

CSCMP hottopics

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Why the Future of Empty Miles Won't Be Like the Past

*Aaron Terrazas, Director
of Economic Research
@ Convoy*

Waste matters. For nearly every industry, waste contributes to higher costs. But in the freight industry, the stakes are even higher. In freight, waste means that more fuel is consumed, more carbon is emitted, and drivers spend more hours sitting idle.

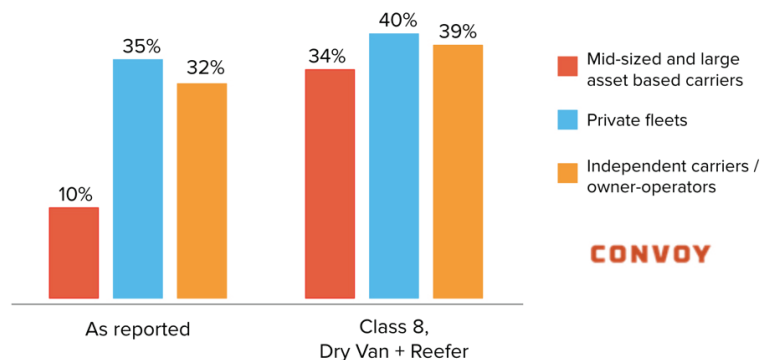
One of the most common examples of waste in the freight industry occurs when truckers drive empty, typically because there are no nearby loads for the driver to pick up that are headed in the same direction as the driver. In the freight industry, these miles are referred to as empty miles, non-revenue miles or deadhead miles.

Regardless of what they are called, these miles mean that drivers are not earning money for being on the road and the economy at large pays more to move goods. Carriers account for their own expectations for empty miles when deciding how much they charge for any particular load, so everyone from shippers down to end consumers — and, of course, the environment — ultimately pay the cost of empty miles.

Though a seemingly simple concept, putting a definitive number on empty miles has proven elusive in a fragmented and diverse freight industry. Estimates vary widely — ranging from 10% up to 50%. The most authoritative industry-wide estimates — published each year since 2014 by the American Trucking Research Institute (ATRI) — have consistently put empty miles around 20%. These recent numbers are very close to U.S. Census Bureau estimates from the late 1990s suggesting very little industry-wide progress in reducing empty miles over the past two decades.

But the headline numbers do not necessarily capture very different trends across industry segments, and the wide range in numbers are not necessarily comparable since they include different types of trucks, trailers, and routes. For the most familiar type of interstate freight — heavy trucks with dry van or refrigerated trailers — empty miles are substantially higher than industry aggregates: About one-third on all miles driven. These estimates are consistent across the various types of carriers (see figure).

Controlling for truck, trailer and route type, empty miles estimates are very similar across all types of carriers.



Source: Convoy analysis of U.S. Census Bureau, Vehicle Inventory and Use Survey, 2002.



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But there are reasons for caution, even when interpreting these industry-standard estimates. The numbers are usually based on surveys and there are several known biases in how people respond to surveys that can shape the results. For example, a common way to ask about empty miles is to ask respondents to estimate how often they drove empty over the past year. Human memory can be an imperfect gauge, even for metrics that are closely tied to business outcomes — a phenomenon economists call “recall bias.” Perhaps more worrisomely, when surveys ask about competitive or sensitive topics, responses are known to skew toward answers that paint the respondent in a favorable light — a phenomenon economists call “desirability bias.” The magnitude of these effects is difficult to gauge, but also important to keep in mind when interpreting any survey results.

Further complicating the issue is ambiguity over what exactly should count as an empty mile. Few would disagree that miles driven empty between consecutive loads should be considered empty, but what about miles driven empty between a dispatch, home, or resting spot and a first or last load in a sequence? How should the industry account for partially empty miles in the less-than-truckload sector where trucks may never be entirely empty, but never entirely full either? Similarly, if the focus is on empty miles as they contribute to wasted fuel and carbon emissions, it is not obvious that tractors driving without a trailer should be counted the same as empty tractor-trailers, given the fuel efficiencies involved.

For shippers, using a carrier network with lower empty miles means a smaller carbon footprint associated with moving their products — a fact that can be communicated to consumers in an era of growing consumer awareness of the environmental impacts of the goods they purchase: According to data from the Pew Research Center, nearly 60% of Americans now think that climate change is a major threat to the country, compared to just 40% in 2013.¹ Another Pew survey from 2016 showed that 83% of Americans try to live in ways that protect the environment at least some of the time, and 20% said that they always do so — including by buying products that are less damaging to the environment.²

While there has been very little progress in reducing empty miles industry wide since at least the 1990s, the next two decades will not necessarily look like the past. New technology and data mean that complex route optimization algorithms — once only an option for the largest and most sophisticated managed fleets — is now available to a broad spectrum of small- and mid-sized carriers and owner-operators.

*This article is based on “[What you need to know about empty miles](#),” which originally appeared on the *Convoy Blog* in August 2019. *Convoy* is a nationwide digital freight network founded with the mission of transporting the world with endless capacity and zero waste.*

¹ Moira Fagan and Christine Huang, “A Look at How People Around the World View Climate Change,” Pew Research Center, April 18, 2019. <https://www.pewresearch.org/fact-tank/2019/04/18/a-look-at-how-people-around-the-world-view-climate-change/>

² Cary Funk and Brian Kennedy, “The Politics of Climate,” Pew Research Center, October 2, 2016, https://www.pewinternet.org/wp-content/uploads/sites/9/2016/10/PS_2016.10.04_Politics-of-Climate_FINAL.pdf.