

THE ILLICIT METHAMPHETAMINE LANDSCAPE OF FRANKLIN COUNTY, MISSOURI: APPLICATION AND ANALYSIS OF A GIS-BASED RISK ASSESSMENT MODEL

Lloyd Weber

Dr. Gail Ludwig, Thesis Advisor

ABSTRACT

Illicit methamphetamine, a synthetic, highly addictive drug, has gained national attention because of its destructive properties. Between 2002 and 2004 close to 400 clandestine methamphetamine labs were seized in Franklin County, Missouri. This study reviews documented methamphetamine production risk factors and examines a spatial model based on the reviewed risk factors. The risk factors include populations that are rural, white, impoverished, undereducated, unmarried and aged 25 - 29. The model is advanced by adding a component representing a clandestine landscape. Model output is validated using illicit meth lab seizure data supplied by Franklin County law enforcement. The model components are tested using both ordinary least squares and geographically weighted regression. This study found that the model is successful in indicating areas that have the potential to develop methamphetamine production problems. The model also was successful in indicating areas that would not likely develop a meth production problem. Ordinary least squares regression analysis indicates that every model component, with the exception of percent white and percent unmarried, are positively correlated with meth production in this case study. The results from the geographically weighted regression analysis show percent rural, percent poverty and percent clandestine landscape vary significantly across the county and indicate which areas these components have the most effect in developing and sustaining an illicit meth landscape.