

Algorithmic Support for Judicial Sentencing? Evidence from Human Smuggling Cases

Peter Kovacs, Krisztina Karsai, Zsanett Fantoly, Andor Gal and Balint Kelemen

University of Szeged, Hungary

Abstract

It has often been raised whether algorithmic support for judicial sentencing can be implemented. We examined this question in a relatively homogeneous case type, namely human smuggling cases, where the Hungarian Criminal Code explicitly identifies the aggravating and mitigating factors that may be taken into account, while not specifying their relative weights. In the empirical analysis, we examined 545 case files with respect to the legal classification of the offence under the Criminal Code. The results of the statistical analysis suggest that judicial practice cannot necessarily be regarded as consistent. Of the nine aggravating factors examined, only three were associated with significantly longer sentences, while of the seven mitigating factors analysed, only three were linked to a statistically significant reduction in sentence length. Although the number of mitigating factors showed a significant but weak correlation with the length of imprisonment, no such significant relationship could be detected for aggravating factors. Since the imposed sentence must be justifiable, we applied HC3-corrected multiple linear regression models and mixed models to estimate the length of imprisonment imposed. Our results show that aggravating and mitigating factors alone have low explanatory power ($R^2 = 0,32$); including the statutory midpoint of the sentencing range in the models improved predictive performance ($R^2 = 0,59$), but also reduced the relative importance of aggravating and mitigating circumstances in determining sentence length. The following factors had a significant effect: the number of persons transported, continuation of the offence, lapse of time, juvenile offender status, and no prior criminal record. In addition, the findings indicate that different judicial panels did not assess the weight of individual factors in the same way, which makes algorithmisation more difficult.

Keywords

linear regression models, mixed models.