Theft from the person in urban China: assessing the diurnal effects of opportunity and social ecology

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A B S T R A C T :

Opportunity theories and ecological theories are commonly used to explain spatial crime patterns, but diurnal variations in these patterns have received little attention. Furthermore, the theories have been developed in Western countries, and it has remained unclear whether they are also applicable in China, and how their core concepts can be measured in the Chinese context. We use official crime data from a large Chinese city to investigate whether neighborhood rates of theft from the person are related to characteristics of the population (ecological perspective) and to the presence of transport and retail facilities that shape daily activities (opportunity perspective). We test whether effects of these characteristics differ between daytime and nighttime. Our findings demonstrate that both theories are applicable to crime analysis in China, and that temporal variations should not be ignored. Furthermore, care is required regarding the operationalization of the concepts.

1. Introduction

Decades of research have shown that variations in crime across urban neighborhoods are ubiquitous (Glaeser, Sacerdote, & Scheinkman, 1996; Shaw & McKay, 1942). These variations have been explained by two dominant theoretical frameworks, opportunity theories and social ecological theories. Although both perspectives strongly rely on the whereabouts and behavior of people (Pratt & Cullen, 2005), the diurnal mobility of populations is ignored in most of the present literature. It is implicitly assumed that populations are static, although in most urban environments populations are highly mobile, and continuously change locations over the course of the day to engage in different activities (Haberman & Ratcliffe, 2015).

Another implicit assumption in the extant literature is that opportunity theories and social ecology theories apply equally across different continents and cultures. However, both frameworks have been developed in North-America, West-Europe and Australia, but their usefulness is seldom tested elsewhere. China presents an ideal testbed for the evaluation of these two frameworks. Housing 18.5 percent of the world population, China has undergone a very fast process of urbanization over the last forty years, with rapid economic development and substantial changes in urban structures and major social developments.

There has been a growing concern about the increase of social issues, such as social stratification, urban poverty, migrant concentration and crime (Yuan & Wu, 2014). Still, it has remained an open question whether opportunity theories and social ecology theories explain the spatial distribution of crime in a culture that differs in so many ways from the United States and other Western countries.

The aim of this study is twofold. The first aim is to investigate whether the explanatory power of both perspectives can be improved by considering diurnal variation. We incorporate the mobility of the population by distinguishing daytime and nighttime theft rates, respectively. Mobility varies strongly between daytime and night time. Daytime activities involve going to work and pursuing other outdoor activities that may take place outside their own neighborhood. At night most people return home.

The second aim of this study is to assess whether the key concepts of these two approaches can be fruitfully applied in China. It has yet to be demonstrated that these concepts can be correctly measured in the Chinese context by using the same types of variables as are used in the Western industrialized world. For example, racial heterogeneity is a major element of social disorganization in most Western countries, whereas in China, there is no obvious racial heterogeneity. Instead, the difficulties that rural migrant workers face in integrating with local

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populations, facilitates social disorganization. Some elements of routine activity patterns are also different. Alcohol consumption in public establishments like bars, for example, is a common and popular entertainment activity in most Western countries, but not in China. With respect to land use, commercial facilities, like restaurants and convenience stores, are typically dispersed in China, while in Western countries, they tend to be more spatially concentrated. Therefore, in this study we carefully consider not only the effects of social and infrastructural elements on crime, but also the proper measurement of these elements in the Chinese context.

Our analysis focuses on thefts from the person. Like the authorities in other countries, local governments in China highly prioritize city safety. As property crimes are much more common than violent crimes, thefts from the person (TFP) are a major public safety issue in China and a core topic in urban crime prevention initiatives. TFP refers to situations in which offenders covertly steal properties from the victims in public or semi-public places, for example by pick-pocketing or by taking away valuables while the owners are distracted.

2. Literature review

2.1. Theoretical framework

The opportunity framework includes routine activity, crime pattern and rational choice theories, and it emphasizes geographic variations in criminal opportunities (Brantingham & Brantingham, 1984; Carroll & Weaver, 1986; Sampson & Wooldredge, 1987). Routine activity theory asserts that motivated offenders, suitable targets and absence of guardians are the three necessary conditions for crime (Cohen & Felson, 1979). Where potential and suitable victims' routine activities overlap in time and space with those of motivated offenders, crime is a possible result. Crime pattern theory is fully comparable with routine activity theory, but it adds to routine activity theory a more detailed description of offenders' and victims' activity spaces (Brantingham, Brantingham, & Andresen, 2017) and the notion that locations can function as crime generators and crime attractors (Kinney, Brantingham, Wuschke, Kirk, & Brantingham, 2008). In general, crime is related to land use or criminogenic places and it is hypothesized that the busier a place is, the larger the number of potential targets and thus criminal opportunities for motivated offenders there will be (Bernasco & Block, 2011; Copes, 1999; McCord, Ratcliffe, Garcia, & Taylor, 2007; Steenbeek, Völker, Flap, & van Oort, 2012). Rational choice theory is a generic theory of behavior that stresses the goal-directed and optimizing nature of human decision-making, including criminal decision-making (Cohen, 1981). It assumes, for example, that thieves prefer maximal profits and minimal effort and risk of apprehension.

Since the works of the Chicago School, the social ecological framework has been influential in the study of geographic variations in crime (Bursik, 1988; Pratt & Cullen, 2005; Taylor, 1997). Ecological theories "seek to explain variations in crime rates through the differing incentives, pressures, and deterrents that individuals face in different environments" (Kelly, 2000, p. 530). The most important ecological theory is social disorganization theory, in which the social characteristics of the neighborhood and its residents are related to lack of social organization and social control (Boessen & Hipp, 2015; Seddon, 2006; Shaw & McKay, 1942). The composition of a community, in terms of the characteristics of its residents, is tightly related to social control as well as to social disorganization (Osgood & Anderson, 2004). Jacobs (1961) observed that informal social control, also known as "eyes on the streets", is crucial to restrain disorder and crime. However, informal social control is voluntary behavior and it requires collective efficacy, i.e. mutual trust and cohesion amongst residents (Sampson, Raudenbush, & Earls, 1997). It has been found that poverty, ethnic heterogeneity, and residential mobility lower collective efficacy and thereby facilitate deviant behavior and crime (Osgood, Wilson, Omalley, Bachman, & Johnston, 1996; Rice & Smith, 2002).

In our analysis of urban crime rates in China we will apply both the opportunity framework and the ecological framework, as their combination has proven to be necessary and useful in many Western countries. Smith, Frazee, and Davison (2000) proposed to integrate the theories of social disorganization and routine activity for the analysis of street robbery in a medium-sized U.S. city. Using the integrated theoretical framework, Rice and Smith (2002) carried out empirical research to study the diffusion of automobile theft, and found that the integration of the two approaches increased the predictive power of their models.

2.2. Temporal concern

People's behavior is strongly constrained both temporally and spatially, and the effect of time should be taken into account (Haberman & Ratcliffe, 2015; Ratcliffe, 2006). The temporal rhythms of residents (and formal guardians like police officers) have an influence on the offending opportunities of potential offenders (Ackerman & Rossmo, 2015; Bernasco, 2010; Bernasco, Johnson, & Ruiter, 2015). As a result, opportunities for crime are not homogeneous across space and time and the function of social ecology may also change (Martin, Cockings, & Leung, 2015). Quantitatively speaking, the impact of potentially criminogenic places on crime is thought to be a function of time, as some of the model parameters are not temporally stable (Ceccato & Uittenbogaard, 2014; Haberman & Ratcliffe, 2015; He, Paez, Liu, & Jiang, 2015). For example, studying street robbery in Philadelphia, Haberman and Ratcliffe (2015) distinguished four different periods of the day and found that some effects varied across the different periods. Bernasco, Ruiter, and Block (2016), however, demonstrated that location choices of street robbers in Chicago hardly varied across twelve 2-h time blocks of the day, the effects of high school presence being the only exception.

However, except the literature mentioned above, time effects, especially the diurnal variation, are neglected in most studies of the urban geography of crime, both in the Western world and in China.

2.3. Crime research on China

There has been some empirical work applying both opportunity and social ecology approaches to crime in China (Chen et al., 2017; Liu & Li, 2017). Feng, Dong, and Song (2015) described the spatial and temporal changes of crime patterns for weeks in different years. Consistent with the opportunity theory literature, commercial land use is supposed to generate a concentration of people who form the potential targets for offenders. Liu, Song, and Xiu (2016) demonstrated that violent crime in Changchun City is strongly concentrated in the central city area and that this concentration can be explained by characteristics of the neighborhood's socioeconomic and demographic attributes, and in particular by land use.

However, besides the temporal effects of some risk factors, the contemporary literature about crime in China does not address the criminogenic effects of specific facilities, and does not distinguish between stores, bars, restaurants, transit stations, or other types of facilities.

In terms of social ecology, factors like poverty and residential stability have been demonstrated to affect crime rates in China. Jiang, Wang, and Lambert (2010) found that residential stability increased informal social control in Guangzhou. Zhang, Messner, and Liu (2007) used a multilevel model to study the risk of household burglary in Tianjin. They demonstrated the applicability of Western criminological theory to China but also noted some important differences.

Characteristics of the social ecology in China are much more complicated than what has usually been measured in social research. With a large number of migrants from rural areas and increasing attraction to the highly-educated, Chinese cities tend to have very heterogeneous population. Individuals cannot easily be classified on the basis of a