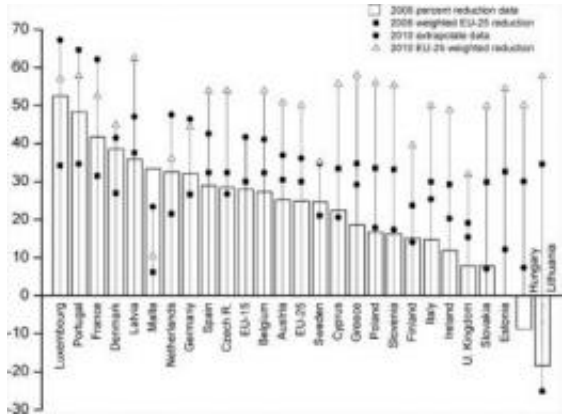
New method proposed to calculate reduction in road accident deaths

October 15 2009



This graph shows the percentage of actually reducing number of fatalities in traffic accidents between 2000-2006 vs. weighted model reduction for 2006 and 2010. Credit: Tolón et al./ SINC

A team of engineers from the University of Almería (UAL, Spain) has developed a methodology to help meet the EU objective of cutting road deaths by 50% between 2000 and 2010. The researchers have calculated the relevant amount for each country according to its starting point, and have done the same for each of the Spanish provinces.

The European Union's road safety policies set out in the White Paper on Transport seek to half the number of deaths in road accidents between 2000 and 2010, but do not specify how to achieve this objective. A group of researchers from the University of Almería has now devised a

mathematical method for carrying out these calculations, which has been published recently in the scientific journal *Accident Analysis and Prevention*.

"It is a novel methodology that is easy to apply, meaning it is possible to calculate the weighted coefficients for reducing accident rates in various geographical areas, by using an inverse logarithmic formula", Alfredo Tolón, co-author of the proposal and an engineer in the UAL's Engineering Projects Department, tells SINC.

The weighting was carried out for the 25 countries of the EU and the 50 Spanish provinces, with that the greatest effort to meet the 2010 objectives required in those countries and provinces with the highest mortality rates in 2000. In that year, 52,536 people died in road traffic accidents in Europe, of whom 4,295 were Spanish.

The researchers also compared the real evolution of road death data between 2000 and 2006 in order to check the validity of the methodology. The study shows there is a high correlation between the series of real data and those indicated by the model. Countries such as Luxembourg, Portugal, France, Denmark and Malta have even exceeded their assigned percentage.

Lithuania, Hungary, Estonia and Slovakia, on the other hand, showed the worst results, "and the projections don't give much cause for optimism about them meeting the European objective". Given this outlook, the team has also calculated the weighted accident reduction rates for the 25 countries of the EU in 2015, based on data from 2006, in order to obtain an overall reduction of 60%.

The greatest effort: Huelva, Salamanca and Malaga

The Spanish provinces least likely to meet the targets on reducing road

deaths are Huelva, Salamanca and Malaga. Vizcaya is the only one in which the number of victims in 2006 fell by more than the figure proposed by the study (61% compared to the 44.4% forecast). Other provinces making "significant progress" are Guipúzcoa, Tenerife, Navarre, Soria, Barcelona, Álava and Madrid.

"Over recent years, however, there has been evidence of important progress in Spain, and by 2010 we may not be far off achieving the right level of reduction in road accident deaths", says Tolón. According to data from the DGT (Directorate General for Traffic), 2,181 people died on Spanish roads in 2008.

In any case, the engineer stresses the importance of this kind of study "in order to open up the debate about the need for weighting in the application of global policies and to establish pragmatic objectives for reducing road accident rates".

More information: A. Tolón-Becerra, X. Lastra-Bravo, F. Bienvenido-Bárcena. "Proposal for territorial distribution of the 2010 EU road safety target". *Accident Analysis and Prevention* 41 (5): 1008, 2009.

Source: FECYT - Spanish Foundation for Science and Technology