

The Cost of Independence: Socio-economic profiles of independent truck drivers

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1.0 Introduction

Nearly 50,000 or one in five (22%) Canadian truck drivers on the road in 1998 were independent truckers or “owner-operators”.¹ However, similar to other forms of self-employment, the net-earnings and socio-economic characteristics of owner-operators have often been ignored by researchers for reasons of analytical convenience or data limitations (Mathieson, 1993; Simpson and Sproule, 1998).² New data products recently released by Statistics Canada such as the Survey of Labour and Income Dynamics (SLID) have the potential to fill much of this gap. The 1997 SLID cross-sectional micro-data files offer a limited but meaningful insight into the work patterns of the owner-operator population, complementing and validating well-established business surveys such as the annual Small for-hire carrier and Owner-operator Survey (SFO). The purpose of this study, through a multivariate analysis of SLID and SFO survey data, was to compare the work patterns and backgrounds of owner-operators to company drivers (paid truck drivers employed by carriers). This exercise is very important not only for analysts involved in the production and use of freight transportation data, but for carriers and human resource professionals anticipating a shortage of qualified drivers and increased demand for the services independent truckers provide (CTHRC, 1998). Studies have found that initiatives that take into account a driver’s socio-economic realities have the potential to improve job satisfaction, the work/home environment, highway safety and carrier profitability (Corsi and Fanfara, 1988). Ultimately, understanding the work patterns, incomes, and demographic characteristics of the current generation of drivers may be fundamental to filling anticipated demand for owner-operators.

2.0 Demand and use of owner-operators

Owner-operators are essentially independent businesspeople who own or lease their trucks or road tractors and haul goods for either a private (manufacturer, wholesaler, retailer, etc.) or for-hire carrier (trucking company). As such, they may be required to invest in capital equipment, acquire debt, pay taxes, interest, and other operating expenses (maintenance, fuel, rent, insurance, etc.) as well as earn sufficient income to cover their personal expenses. Geographically, about one-third (13,500) of owner-operator businesses were based in Ontario during 1997. An additional 26% (10,300) were located in the Prairies, 18% (7,200) in Quebec and 15% in British Columbia and Territories (6,100). Owner-operators based in the Atlantic region account for about 8% (3,300) of all owner-operators (see Table 1).

For shippers and trucking companies, the hiring of owner-operators offers substantial operational flexibility. By using owner-operators, carriers and shippers can respond effectively to increases in demand for their products, without substantial permanent investments in labour and capital (McKeown and Rea, 1998). SFO survey data reveals that most owner-operators (71%) work on contract for carriers in for-hire trucking, often for long-haul shipments crossing provincial or federal boundaries. Over one half (54%) of the \$5.8 billion in revenues generated by owner-operators came from movements from one province to another (extraprovincial), while (38%) was obtained from international movements. The largest category of freight hauled by owner-operators in 1997 was general freight (\$1.9 billion) followed by “other commodities” (\$1.4 billion), dry bulk materials materials such as mine ores and scrap (\$1.0 billion), forest products (\$873 million) and bulk liquids including petroleum, chemicals and milk products (\$464 million). Owner-operators hauling and moving household goods and used office furniture earned \$96 million in revenue during 1997. Overall, payments to owner-operators totalled \$3.5 billion in 1998,

¹ Labour Force Survey estimates – 1998 annual average

² Owner-operators own or lease at least one vehicle (straight truck or road tractor), hauling freight and providing services under contract to for-hire or private carriers.

accounting for about one-quarter of the total operating expenses of for-hire carriers with over \$1 million in annual revenue.³

3.0 The Working Owner Profile

3.1 Size of business

According to the 1997 SLID, seven out of every ten owner-operators had been in business for over three years but most (68%) were also functioning as unincorporated working owners with no paid help in running their day to day trucking operation. These findings were also confirmed by data from the 1997 SFO survey which indicated that, on average, most independent truckers owned or leased only one truck or road tractor and employed only one other individual on a full or part-time basis. The estimated 40,100 owner-operators in the SFO survey represent nearly 86,900 working owners and employees, two-thirds of whom were full-time drivers. Owner-operators who employed the most full-time persons derived the majority of their revenue from the movement of bulk liquids and chemicals (average- 2.0 full-time persons) and forest products (average-1.7 full-time persons).

Table 1. Owner-operator revenues and expenses by region - 1997

		Canada	Atlantic	Québec	Ontario	Prairies	British Columbia and Territories (1)
Number of Owner Operator Businesses	No. '000	40.2	3.3	7.2	13.5	10.3	6.1
Total Operating Revenues	\$' 000	5,822,897	516,288	1,095,729	1,658,894	1,652,961	899,027
Transportation Revenues	"	5,791,758	509,384	1,088,171	1,655,253	1,646,464	892,487
Other Revenues	"	31,140	6,902	7,558	3,642	6,498	6,539
Total Operating Expenses	"	5,113,198	501,158	864,797	1,411,318	1,490,049	845,877
Salaries and Wages	"	963,056	95,010	222,142	188,066	292,251	165,586
Benefits	"	20,746	1,240	5,331	5,036	5,982	3,157
Fuel	"	643,450	57,571	142,694	172,230	182,088	88,868
Owner Operator Expenses	"	25,527	411	5,636	5,757	12,206	1,517
Purchased Transport	"	297,191	20,731	30,135	104,380	87,934	54,010
Maintenance	"	541,436	41,907	120,087	131,381	156,027	92,034
Depreciation	"	789,255	82,639	126,015	238,386	219,823	122,393
Insurance	"	165,868	14,888	36,551	37,302	43,373	33,754
Rent	"	108,457	5,602	12,545	20,791	46,337	23,182
Other Expenses	"	1,558,212	181,161	163,659	507,988	444,028	261,376

Note: Some totals may not add due to rounding.

1 Territories include Yukon and Northwest Territories (including Nunavut) as defined before April 1999.

Source: Small For-hire Carriers and Owner-operators Survey

³ 1998 Quarterly Motor Carriers of Freight Survey

Table 2. Average revenues, expenses and equipment per owner-operator by industry. Canada – 1997

		Total (1)	General Freight	Household goods	Bulk liquids	Dry bulk materials	Forest products	Other commodities
Number of Owner Operator Businesses	No. '000	40.2	14.4	0.6	3.1	8.8	4.6	8.8
Operating Revenues	\$	144,773	133,117	160,488	152,418	119,752	190,672	161,352
Transportation Revenues	"	143,998	132,691	157,010	151,253	118,701	190,474	160,309
Other Revenues	"	774	426	3,478	1,164	1,051	198	1,043
Operating Expenses	"	127,128	112,156	111,987	144,851	109,418	174,976	139,364
Salaries and Wages	"	23,944	19,664	40,969	31,553	20,941	37,142	23,240
Benefits	"	516	464	683	1,008	445	865	306
Fuel	"	15,998	15,736	4,404	19,731	11,613	25,163	15,557
Owner operator expenses	"	635	727	0	1,991	317	176	614
Purchased Transport	"	7,389	7,910	6,044	3,825	5,219	8,605	9,430
Maintenance	"	13,462	11,406	7,647	14,033	11,728	23,489	13,538
Depreciation	"	19,623	17,888	18,053	22,151	16,039	26,151	21,893
Insurance	"	4,124	3,697	4,470	5,077	3,037	6,590	4,273
Rent	"	2,697	2,697	2,813	2,654	1,850	3,034	3,379
Other Expenses	"	38,741	31,967	26,903	42,829	38,227	43,761	47,134
Equipment								
Average number of trucks/road tractors	No.	1.4	1.4	1.9	1.3	1.4	1.4	1.4
Total distance	km	146 368	172 122	83 343	128 914	94 895	160 200	159 350
Fuel consumed	'Litres	67 830	75 663	35 271	62 370	45 801	83 052	73 433

(1) Some totals may not add due to rounding.

(2) Working owners included.

Source: Small For-hire Carriers and Owner-operators Survey

3.2 Operating expenses

A number of factors are known to influence the viability of an owner-operator's business, particularly variable costs such as fuel, maintenance costs, interest rates and administrative expenses. Beyond the maintenance and depreciation of their trucks and equipment which alone account for 26% of their expenses, owner-operators must budget for their insurance, rent, meals and other administrative expenses. Fuel expenses, in particular, accounted for about 13% of the total operating costs that owner-operators incurred in 1997 and it has been determined that even the smallest price increase can have an impact on a carrier's viability (Smyrlis, 1999) (see Table 1 and Table 2). Given these fixed and variable costs as well as the highly competitive nature of the trucking industry, owner-operators are known to be under substantial pressures to maintain consistent and frequent operation of their vehicles and equipment (Binkley, 1998). Independent truckers in the SFO survey averaged 146 000 kilometres of driving and consumed about 68 000 litres of fuel in 1997. Beyond driving, they may also spend a good part of each day completing a number of non-driving activities such as loading and unloading freight, clearing customs at border crossings (Johnson, 1999) and fulfilling administrative requirements (accounting, log books, permits etc.). As a result, owner-operators typically worked an average of 52.3 hours per week in 1998, longer than the average weekly hours estimated for for-hire company drivers (49.7) and other workers in the paid labour force (36.7) (Bess, 1999).

3.3 Demographic differences - owner-operators and company drivers

A simple maximum likelihood (logit) estimation model of the odds of a driver being a wage-earner or self-employed reveals that a number of demographic and household characteristics also distinguish owner-operators from company

drivers (see Table 3).⁴ Similar to other studies, the model confirmed that owner-operators tend to be older and less likely to have completed post-secondary training after controlling for other factors such as their location of residence, number of dependent children at home, health and stress level (CTHRC, 1998). The odds of a trucker over the age of 40 being self-employed were six to seven times higher than drivers under age 25. Data from the monthly Labour Force Survey (LFS) indicate that two-thirds of independent truckers are over age 40 compared to one-half of for-hire company drivers and drivers employed by private carriers. However, in terms of education, the odds of a driver being self-employed were twice as high among drivers who had less than a high school education (no high school diploma) compared to those who had completed high school, college or university. The larger LFS sample estimates that only 43% of owner-operators completed high school or post-secondary training, compared to 61% of for-hire company drivers and 56% of drivers in private trucking.

Unlike company drivers, the analysis also found that self-employed drivers tend to have another major income earner to rely on in the household (Bess, 1999).⁵ Drivers who were the major income earner in the household had lower odds (0.4) of being self-employed than drivers who had a household member who also made major financial contributions to the running of the household. However, the model determined that whether a driver had dependent children living at home was not a significant factor.

SLID asked individuals to assess and report the level of work-life stress they feel they experienced during 1997. The responses were coded as either “Very stressful”, “Somewhat stressful”, “Not very stressful” or “Not at all stressful”. Among these four categories, almost seven out of every ten drivers (69%) reported that they felt that their work and personal lives were very to somewhat stressful. However, owner-operators were far more likely than any other type of driver to report feeling stressed given their age, health, education, status as the household income earner and location of residence. The results showed that 80% of owner-operators felt very to somewhat stressed compared to 66% of company drivers. In this context, the odds of being self-employed among drivers feeling “very to somewhat stressed” were twice as high as drivers feeling little to no work-personal life stress (see Table 3).

3.4 Net Incomes and Earnings

The analysis also confirmed that the long hours and long distances travelled by owner-operators do not necessarily translate into incomes that are competitive with the earnings of drivers employed by carriers. Despite the long hours owner-operators were working in 1997, about 62% of owner-operators brought home total earnings under \$20,000 before taxes in 1997.⁶ The 1997 SLID data show that self-employed truckers earned an average of \$18,300 in “total money income” which included taxable income as well as non-taxable items such as Worker’s Compensation and social assistance.⁷ The total money income of these drivers was also found to be substantially lower than self-employed individuals in manufacturing, trades, transport and primary industries (\$22,500) and company drivers working for for-hire carriers (\$33,000) and private carriers (\$32,600). A similar distribution existed for the after-tax income of drivers.⁸

⁴ Logistic analysis or “logistic regression” is a form of statistical modelling that is used most often for categorical outcome variables. It describes the relationship between a categorical response (typically dichotomous) and a set of explanatory variables that are typically categorical.

⁵ About 75% of company drivers were the major income earner in their household during 1997 compared to 63% of owner-operators.

⁶ Total earnings are equal to the sum of wages and salaries and net self-employment income. Wages and salaries refer to earnings from all paid worker jobs held during the year. Also included are the earnings of owners of incorporated businesses.

⁷ Total money income excludes capital gains and RRSP withdrawals.

⁸ After-tax income is the total money income minus taxes payable.

Table 3 – Logistic analysis of driver class of worker

Variable	Odds of driver self-employment
Current age	
<i>Under 25</i>	<i>1.0</i>
25 to 39	3.5+
40 to 54	5.7+
55+	7.0++
Educational Attainment	
Elementary/some high school only—not a high school grad.	1.9+
<i>Graduated from high school, college or university</i>	<i>1.0</i>
Household income earners	
Was major income earner in household	0.4+
<i>Driver was not major income earner in household</i>	<i>1.0</i>
Region of residence	
Atlantic	0.4
Quebec	0.9
Ontario	1.4
<i>Prairies</i>	<i>1.0</i>
British Columbia	2.0+
Size of area of residence	
Under 30,000 people or rural	1.5+
<i>Over 30,000 people</i>	<i>1.0</i>
Work-life stress	
Very to somewhat stressful	2.1+
<i>Little to no stress</i>	<i>1.0</i>
Self-rated Health	
Excellent to very good health	1.9
Good health	0.6
<i>Fair to poor health</i>	<i>1.0</i>
+ Statistically significant at 0.05. ++ Statistically significant at 0.001.	

Note: Reference group shown in italics. An odds ratio close to 1.0 for the comparison group means that there is little or no difference between drivers in the comparison group and the reference group, when the effects of other factors shown in the table are controlled for.

Source: Statistics Canada, 1997 Survey of Labour and Income Dynamics

Table 4. Total money-income and after-tax driver earnings by class of worker. Canada – 1997

	Self-employed		Employees	
	Other Trades Labourers	Owner Operators*	For-hire truck drivers	Drivers Private trucking
<i>Number ('000)</i>	707	49	91	109
<i>Total money income (taxable/ non-taxable)</i>				
Average	22,500	18300*	33,000	32,600
Median	18,000	18300*	32,000	31,900
Standard Deviation	27,600	14200*	12,800	17,180
<i>After tax income</i>				
Average	18,600	16000*	26,800	26,230
Median	16,100	17000*	26,300	26,160
Standard Deviation	18,600	12100*	9,200	12,700
*Note: Owner operator estimates have a c.v. of 22% and should be used with caution. See Data sources. - Other Trades and Labourers include self-employed in manufacturing transport primary industries.				

Source: 1997 Survey of Labour and Income Dynamics

With a data quality c.v. of 15.8% at the Canada level, the SLID data estimated that about eight in ten (79%) of all independent truckers earned less than \$20,000 after-tax in 1997.⁹ At an average of \$16,000, the after-tax earnings of self-employed truck drivers was only 60% of the net earnings of for-hire drivers (see Table 4).

4.0 Conclusion

The purpose of this study was to present a socio-economic profile of owner-operators and to illustrate the potential applications of surveys such as Statistics Canada's Survey of Labour and Income Dynamics and the Small for-hire Carriers and Owner-operator Survey. By utilizing data sources such as these, researchers and policy makers can enhance their understanding of the self-employed driver population, such as their incomes, work patterns and demographic characteristics. Although many drivers may become owner-operators to gain independence, the analysis confirmed that they work longer hours to meet fixed and variable costs, in return for lower after-tax earnings and a greater likelihood of high work-life stress. The analysis also found that the odds of self-employment among truckers were highest among drivers over 40 years of age with no post-secondary training.

APPENDIX

Data Sources

The data analyzed in this study were derived from 1998 monthly Labour Force Survey estimates, the 1997 annual Small For-hire Carriers and Owner-operator Survey and the 1997 Survey of Labour and Income Dynamics. Unless otherwise noted, the occupation considered here is truck driver (code H711), defined in accordance with the 1991 Standard Occupational Classification (SOC 1991), which excludes delivery drivers, fire-fighters, snowplows, road oilers, waste and public works maintenance equipment operators. The advantage of the 1991 SOC is its

⁹ A *coefficient of variation* is an indicator of the magnitude of sampling variability or reliability associated with an estimate. In general, the higher the CV for a given estimate, the higher the degree of sampling variability and lower level of reliability. See Appendix – Survey of Labour and Income Dynamics Design and Data Quality.

representative coverage of the job characteristics of truck drivers in the trucking industry. Persons employed in this occupation are primarily concerned with operating trucks to transport goods and materials over urban, interurban, provincial or international routes.

Quarterly Motor Carriers of Freight and Small For-hire and Owner-operators Survey

Statistics Canada's Quarterly Motor Carriers of Freight Survey sampled between 713 and 756 companies during each quarter of 1998 with \$1 million or more in annual operating revenues, representing approximately 2,300 companies. Smaller companies are covered in the 1997 reference year survey of Small For-hire Carriers and Owner-operators, which collected operating and financial data from 7,745 companies with annual revenues between \$30 thousand and \$1 million across all provinces and territories (excluding couriers and messengers). The financial data from the survey of Small For-hire Carriers and Owner-operators was compiled from a sample of Revenue Canada's T1 records of unincorporated firms' tax files and T2 records of incorporated firms' tax files. Other types of data (such as activity, area of operation, employment, equipment, fuel and distance) were collected through a computer-assisted telephone interview (CATI).

Survey of Labour and Income Dynamics Design and Data Quality

The Survey of Labour and Income Dynamics (SLID) is a longitudinal household survey designed to detail labour market activity and income information for both self-employed and wage earning employees over time. Individuals selected for the survey are interviewed once or twice per year for six years to collect information about their labour market experiences, income and family circumstances. The target population for SLID is all persons living in Canada, excluding people in the Yukon, Nunavut, Northwest Territories, residents of institutions, persons living on Reserves, and full-time members of the Canadian Armed Forces living in barracks. Based on a sample of 15,000 households (or 36,000 individuals aged 16 and over) drawn from the LFS, a number of SLID variables and output including hours worked are known to be consistent with the results from the LFS (Bartman and Garneau, 1998).

Although SLID is designed for longitudinal studies, it offers a broad range of labour and income variables that can be used in cross-sectional or annual studies. The data on truck drivers analyzed in this study are based upon a 1997 sample of 740 drivers, consisting of 118 self-employed truck drivers, 291 truck drivers employed in for-hire trucking (North American Industrial Classification – 484) and 331 wage earning drivers employed outside of for-hire trucking. Given that SLID is a sample survey covering many occupations, industries and themes, the *coefficient of variation* is a useful indicator of the magnitude of sampling variability or reliability associated with SLID estimates. The coefficient of variation is a ratio computed as the standard error of a sample estimate expressed as a percentage of the estimate itself. A coefficient of variation or a "CV" is largely a product of factors such as the total survey sample size, sub-population characteristics, level of non-response, sampling designs, level of geography and whether an estimate is a simple population count or percentage, difference or ratio of population sub-groups. In general, the higher the CV for a given estimate, the higher the degree of sampling variability and lower level of reliability. The 1997 SLID Micro-data Users Guide specifies two acceptable ranges or standards of coefficient of variation: 0 .0 to 16.5% and 16.6 to 25.5% (see Table 5). All estimates of for-hire and private company drivers (paid workers) detailed in this study have a CV of 16.5% or lower. However, certain estimates for the self-employed are prone to higher levels of sampling variability, up to 22.2% in the case of estimates based on the population count for owner-operators (49,000). All estimates with over 16.6% CV are footnoted in this paper.

Table 5 – Indicators of Sampling Variability, SLID 1997

Approximate coefficient of variation (%)	Restriction on use
0.0 – 16.5	Estimates can be considered for general unrestricted release.
16.6 – 25.0	Estimates can be considered for general unrestricted release but should be accompanied by a warning cautioning users of the high sampling variability associated with the estimates.
25.1 – 33.3	Estimates can be considered for general unrestricted release only when exact coefficients of variations have been calculated and are found to be acceptable. Otherwise, such estimates should not be used or released.
33.4 or greater	Estimates should not be used or released under any circumstances.

Labour Force Survey

Much of the employed/self-employed hours of work and employed driver earnings (excluding self-employed) estimates detailed in this study are based on data from Statistics Canada's Labour Force Survey (LFS). The LFS is a monthly household survey of a sample of about 53,000 households representative of the civilian, non-institutionalized population 15 years or older in the 10 provinces. Excluded are residents of the Yukon, Northwest Territories and Nunavut, as well as persons living on Indian reserves, full-time members of the Canadian Armed Forces and inmates of institutions. The estimates of the entire truck driver population are based primarily on LFS data collected from an average of 1,100 respondents during each month of 1998 representing 230,000 drivers. About 630 of these respondents were truck drivers working in NAICS industry 484 – Truck Transportation - for-hire trucking.

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