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ROAD SAFETY IN THE UNITED STATES: ARE THE (RELATIVELY) GOOD TIMES OVER?

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16. Abstract From 2005 to 2011, we have witnessed an unprecedented trend: Road fatalities in the U.S. have dropped by 26%. However, there are some indications that a reversal of this trend might be beginning to take place.			
This brief note argues that the economic downturn contributed substantially to the large magnitude of the reduction in road fatalities. Consequently, the reversal of the reduction in fatalities should not be a surprise as the economy is beginning to improve. The note concludes with several recommendations for public-policy makers.			
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Analysis

From 2005 to 2011, we have witnessed an unprecedented trend: Road fatalities in the U.S. have dropped by 26%. However, there are some indications that a reversal of this trend might be beginning to take place.

After a recent peak of 43,510 fatalities in 2005 (NHTSA, 2012a), fatalities dropped to 32,310 in 2011 (NHTSA, 2012b). The last time road fatalities were below this later value was in 1949 when, relative to 2011, we had only about 17% the vehicles on the road and drove only about 14% of the miles (NSC, 2011). That is a remarkable reduction in fatalities.

A lot of parties at the table are taking credit for this huge drop, including vehicle manufacturers, federal regulators, driver-licensing agencies, public-interest groups, etc. Indeed, there is evidence that each of them has contributed to the drop. Examples of proven contributory factors include more frequent installations of and improvements in airbags (Sivak and Schoettle, 2011), electronic stability control (NHTSA, 2011), and more effective graduated driver-licensing laws (Lyon, Pan, and Li, 2012). However, as we argued two years ago (Sivak and Schoettle, 2010), looming in the background is another important factor, the economic downturn. What is its role in all of this?

First, as a consequence of the economic downturn, we have reduced the amount of driving (FHWA, 2012), but not enough to fully account for the magnitude of the fatality drop (Sivak, 2008). However, we have also changed our patterns of driving. For example, we have been driving slower, partly to improve vehicle fuel economy (Penn Schoen Berland, 2012). That change is very important because speed has a huge effect on both crash likelihood and crash consequences (Nilsson, 2004).

Furthermore, the reduction in the amount of driving was confined to rural roads (FHWA, 2012). Given that rural driving (with generally higher speeds) is more risky than urban driving, such a selective reduction in driving has also contributed to the reduction in fatalities.

As another example, the economic downturn has resulted in reduced freight shipments and thus fewer heavy trucks on the road (Craft, 2010). This trend has reduced the frequency of crashes involving heavy trucks (which generally have more severe consequences) more than the frequency of crashes involving only light-duty vehicles (Sivak and Schoettle, 2011).

The important aspect of these and other economic effects is that they are temporary. Once the economy picks up, these effects will disappear or be greatly reduced. This is in contrast to permanent effects of technological advances in vehicles and of regulatory actions (if enforcement is maintained).

The critical question is: What is the relative proportion of the contribution of transient economic factors to the contribution of permanent vehicular-design and regulatory changes? This proportion is important because it will influence (1) whether the reduction in fatalities would continue (albeit at a slower rate) even when the economy starts picking up, and (2) if a reversal of the fatality drop takes places, the steepness of the reversal.

The National Safety Council (NSC) produces data that could be viewed as the canary in the coal mine. These data are monthly estimates of road fatalities. The data are released with a shorter lag time than the official numbers from the federal government. The NSC data are derived using a different methodology (e.g., NSC includes deaths that occur within a year of the crash as opposed to within 30 days), so the absolute numbers end up differing from the eventual official numbers. However, NSC has a good track record of estimating proportional changes in fatalities. For example, NSC was the first to document the reductions in road fatalities that started in 2006.

The economy is beginning to pick up. So what is the canary's behavior telling us now? The NSC data for each of the first seven months of 2012 show a large increase in fatalities, as compared with the number of fatalities during the same month last year (NSC, 2012). The increases in the individual months range from 5% to 14%, with the seven months averaging an 8% increase. These estimates are consistent with the official

estimate by NHTSA for the first three months of 2012, which showed an increase of 13.5% in fatalities (NHTSA, 2012c).

Consequently, what guidance do we recommend for public-policy makers in light of the recent sharp drop and then a reversal in the number of fatalities?

- Be very cautious in assuming that any sudden, large drop in fatalities is in response to interventions related to vehicle design. The main reason for this is that it takes about 20 years to turn over the fleet.
- Do not expect most regulatory actions aimed at drivers to produce a sudden, huge drop in fatalities. This is the case because such actions usually target only a portion of drivers (such as improvements in graduated driver licensing targeting young drivers only).
- Resign yourself to the fact that any sudden, large reduction in fatalities is likely only an unintended by-product of factors that influence the entire transportation system, such as a rapid change in the economy.
- Be aware that most rapid, underlying changes are transient, and therefore their effects are mostly transient too.
- Do not rest on your laurels when you note a sudden, large drop in fatalities. Instead, assume that a substantial portion of any such a change is temporary.

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