

Discussion of Net Benefit Results

The analyses presented above show that both the ATA and FMCSA alternatives have net benefits compared to the current rules with full compliance. Of these two alternatives, only the FMCSA alternative provides positive benefits compared to the current rules with full compliance; the ATA alternative has negative benefits that are outweighed by larger cost savings. The PATT alternative has somewhat higher benefits than the FMCSA alternative, but imposes costs that outweigh the additional benefits.

The relative costs and benefits of the alternatives differ considerably between the long-haul and short-haul segments. Most of the costs of the more protective alternatives, PATT and FMCSA, arise in the short-haul segment, but all of their benefits come from reducing long-haul crashes. Fatigue and fatigue-related crashes are considerably less common in short-haul operations, and the alternatives that limit hours of work appear to be unlikely to make substantial reductions in those crashes. On the other hand, the need to hire many more drivers in response to the restrictions would cause increases in

crashes over the ten-year time horizon of this study, and those additional crashes would counterbalance the small predicted reductions in fatigue-related crashes.

In long-haul alternatives, though, the fraction of crashes attributable to fatigue is considerably larger, and the two protective alternatives are predicted to reduce those crashes considerably. Considering the long-haul segment only, the FMCSA alternative is superior on net benefit grounds to the ATA and PATT alternatives as well as the current rules with full compliance.

TABLE 11.—NET BENEFITS BY LENGTH OF HAUL RELATIVE TO CURRENT RULES WITH FULL COMPLIANCE
[(Millions of dollars per year) (values in parentheses are negative)]

	PATT	ATA	FMCSA
Long-haul:			
Total Benefits	374	(269)	225
Total Cost	764	(1,356)	(1,073)
Total Net Benefits	(390)	1,087	1,298
Short-haul:			
Total Benefits	(34)	(4)	4
Total Cost	2,595	(87)	168
Total Net Benefits	(2,629)	83	(164)

Source: RIA Exhibits 9-4, 9-4, and 9-8.

Limitations and Sensitivities

One important source of complete certainty is the magnitude of the effects of "time on task" on crash risks. As discussed in RIA Chapter 8.1.5, there is likely to be an increase in risk as continuous hours of driving increase that is independent of the effects of circadian rhythms and sleep deficits. The FMCSA was not able to model this independent effect, however, due to uncertainty about its magnitude for very long hours of driving. If that effect were actually large, the more protective alternatives would show relatively higher benefits. Uncertainty about the time-on-task effect is particularly great for very long hours of driving, in part because very long driving shifts are not permitted. They are therefore both rare and difficult to study. In particular, the 16-hour driving shifts that would be allowed at times under one of the alternatives (a provision that we did not model for this analysis) would be very rare and hard to study under real world conditions.

Another place where complete certainty may not be found is in the 8.15 percent estimate of crashes in the status quo that can be attributed to fatigue. The NPRM regulatory evaluation included an estimate that 15 percent of all crashes were fatigue-relevant. The estimate of 15

percent was supported in the docket and at public hearings by some safety groups, while the ATA and others argued that the correct value was closer to 4 to 5 percent. The NPRM's estimate was comprised of 2 separate components: 5 percent fatigue crashes, and 10 percent fatigue relevant crashes. The 5 percent figure came from FMCSA and NHTSA summary of data from NHTSA databases and other studies. Most of these databases and studies estimated fatigue by counting the number of citations for fatigue from police accident reports. The 10 percent fatigue relevant figure was based on FMCSA's best estimate at the time about the percent of inattention crashes that are at least indirectly related to fatigue. The agency had no studies to suggest that 10 percent was correct, but the data suggested that some percent of inattention crashes were related to driver fatigue.

Because of these criticisms, and because we did not have a specific reason to pick 10 percent, FMCSA revisited the NPRM's estimate in this regulatory evaluation. The agency only used data from police reports and national databases, with no qualitative adjustments. As explained in Chapter 8 of the RIA, we used FARS data from 1997 through 2000, and found that

fatigue was cited in an average of 7.25 percent of crashes; 4.33 percent of crashes were cited for inattention. The FMCSA sponsored study by Hanowski, Wierwille, Garness, Dingus, *Impact of Local/Short Haul Operations on Driver Fatigue*, found that fatigue was a factor in 20.8 percent of inattention crashes. Therefore, FMCSA added 0.9 percent (20.8 times 4.33) to 7.25 to obtain our final estimate of 8.15 percent.

As noted in *Discussion of Net Benefit Results* above, reviewing the costs and benefits by length of haul reveals that the alternatives have very different cost/benefit profiles for long-haul compared to short-haul operations. The FMCSA alternative, for example, provides net benefits in long-haul operations, but has net costs for short-haul.

Although the estimated costs for imposing new HOS requirements on short haul motor carrier operations exceeds the potential benefits for that specific segment of the industry, the population of drivers employed by these carriers and the VMT by them each year suggests that it is necessary to include short haul operations in this final rule.

The population of short haul drivers is approximately equal to the population of long-haul drivers, about 1.5 million drivers in each of the two categories. However, the vehicle miles traveled (VMT) by short-haul drivers is