VIOLENT CRIME RATES: THE INFLUENCE OF CITY AGE

Jeffrey I. Chapman

Abstract

This paper examines the effects of city age on a specific city characteristic—the violent crime rate of that city. As such it has five basic parts: an introduction, a summary of a model of violent crime which has been previously developed, a development of a theoretical model of the effects of age on violent crime, a specification and testing of that model, and a conclusion.

Although city age has recently become of interest to urban economists, there has been little work which uses it as an explanatory variable of violent crime.

Before the direct effect of age can be determined, the model of violent crime must first be examined. This paper summarizes a model previously developed, which relates the violent crime rate to economic and demographic variables, using the tools of utility maximization. Using two stage least squares to account for simultaneity bias, a model of violent crime was estimated.

In the third section of the paper, a model of aging was developed. This model utilizes the dynamics of citizens making residential decisions based on the price of housing and the costs of commuting. From this model it is possible to make a prediction of how age of cities is related to the crime rate: as age increases, crime should increase, but, at some point, after the city reaches a certain age, the crime rate will fall.

After the model is postulated, it is operationalized. Seventy-seven California cities were selected and placed in different age of city categories. Then, the crime model was re-estimated, using the age categories as dummy variables. It was found that, for the most part, the age dummy variables were as predicted in terms of size, and that their inclusion did significantly reduce the sum of squared residuals. Thus, it was concluded that this line of analysis may be a profitable area for future research.

---

1The author is an Assistant Professor of Public Administration at the University of Southern California. He further wishes to thank Thaine Allison, Jr. for his helpful comments.
I. Introduction

The concept of the age of a city has recently become interesting to urban economists. Older cities, or sections of a city, seem to have different characteristics than newer areas, and it is popular to talk of decaying old central cities and new wealthy suburbs. Yet, there has been little recent empirical work to estimate the effects of city age per se on the various characteristics of a city. Rather, age has generally been regarded as a classifying variable, useful only to the extent that it distinguishes among groups of cities.

This paper will examine explicitly the effects of city age as an independent variable on a specific city characteristic—the violent crime rate. Initially, a model of violent crime will be examined, with violent crime conceived of as a function of several economic and environmental characteristics. Then, a model of the potential influence of age on a city's characteristics will be developed, specified and applied to the crime model. An empirical test of the age augmented crime model will next be undertaken, and conclusions will be drawn concerning the direct applicability of the age model to crime.

II. The Description of the Crime Model

Recently, there have been many models of crime. In general, they all postulate that crime (either in per capita or in absolute amounts) is negatively related to police services (either inputs or representation of outputs) and either positively or negatively related to various socio-demographic variables. The rational for these latter variables is often that their inclusion is necessary in order to hold constant the influence of environment on crime, when the police

