{*}URBAN + ß_{11}{*}SUBURB + \mu \end{aligned}$$

where:

VCOST = School district expenditures for student transportation

PUPIL = Number of pupils transported in district

ROAD = Number of miles of roads in the school district

WAGE = Average hourly wage rate for district bus drivers (including benefits)

FUEL = Average fuel price in district

SBUS = Number of small school buses in the district

LBUS = Number of large school buses in the district

SPECED = Percentage of students in district who need specialized transportation as a result of a disability

INHOUSE = Dummy variable (1 if all regular bus services provided in-house; 0 if some or all buses are contracted)

COMBIN = Dummy variable (1 if pupil transportation is provided by *both* the school district and a contractor, 0 if not)

URBAN = Dummy variable (1 if urban; 0 if not urban)

SUBURB = Dummy variable (1 if suburb; 0 if not suburb)

μ = Error term

The cost function shown was specified for the empirical analysis as a Cobb-Douglas-type functional form. Since the bus industry is not known to have increasing returns to scale, this was an appropriate functional form for this model (DeBorger, 1984). Complex interactions were not anticipated. Strictly defined, a variable cost function with a Cobb-Douglas functional form would just include the price of fuel, price of labor, and the stock of capital. The model estimated in this study included several additional variables and was designed to analyze how production isoquants shifted when certain policy changes occur, rather than to discover complex underlying interactions between inputs (Berndt, 1991).

Calculation of Variable Costs

The model was specified as a variable cost function because funding for pupil transportation operations comes from the general fund, while funds for the purchase of buses are considered a capital expense. According to the specified model, the number of students who needed transportation, as well as how the population was dispersed, impacted the output of pupil transportation services.

School district accounting practices during the 1999-2000 school year would have only attributed actual expenditures to the pupil transportation enterprise, while a private contractor's bid price to provide pupil transportation services to school districts would have implicitly included not only the direct variable costs, but also ownership costs of capital assets such as buses and bus maintenance facilities (U.S. Department of Education, 1995)[1]. In order to arrive at comparable data for this study, the contractor costs were converted to variable costs by estimating and subtracting overhead costs. To estimate the variable costs for districts that used contractors it was necessary to subtract the ownership costs from the reported pupil transportation costs.

Contractors were assumed to consider both operating expenses and overhead costs when they made bids to a school district to provide pupil transportation services. Thus both operating expenses and overhead costs were reflected in the reported expenditures of districts that used a private contractor. The reported expenditures of districts that provided transportation in-house were assumed to reflect only operating expenses. In school districts that provided pupil transportation in-house, district investments in buses and bus maintenance facilities were not annualized and thus the reported expenditures were net of overhead costs. The reported expenditures of districts that used private contractors needed to be adjusted so that they would reflect only the variable costs incurred by the contractors. To net out overhead costs from contractor expenditures, four categories of expenses were subtracted from the reported expenditures for districts that used contractors: 1) the capital service cost of buses owned by contractors; 2) the capital service cost of the contractors' bus maintenance facilities; 3) the insurance costs for the contractors' bus maintenance facilities; and 4) the property taxes for the contractors' bus maintenance facilities.

A capital recovery approach was used to estimate the private contractors' cost of ownership of: 1) school buses and 2) the bus maintenance facility. The terminology of the AAEA Task Force (1998) was adopted for the purpose of this study. The Task Force defined the capital service cost (CSC) of the asset as an annuity payment that is required to obtain the services of an asset and considers the time value of money. Assuming that PP represents the purchase price of an asset when it was purchased, SV represents the salvage value when it is sold, r represents the rate of return, and n represents the number of years that the asset is owned, then:

$$CSC = \frac{(PP - SV)r}{1 - (1 + r)^{n}} + SV(r)$$

The CSC calculation of the annuity provided the net present value of the stream of cash flows associated with owning the capital asset on an annual basis. The CSC captured both economic depreciation and the opportunity cost of not using the capital tied up in the asset.

The rate of return used in the cost recovery formula was based upon a weighted average of the rates of return for debt capital and equity capital. The rate of return (r) that was used in this study was 11.3 percent. This rate was selected based upon information gathered from the annual reports of First Group plc. First Group owns First Student which is the second largest school bus contractor in the United States. For detailed information about how variable costs were calculated for school districts that used private contractors see Lazarus (2004).

Rationale for Independent Variables Included in Model

A school district's transportation costs are affected by both the number of pupils that the district is required to transport and the size of the network (e.g., the number of miles of road in the district). The independent variables, WAGE and LABOR were specified as exogenous variables because the operator of a pupil transportation system (whether a school district or a private contractor) must compete with other firms for labor and fuel and thus is a price taker. In this analysis the capital stock was measured using one variable for the number of small buses and a second variable for the number of large buses.

*Method Used to Provide Transportation Services***.** A policy dummy variable (INHOUSE) was included in the model to analyze whether school districts that provided pupil transportation services in-house or private contractors were more efficient. Economic theory suggests that INHOUSE should have a positive sign since bureaucratic school districts would be expected to provide pupil transportation services less efficiently than private contractors. A number of school districts in Minnesota provided some pupil transportation services in-house and outsourced other parts of the operation. A second policy dummy variable (COMBIN) was included in the model to represent this scenario.

Geographic Setting. School districts in different geographic settings may face inherently different costs. For example, a school district in a core city may have to contend with more traffic congestion than a district located in a rural area. Two dummy variables (URBAN and SUBURB) were set at one for districts located in urban or suburban locations, respectively, and zero otherwise to capture the effects of such geographic differences. If a district was not located in the setting measured by the variable, it was set to zero. The variables were designed to measure the impact of such geographic differences on cost.

School districts were considered urban if they were located within the core city of a Standard Metropolitan Area. Districts were considered suburban if the district administrative office was located within a Standard Metropolitan Area, but not within a core city. The remaining districts were classified as rural.

Results

A descriptive analysis of the data and the results of estimated pupil transportation variable cost functions for individual school districts in Minnesota will now be presented.

Descriptive Analysis

During the 1999-2000 school year, 343 school districts in Minnesota provided pupil transportation services. Almost 75 percent of the 39 small school districts in Minnesota that transported fewer than 250 pupils provided all pupil transportation services in-house, while none of the 15 districts transporting more than 10,000 pupils provided all services in-house.

Table 2 shows the number of urban, suburban, and rural school districts that provided the service: 1) in-house; 2) via a private contractor; and 3) via a combination of in-house and contractor services. More than 44 percent of the rural school districts provided all pupil transportation services in-house while no urban school districts provided all pupil transportation services in-house. Most urban school districts used a combination of both in-house and private contractor provision of pupil transportation services. One-third of all suburban school districts provided all pupil transportation services in-house, while almost 39 percent outsourced all pupil transportation to a private contractor.

As shown in Table 3, the mean number of miles of roads in a Minnesota school district was 399 miles, but it ranged from 10 miles of road in the Pine Point School District (located in the southeast corner of the White Earth Indian Reservation in northwestern Minnesota) to 2,336 miles of road in the geographically large 4,131 square mile St. Louis County School District.

The prices for wages and fuel also varied between school districts. The mean hourly wage rate, including benefits, was \$15.87 (Table 3). The wage rate ranged from \$8.88 an hour to \$28.00 an hour. As shown in Table 4, rural school districts reported many of the lowest wage rates, as well as many of the highest wage rates. From analyzing the data for individual school districts, it appears that several small rural school districts may have hired an individual who owned a bus and paid that person a relatively high hourly rate. Those districts then reported a wage rate that included both the wage plus an hourly usage fee for the bus. Both the mean and the median fuel price were \$1.20 per gallon. Some school districts and contractors may have had long-term fuel contracts that impacted the fuel price.

Most school districts in Minnesota had a bus fleet comprised of both small buses (e.g., Type A, Type B, and Type III buses) and large buses (e.g., Type C and Type D). At the mean, a Minnesota school district had 12 small buses and 27 large buses (Table 4). The composition of the bus fleet is a management decision that might affect the efficiency of pupil transportation operations.

Estimated Variable Cost Function

A variable cost function was estimated for all 343 school districts in Minnesota that provided pupil transportation services during the 1999-2000 school year. The estimated regression model parameters were:

$$\begin{aligned}\ln VCOST = {} & \underset{(14.15)^{**}}{6.360} + \underset{(8.70)^{**}}{0.734\cdot\ln PUPIL} + \underset{(2.47)^{**}}{0.046\cdot\ln ROAD} + \underset{(1.21)}{0.104\cdot\ln WAGE} + \underset{(2.08)^{**}}{0.265\cdot\ln FUEL} \\ & - \underset{(-0.49)}{0.015\cdot\ln SBUS} + \underset{(1.73)^{*}}{0.244\cdot\ln LBUS} + \underset{(2.48)^{**}}{\ln\cdot SPECED} - \underset{(-1.98)^{**}}{0.101\cdot INHOUSE} \\ & - \underset{(-.068)}{0.052\cdot COMBIN} + \underset{(2.81)^{**}}{0.259\cdot URBAN} + \underset{(0.75)}{0.022\cdot SUBURB}\end{aligned}$$

Adjusted $R^2 = 0.94$; $n = 343$

The Cook-Weisberg test for heteroskedasticity which is included in the STATA computer software package indicated the presence of heteroskedasticity in the models. All models in this study were re-estimated using STATA and specifying the *robust* option with the White-corrected standard errors in the presence of heteroskedasticity. The t-scores reported in parentheses for the estimated parameter are all White-corrected.

Most of the independent variables had the expected signs. Both the number of pupils and the miles of road had statistically significant positive signs. This suggests that as the number of students increases as well as when the number of miles that a bus must transverse increases, expenditures increase. The hourly wage rate and the per-gallon price of fuel also had positive signs, though the wage rate was not found to be statistically significant. The wage rate may not have been statistically significant because of the apparent difficulty some school districts had in understanding the question about wage rates on the survey.

The number of small school buses (SBUS) in a district's fleet had little explanatory power, in contrast to the number of large buses (LBUS). This suggests that districts that use large buses for multiple runs or that filled buses close to capacity had lower expenditures than districts with the same number of students that used the large buses less intensively. The small buses in the fleets of many school districts may be primarily used to transport pupils with disabilities and the number of small buses may not be statistically significant in a model that includes all students. The percentage of students in a school district who needed specialized pupil transportation services as a result of a disability (SPECED) was statistically significant and positive.

The dummy variable for the provision of pupil transportation services in-house was negative and statistically significant. Economic theory suggests that private contractors should provide pupil transportation less expensively than a bureaucratic school system unless there are market imperfections. Thus, the negative sign on INHOUSE suggests that there may be elements of imperfect competition in the pupil transportation industry. The lack of significance of the COMBIN variable indicates that districts that provide pupil transportation services using a combination of in-house provision and contractor provision are operating with about the same level of efficiency as the contractor districts.

The statistically significant positive sign for the dummy variable for urban schools indicates that there may be some unique factors that school districts located in core cities face that increased pupil transportation costs. The positive signs for both the urban and suburban dummy variables shift the cost function higher for each locational setting. The lack of significance of the suburban dummy variable indicates that there were no statistically significant differences between suburban and rural districts.

Figure 2 shows the marginal cost to transport an additional pupil under several different scenarios. The mean number of pupils transported by a school district in Minnesota was 2,428 students. At the mean for all variables the marginal cost of transporting one additional pupil was $206. The marginal cost was estimated to be $198 if transportation was provided in-house, while it was estimated to be $217 if a contractor was used. The marginal cost of transporting an additional pupil was 10 percent higher if a contractor was used than if the service was provided in-house. For a district with the mean number of pupils in the state, the marginal costs were estimated to be the lowest in rural school districts and the highest in urban districts. A problem with this comparison is that school districts in different types of locations tend to vary greatly in size.

The average urban school district in Minnesota transported 23,682 pupils, while the average suburban district transported 4,508 pupils, and the average rural district transported 1,182 students. As shown in Figure 3, if actual average district sizes for districts located in various geographic settings were used to calculate marginal costs, the marginal cost of transporting one additional pupil in a district located in a core city that provided all services using a contractor was estimated to be $163, while was estimated to be $192 in an average-sized suburban district, and it was estimated to be $265 in an average-sized rural district.

Limitations of Study

A limitation of this analysis is the use of cross-sectional data. The data provides a snapshot of what was happening in the pupil transportation industry in Minnesota at a point in time, but it does not address how the pupil transportation industry has changed in the state over time. Another limitation of this study is that the data set did not identify who the contractor(s) was (were) for each school district. Additional research is needed to learn more about the individual school districts, the contractor(s) in each district, and the contract specifications.

Conclusions

Economic theory suggests that public entities (including school districts in most structural settings) will not operate as efficiently as private firms. Private contractors might be expected to have an incentive to provide pupil transportation services more efficiently than school districts that provide the service in-house. This study, however, found preliminary evidence which suggests that pupil transportation in Minnesota may be provided more efficiently in-house by school districts. Market imperfections may exist which might limit pricing and service competition between contractors. The empirical evidence in Minnesota suggests that contractors may not compete vigorously against one another and that there may be other barriers to entry. Contractors may fear retaliation in the next round of contract bidding if they bid aggressively for a contract currently held by another firm.

The model results suggested for school districts of any given size (whether large or small), in-house provision of pupil transportation services would be expected to be the most efficient way to provide the service. However, the data indicated that small school districts were much more likely to provide pupil transportation services in-house than larger districts. This suggests that contractors may be showing little interest in pursuing contracts with small school districts while focusing their efforts on larger school districts.

Carefully written bid specifications and performance monitors may help improve the efficiency of contracted operations. Outsourcing of pupil transportation needs to be judiciously undertaken and monitored. With several national and international corporations active in the Minnesota pupil transportation market, there may be a need for the development of contract provisions and bidding processes that better protect the public interest all geographic settings in the state.

Endnote

[1] In June 1999, the Governmental Accounting Standards Board (2004) issued Statement 34 (GASB 34) that created new financial reporting requirements for all levels of government, including school districts. School districts are now required to include an assessment of the value of their physical assets in their financial reports. The data used in this study is for the 1999-2000 school year. At that time, school districts had not yet begun to implement Statement 34. As of spring 2004, school districts are still in the process of implementing Statement 34 and most districts have not fully implemented it. A list of school districts in Minnesota (and across the United States) that are “early implementers” of Statement 34 is available on the Governmental Accounting Standards Board Website (www.gasb.org) under the heading "Statement 34".

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Tables and Figures

Table 1:Top Eight Private School Bus Contractors in the United States Ranked by Number of Buses in Fleet, 2002.[1]

Contractor	*Fleet*		*Type of Bus*			
	2002	*2001*	*Small*	*Large*	*District Contracts*	*Students Transported*
Laidlaw, Inc.[2], Naperville IL	33,875	32,065	11,091	22,713	917	1,900,000
First Student, Inc., Cincinnati OH	15,000	14,853	1,500	13,500	500	1,000,000
National Express Corp., Austin TX	8,649	8,500	23,460	5,189	258	270,000
Atlantic Express Corp., Staten Island NY	6,998	6,986	2,630	4,368	200	321,000
Student Transportation of America, Howell NJ	2,163	1,400	N/A.	N/A.	60	150,000
Cook-Illinois Corp. Oak Forest IL	1,200	1,200	450	750	N/A.	100,000[3]
Baumann and Sons, Bohemia NY	1,030	1,030	730	300	14	40,000
WE Transport, Inc. Plainview NY	927	927	732	196	N/A.	25,000[3]

[1] Source: Data in table compiled from "Top 50 Contractors in North America Survey" (School Bus Fleet Magazine, 2002) and contractor websites. Bus contractor websites and other websites were used to disaggregate Canadian data from U.S. data.
[2] A major portion of Laidlaw's operations are in Canada. *School Bus Fleet* reported that Laidlaw transported 2,400,000 students. Press releases and SEC bankruptcy filing information were used to disaggregate the U.S. portion of Laidlaw's operation from the Canadian portion.
[3] Number of students transported not reported in *School Bus Fleet*. Estimate based upon number of buses owned by the contractor.

Table 2. Number and Percentage of Urban, Suburban, and Rural School Districts Using Various Methods to Provide Pupil Transportation, Minnesota, 1999-2000.

Type of School District	*In-house Only Districts*		*Contractor Only Districts*		*Combination Districts (In-house and Contractor)*		*All Districts*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Urban	0	0.0%	1	16.7%	5	83.3%	6	100.0%
Suburban	29	33.0%	34	38.7%	25	28.4%	88	100.0%
Rural	110	44.2%	85	34.1%	54	21.7%	249	100.0%
Total	139	40.5%	120	35.0%	84	24.5%	343	100.0%

Table 3. Descriptive Statistics for Variables Included in the Pupil Transportation Cost Function Models, Minnesota, 1999-2000.

Variables	Mean	Median	Standard Deviation	Minimum	Maximum
Variable Costs	$753,894	$293,252	2,003,684.30	$8,266	$28,550,460
Number of Pupils	2,429	980	5,341.05	37	58,617
Miles of Roads	399	343	265.22	10	2336
Hourly Wage Rate [1]	$15.87	$15.36	2.94	$8.88	$28.00
Price of a gallon of fuel	$1.20	$1.20	0.11	$0.91	$1.64
Number of Small Buses	12	6	31.01	0	470
Number of Large Buses	27	17	43.01	1	537
Percent Special Ed.[2]	1.9%	5.3%	1.54	0.0%	11.0%

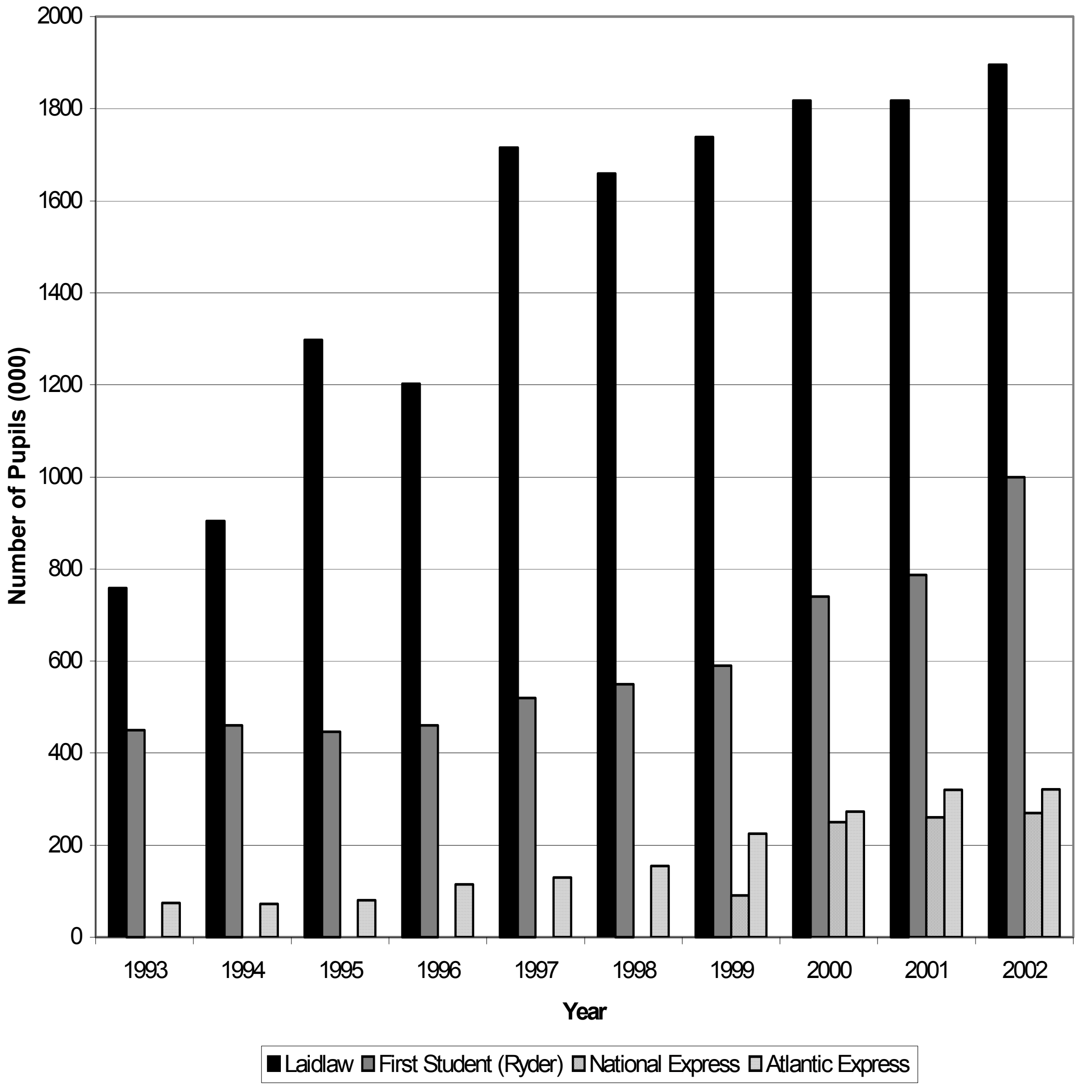
[1]Includes benefits.

[2]Percentage of students requiring specialized transportation due to a disability.

Table 4. Descriptive Statistics for Quantity, Input Price and Capital Stock Variables, by District Locational Setting, Minnesota, 1999-2000.

Parameter	*In-house Only*			*Contractor Only*			*Combination (In-house and Contractor)*			*All*
	Mean	***Min.***	***Max.***	***Mean***	***Min.***	***Max.***	***Mean***	***Min.***	***Max.***	***Mean***
					Number of Pupils					
Urban	--	--	--	12,798	12,798	12,798	25,860	4,806	58,617	23,682
Suburban	1,258	52	9,003	6,060	484	42,073	6,168	229	28,796	4,508
Rural	785	37	4,591	1,549	76	7,099	1,411	132	9,858	1,182
All	884	37	9,003	2,921	76	42,073	4,282	132	58,617	2,429
					Miles of Roads					
Urban	--	--	--	872	872	872	894	575	1,193	890
Suburban	292	0	846	332	36	1,248	402	101	2,336	339
Rural	395	0	1,177	372	0	1,745	492	0	1,178	409
All	374	0	1,177	365	0	1,745	489	0	2,336	399
					Bus Driver Wage (incl. benefits)					
Urban	--	--	--	$14.71	$14.71	$14.71	$13.96	$11.92	$15.39	$14.71
Suburban	$17.03	$11.27	$24.03	$14.77	$9.22	$19.56	$16.37	$12.34	$22.88	$15.97
Rural	$16.31	$10.58	$24.91	$15.04	$9.23	$22.42	$16.33	$8.88	$28.00	$15.88
All	$16.46	$10.58	$24.91	$14.96	$9.22	$22.42	$16.20	$8.88	$28.00	$15.87
					Fuel Price					
Urban	--	--	--	$0.83	$0.83	$0.83	$1.15	$1.10	$1.25	$1.09
Suburban	$1.18	$0.97	$1.60	$1.19	$0.97	$1.43	$1.17	$0.95	$1.50	$1.18
Rural	$1.19	$0.71	$1.64	$1.25	$0.83	$1.59	$1.21	$0.91	$1.59	$1.21
All	$1.19	$0.71	$1.64	$1.23	$0.83	$1.59	$1.19	$0.91	$1.59	$1.20
					Number of Small Buses					
Urban	--	--	--	22.0	22	22	52.8	4	171	47.7
Suburban	8.3	1	42	29.7	1	190	35.8	0	470	24.4
Rural	6.5	0	42	6.8	0	30	7.1	0	31	6.7
All	6.9	0	42	13.4	0	190	18.4	0	470	12.0
					Number of Large Buses					
Urban	--	--	--	141	141	141	241.4	71	537	224.7
Suburban	16.2	2	89	44.8	9	270	50.2	6	212	36.9
Rural	14.6	1	61	20.5	2	85	23.1	5	88	18.5
All	14.9	1	89	28.4	2	270	44.2	5	537	26.8

Figure 1. Number of Pupils Transported by 4 Largest Contractors in the United States, 1993-2002.



[1]Source: Data in table compiled from "Top 50 Contractors in North America Survey" (School Bus Fleet Magazine, 2002) and contractor websites. Bus contractor websites and other websites were used to disaggregate Canadian data from U.S. data.

Figure 2. Marginal Costs at Mean Number of Pupils.

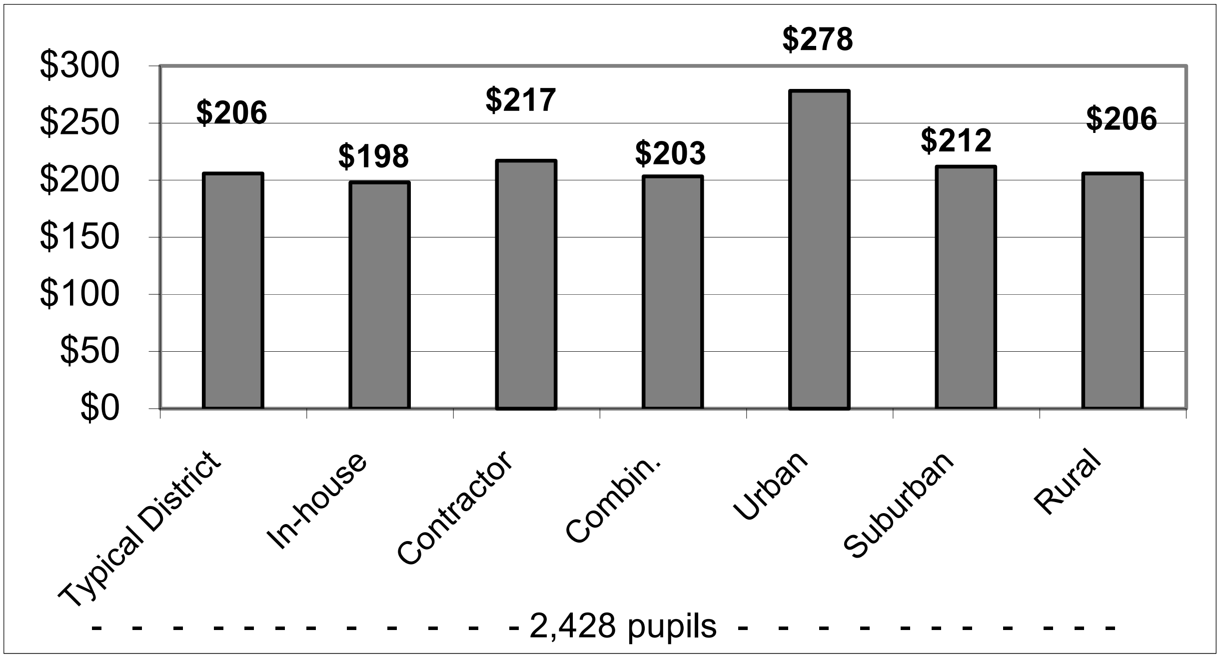


Figure 3. Marginal Costs at Mean Size for Geographic Setting.