

# **ABSTRACT**

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## **Statistical Applications in Greek Crime Counts**

Statistics and criminology have been cooperating for over two centuries. Statistical analyses have led to inferences that helped us understand crime behavior and helped authorities in combating crime.

This work is an effort to briefly present that Statistics can help in forming a more complete picture of crime activity, in order to understand its mechanisms. A short review of statistical applications in criminology is presented.

Since reported crimes to the police are found to follow some kind of Poisson mixture, we present some semiparametric methods of revealing the clusters in such heterogeneous populations based on maximum likelihood estimation.

Available Greek crime data are examined using preliminary methods.

A non parametric maximum likelihood estimation algorithm is applied to reveal the hidden clusters for annual data per available offense.

In the end, clustering of the estimated partial classifications obtained from the application of the NPMLE algorithm using Complete Linkage is performed to create a catholic picture of crime activity in Greece. The results are mapped for a better representation.