Methodological note

PIN Flash 15

1. Road mortality and KSI per population estimation (Fig.5)

Road mortality is defined as the number of road deaths per million registered population. Deaths resulting from road accidents in a given year and deemed to have occurred within 30 days are taken into account. The registered population of January 1 is used as denominator in mortality rate calculation formula. In order to get more robust estimate, the mortality rate is estimated from the sum of deaths and population counts in the three most recent years (2006, 2007, 2008).

$?_{A,i} = Y_{A,i} / N_{A,i}$

As for the KSI per population, the number of seriously injured is added to the number of deaths and divided by the size of population in millions.

2. Regression estimation of the average annual percentage change in deaths/serious injuries over the period 2001-2008 (Fig.2,3)

To estimate the average yearly percentage change in deaths/serious injuries occurring between 2001 and 2008 one should make use of the whole time series of counts, not just the counts in 2001 and 2008. The task is thus to estimate the average annual change in the period 2001-2008.

We assume a priori a reduction in risk of deaths/serious injuries over time, so to fix the sign of a change; we will assume reduction, so that a minus sign indicates an increase. Let the average reduction per year as a percentage of the previous year be p. If $?_n$ is the risk of deaths in year n, then we wish to fit a model $?_n = ?_0 \times (1 - p/100)^n$, where in this case year 0 is 2001 and $n = 7$ in 2008.

This is equivalent to $\ln(?_n/?_0) = n \times \ln(1 - p/100)$ so if we fit $\ln(?_n/?_0) = an$ by linear regression, then a is the estimate of $\ln(1 - p/100)$ and p is estimated by $100(1-e^a)$.