

With Self-Driving Cars Coming, What Happens To Millions Of Jobs In The ‘Crash’ Economy?

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July 31, 2015

If you’ve been paying attention to the buzz surrounding autonomous and self-driving vehicles over the past couple years, you’ve likely heard the arguments about whether they might one day take the wheel from us. While enthusiasts wring their hands over losing control, and others worry about security and privacy, advocates tout the potentially huge advantages of a fleet of vehicles which almost never crash.

A [2012 study](#) by KPMG and the Center for Automotive Research (CAR) predicts that a self-driving fleet could eliminate 93 percent of crashes attributed to human error. The savings in lives, injuries, insurance claims, delays, lost productivity and more would be substantial (so much so that a few prognosticators have imagined a world where non self-driving cars [would be banned in the name of public safety.](#))

But if the technologists, business-government interests, and early adopters pushing for autonomous driving are right, there’s one thing that’s been left out of the conversation: If cars and trucks don’t crash, what happens to the millions of jobs supported by driving today?

Call it the crash economy — not just because of how it’s grown, but where it may be heading.

“That’s an extremely good question,” David Alexander, a senior transportation research analyst with Navigant Research, acknowledges.

“All the studies popped out over the last couple of years have looked at the huge potential savings of reduced accidents, productivity improvements. But there is another set of consequences waiting for us depending on how [autonomous vehicles] roll out.”

While the first true self-driving vehicles are expected before the end of the decade, most experts agree a fleet won’t be a reality for 20 years. But given that advocates expect AVs to be shared far more than cars today, fewer vehicles and their associated infrastructure will be needed. CAR’s David Wallace said the Center may soon have a study on the potential downsides; though he’s more optimistic, Wallace cites a recent study by Barclays analyst Brian Johnson, which forecast a 40 percent drop in new-vehicle sales over the next 25 years.

The potential decline in new car sales has been discussed but a Texas car restorer by the name of Melvin Benzaquen recently reeled off some of the other consequences of AVs in a blog post. If self-driving cars don’t crash as much, demand for body shops declines. It’s easy to start following that logic through many other lines of work:

Emergency services/equipment

Highway safety equipment

Towing/recovery services/equipment

Traffic enforcement services/equipment

Used vehicles Compliance professionals/investigators
Court system infrastructure/processing
Lawyers/legal services
Insurers/insurance Construction

Auto manufacturing – one of the last bastions of organized labor – would contract (Johnson, at Barclays, estimates GM and Ford would need to cut North American output up to 68 percent). Autonomy also implies less demand for professional drivers. The potential decline in employment suggests diminished income tax revenue as well as sales tax revenue, traffic enforcement and vehicle registration revenues among others.

A fall in auto ecosystem demand also has second-order impacts. We may need fewer commodities like steel, aluminum, precious metals, oil, chemicals. The federal, state and municipal bureaucracies that exist to serve the automobile would also likely get smaller.

How a big a chunk of the American economy does the automotive ecosystem represent? No one has put together a full accounting but we can piece together some indicators. According to the KPMG study, the automotive industry (manufacturers/suppliers/dealers) employed 1.7 million people in 2012, providing \$500 billion in annual compensation, as well as accounting for about 3.5 percent of the total U.S. economy — about the same as U.S. defense spending.

A study by the Motor & Equipment Manufacturers Association, claims suppliers produced \$225.2 billion in industry shipments in 2012, accounting for nearly 4 percent of total U.S. manufacturing. The total employment of the auto parts industry (direct/indirect) was estimated at over 3.62 million jobs nationwide.

A quick breeze through tables from the Bureau of Labor Statistics shows that there were 3.7 million professional drivers employed in 2014 with an average salary of \$32,168. Over 1 million service technicians/mechanics/repairers were employed with an average salary of \$40,765. These numbers don't include the associated indirect goods/services mentioned above.

And some are already eyeing the potential productivity gain for profit. Earlier this month, Uber CEO Travis Kalanick, said that if Tesla produced a truly functional autonomous car, [he'd buy every one they build](#). The effect on Uber could be quite beneficial — but not for the Uber drivers or their taxi driving compatriots.

Analysts expect the first autonomous vehicles will be electric urban runabouts, much like Google's prototype. Beyond that, said James Anderson, a senior behavioral scientist at RAND Corporation: "There's no consensus about what model or models are likely to arise. I think we'll probably see more than one. It seems unlikely that individual car [ownership] will evaporate in the near to mid-term. In the longer run, some people think it will."

Reduced demand married with AV safety would have surprising side effects. One could be a dramatic reduction in the supply of organs available for donation/transplants. But much of the push for self-driving cars comes from their safety benefits — which have yet to be

proven in the real world.

“More sophisticated observers recognize that there will still be accidents,” Anderson said. “The expectation though, is that you can eliminate a big chunk. With 1.2 million annual traffic fatalities worldwide, eliminating just half of the 90 percent that are attributed to human error represents a big number.”

The crash economy would certainly take a hit. But such displacement isn’t novel.

“It’s been happening since the Industrial Revolution,” Alexander observes. “One hundred years ago there was a lot of protesting about jobs for buggy manufacturers, horse-dung shovelers, blacksmiths. These jobs went away but they turned into other jobs.”

What about new jobs that AVs might create? Few have supplied any specifics beyond increased demand for software/electronics products/services. AVs might be a boon to ventures linked to the sharing economy; someone will still have to load, say, self-driving delivery trucks. But the boon depends on where you sit.

AVs would still need maintenance. “If we want the same number of vehicle-miles traveled, because we presumably have the same number of people doing the same amount of traveling, a smaller number of [shared, autonomous] cars are going to be working harder,” Alexander said. “They’ll wear out quicker and need to be replaced more frequently.”

Even if AVs drive a lot of miles, their lack of crashes and electric power could mean a sharp drop in demand for mechanics. We asked Bill Davis, director of the National Alternative Fuels Training Consortium (NAFTC) – which trains technicians in alternatively-powered vehicle maintenance – if electric vehicles require less maintenance than traditional gas/diesel cars? The answer is yes.

Though data is limited, NAFTC’s empirical experience indicates EV servicing to be largely inspection oriented. Davis pulled out the owner’s manual for NAFTC’s [Nissan Leaf](#), whose periodic maintenance schedule is limited to checking brake lines, pads and rotors, steering gear, tire rotation and reduction gear oil.

There’s already pushback against automated transportation threatening jobs. Earlier this month, London Underground workers staged a 24-hour shutdown in response to plans for autonomous/driverless night trains, causing city-wide chaos. Ironically, the strike prompted editorials in London newspapers calling for moving faster towards driverless trains.

“The challenge is always who benefits from that saving,” David Alexander said. “If there are costs incurred from resulting unemployment, do you require that the autonomous fleet producers/owners fund retraining for people displaced by the effects of such a fleet in operation?”

As distasteful as the idea of relinquishing driving and the liberty it represents is, it may actually be harder to let go of the crash economy.