NEW YORK STATE TON-MILE TAX ANALYSIS:
ESTIMATION OF UNTAXED COMMERCIAL VEHICLE MILES TRAVELLED

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INTRODUCTION

In most cases, the application and consideration of "tax policy" is typically analyzed using criteria such as equity, tax collection complexity/transparency, and cost-benefit outcomes of tax policy. By applying such criteria to an analysis of New York State's Ton-Mile Tax (TMT), a strong case can be made for implementing alternative commercial motor vehicle tax policies within the state.

The New York TMT, which ostensibly affects nearly all trucking firms that operate within the State of New York, is a transportation tax based on a calculated relationship between truck weights (gross or unloaded) and distances moved by trucks on nearly all New York roadways. While the concept of a TMT policy might, in theory, be fair, simple and revenue-positive, the TMT in practice possesses attributes that are often described as highly complex and inefficient, leading avoidance and evasion. The ultimate consequence is likely a reduction in needed transportation revenue.

The following analysis of New York's TMT policy focuses on a simplified estimate of tax revenue that would be captured under the tax if vehicle evasion and/or diversion did not exist; essentially, this paper is an estimate of what New York *should* be collecting. As a whole, this paper addresses numerous aspects of the TMT, including findings of prior TMT research, the methodology used for determining estimates of tax liability and evasion/diversion rates, the results of alternative revenue estimate calculations, and a final discussion of the causes and consequences of TMT avoidance by commercial motor vehicles.

BACKGROUND

New York is one of four states in the U.S. that continues to utilize a weight-distance tax, also known as a ton-mile tax. Among the states with such a tax, New York is unique in that trucks traveling across densely populated New England states must travel across short roadway segments within the State. New York also contains the largest city in the U.S., major freight generators, and several border crossing areas between the U.S. and Canada. Trucks based in states other than New York, and even trucks from other countries, traverse New York borders on a regular basis, and often for short distances[1]. These same trucks are required to comply with several administrative tasks and pay New York weight-distance taxes for travel across relatively short distances. Because TMT evasion in New York often involves low risk (difficult

[1] Delivering goods to New York City from the State of New Jersey may involve only short driving distances within New York State. Likewise, driving from I-287 in New Jersey to I-95 in Connecticut is little more than 30 miles. Finally, a trip from Fort Lee, NJ to Connecticut involves slightly more than 20 miles of New York driving.

enforcement), and many benefits (such as avoidance of administrative costs) it is likely that many trucking companies and owner-operators opt not to report travel within the State.

Two separate reports produced in 1998 highlight the complexity of New York State's ton-mile tax policy and the high instance of TMT evasion[2]. The WEFA studies estimated a value for TMT revenue evasion based on a two-pronged methodology, which is described briefly below:

- Method One: A determination of the rate of evasion based on failure to display TMT decals.
- Method Two: An estimation of under-reported mileage based on federal statistics.

The findings of the more recent study are highlighted as follows:

"The net effect of these assumptions is that the "true" tax liability falls to $197.6 million, of which failure to purchase stickers results in evasion of $48.2 million (24.3 percent). As above, this implies that the failure to collect the total of $149.3 million from those with stickers is the result of underestimating mileage, or evasion, at a rate of 11 percent. While in each case these rates of evasion are lower, ***overall they imply evasion of 32.7 percent*** *– roughly one-third – of all ton-mile tax liability."*

METHODOLOGY

Since ton-mile tax stickers are no longer required by the State of New York, WEFA's two-pronged approach could not be replicated in this analysis. Alternatively, ATRI developed a unique methodological strategy that utilizes information from multiple publicly available datasets – such as FHWA's New York commercial Vehicle Miles Traveled (VMT) estimates – to determine the following:

- Estimated Actual TMT Liability
- Estimated Total Revenue Not Captured by NY State
- Estimated Rate of TMT Evasion

There are two general methods for calculating the TMT using Schedule 1 tax rates: the Gross Weight Method and the Unloaded Weight Method[3] (see Appendix One). While both methods are comparable with regard to the overall cost to trucking enterprises, the Unloaded Weight Method is more widely used because reporting is less complex. Due to design and compatibility

[2] The two studies are as follows:

1) Holtz-Eakin, Douglas. *Improving the Competitiveness of New York State: The Economic Impact of the Ton-Mile Tax.* Prepared for New York State Motor Truck Association by Wharton Econometric Forecasting Associates. New York, February 1998.
2) Holtz-Eakin, Douglas. *The New York State Ton-Mile Tax: Evasion Analysis and Economic Implications.* Syracuse University, December 1998.

[3] Schedule 1 (of 2) is used by the majority of those who pay the TMT. Schedule 2, which also has gross and unloaded methods, was not included in this study because it applies only to certain transporters of logs, pulp, woodchips and raw milk products, the VMT for which could not be identified.

issues with federal databases, however, the Gross Weight Method was utilized in this analysis. For that reason, Table 1 of Schedule 1 was selected as the primary basis of this analysis.

The Gross Weight Method of calculating TMT impacts (as seen in Table 1, Appendix One) includes dramatic gradients, with an increasingly greater tax rate for each 2,000 lb increment. above 18,000 lbs of gross vehicle weight (GVW). To determine the estimated tax liability of all commercial VMTs that occur in New York, each graduated range from Table 1 was associated with a VMT-by-gross weight range that would generally fall into the Table 1 categories. These numbers, as shown in Appendix Two, were derived from the cross-referencing of VMTs by gross weight statistics found in the federal *Vehicle Inventory and Use Survey* (VIUS)[4].

The VIUS, which is a program managed by the U.S. Census Bureau, excludes the New York TMT. Much like the national population census, the VIUS attempts to gather information about trucks registered in the United States which might be useful for research or policy development. Instead of making an effort to gather information from the registrant of every individual truck in the U.S., the VIUS uses a sample method stratified by geography and truck type to collect information[5].

To align these VIUS weight categories with those used by the Table 1 tax rate, it was assumed that VMTs within the larger VIUS ranges were evenly distributed across the narrower Table 1 ranges. For example, the 204.8 million miles summation that VIUS reports for the gross weight range of 50,001 to 60,000 lbs. was converted to 40.96 million VMT for each 2,000 lb weight range between 50,000 to 60,000 in Chart One.

TMT Table 1 -

VIUS GVW	Total VIUS VMT for VIUS GVW Range (millions)	NY TMT GVW Range	NY TMT VMT (millions)
50,001 – 60,000	204.8	50,001 – 52,000	40.96
		52,001 – 54,000	40.96
		54,001 – 56,000	40.96
		56,001 – 58,000	40.96
		58,001 – 60,000	40.96

The next step in the analysis involved determining the percentage of total truck VMTs represented by the miles traveled in each Table 1 weight category. To capture this information,

[4] *U.S. Census Bureau, Service Sector Statistics Division, Transportation Characteristics Branch 2002.* http://www.census.gov/prod/ec02/ec02tv-ny.pdf Page 47.

[5] The 50 U.S. states and district of Columbia represent the 51 geographic regions used for stratification, with 5 vehicle types: 1) pickups; 2) minivans, other light vans, and sport utility vehicles; 3) light single use trucks (less than 26,000 lbs.); 4) heavy single use trucks (more than 26,000 lbs.); and 5) truck tractors. This scheme produced 255 (51 geographic regions * 5 truck types) sampling strata. Within each VIUS stratum, a simple sample of truck registrations is drawn, producing a total sample of approximately 136,000 truck registrations. Selected registrants were sent surveys via mail which informed the recipient that they were legally obligated to provide accurate information and that the information would be regarded as completely confidential.

the VMTs for each Table 1 weight range were divided by the total VMTs reported by VIUS for all trucks with a gross weight between 16,000 lb. and 130,000 lbs.

The percentage of VMTs from each Table 1 weight class was then multiplied by the annual truck VMT totals from the Federal Highway Administration's Highway Statistics publication[6].

Finally, the total number of miles that trucks traveled within each of the Table 1 weight classes was multiplied by the tax rate that applies to the appropriate class. The product of this is the tax liability for each Table 1 weight class, with the sum of each weight class product representing the total ton-mile tax revenue for a given year if all vehicles paid the appropriate taxes under Schedule 1, Table 1.

The primary caveat to this approach is that the true complexity of the TMT is somewhat shadowed by limiting the analysis to Table 1 data. Those trucking companies that do report mileage in the State of New York tend to use the Unloaded Weight Method, shown in Appendix One, Tables 4 and 5. As discussed previously, however, this second method was not compatible with the Federal VIUS information. However, the net effect of relying on the Gross Weight Method is that it likely captures a more accurate portrayal of TMT revenue loss.

To ensure appropriate comparisons, the tax rates found in Table 1 form the basis of the analysis. It should be noted, however, that the tax rates found in Table 2, if used, may only act to increase the tax liability estimate as the ranges go below the Table 1 weight levels. Finally, the Table 3 tax rates mirror those found in Table 1.

A secondary caveat to this analysis is that some trucks are exempt from the TMT. As an example, truck VMTs generated on the New York Turnpike are exempt from the ton-mile tax, but are included in FHWA VMT calculations. Through a FOIA request, the New York Turnpike Authority estimated the total VMTs for commercial vehicles at 1.091 billion in 2006. The analysis contained in this paper subsequently assumes that the miles for these vehicles were evenly spread across Table 1 weight categories, and this figure was multiplied by the associated tax rates to estimate the tax liability that would be excluded from taxation due to the New York Thruway tax exemption. The Thruway tax exemption calculation resulted in an exemption estimate figure of slightly more than $35 million for 2006; as a result, an amount of $35 million was subtracted from the tax liability estimate for each of the years analyzed in this research (2002-2005)[7].

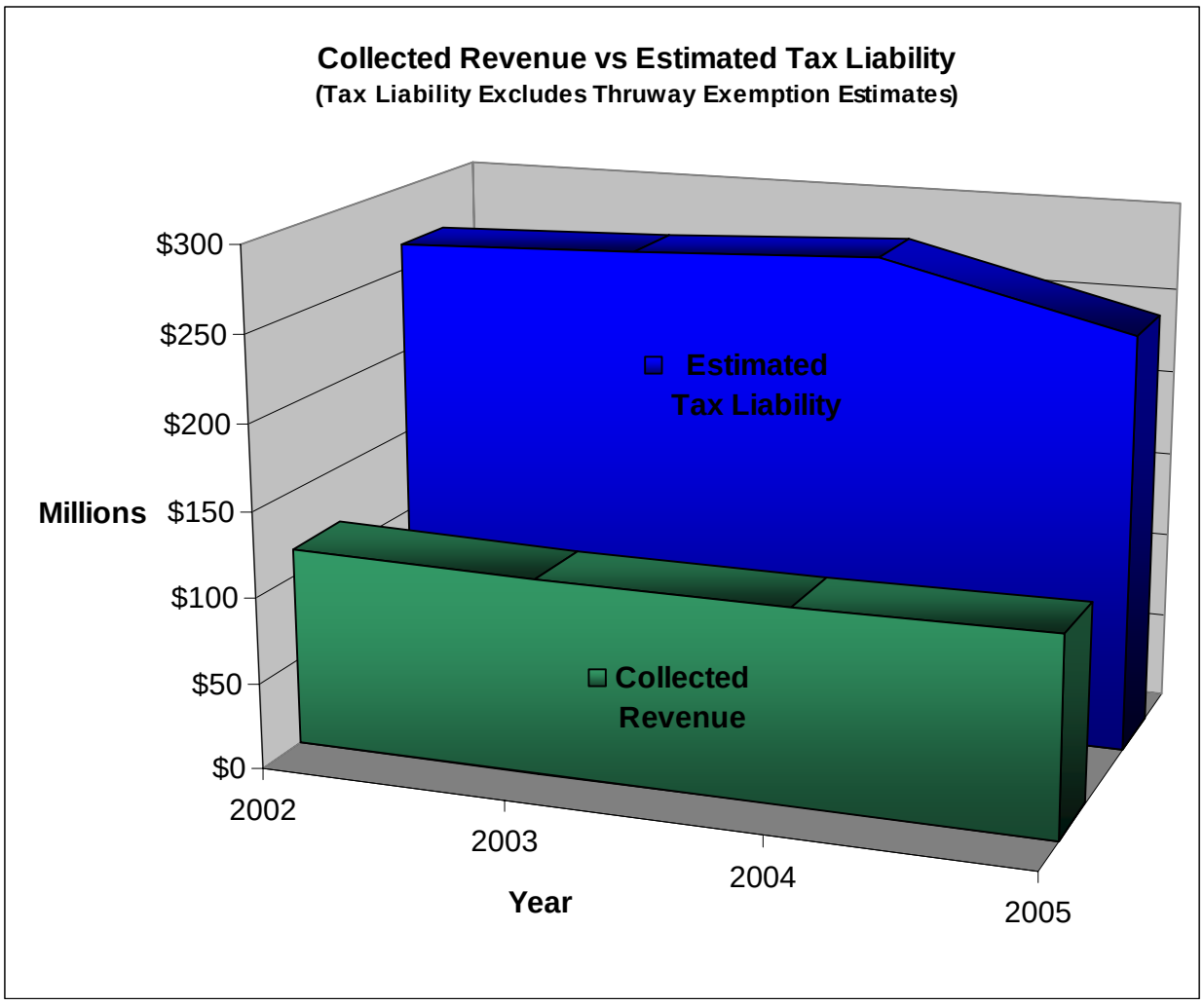
[6] FHWA Highway Statistics 2005. Table PS-1. http://www.fhwa.dot.gov/policy/ohim/hs05/htm/ps1.htm It is noted that this dataset has the advantage of providing truck VMT information by state and year up to 2005, but lacks a breakdown by gross weight.

[7] It should be noted, however, that the WEFA report estimated that only $10 million is lost to the Thruway exemption and the researchers that participated in this analysis believe that the $35 million exemption is generous, especially considering that a portion of the commercial VMT provided by the thruway likely falls below the weights at which taxation would be required.

RESULTS

Based on the outlined methodology, **it is estimated that during the years 2002 through 2005, TMT revenue was not collected for an average of 49.9 percent of all commercial VMT.** Figure 1 displays a comparison over those four years of the actual revenue collected versus the estimated tax liability.

Figure 1 -



Likewise, Figure 2 reflects the amount of revenue that could have been raised had all taxable commercial VMTs reported by FHWA been accounted for using the methodology described in this report.

Figure 2

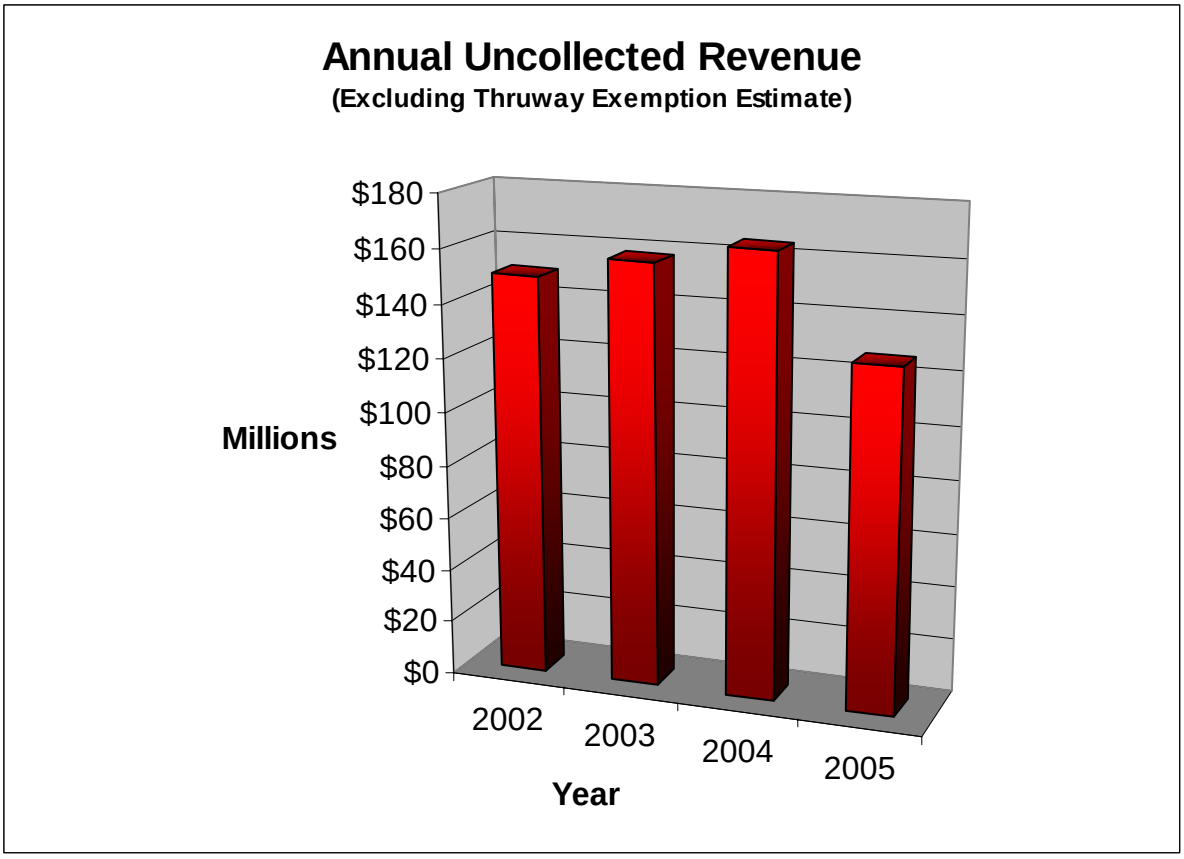
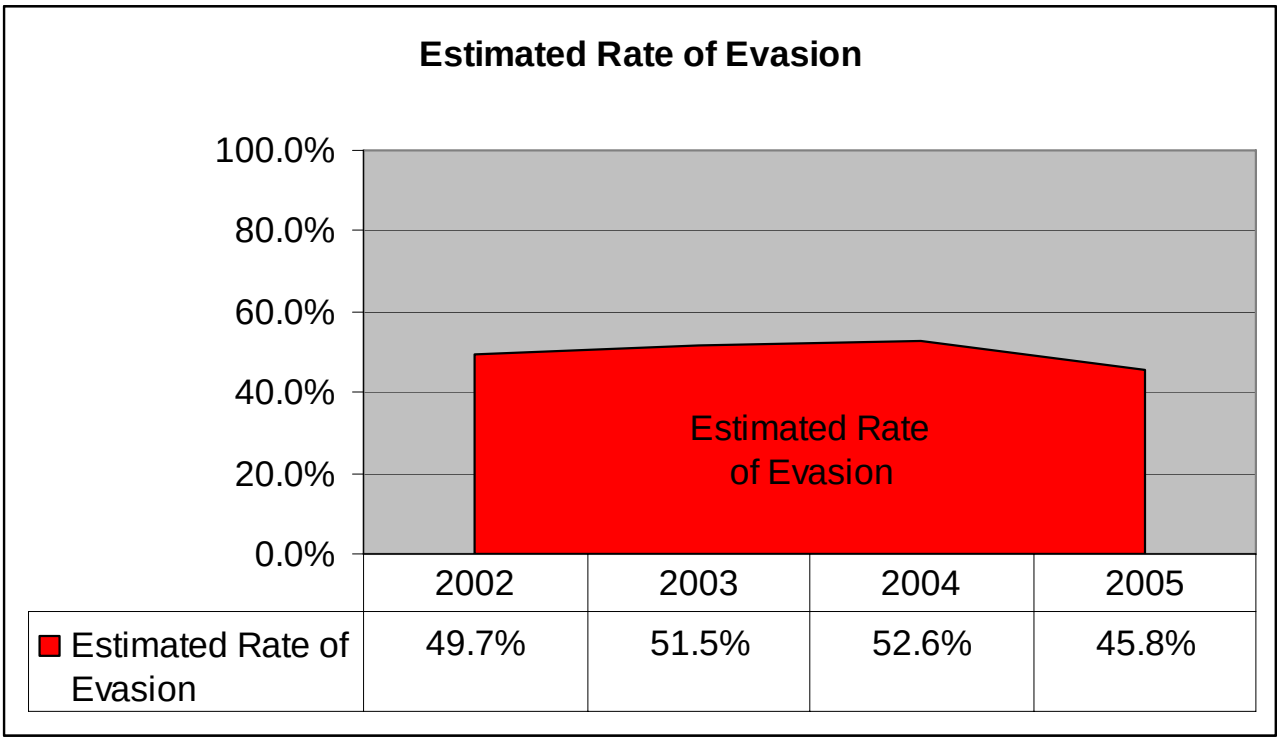


Figure 3 indicates the annual estimated loss of tax revenue, excluding travel on the New York Thruway.

Figure 3



Finally, according to the New York State Department of Taxation and Finance, an average of $114.6 million in revenue was collected annually as a result of the New York TMT during the years 2002 through 2005. If the TMT were replaced with a more efficient revenue collection program, it is likely that New York would need to collect similar revenue levels, possibly through an increase in the per gallon rate of state diesel taxes. The following analysis and table offer a revenue estimation relating to the replacement of the TMT program and requisite revenue with a state diesel tax rate increase. FHWA Highway Statistics document an average of 1.042 billion gallons of taxable highway-use diesel fuel was sold annually in New York between 2002 and 2005. An increase of 11 cents in the New York diesel tax, which would shift the rate from the current 22.9 cents per gallon to 33.9 cents per gallon, would generate an additional $114.6 million in diesel tax revenue. Therefore, such an increase would sufficiently offset the amount collected through the TMT. Additionally, the American Trucking Associations estimates that approximately 94 percent of taxable diesel sold is consumed by trucks, and therefore the majority of this burden would be borne by the trucking industry.

TMT Tabl2 2 -

Annual Diesel Consumed in NY	NY State Diesel Tax Rate	NY State Diesel Tax Revenue	NY State Ton Mileage Tax Revenue	Total Revenue
1,042,597,000	**$ 0.229**	**$ 238,754,713**	**$ 114,649,373**	**$ 353,404,086**
1,042,597,000	**$ 0.339**	**$ 353,440,383**	**$0**	**$ 353,440,383**

Sources: FHWA Highway Statistics 2002 – 2005. Tables MF121-T, MF-2; ATA Economics Dept; New York State Department of Taxation and Finance, Annual Report.

DISCUSSION

Based on this analysis, there is a basis for continuing the policy discourse on whether the New York State Ton-Mile Tax is an effective tax policy based on the prevalence and impact of revenue evasion. In general, the criteria that the TMT should be weighed against include:

***Criteria #1 - Fairness and Equity in Tax Burdens*:** Tax policy may be considered unfair and/or inequitable if there is a high instance of evasion, cheating and/or exemptions. When nearly half of potential revenues that would be collected through a tax policy are lost, there is an indication that a tax policy has failed because it is broadly deemed excessive, inequitable or both. Part of this inequity arises in the form of transportation maintenance subsidies provided by those who do pay.

In actual practice, evasion of the TMT creates a division of "haves" versus "have-not" carriers. Since deregulation of the trucking industry in the 1980s, low-barriers to entry into the trucking industry have dramatically increased the number of trucking firms, and considerably decreased carrier operating margins to lower single-digit percentages. Such a competitive operating environment increases the net value of tax evasion or tax avoidance, particularly by financially marginal carriers.

Serious societal questions arise when a governing body knowingly utilizes a tax schema that directly provides for easy evasion, and indirectly penalizes those who pay through infrastructure subsidization of those who don't pay.

Criteria #2 - Complexity of Tax Collection: Policy makers ought to consider complexity in the management programs as a measure of effectiveness and efficiency. In the case of the TMT, program complexity falls into two categories: how simple it is to determine tax burden, and how efficient it is to collect the tax. The former primarily challenges the tax payer while the latter is a component of government efficiency.

An individual firm's tax burden in the case of the TMT is not simple to determine. Trucking companies must first determine which formula to use --gross weight vs. unloaded weight for reporting travel. The *simplest* method for doing this is for a carrier to account for each mile that is traveled by each truck in the State of New York, sometimes taking the weight of cargo into consideration, and excluding mileage traveled on New York Thruway facilities. Administratively, this is far more expensive for a carrier to calculate than other forms of taxation.

While this analysis did not consider the government costs to administer the TMT, an abundance of research shows that simple fuel taxes have the lowest comparative administrative cost, thus increasing efficiency as well as the overall transportation revenue and infrastructure base. Consequently, the best indicators of tax collection efficiency are: a) the [high] percentage of revenue collected as a percentage of the revenue owed, and b) the [low] percentage of collected revenue that is not expended on program administration. Based on TMT evasion, neither of these objectives appear to be maximized by the status quo.

Criteria #3 – Costs and Benefits of Policy Outcomes: While it is unquestionably essential for government to collect revenue to pay for public services, the reaction of tax payers to specific taxing strategies cannot be ignored. Nearly all taxes impact or change the public's economic decisions and behaviors, and therefore the TMT may act to discourage commercial motor vehicles from operating in New York.

As documented, the first consequence of the TMT policy which directly affects the State of New York is **tax avoidance (**avoidance is simply a legal change in economic behavior that places a firm in the position of not having to pay a tax). While this consequence is not as problematic to the State since the vehicle is not 'damaging" the infrastructure, a large percentage of the state's administrative costs are fixed and require stable and increasing revenue. In this regard, tax avoidance can be viewed as lost revenue. . In the case of the TMT, a carrier may take one of the following actions:

1. Move operations from New York
2. Operate only outside of New York
3. When choosing where to start a business, select a state other than New York

Thus the economy of New York is, in theory, negatively impacted by the TMT because carriers chose to avoid the tax burden and administrative costs that are associated with it.

A second consequence is widespread **tax evasion**, which creates a series of cascading effects including inadequate transportation revenue streams, declining infrastructure, and inequitable and subsidized distributions of tax liability.

A final policy consequence of the TMT is the **net revenue loss and opportunity costs** associated with not implementing a more effective revenue collection tool. An example of a more efficient tax revenue source is the fuel tax, which is more difficult to evade and thus more equitably distributed. The current TMT revenues could be replaced through an increase in the fuel tax, and possibly bolstered by increased reporting of International Fuel Tax Agreement (IFTA) mileage in New York.

CONCLUSIONS AND FUTURE RESEARCH

To document and articulate the inefficiency and evasion associated with the New York State TMT, a straight-forward approach was taken to analyze a complex tax structure. With the termination of TMT stickers in January 2007, calculating the rate of evasion becomes more difficult. Nevertheless, this research suggests that there is widespread evasion and under-reporting of the New York TMT. As industry operating costs increase and competition within the industry decreases net profits, marginal carriers will increasingly rely on the relative ease of avoiding the New York Ton-Mile Tax. Neither the State nor complying carriers can long afford the large, indirect costs of the TMT.

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APPENDIX

Appendix One: MT-903 Tax Rate Gross Weight Ranges, Schedule 1.

Tax rate tables for highway use tax
Schedule 1

If *gross weight method* was checked, use Tables 1, 2, and 3. If *unloaded weight method* was checked, use Tables 4 and 5.

Gross weight method

Table 1

Laden non-Thruway miles
Tractors and trucks

Weight	Rate
18,001 to 20,000	$0.0084
20,001 to 22,000	0.0098
22,001 to 24,000	0.0112
24,001 to 26,000	0.0126
26,001 to 28,000	0.0133
28,001 to 30,000	0.0140
30,001 to 32,000	0.0147
32,001 to 34,000	0.0154
34,001 to 36,000	0.0161
36,001 to 38,000	0.0168
38,001 to 40,000	0.0175
40,001 to 42,000	0.0182
42,001 to 44,000	0.0196
44,001 to 46,000	0.0210
46,001 to 48,000	0.0224
48,001 to 50,000	0.0238
50,001 to 52,000	0.0252
52,001 to 54,000	0.0266
54,001 to 56,000	0.0280
56,001 to 58,000	0.0294
58,001 to 60,000	0.0308
60,001 to 62,000	0.0322
62,001 to 64,000	0.0336
64,001 to 66,000	0.0357
66,001 to 68,000	0.0378
68,001 to 70,000	0.0399
70,001 to 72,000	0.0420
72,001 to 74,000	0.0455
74,001 to 76,000	0.0490
76,001 to 78,000	0.0518
78,001 to 80,000	0.0546

80,001 and over add $0.0028 per ton and fraction thereof

Table 2

Unladen non-Thruway miles
Tractors (with trailers)

Weight	Rate
7,001 to 8,500	$0.0084
8,501 to 10,000	0.0098
10,001 to 12,000	0.0112
12,001 to 14,000	0.0126
14,001 to 16,000	0.0133
16,001 to 18,000	0.0140

18,001 and over add $0.0007 per ton and fraction thereof

Table 3

Unladen non-Thruway miles
Trucks (alone or with trailers)
Tractors (without trailers)

Weight	Rate
18,001 to 20,000	$0.0084
20,001 to 22,000	0.0098
22,001 to 24,000	0.0112
24,001 to 26,000	0.0126
26,001 to 28,000	0.0133
28,001 to 30,000	0.0140

30,001 and over add $0.0007 per ton and fraction thereof

Unloaded weight method

Table 4

Non-Thruway miles
Trucks

Weight	Rate
8,001 to 9,000	$0.0056
9,001 to 10,000	0.0070
10,001 to 11,000	0.0098
11,001 to 12,000	0.0112
12,001 to 13,000	0.0126
13,001 to 14,000	0.0140
14,001 to 15,000	0.0154
15,001 to 17,500	0.0168
17,501 to 20,000	0.0196
20,001 to 22,500	0.0252
22,501 to 25,000	0.0308
25,001 and over	0.0378

Table 5

Non-Thruway miles
Tractors

Weight	Rate
4,001 to 5,500	$0.0084
5,501 to 7,000	0.0140
7,001 to 8,500	0.0196
8,501 to 10,000	0.0252
10,001 to 12,000	0.0350
12,001 and over	0.0462

Appendix Two: VIUS VMT by Gross Weight Ranges

AVERAGE WEIGHT (POUNDS)	
Less than 6,001	33 155.5
6,001 to 8,500	5 249.9
8,501 to 10,000	783.3
10,001 to 14,000	431.7
14,001 to 16,000	204.1
16,001 to 19,500	209.9
19,501 to 26,000	291.9
26,001 to 33,000	248.6
33,001 to 40,000	115.1
40,001 to 50,000	151.7
50,001 to 60,000	204.8
60,001 to 80,000	798.1
80,001 to 100,000	122.0
100,001 to 130,000	119.6
130,001 or more	S