
Computational Statistics

Report 8 – 1st Semester 2019/2020

Deadline: 2/01/2020

In the FBI's Uniform Crime Reporting (UCR) Program, property crime includes the offenses of burglary, larceny-theft, motor vehicle theft, and arson. The object of the theft-type offenses is the taking of money or property, but there is no force or threat of force against the victims. The property crime category includes arson because the offense involves the destruction of property; however, arson victims may be subjected to force. Because of limited participation and varying collection procedures by local law enforcement agencies, only limited data are available for Arson statistics.

missing data

The data presented in Crime in the United States reflect the Hierarchy Rule, which requires that only the most serious offense in a multiple-offense criminal incident be counted. The descending order of UCR violent crimes are murder and non-negligent manslaughter, rape, robbery, and aggravated assault, followed by the property crimes of burglary, larceny-theft, and motor vehicle theft. Although arson is also a property crime, the Hierarchy Rule does not apply to the offense of arson. In cases in which an arson occurs in conjunction with another violent or property crime, both the arson and the additional crime are reported.

Perform a thorough statistical analysis of the attached data, in particular using MCMC methods to select a suitable temporal model and interpret the associated results concerning the main objective of the underlying study i.e. the relation between American regions and property crime (total or by its subcategories) by each year.

Data file: Trabalho8_EC.xls

Reference: Crime in the United States - Uniform Crime Reporting (UCR) Program (<https://www.fbi.gov/services/cjis/ucr/>).