

# Economic Analysis & Safety of ORV Riding

Appalachia-Science  
in the Public Interest

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**Introduction.** Off-road vehicle (ORV) riding is an activity that has been gaining in popularity across the nation and especially in Appalachia. Sales of these vehicles are at record levels and have been growing at about 20% a year since the late 1990s. Some seriously question whether ORV riding is a form of tourism worth promoting because they find it brings little money to the area and is a dangerous sporting activity.

## Part I Economic Issues

**Leakage.** Those who attempt to attract tourists from other states often emphasize the supposed overall economic benefits. *Leakage* is the amount of spending that does not directly benefit the target geographical region. For example, a tourist drives to the Appalachians to enjoy the amenities of the area, and purchases vehicles, equipment, groceries and even a tankful of fuel at his/her home, for a total of \$105. The same tourist spends money for camping fees while in Appalachia, fills up with a tank of gas, and eats out three times while in the region, for a total of \$45. The tourist has spent \$150 on a trip to the Appalachians, but \$105 of this, or 70% is *leakage* - money that does not benefit the region of tourist activity. The tourist derives benefits from Appalachia, but spends most of his or her money at home.

This summer, the amount of *leakage* from ORV riding at Cromers Ridge, a major Kentucky ORV riding site, was measured. A survey was conducted on ORV riders who were asked their state of origin, how much they will spend on meals, groceries and gasoline purchased in this area, how much spent on lodging, motels and campgrounds, and where and how much they paid for their recreational vehicle and related equipment. From the survey we discover that out-of-state riders spend approximately \$51 on meals, groceries and gasoline in the local area (Laurel and Rockcastle Counties). We estimated that riders spend at least \$40 at home stocking up on gasoline, groceries, beer and other items. According to the survey, riders paid an average of \$11,281 for each haul vehicle and paid an average of \$6,335 for each ORV and related gear. Amortization on haul vehicles (owned for 7 years at 12,000 miles per year) was calculated for an estimated 375 mile round trip for 8 week-ends/year or 3,000 mi./year (25% of annual vehicle mileage is devoted to trips to major riding areas). This amounts to about \$50 per trip at 8 trips per year.

Because of restrictions in their home state, regular out-of-state ORV riders are estimated to accumulate 75% of their ORV mileage in Kentucky. Thus the cost per trip equals the total vehicle cost divided by the number of trips over the estimated time owned (3 years before being sold or scrapped). A 1997 Consumer Product Safety Commission survey found that 45.9% of all-terrain vehicles (ATVs) had been owned less than 3 years at the time of the survey, and only 20.5% had been owned 3 to <6 years. The numbers dropped off further for older vehicles. (U.S. Product Safety Commission, *All-Terrain Vehicle Exposure, Injury, Death and*



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*Risk Studies*, Part 1, 1998, p. 32). Since the average amount originally spent on ORV and related equipment is \$6,335, then an estimated \$4,751 is allocated to out-of-state riding. Then, \$198 (\$4,751 divided by 24 trips (3 yrs. x 8 trips)) of ORV vehicles is amortized for each trip with a total amount of allocated expenditures per trip at \$339. From this amount, about \$51 or 15%, was spent at the tourist destination, and \$288, or 85%, is leakage, or money spent elsewhere.

By comparison, a survey on wildlife-related recreation by the U.S. Fish and Wildlife Service and U.S. Census Bureau was examined. The survey includes state-by-state analysis of various expenditures by hunting, fishing and wildlife watching participants. (*National Survey of Hunting, Fishing and Wildlife-Associated Recreation Activities*, 1996) In the study, expenditures are broken down into trip-related expenditures, equipment and other expenditures (such as camping gear, magazines, etc.). The statistics did not include information about where the various expenditures were made, so it was assumed that virtually all equipment and other expenditures were "leakage" and that virtually all trip-related expenditures were not. Based on this method, it was estimated that in Kentucky, approximately 76.1% of all hunting and fishing expenditures are leakage, 78.9% of all wildlife-watching expenditures are leakage and 76.6% of all wildlife related recreation expenditures together are leakage.<sup>1</sup>

**External Costs Not Borne by ORV Recreationists.** The substantial ORV-related leakage does not take external costs into consideration. External costs are hidden costs to society that a purchaser does not directly pay for when he or she buys a good or service. For example, the cost of a cigarette does not include payment for the risk of emphysema treatments ultimately paid for by insurance-holders or taxpayers. Even if the amount of leakage were approximately the same for ORV riding and other forms of outdoor recreation, ORV riding could still entail higher external costs than many other forms of outdoor recreation, e.g., soil erosion and loss, water pollution

and associated cleanup and water filtration costs, air pollution (including medical expenses), the costs of trash clean-up, costs of property damage to land-owners, energy use, and costs of medical care and accidents. For example, the Consumer Product Safety Commission found that the average cost of an ATV-related injury was \$20,655 (CPSC, data from 1995-96 National Electronic Injury Surveillance System (NEISS)).

**Opportunity Costs.** Another economic concept that should be considered is the "opportunity cost". When you spend \$50 on something, you forgo the opportunity to spend that same \$50 on everything else you could have conceivably spent it on. Some of these other things could have proved more valuable in the long run and some could have proved less valuable in the long run. When we allow ORV riding, one opportunity cost we face is that of missing out on the chance to promote all the other activities that could have taken place in that same space.

According to the *National Survey on Recreation and the Environment* ('97), 14.4% of respondents in the South took part in off-road driving. Many more took part in other activities. Among these, 26.3% engaged in bird-watching, 28.7% engaged in wildlife viewing, 54.3% engaged in sight-seeing, 26.8% in water-based nature study, 12.8% camped in a primitive area, 26.6% went fresh-water fishing, and 18.1% went hiking. And according to the *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* ('96), 26% of Kentuckians either hunt or fish and 32% of Kentuckians are wildlife watchers.

<sup>1</sup> It is interesting to note that Kentucky's leakage rates tend to be higher than those for the U.S. average for such wildlife activities. In the U.S., only approximately 71.4% of all hunting and fishing expenditures are leakage, 67.7% of all wildlife-watching expenditures are leakage and 70.3% of all wildlife related recreation expenditures are leakage.

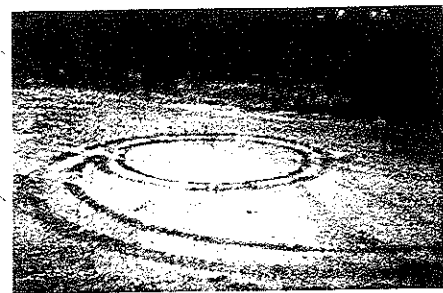


Photo by Sherman Bamford



Off-road vehicles require a large amount of space, are noisy and result in environmental destruction, including illegal dumping; this is incompatible with such activities as wildlife-watching, sightseeing, hiking, hunting, fishing or primitive camping. For example, in a journal interview, Ann Latta, the Secretary of Kentucky's Tourism Development Cabinet spoke about the long-lasting impressions created by illegal dumping. Latta said, "About half our tourists are doing something outdoors... If tourists see... junk piles around the state, it really turns them off. They're not going to want to come back. Those who come here for outdoor recreation are the people who are going to be in the backwoods and along streams and places where they are going to see these dumps." (Kentucky Business On-line, May '01).

Many outdoor participants who come to Appalachia have negative impressions of ORVs. According to Rick Egedy, the owner of Sheltoewe Trace Outfitters, a raft-based tourism company that conducts most of its trips on state wild rivers, ORVs are heard and seen everywhere, even in the remote locations where his company goes. Furthermore, he sees the trails and noise as a real deterrent. And for many people the presence of ORVs is often not a mere inconvenience; it is a legitimate safety concern. One woman birdwatcher wrote: "For me, being a lone woman, I feel unsafe in an area with that type of activity." Conflicts between ORV riders and hunters and anglers seem to be on the rise as well. According to Babe Winkelman, a hunting and fishing commentator, the increasing number of ORVs threatens wildlife and has become a nuisance for many sporting enthusiasts. "Whatever you're doing, the tranquility of the setting is part of the reason you're doing it." (OutdoorSite.Com)

## Part II Safety Issues

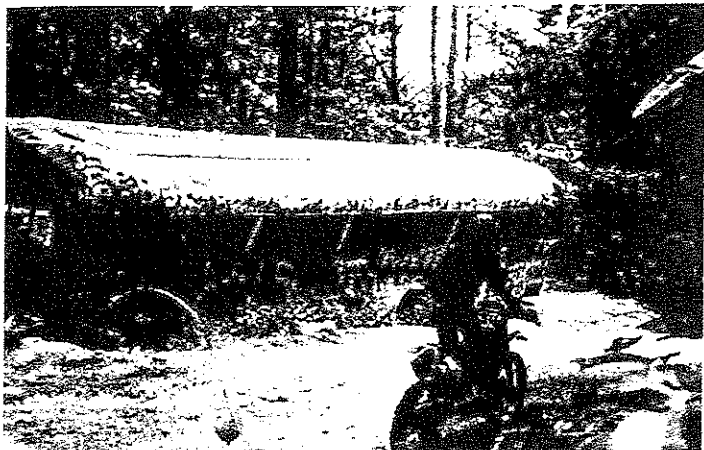
Motorized recreational vehicle sales and safety problems had dropped in the early 90s after production of the dangerous three-wheel ATVs was halted due to Consumer Product Safety Commission action and federal lawsuits. But since the mid-90s, the number of four-wheel ATV related deaths and injuries has been climbing steadily again. ATVs are still unsafe. In fact, even with the outlawing of new three-wheel ATVs, numbers of ATV-related injuries are fast approaching the high levels set during the period before three-wheel ATVs stopped being manufactured. And two years ago the annual deaths from mostly 4-wheel ATVs had already exceeded the annual deaths from that period, according to government estimates. This is due to the increased numbers along with the type of terrain four-wheel ATVs are designed for, the increasing horsepower and speeds of these vehicles, the high center of gravity of these vehicles, and other design-related factors. The engine sizes, speed, and power of these vehicles has been rising dramatically since 1989. One manufacturer has just introduced a four-wheeler with an engine size two and a half times bigger than the average four-wheeler in use four years ago.

Some states like Kentucky (15th in ORV fuel use) are quite permissive as to riders which leads to more injuries and deaths. Unfortunately, Kentucky was also ranked 10th in the nation for ATV-related deaths between 1982 and 2000 by the Consumer Product Safety Commission. And an astounding 97 ATV-related deaths have occurred in Kentucky since 1997. In the course of ASPI monitoring we have noticed: many riders driving at high rates of speed in crowded areas; riding at night; riding in steep, remote hill-climbing areas where rescue would be difficult; carrying a passenger who could easily be thrown from the vehicle; riding at very young ages; and signs of possible drinking and driving. All the while these vehicles can easily roll over or veer out of control in rough terrain.



Photo by Sherman Bamford

Although ATV dealers are prohibited from selling larger ATVs if they believe the vehicles will be ridden by children, manufacturers and dealers still target specially-made smaller ATVs to children as young as 12 years old. This encourages even younger riders to ride their "toy." And this promotes the idea of ATV riding as fun and innocuous, when it is actually a potentially life-threatening activity. One western ATV dealer encourages allowing a child to operate an ATV if he or she has the proper ability or judgment to run it safely, and goes on to say, "if your son or daughter is good at riding a bike, a skate board, playing baseball or soccer, they'll probably be fine on an ATV." However, according to Dr. Susan Pollock, who collects the state's database on pediatric trauma



*Photo by Sherman Bamford*

injuries, this is not the case. In an article from last year, Dr. Pollard said that adults are better at responding to driving situations, including handling emergencies. The Consumer Product Safety Commission has found that the injury rate for ATVs is 70% higher than that in an injury rate study for bicycles. Many overestimate the child's ability to drive high-speed motor vehicles.

Over a third of serious ATV-related injuries occur among young people under 16 years of age and almost 2/3 of such injuries occur among those under 25 years old. However, older riders are not immune from injury. From 1997 to 2000, injuries requiring

hospitalization increased 85% among riders over 25 years old as compared to a 68% increase among under 25 year olds. Other types of off-road vehicles are growing in popularity and pose a serious risk, too. In 2000, sales of off-road motorcycles rose 37% over the previous year's sales. But according to the American Academy of Pediatrics, some 40,000 injuries a year related to these vehicles were treated in emergency rooms between 1994 and 1996.

The Federal Government has refused to take any substantially new action on ORV safety since 1988. The Consumer Product Safety Commission needs to do the following: stop the sale of ORVs for use by children; require manufacturers to install roll bars, speed governors, belts, and other necessary safety features to prevent injuries and save lives; and mandate special safety devices, such as tamper-proof GPS transmitting devices, to track ORV riders who act illegally or are in need of rescue.

**Conclusion.** Compared to other activities ORV recreation brings little money to the local economy, and has many external costs which are usually borne by the local economy or by society at large, not by the rider. Moreover, the use of ORV vehicles can preclude the opportunities for people to take part in other recreational activities which can bring more economic benefits. Furthermore, ORV riding is quite dangerous and can lead to safety and health problems to the riders themselves.



*Photo by Sherman Bamford*