Facing the Great Recession, the Southwest megapolitan cluster in the United States including Las Vegas, Southern California and Sun Corridor in Arizona had a massive negative economic shock. Skyrocketing unemployment, massive foreclosures and other socioeconomic factors may negatively affect our safe environment with changing patterns in crime. This study aims to investigate the impacts of socioeconomic factors on different types of crimes committed in the megapolitan cluster of the Southwest United States. Using annual crime datasets, we look at the three years before the Great Recession and subsequent three years (2005-2010). The metropolitan areas, Los Angeles, CA, Las Vegas, NV, Phoenix, AZ, and Tucson, AZ and surrounding neighborhood counties are included for the analysis. A set of spatial regression models is developed to estimate the impacts of socioeconomic factors and neighborhood effects. Proposed spatial dynamic model enables us to test the temporal stability under the panel data structure on the different types of crime and the associated factors. Identified spatial effects through exploratory spatial data analysis (ESDA) can be formally tested on their temporal stability with the recent Great Recession. Since the Great Recession started, the types and the magnitude of socioeconomic factors having impacts on crime have changed. This study guides to answer how negative economic situations affected different types of crimes. Understanding on the impact of socioeconomic factors on crime during economic recession helps public policy makers and law enforcement agencies design effective policy tools to provide a safer environment.