

Understanding the data viability and uses for underwriting commercial auto
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The commercial auto underwriting process is in a state of data shock where more information is readily (and cheaply) available than there has ever been before. At the outset, this information presents the best insight into a commercial auto operation that an underwriting outfit has ever been able to observe; however establishing the true correlation between all of the newly available sources of information proves to be difficult without a quantifiable and consistently presented dataset. The intent of this paper is to explore what data is currently available, how commercial auto underwriters are looking at this data, the implications of this information for the trucking industry, how the use of this information is going to affect the underwriting process in the next few years, as well as what is on the horizon for this segment.

Overview - Where we are

To understand the application of how the available information is used in the underwriting process we must first establish a few baseline facts upon which to build the foundation.

Transportation is historically a very touch-heavy business with regulatory filings, cancellations, vehicle and driver changes, supplemental trip endorsements and the ilk. Because of this touch-heavy nature the margins on underwriting this effectively lies in optimizing workflow and quick turn-around times. On the front-end you have motor carriers who are ineligible to operate on the roadway without insurance in place, so an applicant's primary goal is to get the insurance in place as quickly as possible so that they can begin operating. The level of sophistication for a trucking operation varies based on their size and experience, as do their insurance needs, but the practice of primarily working with trucking specialists allows an underwriter to focus on reviewing the exposures and providing the best possible terms in both form and rate to the retailer/wholesaler so that the other party may advise the insured on these matters. On the back-end you are met with a frequency in processing. Internally we estimate an average of one 'touch' per month on each of our policies for a primarily non-fleet underwriting operation.

The economic downturn affected the trucking industry in a number of ways, and in some ways flipped the approach from 15 years ago. Investment of premium is no longer a viable means by which profitability can be guaranteed, and as such a program must rely on its underwriting margins in order to ensure an adequate ROI. This is true across the board, but with a model that had previously relied on the profitability of short-tail business as a means of offsetting any loss results on the primary liability, it is underscored when the short-tail business is now facing issues on its own. The short-tail business, primarily comprised of motor truck cargo and auto physical damage, upended in the recession in the mid-aughts.

Physical damage which had historically been a profitable line of business began to see increasing loss ratios – brought about by the inability/unwillingness of a truck owner to buy new equipment, an increase in towing and storage charges, and an uptick in vehicle thefts. Due the aging equipment, the frequency of claims arising out of equipment malfunctions increased, and due the lower values of the equipment combined with the increasing towing charges, the percentage of claims being a total loss spiked. On top of the aging equipment, due the high cost of gasoline and the number of loads dropping during the economic downturn, many truckers did not have the funds to properly maintain their equipment – further opening up a carrier to potential losses.

Motor truck cargo results saw a similar response where the economy led to an increase in claims. Claims arising as a result of refrigeration breakdown coverage increased in part due to mechanical failures brought about by the aging equipment, but also increased when the party receiving the goods was declining loads due their inability to move product (with the explanation of spoiled goods, improper temperature, etc.) Additionally, theft became a larger factor for low-value but high-demand goods such as baby formula and diapers which could easily be moved without the attention of higher-valued goods. A growing trend actually developed where many stolen loads were being sold before the cargo had even been loaded onto a trailer. A number of these could be denied if involvement from a motor carrier was proven, however the majority of these led to several losses on this line of business.

Contrasting the physical damage and motor truck cargo results, the liability product actually improved significantly where it was often the line of business driving the profitability of an operation. The trend year over year is a decline in both crashes involving a tractor-trailer as well as crashes involving a fatality. Much of the immediate decline in crashes surrounded the lack of as many automobiles on the road. The cost of gas and lack of expendable income caused fewer people to be traveling on the roadways. Mirroring this, the lack of product being moved on store shelves and the lack of materials being needed for construction led to fewer tractor-trailers being on the roadways. This doesn't discount the additional factors as well, however, as a number of changes have been made to better protect the public. Safety requirements for automobiles lower the severity of crashes, and with the larger implementation of adaptable cruise control and lane deviation equipment the frequency will lessen as well.

The data is available

The intent here is to present what data is available to an underwriter for further discussion - outside of what is already being provided alongside the submission docs (application, vehicle schedule, driver schedule, MVRs, IFTAs, loss history.)

CSA/SMS – The Federal Motor Carrier Safety Administration's Safety Measurement System (SMS) serves as a means of assembling the data collected from all roadside inspections. These inspections, completed at weigh stations and roadside locations, are performed by commercial vehicle inspectors and state troopers – judging whether a commercial vehicle and driver are operating in accordance with

DOT regulations. These regulations include, but are not limited to, moving violations, hours of service regulations, vehicle maintenance, driver licensing, drug/alcohol testing programs and crash history.

PSP – In addition to the tracking of all roadside inspection data for a motor carrier, the FMCSA has also created a resource for reviewing this information for each CDL holder for a period of three years. The Pre-Employment Screening Program (PSP) is available to motor carriers and CDL holders for a fee.

Safer Snapshot – A Motor Carrier is required to provide information on their operations to the FMCSA on a biennial basis. This information includes basic information from their garaging location, the number of power units they are operating, how their operation is classified, whether they are inter/intra state, and what cargo is being carried. In addition, the safer snapshot presents the percentage of a motor carrier's roadside inspections that result in Out Of Service (OOS) violations.

Licensing & Insurance – The L&I website presents an overview of what authorities a commercial auto operation holds, whether a filing of insurance is required for protection of the public as determined by a risk's operations, as well as the active and prior liability insurance history of a motor carrier.

CAB – The Central Analysis Bureau is a product that pools the public information available through the SMS, Safer and L&I websites and further compartmentalizes the data. In doing this, CAB can tailor reports for a particular trend of like-kind violations. Additionally, as the CAB system collects the inspection information for all motor carriers in a single database they are able to establish any potential associations between separate entities based on the Vehicle Identification Number of any power unit with a roadside inspection on-file, the risk's garaging location, their phone number, as well as their e-mail address. Lastly the CAB system also indicates a motor carrier's ISS score based on the various safety characteristics of a commercial auto operation. This score is the means by which a commercial vehicle inspector determines whether the safety score of a motor carrier warrants a roadside inspection or whether doing so is not mandatory.

TxDOT – Texas risks must report all power units to the Texas DMV when a Form E filing is required. This requirement provides another means by which an underwriter can verify the equipment provided with an application. Additionally, Form E filings history is available to the public – providing a secondary means by which an underwriter can review the liability insurance history.

Corporationwiki – Corporations can be searched either by company name or principal name and you can quickly see any other known associations.

Google/Bing Maps – Serves as a means of getting an idea of a risk's garaging location as well as the safety measurements in place.

VIN Decoder – There are several freely available websites online that will provide GVW, make, model and year of a vehicle based on the vehicle identification number.

Social media and carrier websites – Facebook and carrier websites present the best insight into how a risk presents itself to the public. Often you can verify or invalidate risk characteristics as disclosed in the submission by reviewing this information.

How underwriters are looking at this data:

Building upon the stated facts above, there is a wealth of information available – but each source only presents a piece of the puzzle and each source has its areas of concern. What do not change are the base facts that remain true for the industry:

- A fatigued driver has a greater chance to be involved in an accident
- Poorly maintained or aging equipment has a greater chance to cause an accident
- A driver's familiarity with a route will lessen the likelihood of an accident
- A driver's experience with a commodity will lessen the likelihood of an accident
- Driver over-the-road inexperience leads to a greater chance of being involved in an accident
- A driver is more likely to be involved in an accident if they have been involved in one before
- A driver's negative moving violation history is an indicator for future claims

To underwrite a risk efficiently an underwriter must be able to quantify the exposure based on what has been provided, and understanding the inherent flaws in each of the available datasets allows them to give weight to those areas where risk factors are present – ignoring those factors where flawed or unnecessary information might misrepresent the exposure.

Examples:

Ex 1 – An underwriter might notice a trend of cancellations in a motor carrier's insurance history as found on the Licensing & Insurance website. If there are a number of reinstatements with the same carrier it is likely that the cause of the cancellations is nonpayment of premium. To further investigate this, an underwriter can look to a motor carrier's vehicle and hours of service violations in the CSA/SMS system. If there are notable trends with repeated violations either in vehicle maintenance or operating beyond the hours of service, it becomes apparent that the risk is struggling financially and is more likely to be involved in a claim. These key items build towards a larger picture of the exposure that cannot be established solely with a risk's submission documentation.

Ex 2 – A risk is presented as a new venture operation with 3 power units. Driver employment history is provided for each of the drivers for the prior 3 years with current DOT#s for the prior employers. An underwriter is able to research the DOT#s of the prior motor carriers to look to the type of carrier for whom the driver was working, the commodities hauled, as well as any notable SMS trends during a driver's tenure as something that may reoccur with the new policy. Additionally, an underwriter can look to these prior entities' insurance history to verify that these motor carriers held an active authority for the period in which the drivers state they were employed. A driver claiming to have three years of experience operating as a refrigerated goods hauler when the prior employer has only been operating for one year and had been operating as a household goods mover is an easy red flag to spot. On top of this, by utilizing CAB an underwriter can research the applicant's association with other operations to verify that this is not a restart of a carrier trying to escape their past. CAB will display an icon for any risk data that is shared with another entity and will allow an underwriter to research any relationships

discovered. By utilizing Corporationwiki the ownership and management of an operation can be observed, and often any associations found in CAB can be further supported. It is a lot to consider, but when many insurers are seeing increased loss ratios for these new entrants it is necessary to fully understand the potential exposure presented by each of these new ventures.

Ex 3 – An applicant presents themselves as a trucker hauling aggregate goods in a radius of 200miles, based out of western Texas. An underwriter will be able to review the commodities stated on safer, but they will also be able to review individual shipper information in an insured's CAB report. Additionally, an underwriter can verify the radius of an operation based on the states in which a motor carrier has had roadside inspections. Lastly, a quick Google search may reveal a website or Facebook profile for a trucking operation where they are advertising their capabilities.

Each facet of the an operation's risk profile builds upon itself, and while one individual piece of information may suggest a concern – such as a shared phone number with another entity – if the remainder of the data does not support the initial findings then an underwriter must be able to move on. No one piece of information is condemning, and every piece of information should be seen as simply a tool at the underwriter's disposal. The key, as with any underwritten piece of business, is in understanding the class of business, the information available, and being able to quickly and effectively make a judgment.

The implications of the use of this information for the trucking industry

Within a few months of CSA going live, insurance companies began to implement underwriting procedures with respects to a carrier's SMS scores. With the intent of the SMS system being a service by which the public is provided with a record of a motor carrier's safety history, and as the initial intent of the SMS 'alert' status was meant to serve as an indication of loss frequency, many insurers and shippers approached these flags with a broader stroke wherein multiple alerts would cause a risk to be ineligible for coverage or loads. Regrettably, the initial methodology used in determining the scores and subsequent alert statuses lauded the old phrase "correlation does not necessarily imply causation." While the base information presented in the SMS system is a phenomenal indication of how a risk operates, the scoring methodology has been amended a number of times and is still pending further review after challenges from the American Trucking Association and the Owner Operator Independent Drivers Association. As a result, the goal post for a motor carrier has been inconsistent, and for this reason the CSA/SMS system has been in the top 10 concerns for a motor carrier since its introduction. In January the Federal Motor Carrier Safety Administration enacted a rule that allows the revocation of a motor carrier's operating authority if they are determined to have a history of habitually negligent or purposeful violations. This position begins the next phase of the FMCSA's plan to regularly wean out the poorest performing motor carriers.

Playing off of the FMCSA's decision in January, with a motor carrier's SMS scores being freely and easily accessible information there is a growing concern that these scores and any associated 'alerts' could be

found as evidence of an motor carrier's negligence in the event of a claim and subsequent lawsuit. The precedence has yet to be truly set, but any established trends without an apparent resolution – regardless of whether a violation placed a motor carrier out of service for these violations and regardless of very relevant factors such as inconsistency in the execution of roadside inspections on a state-by-state basis – could ultimately serve as the foundation for a tort lawsuit. A number of insurers have begun responding with punitive damage limitations or exclusions where allowable by state, and the true effects of this will not be known for some time.

Due in large part to the implementation of CSA and the growing concerns addressed above, motor carriers have been looking into a number of approaches in order to try and outrun their safety history. Previously, a regular approach to outrun ones loss history was to restart under a new name and authority (be it a family member's name, a new corporation, etc.), and a similar trend was happening as a result of a poor safety history in the CSA/SMS system. There are questions as to the effectiveness of this change as the FMSCA targets new ventures for additional roadside inspections and any previously unaddressed trends would only lead to similar results, but due to better data tracking it is becoming much more difficult for a motor carrier to restart operations. With tools that track the sharing of an insured's phone number, physical/ mailing addresses, e-mail address and the vehicle identification number of all vehicles, the FMCSA is able to single out these "chameleon carriers" and will soon begin shutting these entities down.

With the advent of the pre-employment screening program, and the knowledge that a driver's history is wont to repeat itself, larger motor carriers began utilizing the program for every new hire to ensure that non-compliant drivers are not hired – ultimately bettering their fleet's safety performance. Regrettably smaller motor carriers do not have as much expendable income, and they are often not as savvy with changes in what is available to them as larger operations. As a result, the importance of a smaller motor carrier's driver hiring practice is more important than ever. Poorer drivers are being forced out of the industry, making the roads safer – but some of these drivers are still finding homes in small to mid-sized operations thanks to the industry-wide driver shortage.

What is next

When Google expressed an interest in entering the insurance marketplace they single-handedly gave validity to the possibility of a telematics-based rating model in the future. Telematics, for the purpose of this paper, is being limited to how the collection of hard data can be used as a means of understanding a commercial auto's risk characteristics. Prior to Google's interest, the primary discussions taking place surrounded what the return on investment a telematics based rating model would bring to an insurer when considering the cost of the device(s) that would be capturing the information as well as the premium reduction that would be demanded for those risks who are compliant in using the equipment with positive results. These costs, alongside the anticipated push-back from motor carriers stalled discussions as the majority of insurance carriers elected to take a step back to wait and see how the adoption of these devices progressed.

Fast forward a bit and we have Google's interest. With Android OS being capable of transmitting GPS coordinates at a regular interval, Google is able to track location, speed, acceleration, and deceleration. Additionally, mobile phones have the capability of sharing data with other sources via Bluetooth and Wi-Fi – making communication with additional on-board equipment an easy task. By combining the sensors in the phone with any number of MEMS devices on a tractor-trailer (such as devices that monitor roll, pitch and yaw), this information can be monitored in real-time by Google analytics as well as the motor carrier. Couple this with the soon-to-be mandated electronic on-board recorder (EOBR) which monitors a driver's hours of service, the growing adoption of lane deviation software and current trucking specific map software with live traffic details, and there will be little that cannot be known by an insurer as it is happening.

The largest concerns to this approach are again in securing voluntary adoption, but also stretch to privacy concerns and the availability of hard (potentially detrimental) data in the event of a claim. Should a claim arise and a motor carrier not appear at fault, but the on-board data shows that the driver had deviated from his lane 4 times in the previous 20 minutes then a prosecutor may be able to make the case that a driver was fatigued and that this may have had an effect on the circumstances of the accident.

ISO has been looking at the potential for this model for some time in establishing standards, but at the present this is still something sitting in the pipeline.

Beyond telematics, further standardization for the transfer of information for commercial auto should be realized in the coming years with conversations taking place now regarding ACORD's XML format for this line of business. The general information being requested for each insurance company is built upon a similar baseline – the key is in establishing standards by which all carriers can get the information in the manner they want to receive it. The majority of carriers either have in place or are experimenting with the capability of sending and receiving XML requests for the transmittal of data, and with the acceptance of a standardized language it will be easier for each insurance carrier to get risk information directly from a wholesaler or retailer's agency management system – allowing for more time in looking at a risk profile and less time spent in data entry.

What is on the horizon

While Google's use of information for a telematics-based approach is not firmly established, there is little question that they will be capturing as much of this data as they can for use in its next major project in the insurance and transportation industries -- driverless vehicles. It is common knowledge that Google has been experimenting with fully automated vehicles in California and Arizona, however it isn't as well known that similar experiments are taking place across the globe. Japan has already begun testing the potential of driverless tractor-trailers as a means of bettering fuel efficiency and eliminating the potential for human error on part of the driver. Thus far the experiments have proven successful, but are not looking to be ready for practical purposes for five or six years. This time period, while

technology develops to the point where it is fully proven in real-world situations, is going to be crucial from a data capture standpoint. The analytics on the back-end will be constantly communicated to the on-board systems – allowing for these driverless vehicles to adapt to constantly changing traffic patterns, detours, weather, and even the maintenance of the vehicle itself.

From an industry perspective, the shortage of commercial drivers has consistently ranked in the top 10 concerns of the trucking industry for the past 8 years, and with the average age of drivers increasing with less good young talent interested in getting behind the wheel it presents a valid case for investing in the driverless vehicle model. A driverless vehicle would be able to communicate directly with a shipper and a receiver – notifying of any delays in delivery. Cargo could be tracked real-time, hours of service would be a non-issue if the vehicles are truly driverless, and vehicle maintenance concerns could be relayed immediately to the on-board systems to signal that the vehicle needs to pull over. Vehicles could run at the most fuel efficient speeds without any driver fatigue, aggressive driving would no longer be concern, and sensors would make blind spots nonexistent.

The primary concerns, as always, exist in the unknown. There's little question that this is the direction in which the industry is headed, but at what point does the industry accept that this change is coming – whether from a regulatory perspective, an insurance perspective, as well as with the motor carriers themselves.

Carriers will need to seek out additional coverages, and policy forms will need to be developed that better clarify those responsible in the event of the failure of on-board equipment. Being able to determine fault in the security of the software could present cyber liability to the manufacturers and the truckers themselves if the equipment is not secured, and accidents must be able to be tied back to concerns in the installation of equipment or the hardware/software itself. Additionally, there will likely be a greater terrorism concern as a “hackable” tractor-trailer presents a huge unexplored exposure.

Would the manufacturer hold a master product policy and any vendors they use (navigation, lane deviation, etc) hold an excess or contingent policy should the master's policy fail to respond? Would an equipment manufacturer be required to file an MCS90 as a means of further protecting the public since their equipment is essentially what is driving the load? The question of who is primary in the event of a loss will require further specialization -- not only in transportation law, but also in the relationship that each party holds in the actual operation of a vehicle.

The next five to ten years are going to be interesting, and the only way to not be left behind is to start these discussions now.

Conclusion

The reliance on data and analytics in underwriting commercial auto is only going to grow, and it will fall upon transportation underwriters to be able to understand the weight at which each piece must be considered. The problem lies in both determining how best to quantify the available information while

also working with an increasing number of data streams that can be both inconsistent and counterintuitive. Understanding the constant trends in this industry, utilizing the information available as a tool, being mindful of class-specific context, and staying current in changes in DOT rules and regulations will allow you to be successful at underwriting truck business. It is a very nuanced class of business, but one that has the potential for real profits if underwritten properly.

Resources:

Federal Motor Carrier Safety Administration Resources. <https://csa.fmcsa.dot.gov/resources.aspx>

Pre-Employment Screening Program. <http://www.psp.fmcsa.dot.gov>

Safer Snapshot. <http://www.safersys.org>

Licensing & Insurance. <http://li-public.fmcsa.dot.gov>

TXDMV. <http://apps.txdmv.gov/apps/mccs/truckstop/>

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