



## Take the car keys away: Metropolitan structure and the long road to delinquency

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### ABSTRACT

**Purpose:** This research fulfills a void in offender mobility discourse. Metropolitan socioeconomic and spatial structure, defined in crime pattern theory as the urban backcloth, plays a significant role in shaping travel behavior; and yet, current analysis of offender mobility continues to favor individual characteristics to account for travel range.

**Methods:** Using a large sample of juveniles, both delinquent and at-risk youth (N=2,552), this study compared the predictive utility of individual characteristics against indicators of urban backcloth.

**Results:** Delinquent youth were found to be more sensitive to the environmental conditions exerted by community-level socioeconomic characteristics than their at-risk counterparts. However, two factors—intercity hierarchical structure and motor vehicle access—accounted for travel variability among all youth.

**Conclusions:** Offending behavior must be examined within the context of a dynamic environmental context formed by the metropolitan socioeconomic and spatial structure. Delinquents constitute an identifiable subgroup of youth.

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### Introduction

Underpinning studies of metropolitan structure is deference to the ideas of central place theory (Christaller, 1933; Lösch, 1954; Berry, 1967): market systems shape the intercity arrangement of social, economic, and political activities that are reflected in city and regional geography (e.g., ESPON, 2003; Felson, 1987; Gordon & Richardson, 1996). Crime pattern theory integrates, expands, and applies these geographic concepts to offender behavior to explain how *metropolitan structure*—the spatial and social organization of communities—influences offender travel habits and ultimately, crime patterns (Brantingham & Brantingham, 2008). If routine travel reflects the spatially embedded processes that shape urban landscapes, then variation in mobility patterns are as much a function of individual objectives, perspectives and demographics, as the environmental context (Forman et al., 2008; Johansson, 2006; McDonald, 2007).

Integrating geographic principles is necessary to advance knowledge about offender movement; however, this must occur through systematic testing. Prior studies have not included a non-offending comparison group when examining the travel habits of deviants. While it is theoretically feasible to assume that the travel habits of deviants and non-offending, at-risk youth are similarly influenced by critical variables, a direct comparison is needed to bolster the

empirical connection between tenets of geography and applied criminology. The present study aims to address these caveats and extend a line of inquiry aimed at decoding variability in offender travel behavior by assessing the relative effects of predictors measured at two different units of analysis with multilevel models (MLM).

If travel is nested within metropolitan structure as geographic research suggests (e.g., Schlossberg et al., 2006; Wheeler & Stutz, 1971), then MLM can uncover the complex dynamics affecting individual behavior (Raudenbush & Bryk, 2002; Singer & Willett, 2003). As will be shown here, isolating specific factors and interaction effects, while comparing deviants to at-risk youth, provides an opportunity to empirically bridge streams of travel research. In turn, this will fuel theoretical development in several fields, advance efforts to identify population subgroups, and support the development of effective crime prevention strategies. Prior to discussing the results of this study, a brief overview of the relevant literature is presented.

### Travel distance variability

#### Theoretical context

Geographers often use *central place theory* to explain the formation of metropolitan social, political, and economic structure. Central place theory was originally articulated by Christaller (1933), critiqued by Lösch (1954), and developed by Berry (1967). This theory suggests that market centers of varying size and influence (e.g., hamlets, villages, towns, cities, and regional capitals) generate intercity

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networks. Christaller's (1933) central thesis proposed that residents from less populous areas would remain in that community to make common purchases of low-order goods (i.e., groceries), but venture out of their community to obtain more valuable, high-order goods (i.e., computers, vehicles, and other rare purchases). This notion was later challenged by Lösch (1954) who claimed that Christaller's central place theory was too dependent upon retail distribution and did not take other factors into account, such as the social structure of communities (Berry & Garrison, 1958). More recently, Berry (1967) expounded upon the theory by offering principles to account for the growth and continued specialization of modern market centers, ribbon development associated with expressway systems, emergence of new metropolitan forms, and post World War II residential patterns. Building from the foundation laid by geographers, Brantingham and Brantingham (1984) argued that integrating these principles of urban planning, and exploring alternative applications of micro, meso, and macro-level spatial analysis, will contribute significantly to our understanding of crime.

In its most recent incarnation, *crime pattern theory* (CPT) states that complex crime patterns emerge from the interaction between offender motivation and target characteristics, embedded within a multifaceted environmental context that has spatial-temporal constraints (Brantingham & Brantingham, 2008). Simply stated, most offending is thought to be opportunistic with motivated individuals encountering crime targets while navigating among ordinary, routine activities (e.g., Rossmo, 2000). Popular facilities, acting as central places or anchors for a large number of people, inevitably emerge as potential crime attractors or generators as reflected in crime rates (Kinney, Brantingham, Waschuke, Kirk, & Brantingham, 2008). And while much of the CPT discourse may focus on individuals and their networks, it is the sum of these individual patterns that account for community-level crime patterns (Brantingham & Brantingham, 2008).

Though often used in a micro context, CPT does not advance a scale dependent explanation of crime. Instead, "a theory must make it possible to recognize and understand both individual and aggregate patterns of behavior at many levels of resolution" (Brantingham & Brantingham, 1993:265). It is generally argued that a range of individual, community, and societal factors simultaneously influence observable behavior (Brantingham & Brantingham, 1981, 1984, 2008). Two of the most critical, and dynamic influences are the activity space and the urban backcloth.

Routine and past activity involving legitimate and illicit behavior produces an activity space that generates awareness of potential crime opportunities, thereby shaping subsequent deviance. Though anchored by activity nodes, this dynamic web of spatial awareness also includes all paths and less frequently visited places. Since urban planning tends to favor the development of land use clustering, and cities often gain a competitive edge through industry specialization (i.e., entertainment cities or residential suburbs), the dominant features of urban topography will be reflected in individual behavior (e.g., ESPON, 2003; Gordon & Richardson, 1996; Lee et al., 2009). Given that crime occurrences are contextualized by urban form, it is critical that researchers study the ever changing framework of the urban backcloth. The urban backcloth in part, controls where crime manifests. This construct is defined as, "roads, land use, the economic forces driving a city, the socio-economic status of residents and workers and the place of the city within a hierarchy of cities in the region" (Brantingham & Brantingham, 2008:87 emphasis added). This means that studying individual behavior occurring within metropolitan regions, particularly, those areas that exhibit a degree of intercity travel, requires a broad geographic framework. Clipping behavior by the administrative boundaries of the residential city will grossly bias our understanding of crime patterns. This artificial truncation depresses estimates of movement, skewing offending models toward short travel paths. In sum, though often mischaracterized as

a scale dependent theory, CPT seeks to account for "discernible patterns both in criminal events and for criminals that are scale independent [and the tenets of CPT] can be found at both detailed and general levels of analysis" (Brantingham & Brantingham, 2008:79). Therefore, the correct application of the CPT requires sensitivity to the regional urban context visible in the metropolitan structure.

#### *Metropolitan structure*

##### *Intercity hierarchy*

Geographic research consistently finds that communities are positioned within regional hierarchies and this intercity structure and associated land use clustering will produce travel habits that exhibit nested patterns (e.g., Lee et al., 2009; McDonald, 2007). For example, adults living in suburban, bedroom communities tend to travel longer distances for both work and non-work activities (Buchanan & Barnett, 2006; Dieleman et al., 2002; Giuliano & Dargay, 2006; Maat & Timmermans, 2009; Schwanen & Mokhtarian, 2005). Moreover, while an exhaustive review of geographic research in this area is beyond the scope of this study, the research highlighted here provides clear evidence that land use interacts with trip purpose. For instance, specialized business and commercial centers generate activity clusters linking employment, business, and retail trips, as well as connecting school travel with social eating trips and recreation destinations (Berry, 1967; Wheeler, 1972). Cross-level effects are also apparent: family composition and income levels are observed to interact with residential density (e.g., Giuliano & Narayan, 2003; Stead & Marshall, 2001); and, individuals from higher income brackets, or those with children, generally prefer to reside in lower density communities, which fosters a preference for vehicle travel and increased mileage (Dieleman et al., 2002; Golob & Brownstone, 2005).

Intercity structure is also found to correlate with crime; for example, studies of crime patterns confirm that regional land use distribution will significantly shape crime concentration, generating an uneven spread or migration of crime problems across metropolitan areas (e.g., Felson, 1987; Kinney et al., 2008; Rengert, 1996; Wiles & Costello, 2000). Significant variation within facility type is also widely documented, suggesting that variation in the context of places may account for the crime potential of specific facilities with similar site characteristics (Eck et al., 2007; Bichler et al., 2010a). For these reasons, jurisdictional boundaries are often considered an impediment to law enforcement and crime prevention efforts as offenders rarely stop at city borders (La Vigne & Wartell, 2001; Rossmo, 2000).

##### *Importance of juvenile market centers*

Adult travel is closely aligned with the nexus between the city of residence and the place of employment or retail activity; however, among juveniles, uncovering the intercity activity structure will require finding recreational and school centers. The proclivity of youth to hangout with their peers suggests that amenity concentration and the popularity of sites can also be used to determine the hierarchy of communities. For example, a recent study examining the general travel patterns of delinquent youth residing in Southern California found the most pronounced subgroup differences occurred when cities were categorized based on youth-oriented facility concentration (Bichler et al., 2010b). Youth residing in isolated communities with few recreational options traveled considerably farther than those from cities with many things to do. Subsequent analysis found that a small number of facilities, most notably shopping malls and movie theaters, attracted youth from schools throughout the regions examined (Bichler et al., in press). Facilities offering goods and services desirable to youth may have a *magnetic effect*, drawing people from different cities, thereby accounting for longer observed median travel distances (Bichler et al., 2010a; Felson, 1987). Support for the importance of select facilities is found in a series of studies examining the trajectory of juvenile crime on street segments (Groff

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