



Financial Services/Policy & Economic Analysis  
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Dear Editor,

Last month, a reader wrote in posing several questions about the responsibility of road users for highway costs, and in particular, pavement costs (“Road funding scheme ignores constitution, physics,” July 11). I’d like to respond to several points the writer made so that readers can have the most accurate information to review.

First, Oregon is recognized as a national leader in conducting studies to determine the “fair share” of highway costs to be paid by each class of highway users. The Oregon Constitution requires a study be conducted biennially and highway user tax rates be adjusted, if necessary, to ensure “fairness and proportionality” between light (1-8,000 pound) and heavy (over 8,000 pound) vehicles. ODOT follows this mandate. To help ensure accuracy and unbiased results, ODOT transferred responsibility for these studies in 1998 to the Oregon Department of Administrative Services (DAS).

We look at two main categories of costs when assigning responsibility: 1) costs that go up as the size and weight of vehicles increases; and 2) costs that go up as highway usage increases.

Pavement expenses are in the first category. To determine the impact of heavy vehicles on pavements, Oregon uses state-of-the-art formulas derived from the most current research conducted by the Federal Highway Administration. In the past, a method was used that said the relationship between axle weight and pavement impact is a “fourth power” relationship—in other words, doubling the weight on a vehicle axle increases the impact on pavement by nearly 16 times. Now, we know it’s closer to a 2.5 power relationship. That means doubling the weight on an axle results in about a 6-fold increase in the impact on pavement.

It is important to note that using the newer method of calculation, heavy vehicles still account for a large majority of the wear on pavements. But there are other factors that contribute to pavement wear, such as road construction methods, soil quality, and weather. Studies show, however, that 70 – 75 percent of pavement wear is due to traffic loads, so heavy vehicles are assigned a large majority of those costs (over 90 percent). Accordingly, the past two Oregon studies have assigned at least 70 percent of new, reconstructed, and rehabilitated pavement costs to heavy vehicles—even though these vehicles account for only 8 percent of total statewide travel.

The remaining 25 – 30 percent of pavement costs is considered a common (or shared) responsibility of all vehicle classes. We use an estimated distribution of actual light vehicle weights in assigning those costs. And, while there is some difference between the pavement cost responsibility of a 3,500 pound car and a large (6,000+ pound) SUV, it is minor compared to the difference in responsibility between either of these vehicles and a fully-loaded, 80,000 pound truck. This follows directly from the exponential relationship involved and the fact the 80,000 pound truck has both much heavier axle weights and more axles than either light vehicle. The difference in pavement responsibility between two light vehicles, in fact, is more dependent on whether either has studded tires than on whether one weighs 3,000 pounds more than the other.

Pavement costs, however, are just one of the many expenses associated with providing and maintaining a state highway system. Other costs include maintenance of rest areas, provision of traffic signs and signals, roadside cleanup and mowing, sanding and snow/ice removal, and emergency maintenance required as a result of floods, rockslides, windstorms, etc.

These other costs of maintaining and building highways are in the second category. Research shows that these costs are most appropriately viewed as a common, or shared, responsibility of all road users. As a result, these costs are assigned based on the relative amount of travel of each vehicle class. Since light vehicles make up over 90 percent of the statewide travel, they are assigned over 90 percent of these costs. In addition, expenditures to repair studded tire damage, estimated at \$11 million per year, are assigned to light vehicles only, since heavy vehicles rarely use studded tires. Finally, light vehicles account for 92 percent of total highway travel in Oregon—even more on congested urban routes. These vehicles are therefore responsible for a majority of those costs related to relieving congestion (for example, the costs incurred by increasing highway capacity).

When all costs are considered, the past two Oregon studies have found light vehicles responsible for approximately two-thirds of total highway expenditures and heavy vehicles one-third. These results are generally in line with those of other recent state studies and the 1997 Federal Study. Therefore, in Oregon, we currently assign two-thirds of the costs of highways to light vehicles and one-third to heavy vehicles.

In summary, it can be stated that the cost responsibility of light vehicles derives primarily from their large numbers, while the responsibility of heavy vehicles derives primarily from their greater size and particularly weight. Trucking industry representatives often assert that Oregon is one of the highest, if not the highest, tax states for truckers. This may or may not be true, depending on the assumed mileage and weight class used in the calculations. To the extent it is true, however, it is precisely because Oregon is one of the few states that requires truckers pay their full fair share of highway costs.

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