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**SAFETY FITNESS DETERMINATIONS:
WHAT IS FMCSA MEASURING?
Big Data and Regulatory “Improv” are Drowning Due Process¹(Endnotes)**

**Mark J. Andrews
Clark Hill Strasburger**

INTRODUCTION

This article reports on a topic assigned to a recent legal conference panel that discussed safety fitness determinations for motor carriers. The assigned topic, focused on safety fitness determinations, big data, and due process; begs the question of whether the Federal Motor Carrier Safety Administration (FMCSA or the Agency) is measuring anything that’s really relevant to the “safety” or “fitness” of a motor carrier of passengers or property to operate on the Nation’s highways. Even if FMCSA *thinks* it is measuring safety or fitness, the more important question is whether those measurements are accurate or fair. I submit that the successive efforts of FMCSA and its predecessor agencies to measure safety and fitness based on mass quantities of roadside inspection data are incapable of either accuracy or fairness. This is true of the methodology known as Compliance, Safety, Responsibility (CSR) and was true of its SAFESTAT predecessor before 2010. The same will be true if FMCSA ever tries to implement the recommendations of the National Academies of Sciences (NAS) for vastly expanded data collection as envisioned in the Item Response Theory (IRT).

Those three methodologies share the following flaws:

- the “big data” gathered is “bad data” for comparison purposes, because of the patchwork of performance standards used by law enforcement in 50 States;
- this “big data” is paradoxically not “big enough” due to the small sample sizes typically gathered for small carriers; and
- FMCSA has no track record of consistency or competence in managing and analyzing “big data” as part of its current programs, let alone in handling the mathematical complexities that would be inherent in IRT analysis.

The Agency’s history of data mismanagement has been well-documented in the context of the Safety Measurement System (SMS) developed under CSA. But if we look beyond past history with SMS, the same problems threaten to cripple the Agency’s future response to other regulatory issues in the supply chain. FMCSA is still struggling with the basic task of writing computer code to support the Unified Registration System (URS) it unveiled as a “final rule” in 2013. It has yet to comply with literally dozens of mandates under the Fixing America’s Surface Transportation Act, Pub.L. 114-94 (FAST Act) for procedural reform in areas that include but are not limited to SMS. Thus it is ill-equipped to analyze emerging regulatory issues ranging from crash preventability to the safety of “last mile” delivery operators. Instead, the Agency too often flounders from one issue to the next, substituting evanescent “guidance” for predictable rules. These issues of poor data quality, small sample sizes, data mismanagement, institutional “innumeracy” (look it up) and regulatory improvisation pose existential threats to administrative due process, as will be developed in more detail below.

ANALYSIS OF THE ISSUE

Big Data ≠ Good Data

By now an ample body of evidence has been presented to FMCSA, to the United States Department of Transportation (USDOT) and to Congress regarding the defects of SAFESTAT and SMS methodology.² This evidence comes from federal watchdog agencies, from academic studies and even from NAS in its review of SMS under the FAST Act. The major shortcomings of roadside inspections as a surrogate for safety fitness are detailed in [Attachment 1](#).

Those shortcomings include:

- State by state disparities in safety enforcement policies mean that SMS scores largely depend on

where a carrier operates, not on the inherent safety of those operations.

- The Governmental Accountability Office (GAO) has stated that the roadside inspections undergone by small motor carriers typically fail to yield sufficient sample sizes to reflect the overall safety of such fleets over time.
- The “law of large numbers” ensures that an occasional bad inspection will cause much more severe fluctuations in the SMS score for a small fleet than for a larger one.
- The impact of a bad inspection is magnified by widespread under-reporting of “clean” inspections.
- The Agency’s 800-plus “enhancements” of SMS methodology since its launch in 2010 detract from the predictability and usefulness of its performance standards, and have ignored established procedures for due process in rulemaking.
- Most importantly, the percentile scores generated by SMS from roadside inspection data fail to predict the actual crash history of individual motor carriers. Numerous crash-free carriers within the artificial peer groupings created under SMS suffer from guilt by association due to “averaging of averages” with regard to aggregate performance levels.

Bigger Data ≠ Better Data

Although the NAS report recognizes many of the SMS statistical problems described above, its proposed solution is essentially “more of the same.” The proposed IRT model would vastly expand the amount, type and complexity of data gathered from motor carriers, to include competitively sensitive data such as method and amount of compensation, type of cargo transported, and driver turnover. The additional costs of gathering and analyzing such additional data are likely to be compounded by industry resistance to providing it in the first place.

In addition, fundamental legal issues are raised by two recommendations in the NAS Report (at p.5), to the effect that an IRT model should “allow for the addition of new safety measures as they become available,

without having to start from scratch” and should “adapt to changes in safety over time.” These recommendations would exacerbate the worst feature of SMS from a due-process standpoint – the constantly moving targets resulting from its endless “enhancements” of the scoring system. With or without the IRT overlay, SMS cannot become the basis for definitive safety fitness determinations as long as its criteria are subject to constant revision without prior notice and opportunity for comment. While it may be understandable that the statisticians authoring the NAS report were not aware of the due process requirements for making and changing rules under the Administrative Procedure Act, FMCSA has no such excuse.

Can FMCSA Handle Big Data?

When FMCSA requested public comments on the NAS report last year, it targeted a December 2017 release date for a “Corrective Action Plan” in response to NAS. At this writing in April 2018, we’re still waiting – but this observer is not surprised. With due respect and regret, it must be said that FMCSA is barely able to maintain the data bases and IT systems supporting its current activities, let alone address the complexities or IRT.

The five-year debacle that is URS already has been mentioned. Last summer, two federal watchdogs renewed their criticisms of data management by FMCSA. The USDOT Inspector General stated in Report No. ST2017065 (July 25, 2017) that the Agency needed “to address its quality assurance processes and compliance review data limitations.” Similarly, a GAO report (No. GAO-17-488, July 13, 2017) called on FMCSA to modernize legacy IT systems, including development of “well-defined goals, strategies, measures and timelines.” More recently, the Agency’s online registry of certified medical examiners for drivers was hacked on December 1, 2017 and remained out of service more than three months later (Transport Topics, March 19, 2018, pp. 1, 47). Perhaps it is time for FMCSA to borrow IT staff from sister agencies such as the Bureau of Transportation Statistics in order to upgrade its data management.

The above background casts serious doubt on the feasibility of implementing the abstruse IRT model. In all likelihood, that model would turn out to be an even costlier and more data-intensive version of SMS. Considering that SMS is still riddled with statistical, logical and legal defects after eight years of “enhancements,” adding an IRT overlay would amount to throwing good money after bad. Isn’t it time for FMCSA to consider alternative ways of fulfilling the statutory mandate (see 49 U.S.C. § 31144(a)) that actual safety fitness determinations be assigned to all 532,000 truck and bus fleets it regulates? One such alternative would be to expand desktop audits, now used by FMCSA for “new entrant” carriers, into a fee-based program linked to the periodic MCS-150 updates now required for all fleets. Details of this proposal, including follow-up site visits as warranted, have been spelled out for FMCSA in comments repeatedly filed for coalitions represented by myself and my co-panelist Hank Seaton, whose contributions to the analysis underlying this paper have been significant and are valued by the author.

CONCLUSION: BEYOND SMS, NAS, IRT AND THE FAST ACT

FMCSA’s unfinished business under the FAST Act is not limited to dealing with the NAS report. Wholly aside from the FAST Act mandates still facing FMCSA with regard to safety fitness issues and administrative procedures generally, the industry is facing many other regulatory challenges necessitating improved IT and data management at FMCSA. These issues include:

- Misuse of flawed SMS data by the plaintiffs’ bar in accident cases.
- Crash “preventability” determinations in FMCSA mini-trials.
- How to regulate the safety of “last mile” deliveries, especially in vehicles too small for coverage under FMCSA safety regulations.
- How the hours-of-service regulations in 49 C.F.R. Part 395 might be adapted to take account of emerging research on fatigue management.

- Whether and how to modify Part 395 in view of the increasing economic toll of vehicle detention and the onset of electronic logging.
- Whether the emerging issue of salvage for food shipments should be jointly addressed by FMCSA and the Food & Drug Administration (FDA), in view of shipper claims that the “actual loss” standards of the Carmack Amendment (49 U.S.C. § 14706) are changed by “adulteration” provisions in new FDA regulations on sanitary food transportation (21 C.F.R. Part 1).
- And finally, how to reform FMCSA procedures to allow independent administrative review of safety fitness determinations to at least the extent now available for civil penalties with less severe commercial impacts.

Attachment 1:

Excerpt from Comments of MCRR Coalition in Docket FMCSA-2017-0226

¹ Editor’s Note

– This article is written in a law review style and advocates a particular position as is common in law review articles. The article has been formatted for the journal’s style but the references are not in JTM’s typical style. The Journal does not take a position on the points made by the author.

(Footnotes)

¹ See, e.g., comments filed with FMCSA on September 27, 2017 by a coalition (for which your author and co-panelist Hank Seaton served as counsel) in response to the NAS study of SMS. A full copy of that filing can be viewed at <https://www.regulations.gov/document?D=FMCSA-2017-0226-0014>. An excerpt from it is reproduced in Attachment 1 to this paper.

BIOGRAPHY

Mark J. has practiced law in Washington, D.C. since his admission to the District of Columbia bar in 1970. He became the Partner-in-Charge for the Washington, D.C. office of Dallas-based Strasburger & Price, LLP when that office was opened on October 1, 2001, and recently became a Member of Clark Hill PLC when that law firm and the Strasburger firm completed a combination. Among other things, Mark assists clients in resolving conflicts between U.S. federal and state laws; complying with U.S. federal licensing and safety rules for surface, air and ocean carriers; obtaining regulatory clearances for transportation mergers and acquisitions, and drafting and negotiating complex agreements for management of U.S. domestic and international supply chains. A holder of undergraduate and law degrees from Harvard University, Mark is a past co-chair of the International Transportation Committee within the American Bar Association's Section of International Law, a past President of the Transportation Lawyers Association, a recipient of that association's Lifetime Achievement Award, and an elected member of the American Law Institute. E-Mail: Andrews (mark.andrews@clarkhillstrasburger.com)

ATTACHMENT

BEFORE THE FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION WASHINGTON, D.C.

Docket No. FMCSA-2017-0226

Fixing America's Surface Transportation Act Correlation Study

COMMENTS AND AFFIDAVITS OF THE MOTOR CARRIER REGULATORY REFORM (MCRR) COALITION, INCLUDING

Air & Expedited Motor Carrier Association (AEMCA)

Alliance for Safe, Efficient and Competitive Truck Transportation (ASECTT)

American Home Furnishings Alliance (AHFA) / Specialized Furniture Carriers

Apex Capital Corp.

Auto Haulers Association of America (AHAA)

National Association of Small Trucking Companies (NASTC)

Tennessee Motor Coach Association (TMCA)

The Expedite Alliance of North America (TEANA)

Transportation and Logistics Council (TLC)

Transportation Loss Prevention & Security Association (TLP&SA)

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Date Due and Filed: September 27, 2017

IV. Responses to Federal Register notice

In the following discussion, Commenters will address the NAS recommendations set out in the Agency's August 28 Federal Register notice. In doing so, Commenters will point out that no corrective action plan can be confined to these recommendations in light of the analysis of the FAST Act and the limitations of the systemically flawed SMS.

A. Recommendation 1 – Item Response Theory Model

Systemic flaws that undermine SMS methodology would plague *any* statistical model based on the same data – even the NAS panel’s proposed IRT approach

After spending 10 years in its development, FMCSA has made more than 800 changes to its safety weighting procedures and its convoluted algorithms in an effort to “improve” the accuracy of its system. Yet the Agency has failed to address systemic flaws that Commenters have consistently presented but that have been ignored.

The NAS Report expresses a belief that introducing more types of data and using a more rigorous mathematical formula to interpret and normalize the data will result in more accurate and reliable scoring among the carriers than is currently available under SMS. In particular, Chapter 2 of the NAS Report acknowledges many current deficiencies of SMS and concedes that most of them are not readily fixed. The report fails to recognize, however, that similar flaws would pervade its proposed IRT model, which would try to predict crash risk by crunching even more gargantuan amounts of data using algorithms even more complex than those of SMS.

Although the MCRR Coalition will not explore the systemic flaws of SMS in detail at this point, we believe a brief recap is necessary to show issues not fully addressed in the NAS Report’s support of the IRT Model. As we have established in previous submissions to FMCSA¹, SMS suffers from at least seven systemic flaws:

- Insufficient data
- The law of small numbers
- Misuse of average crash rates
- Misuse of crash data
- State-by-State enforcement inconsistencies
- Peer group creep
- Profiling
- Enforcement biases

Insufficient Data

Although FMCSA has now withdrawn its misguided SFD Proposal, it bears noting that the Agency in that docket could identify a mere 262 carriers as unfit using data alone. The principal reason is that there simply isn’t enough data to establish reliable metrics on the vast majority of motor carriers.

Evidence of insufficient data is extensive, but just a few points will suffice here: Based on our analysis of the 24-month SMS snapshot for August 2017, among the 532,000 active U.S. interstate motor carriers:

- 39.6% had no inspections
- Just 7.5% had 20 or more *total* inspections – the minimum threshold of data sufficiency recommended by GAO for *individual* BASICs
- 83.7% do not have the minimum number of inspections with violations to be considered in *any* of the five public SMS BASICs even under FMCSA’s inadequate data sufficiency thresholds²

The Driver Fitness and Controlled Substances/Alcohol BASICs each capture fewer than 1 percent of active U.S. motor carriers. Meanwhile, the Unsafe Driving and Hours-of-Service Compliance BASICs have seen and will continue to see major declines in data sufficiency. The Unsafe Driving BASIC suffers from the huge decline over the past decade in traffic enforcement (“TE”) inspections, which are the sole source of data for this BASIC. As seen in Figure APP-1 these inspections peaked in 2006 and have since dropped 59.6%. TE inspections are down 37.4% since the year FMCSA implemented CSA. The drop in TE inspections has leveled off, but there are no signs of a rebound.

Likewise, the growth in popularity of electronic logging among larger carriers apparently has starved the HOS Compliance BASIC of many data points previously collected at roadside, and this trend should become even more pronounced once the electronic logging device mandate is fully implemented. The ELD mandate could help correct a different systemic flaw in SMS – enforcement bias

FIGURE APP-1
TRAFFIC ENFORCEMENT INSPECTIONS
CY 2003-2005, FY 2006-2016, U.S. Carriers

Source: Program Effectiveness Report, FY 2011 and FMCSA data at A&I Online

– and of course should improve compliance with the HOS regulations. But it could also render the HOS Compliance BASIC obsolete.

Given these trends, even under FMCSA’s clearly inadequate current standards of data sufficiency, the Vehicle Maintenance BASIC – in which just 12% of carriers meet the minimum threshold – could become the only BASIC with anything remotely approaching a meaningful amount of data, albeit with a preponderance of low-value violations. (See “Enforcement biases” below.) However, applying the data sufficiency standard recommended by GAO, SMS basically disappears except, arguably, as a tool for monitoring large carriers. This is a systemic flaw that FMCSA is powerless to rectify and that would plague any statistical model.

Law of Small Numbers

The law of small numbers is in large part a function of data insufficiency. As has been widely recognized, SMS metrics become extremely volatile as the number of data points drops. This is the same phenomenon – small sample size – that leads baseball fans to pay little attention to early-season batting averages. As noted above, GAO concluded that SMS metrics could be reliable only at a higher data sufficiency standard of at least 20 observations.

Although the NAS Report does not refer explicitly to the law of small numbers, it is quite clear regarding the impact of the phenomenon. We quote the following again for emphasis:

There is no getting around the point that providing BASIC measures to carriers that have very infrequent inspections will result in highly variable assessments of such carriers. This is simply because not much is known about the frequency of violations for small carriers. Such high variance measures can result in mischaracterizing the nature of a carrier—the high variability could result in the carrier being given alerts more or less often than what would be warranted given its behavior. On the other hand, the industry is highly skewed, being comprised of a very large number of small carriers. If the data sufficiency standards were raised, a high percentage of the industry would be excluded from measurement by SMS and therefore monitoring by FMCSA. We believe that this issue should be further investigated. (NAS Report, p. 46)

But while the NAS Report recognizes the law of small numbers and acknowledges GAO's argument on data sufficiency, it basically passes the buck to FMCSA to make a policy decision and argues that the IRT model "will have some ability to reduce the variance of these measures through the use of smoothing with the measures of a carrier's peers." NAS Report, p. 46

Commenters submit that "some ability" to reduce variances is hardly a fix for this systemic flaw, which cannot be merely shrugged off given its impact on small carriers and the NAS panel's inability to identify the new data to be surveyed, let alone its quantity or its predictive accuracy.

Misuse of Average Crash Rates

A similar problem relates to how FMCSA misuses the data in formulating regulatory and enforcement policy. Our Coalition has consistently challenged the Agency's use of *average* carrier performance to make sweeping claims that do not describe the reality of *individual* carriers. We submitted the following graphs (Figure APP-2) as part of our comments filed in July 2012 in Docket No. FMCSA-2012-0074 and again in May 2016 in response to the SFD Proposal (Docket No. FMCSA-2015-0001). These graphs show FMCSA's regression of average crash rates for carriers in the Fatigued Driving (now HOS Compliance) and Unsafe Driving BASICs compared to a plot of the individual carriers' crash rates.

FIGURE APP-2
FMCSA REGRESSION OF AVERAGES – FATIGUED DRIVING PLOT OF 35,933
CARRIERS – FATIGUED DRIVING

FMCSA Regression of Averages – Unsafe Driving Plot of 35,933 Carriers – Unsafe Driving

The upshot is that SMS is not remotely predictive of individual carriers' safety performance where it matters most – i.e., crashes. As discussed earlier, this flaw lies at the very heart of what Congress wanted to address in the NAS correlation study. Both the Agency and the NAS panel have been presented with this study and have not addressed the issue. In fact, in their response to the Agency's NPRM in 2016, Commenters demonstrated this regression of averages when applied to peer group percentiles misidentified 53% of profiled carriers who had no crashes during the review period as "bad actors" warranting unfit ratings.

Crash Data

The SMS structure traditionally has depended upon counting all reported accidents without any scrubbing for "preventability," let alone for causation or – even more appropriate – for absence of carrier compliance with safety regulations resulting in causation. DataQ simply does not work since the Agency insists on publishing data under a "presumed guilty until proven innocent" basis. And it does not determine causation, nor can it at less than prohibitive cost. The light scrubbing the Agency now offers for preventability determinations – in very limited scenarios as part of its two-year pilot program – cannot possibly offer a remedy for small carriers unlucky enough to be caught up in accidents that were not their fault.

Multiple studies have shown that most fatal car-truck crashes are not the result of actions by the commercial motor vehicle driver.³ FMCSA's annual Large Truck and Bus Crash Facts publication consistently shows essentially the same breakdowns with around 84% to 86% of passenger vehicle drivers being cited for driver factors and only 26% to 35% of truck drivers cited with driver factors.⁴

Regarding crash preventability, the NAS Report is equivocal. It lists (at pp. 48-50) several factors that would complicate a proposal to set aside non-preventable crashes. On the other hand, the report acknowledges that including non-preventable crashes is potentially misleading because any carrier placed in the same situation would have crashed, meaning that the crash is simply a consequence of circumstances, not carrier or driver misdeed. "This

is an important issue, especially for small carriers, since such events can be extremely damaging, possibly putting some small carriers out of business." NAS Report, p. 48. As is evidenced elsewhere in the report, the NAS panel seems willing to shrug off the problem, and live with a system that it acknowledges is grossly unfair to small carriers.

Inconsistent Enforcement

A system that compares carriers operating under different state regimes cannot be justified, particularly when the evidence shows significant variation in enforcement prerogatives by state. For example, commenters have long demonstrated that enforcement anomalies distort any effort to normalize or compare speeding violations among carriers that operate in different areas. Consider Figure APP-3 below, which shows that Indiana – accounting for about 3% of commercial vehicle miles each year – writes up 10% of all reported commercial vehicle moving violations nationwide.⁵ Neighboring state Michigan accounts for slightly more than 5% of the moving violations but less than 2% of the miles. Among the top 10 states in moving violations, five – Indiana, Michigan, Illinois, Pennsylvania, and Ohio – are in the Great Lakes region. Carriers that operate in western states inevitably have better Unsafe Driving scores than carriers that operate in the Midwest.

Disparate enforcement also is evidenced by differences in the number of inspections. Together, Texas and California represent more than 40% of inspections conducted by state personnel, excluding federal inspections at the border. While those two states are by far the nation's largest in terms of commercial vehicle miles traveled, their share of inspections far exceeds their share of vehicle miles, which combined is about 20%.

While it is true that the high level of freight activity in these two states naturally calls for more inspections than in, say, the Plains or Mountain West, SMS methodology does not consider regional differences. For example, in 2016, Maryland ranked fifth in the number of state inspections at 3.28% of the total, but only 30th in the number of commercial vehicle

**FIGURE APP-3
MOVING VIOLATIONS BY STATE, 2016**

Source: MCMIS data via Analysis & Information Online (<http://ai.fmcsa.dot.gov>)

**FIGURE APP-4
ROADSIDE INSPECTIONS BY COUNTY, 2016**

Source: 2017 Pocket Guide to Large Truck and Bus Statistics, FMCSA

miles traveled. New Mexico is seventh in inspections but only 19th in the number of commercial vehicle miles. On the other hand, Ohio ranks fourth in commercial vehicle miles but only 13th in inspections. And Louisiana is 13th in commercial vehicle miles but 27th in inspections.

The NAS report suggests that an IRT-based model *could* help adjust for enforcement disparities.

Maybe a model *could* be created to simulate a more even distribution of enforcement activities, but the result would be just that: a model. The potentially devastating impact on carriers of relative metrics – especially if made public – is too great to be based on complex calculated projections rather than actual on-road results. Once again, the NAS Report effectively shrugs off an existential threat to small carriers who find themselves in the wrong

place at the wrong time – especially when crash causation and the law of small numbers are factored in.

Peer Group Creep

Commenters have long pointed out the distortions of SMS metrics that can result from carriers' shifts among safety event groups, especially as small carriers with volatile metrics ease into a slightly larger peer group. We are heartened, therefore, by the NAS report's recognition of this phenomenon and even somewhat encouraged by FMCSA's initial response on the topic. See 82 Fed. Reg. at 40831.

However, Commenters contend that peer group creep is a bigger problem than FMCSA concedes. We believe FMCSA's suggestion "that the methodology should be revised so that a safety event that is not a violation or a crash is not the sole reason for an increased measure or percentile" is too narrow. Even if an inspection that includes a violation kicks a carrier into a more stringent safety event group, that carrier could instantly appear significantly less safe than is justified by a single violation.

Profiling

As Commenters have shown in past proceedings, anomalous reporting results from the assignment of inspection values to carriers; the availability of weigh station bypass systems like PrePass; and a failure to report clean inspections uniformly throughout all states.

As members of the MCRR Coalition noted in response to FMCSA's SFD Proposal, the Agency's use of inspection profiling and the Inspection Selection System ("ISS") program are inherently biased against small carriers. An unwarranted "negative feedback loop" is created when the system relies primarily on past inspections to target current inspections. Inspection profiling undoubtedly explains why small carriers receive far more scrutiny than their larger brethren. Power units operated by motor carriers with 1 to 4 trucks are inspected nearly three times as often as those operated by carriers with 1,000 or more trucks.⁶

At the outset, Commenters take issue with the statement of Joseph DeLorenzo, director of the FMCSA Office of Enforcement and Compliance, at the September 8 public meeting in this docket regarding clean inspections. While DeLorenzo's comment that 40% of reported inspections do not involve a violation is factually correct, it is misleading because once again there is a wide disparity among states. California, which reports more inspections than any other state, had a clean inspection rate in 2016 of 56.2%, behind only Mississippi, Montana, West Virginia, and Alaska. On the other hand, Texas, which reports the second-largest number of inspections, had a clean inspection rate near the bottom at 26.1%. Ten states had clean inspection rates below 25%.

Moreover, the above figures are based on situations when an inspection is actually reported. Another major concern is situations when inspectors choose not to report inspections at all because no violation was unearthed in a walk-around. Analyzing this problem obviously is thorny because it involves quantifying the extent of non-existent data. However, there is data beyond extensive anecdotal reports of missing clean inspections. For example, in a survey conducted in 2016 by *Overdrive* and research firm TransAdvise, 48% of carriers reported that clean inspections are not consistently recorded in their experience.⁷

Enforcement Biases

Analysts and regulators tend to ignore the fact that the data feeding their models and databases originate with state agencies and individual inspectors. Commenters have already referred to this phenomenon in the discussion of inconsistent enforcement. For example, Midwestern states such as Indiana and Michigan have focused much of their enforcement efforts in the Unsafe Driving BASIC, while Texas and California have placed relatively more emphasis on the Vehicle Maintenance and Driver Fitness BASICs. Once again, the NAS Report (at p. 51) seems to shrug off state-by-state enforcement differences as being "not something that FMCSA can unilaterally change."

Another bias lies in the types of violations that inspectors report within individual BASICs. It is much easier to catch a driver on a reporting oversight than it is to painstakingly compare supporting documents to log grids in order to prove a false log. And it is easier to cite a vehicle for an inoperative lamp than it is to crawl under the chassis to inspect brakes caked with dirt and grease.

The effectiveness of the two most important BASICs in terms of carriers covered – Vehicle Maintenance and HOS Compliance – is undermined by a dominance of minor violations. For example, about half of the HOS Compliance violations are form and manner infractions. The Vehicle Maintenance BASIC is heavily skewed toward violations, such as inoperative marker lights, that standing alone are insufficient to signify that equipment is unfit to operate. Also, profiling of units for vehicle maintenance inspections is particularly high and prejudicial to intermodal carriers, to owner-operators that operate older equipment, and to oilfield carriers that frequently operate off-road.

If the proposed IRT model does not completely resolve the state-by-state inspection and violation distribution discrepancies, or if individual states are not forced into uniformity in inspection and data-collection methods, the same systemic flaws will continue to plague the new model. But even if those systemic flaws somehow could be resolved, no statistical model can veto or repeal the law of small numbers. The NAS Report essentially advocates an enormous investment of time and money to create a highly opaque set of algorithms that – because of these systemic flaws – at best would be only marginally more effective than SMS.

(Footnotes)

¹ Members of this coalition have explored SMS flaws exhaustively in multiple proceedings, most recently in the docket concerning the now-withdrawn SFD Proposal. See

<https://www.regulations.gov/document?D=FMCSA-2015-0001-0184>

. See also

<https://www.regulations.gov/document?D=FMCSA-2012-0074-0070>

² Although percentiles and alerts currently are withheld for property carriers, FMCSA now publishes absolute measures on these carriers, which are not subject to any data sufficiency thresholds. These measures are subject to misinterpretation and are potentially even more damaging than the relative metrics published previously.

³ For example, see

The Relative Contribution of Truck Drivers and Passenger Car Drivers to Two-Vehicle, Truck-Car Traffic Crashes

, D.F. Blower, Publication No. UMTRI-98-25, UMTRI, 1998.

⁴ For example, see the Large Truck and Bus Crash Facts 2015 at

<https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/safety/data-and-statistics/Large-Truck-and-Bus-Crash-Facts-2015.pdf>, p. 77.

⁵ A substantial number of moving violations likely go unreported to FMCSA's Motor Carrier Management Information System because of a change in SAFETEA-LU that allowed states to receive grant funds for issuing moving violation citations on motor carriers without reporting an associated inspection. Many consider this to be the principal reason for the huge drop in traffic enforcement inspections since the mid-2000s.

⁶ See the Vise affidavit in the Coalition comments on the SFD Proposal:

<https://www.regulations.gov/document?D=FMCSA-2015-0001-0184>

⁷ See [id.](#)