

Social Change and Crime Rate Trends: A Routine Activity Approach

Author(s): Lawrence E. Cohen and Marcus Felson

Source: *American Sociological Review*, Vol. 44, No. 4 (Aug., 1979), pp. 588-608

Published by: American Sociological Association

Stable URL: <https://www.jstor.org/stable/2094589>

Accessed: 03-10-2019 01:18 UTC

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <https://about.jstor.org/terms>



JSTOR

American Sociological Association is collaborating with JSTOR to digitize, preserve and extend access to *American Sociological Review*

SOCIAL CHANGE AND CRIME RATE TRENDS: A ROUTINE ACTIVITY APPROACH*

LAWRENCE E. COHEN AND MARCUS FELSON

University of Illinois, Urbana

American Sociological Review 1979, Vol. 44 (August):588–608,

In this paper we present a "routine activity approach" for analyzing crime rate trends and cycles. Rather than emphasizing the characteristics of offenders, with this approach we concentrate upon the circumstances in which they carry out predatory criminal acts. Most criminal acts require convergence in space and time of *likely offenders*, *suitable targets* and the *absence of capable guardians* against crime. Human ecological theory facilitates an investigation into the way in which social structure produces this convergence, hence allowing illegal activities to feed upon the legal activities of everyday life. In particular, we hypothesize that the dispersion of activities away from households and families increases the opportunity for crime and thus generates higher crime rates. A variety of data is presented in support of the hypothesis, which helps explain crime rate trends in the United States 1947–1974 as a byproduct of changes in such variables as labor force participation and single-adult households.

INTRODUCTION

In its summary report the National Commission on the Causes and Prevention of Violence (1969: xxxvii) presents an important sociological paradox:

Why, we must ask, have urban violent crime rates increased substantially during the past decade when the conditions that are supposed to cause violent crime have not worsened—have, indeed, generally improved?

The Bureau of the Census, in its latest report on trends in social and economic conditions in metropolitan areas, states that most "indicators of well-being point toward progress in the cities since 1960." Thus, for example, the proportion of blacks in cities who completed high school rose from 43 percent in 1960 to 61 percent in 1968; unemployment rates dropped significantly between 1959 and 1967 and the median family income of blacks in cities increased from 61 percent to 68 percent of the median white

family income during the same period. Also during the same period the number of persons living below the legally-defined poverty level in cities declined from 11.3 million to 8.3 million.

Despite the general continuation of these trends in social and economic conditions in the United States, the *Uniform Crime Report* (FBI, 1975:49) indicates that between 1960 and 1975 reported rates of robbery, aggravated assault, forcible rape and homicide increased by 263%, 164%, 174%, and 188%, respectively. Similar property crime rate increases reported during this same period¹ (e.g., 200% for burglary rate) suggest that the paradox noted by the Violence Commission applies to nonviolent offenses as well.

¹ Though official data severely underestimate crime, they at least provide a rough indicator of trends over time in the volume of several major felonies. The possibility that these data also reflect trends in rates at which offenses are reported to the police has motivated extensive victimology research (see Nettler, 1974; and Hindelang, 1976, for a review). This work consistently finds that seriousness of offense is the strongest determinant of citizen reporting to law enforcement officials (Skogan, 1976: 145; Hindelang, 1976: 401). Hence the upward trend in official crime rates since 1960 in the U.S. may reflect increases in *both* the volume and seriousness of offenses. Though disaggregating these two components may not be feasible, one may wish to interpret observed trends as generated largely by both.

* Address all communications to: Lawrence E. Cohen; Department of Sociology; University of Illinois; Urbana, IL 61801.

For their comments, we thank David J. Bordua, Ross M. Stolzenberg, Christopher S. Dunn, Kenneth C. Land, Robert Schoen, Amos Hawley, and an anonymous reviewer. Funding for this study was provided by these United States Government grants: National Institute for Mental Health 1-R01-MH31117-01; National Science Foundation, SOC-77-13261; and United States Army RI/DAHC 19-76-G-0016. The authors' name order is purely alphabetical.

In the present paper we consider these paradoxical trends in crime rates in terms of changes in the "routine activities" of everyday life. We believe the structure of such activities influences criminal opportunity and therefore affects trends in a class of crimes we refer to as *direct-contact predatory violations*. Predatory violations are defined here as illegal acts in which "someone definitely and intentionally takes or damages the person or property of another" (Glaser, 1971:4). Further, this analysis is confined to those predatory violations involving direct physical contact between at least one offender and at least one person or object which that offender attempts to take or damage.

We argue that structural changes in routine activity patterns can influence crime rates by affecting the convergence in space and time of the three minimal elements of direct-contact predatory violations: (1) motivated offenders, (2) suitable targets, and (3) the absence of capable guardians against a violation. We further argue that the lack of any one of these elements is sufficient to prevent the successful completion of a direct-contact predatory crime, and that the convergence in time and space of suitable targets and the absence of capable guardians may even lead to large increases in crime rates without necessarily requiring any increase in the structural conditions that motivate individuals to engage in crime. That is, if the proportion of motivated offenders or even suitable targets were to remain stable in a community, changes in routine activities could nonetheless alter the likelihood of their convergence in space and time, thereby creating more opportunities for crimes to occur. Control therefore becomes critical. If controls through routine activities were to decrease, illegal predatory activities could then be likely to increase. In the process of developing this explanation and evaluating its consistency with existing data, we relate our approach to classical human ecological concepts and to several earlier studies.

The Structure of Criminal Activity

Sociological knowledge of how community structure generates illegal acts has

made little progress since Shaw and McKay and their colleagues (1929) published their pathbreaking work, *Delinquency Areas*. Variations in crime rates over space long have been recognized (e.g., see Guerry, 1833; Quêtelet, 1842), and current evidence indicates that the pattern of these relationships within metropolitan communities has persisted (Reiss, 1976). Although most spatial research is quite useful for describing crime rate patterns and providing post hoc explanations, these works seldom consider—conceptually or empirically—the fundamental human ecological character of illegal acts as *events* which occur at specific locations in *space* and *time*, involving specific persons and/or objects. These and related concepts can help us to develop an extension of the human ecological analysis to the problem of explaining changes in crime rates over time. Unlike many criminological inquiries, we do not examine why individuals or groups are inclined criminally, but rather we take criminal inclination as given and examine the manner in which the spatio-temporal organization of social activities helps people to translate their criminal inclinations into action. Criminal violations are treated here as routine activities which share many attributes of, and are interdependent with, other routine activities. This interdependence between the structure of illegal activities and the organization of everyday sustenance activities leads us to consider certain concepts from human ecological literature.

Selected Concepts from Hawley's Human Ecological Theory

While criminologists traditionally have concentrated on the *spatial* analysis of crime rates within metropolitan communities, they seldom have considered the *temporal* interdependence of these acts. In his classic theory of human ecology, Amos Hawley (1950) treats the community not simply as a unit of territory but rather as an organization of symbiotic and commensalistic relationships as human activities are performed over both space and time.

Hawley identified three important temporal components of community structure: (1) *rhythm*, the regular periodicity with which events occur, as with the rhythm of travel activity; (2) *tempo*, the number of events per unit of time, such as the number of criminal violations per day on a given street; and (3) *timing*, the coordination among different activities which are more or less interdependent, such as the coordination of an offender's rhythms with those of a victim (Hawley, 1950:289; the examples are ours). These components of temporal organization, often neglected in criminological research, prove useful in analyzing how illegal tasks are performed—a utility which becomes more apparent after noting the spatio-temporal requirements of illegal activities.

The Minimal Elements of Direct-Contact Predatory Violations

As we previously stated, despite their great diversity, direct-contact predatory violations share some important requirements which facilitate analysis of their structure. Each successfully completed violation minimally requires an *offender* with both criminal inclinations and the ability to carry out those inclinations, a person or object providing a *suitable target* for the offender, and *absence of guardians* capable of preventing violations. We emphasize that the lack of any one of these elements normally is sufficient to prevent such violations from occurring.² Though guardianship is implicit in everyday life, it usually is marked by the absence of violations; hence it is easy to overlook. While police action is analyzed widely, guardianship by ordinary citizens of one another and of property as they go about routine activities may be one of the most neglected elements in sociological research on crime, especially since it links seemingly unre-

lated social roles and relationships to the occurrence or absence of illegal acts.

The conjunction of these minimal elements can be used to assess how social structure may affect the tempo of each type of violation. That is, the probability that a violation will occur at any specific time and place might be taken as a function of the convergence of likely offenders and suitable targets in the absence of capable guardians. Through consideration of how trends and fluctuations in social conditions affect the frequency of this convergence of criminogenic circumstances, an explanation of temporal trends in crime rates can be constructed.

The Ecological Nature of Illegal Acts

This ecological analysis of direct-contact predatory violations is intended to be more than metaphorical. In the context of such violations, people, gaining and losing sustenance, struggle among themselves for property, safety, territorial hegemony, sexual outlet, physical control, and sometimes for survival itself. The interdependence between offenders and victims can be viewed as a predatory relationship between functionally dissimilar individuals or groups. Since predatory violations fail to yield any net gain in sustenance for the larger community, they can only be sustained by feeding upon other activities. As offenders cooperate to increase their efficiency at predatory violations and as potential victims organize their resistance to these violations, both groups apply the symbiotic principle to improve their sustenance position. On the other hand, potential victims of predatory crime may take evasive actions which encourage offenders to pursue targets other than their own. Since illegal activities must feed upon other activities, the spatial and temporal structure of routine legal activities should play an important role in determining the location, type and quantity of illegal acts occurring in a given community or society. Moreover, one can analyze how the structure of community organization as well as the level of technology in a society provide the circumstances under which crime can thrive. For example, technology and organization

² The analytical distinction between target and guardian is not important in those cases where a personal target engages in self-protection from direct-contact predatory violations. We leave open for the present the question of whether a guardian is effective or ineffective in all situations. We also allow that various guardians may primarily supervise offenders, targets or both. These are questions for future examination.

affect the capacity of persons with criminal inclinations to overcome their targets, as well as affecting the ability of guardians to contend with potential offenders by using whatever protective tools, weapons and skills they have at their disposal. Many technological advances designed for legitimate purposes—including the automobile, small power tools, hunting weapons, highways, telephones, etc.—may enable offenders to carry out their own work more effectively or may assist people in protecting their own or someone else's person or property.

Not only do routine legitimate activities often provide the wherewithal to commit offenses or to guard against others who do so, but they also provide offenders with suitable targets. Target suitability is likely to reflect such things as value (i.e., the material or symbolic desirability of a personal or property target for offenders), physical visibility, access, and the inertia of a target against illegal treatment by offenders (including the weight, size, and attached or locked features of property inhibiting its illegal removal and the physical capacity of personal victims to resist attackers with or without weapons). Routine production activities probably affect the suitability of consumer goods for illegal removal by determining their value and weight. Daily activities may affect the location of property and personal targets in visible and accessible places at particular times. These activities also may cause people to have on hand objects that can be used as weapons for criminal acts or self-protection or to be preoccupied with tasks which reduce their capacity to discourage or resist offenders.

While little is known about conditions that affect the convergence of potential offenders, targets and guardians, this is a potentially rich source of propositions about crime rates. For example, daily work activities separate many people from those they trust and the property they value. Routine activities also bring together at various times of day or night persons of different background, sometimes in the presence of facilities, tools or weapons which influence the commission or avoidance of illegal acts. Hence, the timing of work, schooling and leisure may

be of central importance for explaining crime rates.

The ideas presented so far are not new, but they frequently are overlooked in the theoretical literature on crime. Although an investigation of the literature uncovers significant examples of descriptive and practical data related to the routine activities upon which illegal behavior feeds, these data seldom are treated within an analytical framework. The next section reviews some of this literature.

RELATION OF THE ROUTINE ACTIVITY APPROACH TO EXISTANT STUDIES

A major advantage of the routine activity approach presented here is that it helps assemble some diverse and previously unconnected criminological analyses into a single substantive framework. This framework also serves to link illegal and legal activities, as illustrated by a few examples of descriptive accounts of criminal activity.

Descriptive Analyses

There are several descriptive analyses of criminal acts in criminological literature. For example, Thomas Reppetto's (1974) study, *Residential Crime*, considers how residents supervise their neighborhoods and streets and limit access of possible offenders. He also considers how distance of households from the central city reduces risks of criminal victimization. Reppetto's evidence—consisting of criminal justice records, observations of comparative features of geographic areas, victimization survey data and offender interviews—indicates that offenders are very likely to use burglary tools and to have at least minimal technical skills, that physical characteristics of dwellings affect their victimization rates, that the rhythms of residential crime rate patterns are marked (often related to travel and work patterns of residents), and that visibility of potential sites of crime affects the risk that crimes will occur there. Similar findings are reported by Pope's (1977a; 1977b) study of burglary in California and by Scarr's (1972) study of burglary in and around the District of Columbia. In addi-

tion, many studies report that architectural and environmental design as well as community crime programs serve to decrease target suitability and increase capable guardianship (see, for example, Newman, 1973; Jeffery, 1971; Washnis, 1976), while many biographical or autobiographical descriptions of illegal activities note that lawbreakers take into account the nature of property and/or the structure of human activities as they go about their illegal work (see, e.g., Chambliss, 1972; Klockars, 1974; Sutherland, 1937; Letkemann, 1973; Jackson, 1969; Martin, 1952; Maurer, 1964; Cameron, 1964; Williamson, 1968).

Evidence that the spatio-temporal organization of society affects patterns of crime can be found in several sources. Strong variations in specific predatory crime rates from hour to hour, day to day, and month to month are reported often (e.g., Wolfgang, 1958; Amir, 1971; Rappetto, 1974; Scarr, 1972; FBI, 1975; 1976), and these variations appear to correspond to the various tempos of the related legitimate activities upon which they feed. Also at a microsociological level, Short and Strodtbeck (1965: chaps. 5 and 11) describe opportunities for violent confrontations of gang boys and other community residents which arise in the context of community leisure patterns, such as "quarter parties" in black communities, and the importance, in the calculus of decision making employed by participants in such episodes, of low probabilities of legal intervention. In addition, a wealth of empirical evidence indicates strong spatial variations over community areas in crime and delinquency rates³ (for an excellent discussion and re-

view of the literature on ecological studies of crimes, see Wilks, 1967). Recently, Albert Reiss (1976) has argued convincingly that these spatial variations (despite some claims to the contrary) have been supported consistently by both official and unofficial sources of data. Reiss further cites victimization studies which indicate that offenders are very likely to select targets not far from their own residence (see USDJ, 1974a; 1974b; 1974c).

Macrolevel Analyses of Crime Trends and Cycles

Although details about how crime occurs are intrinsically interesting, the important analytical task is to learn from these details how illegal activities carve their niche within the larger system of activities. This task is not an easy one. For example, attempts by Bonger (1916), Durkheim (1951; 1966), Henry and Short (1954), and Fleisher (1966) to link the rate of illegal activities to the economic condition of a society have not been completely successful. Empirical tests of the relationships postulated in the above studies have produced inconsistent results which some observers view as an indication that the level of crime is not related systematically to the economic conditions of a society (Mansfield et al., 1974: 463; Cohen and Felson, 1979).

It is possible that the wrong economic and social factors have been employed in these macro studies of crime. Other researchers have provided stimulating alternative descriptions of how social change affects the criminal opportunity structure, thereby influencing crime rates in particular societies. For example, at the beginning of the nineteenth century, Patrick Colquhoun (1800) presented a detailed, lucid description and analysis of crime in the London metropolitan area and suggestions for its control. He assembled substantial evidence that London was experiencing a massive crime wave attributable to a great increment in the assemblage and

³ One such ecological study by Sarah Boggs (1965) presents some similar ideas in distinguishing *familiarity* of offenders with their targets and *profitability* of targets as two elements of crime occurrence. Boggs's work stands apart from much research on the ecology of crime in its consideration of crime occurrence rates separately from offender rates. The former consist of the number of offenses committed in a given area per number of suitable targets within that area (as estimated by various indicators). The latter considers the residence of offenders in computing the number of offenders per unit of population. Boggs examines the correlations between crime occurrence rates and offender rates for several of-

fenses in St. Louis and shows that the two are often independent. It appears from her analysis that *both* target and offender characteristics play a central role in the location of illegal activity.

movement of valuable goods through its ports and terminals.

A similar examination of crime in the period of the English industrial expansion was carried out by a modern historian, J. J. Tobias (1967), whose work on the history of crime in nineteenth century England is perhaps the most comprehensive effort to isolate those elements of social change affecting crime in an expanding industrial nation. Tobias details how far-reaching changes in transportation, currency, technology, commerce, merchandising, poverty, housing, and the like, had tremendous repercussions on the amount and type of illegal activities committed in the nineteenth century. His thesis is that structural transformations either facilitated or impeded the opportunities to engage in illegal activities. In one of the few empirical studies of how recent social change affects the opportunity structure for crime in the United States, Leroy Gould (1969) demonstrated that the increase in the circulation of money and the availability of automobiles between 1921 and 1965 apparently led to an increase in the rate of bank robberies and auto thefts, respectively. Gould's data suggest that these relationships are due more to the abundance of opportunities to perpetrate the crimes than to short-term fluctuations in economic activities.

Although the sociological and historical studies cited in this section have provided some useful *empirical* generalizations and important insights into the incidence of crime, it is fair to say that they have not articulated systematically the *theoretical* linkages between routine legal activities and illegal endeavors. Thus, these studies cannot explain how changes in the larger social structure generate changes in the opportunity to engage in predatory crime and hence account for crime rate trends.⁴

To do so requires a conceptual framework such as that sketched in the preceding section. Before attempting to demonstrate the feasibility of this approach with macrolevel data, we examine available microlevel data for its consistency with the major assumptions of this approach.

Microlevel Assumptions of the Routine Activity Approach

The theoretical approach taken here specifies that crime rate trends in the post-World War II United States are related to patterns of what we have called routine activities. We define these as any recurrent and prevalent activities which provide for basic population and individual needs, whatever their biological or cultural origins. Thus routine activities would include formalized work, as well as the provision of standard food, shelter, sexual outlet, leisure, social interaction, learning and childrearing. These activities may go well beyond the minimal levels needed to prevent a population's extinction, so long as their prevalence and recurrence makes them a part of everyday life.

Routine activities may occur (1) at home, (2) in jobs away from home, and (3) in other activities away from home. The latter may involve primarily household members or others. We shall argue that, since World War II, the United States has experienced a major shift of routine activities away from the first category into the remaining ones, especially those nonhousehold activities involving nonhousehold members. In particular, we shall argue that this shift in the structure of routine activities increases the probability that motivated offenders will converge in space and time with suitable targets in the absence of capable guardians, hence contributing to significant increases in the

⁴ The concept of the opportunity for crime contained in the above research and in this study differs considerably from the traditional sociological usage of the *differential opportunity* concept. For example, Cloward and Ohlin (1960) employed this term in discussing how legitimate and illegitimate opportunities affect the resolution of adjustment problems leading to gang delinquency. From their viewpoint, this resolution depends upon the kind of social support for one or another type of illegitimate activity that is

given at different points in the social structure (Cloward and Ohlin, 1960: 151). Rather than circumstantial determinants of crime, they use differential opportunity to emphasize structural features which motivate offenders to perpetrate certain types of crimes. Cloward and Ohlin are largely silent on the interaction of this motivation with target suitability and guardianship as this interaction influences crime rates.

direct-contact predatory crime rates over these years.

If the routine activity approach is valid, then we should expect to find evidence for a number of empirical relationships regarding the nature and distribution of predatory violations. For example, we would expect routine activities performed within or near the home and among family or other primary groups to entail lower risk of criminal victimization because they enhance guardianship capabilities. We should also expect that routine daily activities affect the location of property and personal targets in visible and accessible places at particular times, thereby influencing their risk of victimization. Furthermore, by determining their size and weight and in some cases their value, routine production activities should affect the suitability of consumer goods for illegal removal. Finally, if the routine activity approach is useful for explaining the paradox presented earlier, we should find that the circulation of people and property, the size and weight of consumer items etc., will parallel changes in crime rate trends for the post-World War II United States.

The veracity of the routine activity approach can be assessed by analyses of both microlevel and macrolevel interdependencies of human activities. While consistency at the former level may appear noncontroversial, or even obvious, one nonetheless needs to show that the approach does not contradict existing data before proceeding to investigate the latter level.

EMPIRICAL ASSESSMENT

Circumstances and Location of Offenses

The routine activity approach specifies that household and family activities entail lower risk of criminal victimization than nonhousehold-nonfamily activities, despite the problems in measuring the former.⁵

⁵ Recent research indicates the existence of substantial quantities of family violence which remains outside of UCR data (see annotated bibliography of family violence in Lystad, 1974). While we cannot rule out the likelihood that much family violence is concealed from victimization surveys, the latter capture information absent from police data and still

National estimates from large-scale government victimization surveys in 1973 and 1974 support this generalization (see methodological information in Hindelang et al., 1976: Appendix 6). Table 1 presents several incident-victimization rates per 100,000 population ages 12 and older. Clearly, the rates in Panels A and B are far lower at or near home than elsewhere and far lower among relatives than others. The data indicate that risk of victimization varies directly with social distance between offender and victim. Panel C of this table indicates, furthermore, that risk of lone victimization far exceeds the risk of victimization for groups. These relationships are strengthened by considering time budget evidence that, on the average, Americans spend 16.26 hours per day at home, 1.38 hours on streets, in parks, etc., and 6.36 hours in other places (Szalai, 1972:795). Panel D of Table 1 presents our estimates of victimization per billion person-hours spent in such locations.⁶ For example, personal larceny

indicate that nonfamily members are usually much more dangerous than family members are to each other (see text). Also, when family violence leads to death, its suppression becomes quite difficult. The murder circumstances data indicate that about two-thirds of killings involve nonrelatives. Without denying the evidence that the level of family violence is far greater than police reports would indicate, available data also suggest that time spent in family activities within households incurs less risk of victimization than many alternative activities in other places. In addition, many of the most *common* offenses (such as robbery and burglary) always have been recognized as usually involving nonfamily members.

⁶ Billion person-hours can easily be conceptualized as 1,000,000 persons spending 1,000 hours each (or about 42 days) in a given location (Szalai, 1972:795). Fox obtained these data from a 1966 time budget study in 44 American cities. The study was carried out by the Survey Research Center, the University of Michigan. We combined four subsamples in computing our figures. We combined activities into three locations, as follows: (1) at or just outside home; (2) at another's home, restaurants or bars, or indoor leisure; (3) in streets, parks, or outdoor leisure. Our computing formula was

$$Q = [(R \div 10^5) \div (A \cdot 365)] \cdot 10^9,$$

where Q is the risk per billion person-hours; R is the victimization rate, reported per 10⁵ persons in Hindelang et al. (1976: Table 318); A is the hours spent per location calculated from Szalai (1972: 795); 365 is the multiplier to cover a year's exposure to risk; and 10⁹ converts risk per person-hour to billion person-hours.

Table 1. Incident-Specific Risk Rates for Rape, Robbery, Assault and Personal Larceny with Contact, United States, 1974

		Rape	Robbery	Assault	Personal Larceny with Contact	Total
A.*						
PLACE OF RESIDENCE	In or near home	63	129	572	75	839
	Elsewhere	119	584	1,897	1,010	3,610
B.						
VICTIM-OFFENDER RELATIONSHIP	*					
	(Lone Offender)					
	Relative	7	13	158	5	183
	Well Known	23	30	333	30	416
	Casual Acquaintance	11	26	308	25	370
	Don't Know/Sight Only	106	227	888	616	1,837
	(Multiple Offender)					
	Any known	10***	68	252	43	373
	All strangers	25***	349	530	366	1,270
C.*						
NUMBER OF VICTIMS	one	179	647	2,116	1,062	4,004
	Two	3	47	257	19	326
	Three	0	13	53	3	09
	Four Plus	0	6	43	1	50
D.**						
LOCATION AND RELATIONSHIP (sole offender only)	Home, Stranger	61	147	345	103	654
	Home, Nonstranger	45	74	620	22	761
	Street, Stranger	1,370	7,743	15,684	7,802	32,460
	Street, Nonstranger	179	735	5,777	496	7,167
	Elsewhere, Stranger	129	513	1,934	2,455	4,988
	Elsewhere, Nonstranger	47	155	1,544	99	1,874

* Calculated from Handelang et al., 1977: Tables 3.16, 3.18, 3.27, 3.28. Rates are per 100,000 persons ages 12 and over.

** See fn. 6 for source. Rates are per billion person-hours in stated locations.

*** Based on white data only due to lack of suitable sample size for nonwhites as victims of rape with multiple offenders.

rates (with contact) are 350 times higher at the hands of strangers in streets than at the hands of nonstrangers at home. Separate computations from 1973 victimization data (USDJ, 1976: Table 48) indicate that there were two motor vehicle thefts per million vehicle-hours parked at or near home, 55 per million vehicle-hours in streets, parks, playgrounds, school grounds or parking lots, and 12 per million vehicle-hours elsewhere. While the direction of these relationships is not surprising, their magnitudes should be noted. It appears that risk of criminal victimization varies dramatically among the circumstances and locations in which people place themselves and their property.

Target Suitability

Another assumption of the routine activity approach is that target suitability influences the occurrence of direct-contact predatory violations. Though we lack data

to disaggregate all major components of target suitability (i.e., value, visibility, accessibility and inertia), together they imply that expensive and movable durables, such as vehicles and electronic appliances, have the highest risk of illegal removal.

As a specific case in point, we compared the 1975 composition of stolen property reported in the Uniform Crime Report (FBI, 1976: Tables 26–7) with national data on personal consumer expenditures for goods (CEA, 1976: Tables 13–16) and to appliance industry estimates of the value of shipments the same year (*Merchandising Week*, 1976). We calculated that \$26.44 in motor vehicles and parts were stolen for each \$100 of these goods consumed in 1975, while \$6.82 worth of electronic appliances were stolen per \$100 consumed. Though these estimates are subject to error in citizen and police estimation, what is important here is their size relative to other rates. For example, only

8¢ worth of nondurables and 12¢ worth of furniture and nonelectronic household durables were stolen per \$100 of each category consumed, the motor vehicle risk being, respectively, 330 and 220 times as great. Though we lack data on the "stocks" of goods subject to risk, these "flow" data clearly support our assumption that vehicles and electronic appliances are greatly overrepresented in thefts.

The 1976 Buying Guide issue of *Consumer Reports* (1975) indicates why electronic appliances are an excellent retail value for a thief. For example, a Panasonic car tape player is worth \$30 per lb., and a Phillips phonograph cartridge is valued at over \$5,000 per lb., while large appliances such as refrigerators and washing machines are only worth \$1 to \$3 per lb. Not surprisingly, burglary data for the District of Columbia in 1969 (Scarr, 1972: Table 9) indicate that home entertainment items alone constituted nearly four times as many stolen items as clothing, food, drugs, liquor, and tobacco combined and nearly eight times as many stolen items as office supplies and equipment. In addition, 69% of national thefts classified in 1975 (FBI, 1976: Tables 1, 26) involve automobiles, their parts or accessories, and thefts from automobiles or thefts of bicycles. Yet radio and television sets plus electronic components and accessories totaled only 0.10% of the total truckload tonnage terminated in 1973 by intercity motor carriers, while passenger cars, motor vehicle parts and accessories, motorcycles, bicycles, and their parts, totaled only 5.5% of the 410 million truckload tons terminated (ICC, 1974). Clearly, portable and movable durables are reported stolen in great disproportion to their share of the value and weight of goods circulating in the United States.

Family Activities and Crime Rates

One would expect that persons living in single-adult households and those employed outside the home are less obligated to confine their time to family activities within households. From a routine activity perspective, these persons and their households should have higher rates of

predatory criminal victimization. We also expect that adolescents and young adults who are perhaps more likely to engage in peer group activities rather than family activities will have higher rates of criminal victimization. Finally, married persons should have lower rates than others. Tables 2 and 3 largely confirm these expectations (with the exception of personal larceny with contact). Examining these tables, we note that victimization rates appear to be related inversely to age and are lower for persons in "less active" statuses (e.g., keeping house, unable to work, retired) and persons in intact marriages. A notable exception is indicated in Table 2, where persons unable to work appear more likely to be victimized by rape, robbery and personal larceny with contact than are other "inactive persons." Unemployed persons also have unusually high rates of victimization. However, these rates are consistent with the routine activity approach offered here: the high rates of victimization suffered by the unemployed may reflect their residential proximity to high concentrations of potential offenders as well as their age and racial composition, while handicapped persons have high risk of personal victimization because they are less able to resist motivated offenders. Nonetheless, persons who keep house have noticeably lower rates of victimization than those who are employed, unemployed, in school or in the armed forces.

As Table 3 indicates, burglary and robbery victimization rates are about twice as high for persons living in single-adult households as for other persons in each age group examined. Other victimization data (USDJ, 1976: Table 21) indicate that, while household victimization rates tend to vary directly with household size, larger households have lower rates per person. For example, the total household victimization rates (including burglary, household larceny, and motor vehicle theft) per 1,000 households were 168 for single-person households and 326 for households containing six or more persons. Hence, six people distributed over six single-person households experience an average of 1,008 household victimizations, more than three times as many as

Table 2. Selected Status-Specific Personal Victimization Rates for the United States (per 100,000 Persons in Each Category)

Variables and Sources	Victim Category	Rape	Robbery	Assault	Personal Larceny with Contact	Personal Larceny without Contact
A. AGE (Source: Hindelang, et al., 1977: Table 310, 1974 rates)	12-15	147	1,267	3,848	311	16,355
	16-19	248	1,127	5,411	370	15,606
	20-24	209	1,072	4,829	337	14,295
	25-34	135	703	3,023	263	10,354
	35-49	21	547	1,515	256	7,667
	50-64	33	411	731	347	4,588
	65+	20	388	492	344	1,845
B. MAJOR ACTIVITY OF VICTIM (Source: Hindelang, et al., 1977: Table 313, 1974 rates)	(Male 16+)					
	Armed Forces	—	1,388	4,153	118	16,274
	Employed	—	807	3,285	252	10,318
	Unemployed	—	2,179	7,984	594	15,905
	Keep house	—	0	2,475	463	3,998
	In school	—	1,362	5,984	493	17,133
	Unable to work	—	1,520	2,556	623	3,648
	Retired	—	578	662	205	2,080
	(Female 16+)					
	Keep house	116	271	978	285	4,433
	Employed	156	529	1,576	355	9,419
	Unemployed	798	772	5,065	461	12,338
C. MARITAL STATUS (Source: USDJ: 1977, Table 5, 1973 rates)	(Male 12+)					
	Never Married	—	1,800	5,870	450	16,450
	Married	—	550	2,170	170	7,660
	Separated/Divorced	—	2,270	5,640	1,040	12,960
	Widowed	—	1,150	1,500	—	4,120
	(Female 12+)					
	Never Married	360	580	2,560	400	12,880
	Married	70	270	910	220	6,570
	Separated/Divorced	540	1,090	4,560	640	9,130
	Widowed	—	450	590	480	2,460

Line indicates too few offenses for accurate estimates of rate. However, rates in these cells are usually small.

one six-person household. Moreover, age of household head has a strong relationship to a household's victimization rate for these crimes. For households headed

by persons under 20, the motor vehicle theft rate is nine times as high, and the burglary and household larceny rates four times as high as those for households headed by persons 65 and over (USDJ, 1976: Table 9).

While the data presented in this section were not collected originally for the purpose of testing the routine activity approach, our efforts to rework them for these purposes have proven fruitful. The routine activity approach is consistent with the data examined and, in addition, helps to accommodate within a rather simple and coherent analytical framework certain findings which, though not necessarily new, might otherwise be attributed only "descriptive" significance. In the next section, we examine macrosocial

Table 3. Robbery-Burglary Victimization Rates by Ages and Number of Adults in Household, 1974 and 1976 General Social Survey

Age	Number of Adults in Household		Ratio
	One	Two or More	
18-35	0.200 (140)	0.095 (985)	2.11
36-55	0.161 (112)	0.079 (826)	2.04
56 and over	0.107 (262)	0.061 (640)	1.76
All Ages	0.144 (514)	0.081 (2451)	1.78

(Numbers in parentheses are the base for computing risk rates.)

Source: Calculated from 1974 and 1976 General Social Survey, National Opinion Research Center, University of Chicago.

trends as they relate to trends in crime rates.

CHANGING TRENDS IN ROUTINE ACTIVITY
STRUCTURE AND PARALLEL TRENDS IN
CRIME RATES

The main thesis presented here is that the dramatic increase in the reported crime rates in the U.S. since 1960 is linked to changes in the routine activity structure of American society and to a corresponding increase in target suitability and decrease in guardian presence. If such a thesis has validity, then we should be able to identify these social trends and show how they relate to predatory criminal victimization rates.

Trends in Human Activity Patterns

The decade 1960–1970 experienced noteworthy trends in the activities of the American population. For example, the percent of the population consisting of female college students increased 118% (USBC, 1975: Table 225). Married female labor force participant rates increased 31% (USBC, 1975: Table 563), while the percent of the population living as primary individuals increased by 34% (USBC, 1975: Table 51; see also Kobrin, 1976). We gain some further insight into changing routine activity patterns by comparing hourly data for 1960 and 1971 on households *unattended* by persons ages 14 or over when U.S. census interviewers first called (see Table 4). These data suggest that the proportion of households unattended at 8 A.M. increased by almost half between 1960 and 1971. One also finds increases in rates of out-of-town travel, which provides greater opportunity for both daytime and nighttime burglary of residences. Between 1960 and 1970, there was a 72% increase in state and national park visits per capita (USBC, 1975), an 144% increase in the percent of plant workers eligible for three weeks vacation (BLS, 1975: Table 116), and an 184% increase in overseas travellers per 100,000 population (USBC, 1975: Table 366). The National Travel Survey, conducted as part of the U.S. Census Bureau's Census of Transportation, confirms the general

Table 4. Proportion of Households Unattended by Anyone 14 Years Old or Over by Time of Day during First Visit by Census Bureau Interviewer, 1960 and 1971

Time of day	November, 1971		
	1960 Census	Current Pop. Survey	Percent Change
8:00– 8:59 a.m.	29%	43	+48.9%
9:00– 9:59 a.m.	29	44	+58
10:00–10:59 a.m.	31	42	+36
11:00–11:59 a.m.	32	41	+28
12:00–12:59 p.m.	32	41	+28
1:00– 1:59 p.m.	31	43	+39
2:00– 2:59 p.m.	33	43	+30
3:00– 3:59 p.m.	30	33	+10
4:00– 4:59 p.m.	28	30	+ 7
5:00– 5:59 p.m.	22	26	+18
6:00– 6:59 p.m.	22	25	+14
7:00– 7:50 p.m.	20	29	+45
8:00– 8:59 p.m.	24	22	– 8

Source: Calculated from USBC (1973b: Table A).

trends, tallying an 81% increase in the number of vacations taken by Americans from 1967 to 1972, a five-year period (USBC, 1973a: Introduction).

The dispersion of activities away from households appears to be a major recent social change. Although this decade also experienced an important 31% increase in the percent of the population ages 15–24, age structure change was only one of many social trends occurring during the period, especially trends in the circulation of people and property in American society.⁷

The importance of the changing activity structure is underscored by taking a brief look at demographic changes between the years 1970 and 1975, a period of continuing crime rate increments. Most of the recent changes in age structure relevant to crime rates already had occurred by 1970; indeed, the proportion of the population ages 15–24 increased by only 6% between 1970 and 1975, compared with a 15% increase during the five years 1965 to 1970. On the other hand, major changes in the structure of routine activities continued

⁷ While the more sophisticated treatments of the topic have varied somewhat in their findings, most recent studies attempting to link crime rate increases to the changing age structure of the American population have found that the latter account for a relatively limited proportion of the general crime trend (see, for example, Sagi and Wellford, 1968; Ferdinand, 1970; and Wellford, 1973).

during these years. For example, in only five years, the estimated proportion of the population consisting of husband-present, married women in the labor force households increased by 11%, while the estimated number of non-husband-wife households per 100,000 population increased from 9,150 to 11,420, a 25% increase (USBC, 1976: Tables 50, 276; USBC, 1970–1975). At the same time, the percent of population enrolled in higher education increased 16% between 1970 and 1975.

Related Property Trends and Their Relation to Human Activity Patterns

Many of the activity trends mentioned above normally involve significant investments in durable goods. For example, the dispersion of population across relatively more households (especially non-husband-wife households) enlarges the market for durable goods such as television sets and automobiles. Women participating in the labor force and both men and women enrolled in college provide a market for automobiles. Both work and travel often involve the purchase of major movable or portable durables and their use away from home.

Considerable data are available which indicate that sales of consumer goods changed dramatically between 1960 and 1970 (as did their size and weight), hence providing more suitable property available for theft. For example, during this decade, constant-dollar personal consumer expenditures in the United States for motor vehicles and parts increased by 71%, while constant-dollar expenditures for other durables increased by 105% (calculated from CEA, 1976: Table B-16). In addition, electronic household appliances and small houseware shipments increased from 56.2 to 119.7 million units (*Electrical Merchandising Week*, 1964; *Merchandising Week*, 1973). During the same decade, appliance imports increased in value by 681% (USBC, 1975: Table 1368).

This same period appears to have spawned a revolution in small durable product design which further feeds the opportunity for crime to occur. Relevant data from the 1960 and 1970 Sears catalogs

on the weight of many consumer durable goods were examined. Sears is the nation's largest retailer and its policy of purchasing and relabeling standard manufactured goods makes its catalogs a good source of data on widely merchandised consumer goods. The lightest television listed for sale in 1960 weighed 38 lbs., compared with 15 lbs. for 1970. Thus, the lightest televisions were 2½ times as heavy in 1960 as 1970. Similar trends are observed for dozens of other goods listed in the Sears catalog. Data from *Consumer Reports Buying Guide*, published in December of 1959 and 1969, show similar changes for radios, record players, slide projectors, tape recorders, televisions, toasters and many other goods. Hence, major declines in weight between 1960 and 1970 were quite significant for these and other goods, which suggests that the consumer goods market may be producing many more targets suitable for theft. In general, one finds rapid growth in property suitable for illegal removal and in household and individual exposure to attack during the years 1960–1975.

Related Trends in Business Establishments

Of course, as households and individuals increased their ownership of small durables, businesses also increased the value of the merchandise which they transport and sell as well as the money involved in these transactions. Yet the Census of Business conducted in 1958, 1963, 1967, and 1972 indicate that the number of wholesale, retail, service, and public warehouse establishments (including establishments owned by large organizations) was a nearly constant ratio of one for every 16 persons in the United States. Since more goods and money were distributed over a relatively fixed number of business establishments, the tempo of business activity per establishment apparently was increasing. At the same time, the percent of the population employed as sales clerks or salesmen in retail trade declined from 1.48% to 1.27%, between 1960 and 1970, a 14.7% decline (USBC, 1975: Table 589).

Though both business and personal

property increased, the changing pace of activities appears to have exposed the latter to greater relative risk of attack, whether at home or elsewhere, due to the dispersion of goods among many more households, while concentrating goods in business establishments. However, merchandise in retail establishments with heavy volume and few employees to guard it probably is exposed to major increments in risk of illegal removal than is most other business property.

Composition of Crime Trends

If these changes in the circulation of people and property are in fact related to crime trends, the *composition* of the latter should reflect this. We expect relatively greater increases in personal and household victimization as compared with most business victimizations, while shoplifting should increase more rapidly than other types of thefts from businesses. We expect personal offenses at the hands of strangers to manifest greater increases than such offenses at the hands of nonstrangers. Finally, residential burglary rates should increase more in daytime than nighttime.

The available time series on the composition of offenses confirm these expectations. For example, Table 5 shows that commercial burglaries declined from 60% to 36% of the total, while daytime residential burglaries increased from 16% to 33%. Unlike the other crimes against business, shoplifting increased its share. Though we lack trend data on the circumstances of other violent offenses, murder data confirm our expectations. Between 1963 and 1975, felon-type murders increased from 17% to 32% of the total. Compared with a 47% increase in the rate of relative killings in this period, we calculated a 294% increase in the murder rate at the hands of known or suspected felon types.

Thus the trends in the composition of recorded crime rates appear to be highly consistent with the activity structure trends noted earlier. In the next section we apply the routine activity approach in order to model crime rate trends and social change in the post-World War II United States.

Table 5. Offense Analysis Trends for Robbery, Burglary, Larceny and Murder; United States, 1960-1975

A. ROBBERIES ^a	1960	1965	1970	
Highway Robbery	52.6	57.0	59.8	
Residential Robbery	8.0	10.1	13.1	
Commercial Robbery	39.4	32.9	27.1	
Totals	100.0	100.0	100.0	
B. BURGLARIES	1960	1965	1970	1975
Residential	15.6	24.5	31.7	33.2
Residential Nighttime	24.4	25.2	25.8	30.5
Commercial	60.0	50.2	42.5	36.3
Totals	100.0	99.9	100.0	100.0
C. LARCENIES	1960	1965	1970	1975
Shoplifting	6.0	7.8	9.2	11.3
Other	94.0	92.2	90.8	88.7
Totals	100.0	100.0	100.0	100.0
D. MURDERS	1963	1965	1970	1975
Relative Killings	31.0	31.0	23.3	22.4
Romance, Arguments ^b	51.0	48.0	47.9	45.2
Felon Types ^c	17.0	21.0	28.8	32.4
Totals	100.0	100.0	100.0	100.0

Source: Offense Analysis from UCR, various years.

^a Excluding miscellaneous robberies. The 1975 distribution omitted due to apparent instability of post-1970 data.

^b Includes romantic triangles, lovers' quarrels and arguments.

^c Includes both known and suspected felon types.

THE RELATIONSHIP OF THE HOUSEHOLD ACTIVITY RATIO TO FIVE ANNUAL OFFICIAL INDEX CRIME RATES IN THE UNITED STATES, 1947-1974

In this section, we test the hypothesis that aggregate official crime rate trends in the United States vary directly over time with the dispersion of activities away from family and household. The limitations of annual time series data do not allow construction of direct measures of changes in hourly activity patterns, or quantities, qualities and movements of exact stocks of household durable goods, but the Current Population Survey does provide related time series on labor force and household structure. From these data, we calculate annually (beginning in 1947) a household activity ratio by adding the number of married, husband-present female labor force participants (source: BLS, 1975: Table 5) to the number of non-husband-wife households (source: USBC, 1947-1976), dividing this sum by

the total number of households in the U.S. (source: USBC, 1947–1976). This calculation provides an estimate of the proportion of American households in year t expected to be most highly exposed to risk of personal and property victimization due to the dispersion of their activities away from family and household and/or their likelihood of owning extra sets of durables subject to high risk of attack. Hence, the household activity ratio should vary directly with official index crime rates.

Our empirical goal in this section is to test this relationship, with controls for those variables which other researchers have linked empirically to crime rate trends in the United States. Since various researchers have found such trends to increase with the proportion of the population in teen and young adult years (Fox, 1976; Land and Felson, 1976; Sagi and Wellford, 1968; Wellford, 1973), we include the population ages 15–24 per 100,000 resident population in year t as our first control variable (source: USBC, various years). Others (e.g., Brenner, 1976a; 1976b) have found unemployment rates to vary directly with official crime rates over time, although this relationship elsewhere has been shown to be empirically questionable (see Mansfield et al., 1974: 463; Cohen and Felson, 1979). Thus, as our second, control variable, we take the standard annual unemployment rate (per 100 persons ages 16 and over) as a measure of the business cycle (source: BLS, 1975).

Four of the five crime rates that we utilize here (forcible rape, aggravated assault, robbery and burglary) are taken from FBI estimates of offenses per 100,000 U.S. population (as revised and reported in OMB, 1973). We exclude larceny-theft due to a major definitional change in 1960 and auto theft due to excessive multicollinearity in the analysis.⁸ For our homicide indicator we employ the

homicide mortality rate taken from the vital statistics data collected by the Bureau of the Census (various years). The latter rate has the advantage of being collected separately from the standard crime reporting system and is thought to contain less measurement error (see Bowers and Pierce, 1975). Hence, this analysis of official index crime rates includes three violent offenses (homicide, forcible rape, and aggravated assault), one property offense (burglary), and one offense which involves both the removal of property and the threat of violence (robbery). The analysis thus includes one offense thought to have relatively low reporting reliability (forcible rape), one thought to have relatively high reliability (homicide), and three others having relatively intermediate levels of reporting quality (Ennis, 1967).

Since official crime rates in year t are likely to reflect some accumulation of criminal opportunity and inclinations over several years, one should not expect these rates to respond solely to the level of the independent variables for year t . A useful model of cumulative social change in circumstances such as this is the difference equation, which can be estimated in two forms (see Goldberg, 1958). One form takes the first difference ($y_t - y_{t-1}$) as the dependent variable—in this case, the change in the official crime rate per 100,000 population between year $t-1$ and year t . Alternatively, one can estimate the difference equation in autoregressive form by taking the official crime rate in year t as a function of the exogenous predictors plus the official crime rate in year $t-1$ on the right-hand side of the equation. (See Land, 1978, for a review of these and other methods and for references to related literature.) Both forms are estimable with ordinary least squares methods, which we employ for the years 1947 through 1974. The N is 28 years for all but the homicide rate, for which publication lags reduce our N to 26.

Even if a positive relationship between the household activity ratio and the official crime rates is observed, with controls for age and unemployment, we are open to the charge that this may be a spurious consequence of autocorrelation of disturbances, that is, the possibility that residu-

⁸ The auto theft rate lagged one year correlated quite strongly with the predictor variables. This multicollinearity impaired our difference equation analysis, although we again found consistently positive coefficients for the household activity ratio. We were able to remove autocorrelation by logging all variables and including the unemployment as a control, but do not report these equations.

als are systematically related for nearby time points. While spurious relationships are a risk one also takes in cross-sectional regression analysis, time-series analysts have devised a variety of methods for monitoring and adjusting for spuriousness due to this autocorrelation, including the Durbin and Watson (1951) statistic, Durbin's *h* statistic (Durbin, 1970), the Griliches (1967) criterion, as well as Cochran and Orcutt (1949) corrections. We employ (but do not report in detail) these methods to check for the likelihood that the observed relationship is spurious. (See Land, 1978, for a review of such tests and the related literature on their applicability and robustness; see Theil, 1971, for a methodological review.)

Findings

Our time-series analysis for the years 1947–1974 consistently revealed positive and statistically significant relationships between the household activity ratio and each official crime rate change. Whichever official crime rate is employed, this finding occurs—whether we take the first difference for each crime rate as exogenous or estimate the equation in autoregressive form (with the lagged dependent variable on the right-hand side of the equation); whether we include or exclude the unemployment variable; whether we take the current scales of variables or convert them to natural log values; whether we employ the age structure variable as described or alter the ages examined (e.g., 14–24, 15–19, etc.). In short, the relationship is positive and significant in each case.

Before calculating the difference equations, we regressed each crime rate in year *t* on the three independent variables for year *t*. This ordinary structural equation also produced consistent positive and significant coefficients for the routine activity coefficient, the total variance explained ranges from 84% to 97%. However, the Durbin-Watson statistics for these equations indicated high risk of autocorrelation, which is hardly surprising since they ignore lagged effects. Reestimated equations taking first differences as endogenous reduced the risk of autocorre-

lation significantly (and also reduced variance explained to between 35% and 77%). These equations also consistently produce significant positive coefficients for the household activity variable. When unemployment is included in these equations, its coefficients are all negative and near zero.

The top panel of Table 6 presents regression estimates of first differences for five official crime rates, with the age structure and household activity variables in year *t* as the only predictors. Again, the household activity coefficients are consistently positive, with *t* ratios always significant with a one-tailed test. Except for the aggravated assault equation, the household activity variable has a *t* ratio and standardized coefficient greater than that of the age structure variable. The standardized coefficients for the household activity variable range from .42 to .72, while the age structure coefficients are consistently positive. In general, the household activity variable is a stronger predictor of official crime rate trends than the age structure.

The equations in the top panel of Table 6 generally have lower variance explained but also lower risk of autocorrelation of disturbances than those reported above. For all five equations, the Durbin-Watson statistic allows acceptance of the null hypothesis that autocorrelation is absent at the 1% level. A 5% level (which *increases* the likelihood of proving the statistic non-zero) allows us neither to accept nor reject the null hypothesis that autocorrelation is absent in the homicide and robbery equations.

Though autocorrelation has not been proven to exist in these five equations, its risk may be sufficient in two to motivate further efforts at equation estimation (see bottom panel of Table 6). We estimated the equations in autoregressive form to see if the risk abates. Since the Durbin-Watson statistic was not designed for evaluating autocorrelation in these equations, we calculated Durbin's *h*, a statistic specifically designed for equations estimated with a lagged dependent variable (Durbin, 1970), and recently found to be robust for small samples (Maddala and Rao, 1973). This statistic allows ac-

Table 6. Regression Equations for First Differences in Five Index Crime Rates and Sensitivity Analyses, the United States, 1947-1974

FIRST DIFFERENCE FORM	(1) Nonnegligent Homicide	(2) Forcible Rape	(3) Aggravated Assault	(4) Robbery	(5) Burglary
Constant	-2.3632	-4.8591	-32.0507	-43.8838	-221.2303
t ratio	.3502	5.3679	7.6567	3.4497	3.7229
Proportion 15-24 (t)					
Standardized	.1667	.1425	.4941	.2320	.1952
Unstandardized	3.2190	6.4685	132.1072	116.7742	486.0806
t ratio	1.0695	.7505	3.3147	.9642	.8591
Household Activity Ratio (t)					
Standardized	.7162	.6713	.4377	.4242	.5106
Unstandardized	4.0676	8.9743	34.4658	62.8834	374.4746
t ratio	4.5959	3.5356	2.9364	1.7629	2.2474
Multiple R ² Adjusted	.6791	.5850	.7442	.3335	.4058
Degrees of Freedom	23	25	25	25	25
Durbin-Watson Value	2.5455	2.3388	2.3446	1.4548	1.7641
1% test	Accept	Accept	Accept	Accept	Accept
5% test	Uncertain	Accept	Accept	Uncertain	Accept
AUTOREGRESSIVE FORM					
Multiple R ² Adjusted	.9823	.9888	.9961	.9768	.9859
Durbin's h	-1.3751	-7.487	.9709	1.5490	1.1445
-1% test	Accept	Accept	Accept	Accept	Accept
-5% test	Accept	Accept	Accept	Accept	Accept
Griliches Criterion					
Cochrane-Orcutt Correction,					
Effect upon Household Activity	Minimal	Minimal	Minimal	Minimal	Minimal
Unemployment Rate as Control,					
Effect Upon Household Activity	Minimal	Minimal	Minimal	Minimal	Minimal

ceptance of the null hypothesis (at both 1% and 5% levels) that autocorrelation is absent for all five equations. Application of the Griliches (1967) criterion further allows acceptance of each equation as manifesting distributing lags rather than serial correlation. We also employed the Cochrane-Orcutt (1949) iterative procedure to calculate a correction estimate for any autocorrelation present. The resulting correction for the household activity coefficient proves minimal in all five cases. Finally, we calculated each of the above equations for natural log values of the relevant variables, finding again that the household activity coefficient was consistently positive and statistically significant and the risk of autocorrelation reduced still further.

The positive and significant relationship between the household activity variable and the official crime rates is robust and appears to hold for both macro- and microlevel data; it explains five crime rate trends, as well as the changing composition of official crime rates reported in Table 5. These results suggest that routine activities may indeed provide the opportunity for many illegal activities to occur.

DISCUSSION

In our judgment many conventional theories of crime (the adequacy of which usually is evaluated by cross-sectional data, or no data at all) have difficulty accounting for the annual changes in crime rate trends in the post-World War II United States. These theories may prove useful in explaining crime trends during other periods, within specific communities, or in particular subgroups of the population. Longitudinal aggregate data for the United States, however, indicate that the trends for many of the presumed causal variables in these theoretical structures are in a direction opposite to those hypothesized to be the causes of crime. For example, during the decade 1960–1970, the percent of the population below the low-income level declined 44% and the unemployment rate declined 186%. Central city population as a share of the whole population declined slightly, while the

percent of foreign stock declined 0.1%, etc. (see USBC, 1975: 654, 19, 39).

On the other hand, the convergence in time and space of three elements (motivated offenders, suitable targets, and the absence of capable guardians) appears useful for understanding crime rate trends. The lack of any of these elements is sufficient to prevent the occurrence of a successful direct-contact predatory crime. The convergence in time and space of suitable targets and the absence of capable guardians can lead to large increases in crime rates without any increase or change in the structural conditions that motivate individuals to engage in crime. Presumably, had the social indicators of the variables hypothesized to be the causes of crime in conventional theories changed in the direction of favoring increased crime in the post-World War II United States, the increases in crime rates likely would have been even more staggering than those which were observed. In any event, it is our belief that criminologists have underemphasized the importance of the convergence of suitable targets and the absence of capable guardians in explaining recent increases in the crime rate. Furthermore, the effects of the convergence in time and space of these elements may be multiplicative rather than additive. That is, their convergence by a fixed percentage may produce increases in crime rates far greater than that fixed percentage, demonstrating how some relatively modest social trends can contribute to some relatively large changes in crime rate trends. The fact that logged variables improved our equations (moving Durbin-Watson values closer to "ideal" levels) lends support to the argument that such an interaction occurs.

Those few investigations of cross-sectional data which include household indicators produce results similar to ours. For example, Roncek (1975) and Choldin and Roncek (1976) report on block-level data for San Diego, Cleveland and Peoria and indicate that the proportion of a block's households which are primary individual households consistently offers the best or nearly the best predictor of a block's crime rate. This relationship persisted after they controlled for numerous

social variables, including race, density, age and poverty. Thus the association between household structure and risk of criminal victimization has been observed in individual-level and block-level cross-sectional data, as well as aggregate national time-series data.

Without denying the importance of factors motivating offenders to engage in crime, we have focused specific attention upon violations themselves and the prerequisites for their occurrence. However, the routine activity approach might in the future be applied to the analysis of offenders and their inclinations as well. For example, the structure of primary group activity may affect the likelihood that cultural transmission or social control of criminal inclinations will occur, while the structure of the community may affect the tempo of criminogenic peer group activity. We also may expect that circumstances favorable for carrying out violations contribute to criminal inclinations in the long run by rewarding these inclinations.

We further suggest that the routine activity framework may prove useful in explaining why the criminal justice system, the community and the family have appeared so ineffective in exerting social control since 1960. Substantial increases in the opportunity to carry out predatory violations may have undermined society's mechanisms for social control. For example, it may be difficult for institutions seeking to increase the certainty, celerity and severity of punishment to compete with structural changes resulting in vast increases in the certainty, celerity and value of rewards to be gained from illegal predatory acts.

It is ironic that the very factors which increase the opportunity to enjoy the benefits of life also may increase the opportunity for predatory violations. For example, automobiles provide freedom of movement to offenders as well as average citizens and offer vulnerable targets for theft. College enrollment, female labor force participation, urbanization, suburbanization, vacations and new electronic durables provide various opportunities to escape the confines of the household while they increase the risk of predatory

victimization. Indeed, the opportunity for predatory crime appears to be enmeshed in the opportunity structure for legitimate activities to such an extent that it might be very difficult to root out substantial amounts of crime without modifying much of our way of life. Rather than assuming that predatory crime is simply an indicator of social breakdown, one might take it as a byproduct of freedom and prosperity as they manifest themselves in the routine activities of everyday life.

REFERENCES

- Amir, Menachem
1971 *Patterns of Forcible Rape*. Chicago: University of Chicago Press.
- Boggs, Sarah
1965 "Urban crime patterns." *American Sociological Review* 30:899-905.
- Bonger, W. A.
1916 *Criminality and Economic Conditions*. Boston: Little, Brown.
- Bowers, W. J. and Glen L. Pierce
1975 "The illusion of deterrence of Isaac Ehrlich's research on capital punishment." *Yale Law Journal* 85:187-208.
- Brenner, Harvey
1976a *Estimating the Social Costs of National Economic Policy: Implications for Mental and Physical Health and Criminal Aggression*. Paper no. 5, Joint Economic Committee, Congress of the United States. Washington, D.C.: U.S. Government Printing Office.
1976b *Effects of the National Economy on Criminal Aggression II. Final Report to National Institute of Mental Health*. Contract #282-76-0355FS.
- Bureau of Labor Statistics (BLS)
1975 *Handbook of Labor Statistics 1975—Reference Edition*. Washington, D.C.: U.S. Government Printing Office.
- Cameron, Mary Owen
1964 *The Booster and the Snitch*. New York: Free Press.
- Chambliss, William J.
1972 *Boxman: A Professional Thief's Journey*. New York: Harper and Row.
- Choldin, Harvey M. and Dennis W. Roncek
1976 "Density, population potential and pathology: a block-level analysis." *Public Data Use* 4:19-30.
- Cloward, Richard and Lloyd Ohlin
1960 *Delinquency and Opportunity*. New York: Free Press.
- Cochrane, D., and G. H. Orcutt
1949 "Application of least squares regression to relationships containing autocorrelated error terms." *Journal of the American Statistical Association* 44:32-61.

- Cohen, Lawrence E. and Marcus Felson
1979 "On estimating the social costs of national economic policy: a critical examination of the Brenner study." *Social Indicators Research*. In press.
- Colquhoun, Patrick
1800 *Treatise on the Police of the Metropolis*. London: Baldwin.
- Consumer Reports Buying Guide
1959 *Consumer Reports* (December). Mt. Vernon: Consumers Union.
1969 *Consumer Reports* (December). Mt. Vernon: Consumers Union.
1975 *Consumer Reports* (December). Mt. Vernon: Consumers Union.
- Council of Economic Advisors (CEA)
1976 *The Economic Report of the President*. Washington, D.C.: U.S. Government Printing Office.
- Durbin, J.
1970 Testing for serial correlation when least squares regressors are lagged dependent variables." *Econometrica* 38:410-21.
- Durbin, J., and G. S. Watson
1951 "Testing for serial correlation in least squares regression, II." *Biometrika* 38:159-78.
- Durkheim, Emile
1951 *Suicide: A Study in Sociology*. New York: Free Press.
1966 *The Division of Labor in Society*. New York: Free Press.
- Electrical Merchandising Week
1964 *Statistical and Marketing Report* (January). New York: Billboard Publications.
- Ennis, Philip H.
1967 "Criminal victimization in the U.S.: a report of a national survey, field surveys II." *The President's Commission on Law Enforcement and the Administration of Justice*. Washington, D.C.: U.S. Government Printing Office.
- Federal Bureau of Investigation (FBI)
1975 *Crime in the U.S.: Uniform Crime Report*. Washington, D.C.: U.S. Government Printing Office.
1976 *Crime in the U.S.: Uniform Crime Report*. Washington, D.C.: U.S. Government Printing Office.
- Ferdinand, Theodore N.
1970 "Demographic shifts and criminality." *British Journal of Criminology* 10:169-75.
- Fleisher, Belton M.
1966 *The Economics of Delinquency*. Chicago: Quadrangle.
- Fox, James A.
1976 *An Econometric Analysis of Crime Data*. Ph.D. dissertation, Department of Sociology, University of Pennsylvania. Ann Arbor: University Microfilms.
- Glaser, Daniel
1971 *Social Deviance*. Chicago: Markham.
- Goldberg, Samuel
1958 *Introduction to Difference Equations*. New York: Wiley.
- Gould, Leroy
1969 "The changing structure of property crime in an affluent society." *Social Forces* 48:50-9.
- Griliches, Z.
1967 "Distributed lags: a survey." *Econometrica* 35:16-49.
- Guerry, A. M.
1833 "Essai sur la statistique morale de la France." *Westminster Review* 18:357.
- Hawley, Amos
1950 *Human Ecology: A Theory of Community Structure*. New York: Ronald.
- Henry, A. F., and J. F. Short
1954 *Suicide and Homicide*. New York: Free Press.
- Hindelang, Michael J.
1976 *Criminal Victimization in Eight American Cities: A Descriptive Analysis of Common Theft and Assault*. Cambridge: Ballinger.
- Hindelang, Michael J., Christopher S. Dunn, Paul Sutton and Alison L. Aumick
1976 *Sourcebook of Criminal Justice Statistics—1975*. U.S. Dept. of Justice, Law Enforcement Assistance Administration. Washington, D.C.: U.S. Government Printing Office.
1977 *Sourcebook of Criminal Justice Statistics—1976*. U.S. Dept. of Justice, Law Enforcement Assistance Administration. Washington, D.C.: U.S. Government Printing Office.
- Interstate Commerce Commission (ICC)
1974 *Annual Report: Freight Commodity Statistics of Class I Motor Carriers of Property Operative in Intercity Service*. Washington, D.C.: U.S. Government Printing Office.
- Jackson, Bruce
1969 *A Thief's Primer*. New York: Macmillan.
- Jeffery, C. R.
1971 *Crime Prevention Through Environmental Design*. Beverly Hills: Sage.
- Klockars, Carl B.
1974 *The Professional Fence*. New York: Free Press.
- Kobrin, Frances E.
1976 "The primary individual and the family: changes in living arrangements in the U.S. since 1940." *Journal of Marriage and the Family* 38:233-9.
- Land, Kenneth C.
1978 "Modelling macro social change." Paper presented at annual meeting of the American Sociological Association, San Francisco.
- Land, Kenneth C. and Marcus Felson
1976 "A general framework for building dynamic macro social indicator models: including an analysis of changes in crime rates and police expenditures." *American Journal of Sociology* 82:565-604.
- Letkemann, Peter
1973 *Crime As Work*. Englewood Cliffs: Prentice-Hall.
- Lystad, Mary
1974 *An Annotated Bibliography: Violence at Home*. DHEW Publication No. (ADM 75-

- 136). Washington, D.C.: U.S. Government Printing Office.
- Maddala, G. S., and A. S. Rao
1973 "Tests for serial correlation in regression models with lagged dependent variables and serially correlated errors." *Econometrica* 41:761-74.
- Mansfield, Roger, Leroy Gould, and J. Zvi Namer-wirth
1974 "A socioeconomic model for the prediction of societal rates of property theft." *Social Forces* 52:462-72.
- Martin, John Bower
1952 *My Life in Crime*. New York: Harper.
- Maurer, David W.
1964 *Whiz Mob*. New Haven: College and University Press.
- Merchandising Week
1973 *Statistical and Marketing Report* (February). New York: Billboard Publications.
1976 *Statistical and Marketing Report* (March). New York: Billboard Publications.
- National Commission on the Causes and Prevention of Violence
1969 *Crimes of Violence*. Vol. 13. Washington, D.C.: U.S. Government Printing Office.
- Nettler, Gwynn
1974 *Explaining Crime*. New York: McGraw-Hill.
- Newman, Oscar
1973 *Defensible Space: Crime Prevention Through Urban Design*. New York: Macmillan.
- Office of Management and the Budget (OMB)
1973 *Social Indicators 1973*. Washington, D.C.: U.S. Government Printing Office.
- Pope, Carl E.
1977a *Crime-Specific Analysis: The Characteristics of Burglary Incidents*. U.S. Dept. of Justice, Law Enforcement Assistance Administration. Analytic Report 10. Washington, D.C.: U.S. Government Printing Office.
1977b *Crime-Specific Analysis: An Empirical Examination of Burglary Offense and Offender Characteristics*. U.S. Dept. of Justice, Law Enforcement Assistance Administration. Analytical Report 12. Washington, D.C.: U.S. Government Printing Office.
- Quêtelet, Adolphe
1842 *A Treatise on Man*. Edinburgh: Chambers.
- Reiss, Albert J.
1976 "Settling the frontiers of a pioneer in American criminology: Henry McKay." Pp. 64-88 in James F. Short, Jr. (ed.), *Delinquency, Crime, and Society*. Chicago: University of Chicago Press.
- Repetto, Thomas J.
1974 *Residential Crime*. Cambridge: Ballinger.
- Roncek, Dennis
1975 *Crime Rates and Residential Densities in Two Large Cities*. Ph.D. dissertation, Department of Sociology, University of Illinois, Urbana.
- Sagi, Phillip C. and Charles E. Wellford
1968 "Age composition and patterns of change in criminal statistics." *Journal of Criminal Law, Criminology and Police Science* 59:29-36.
- Scarr, Harry A.
1972 *Patterns of Burglary*. U.S. Dept. of Justice, Law Enforcement Assistance Administration. Washington, D.C.: U.S. Government Printing Office.
- Sears Catalogue
1960 Chicago: Sears.
1970 Chicago: Sears.
- Shaw, Clifford R., Henry D. McKay, Frederick Zorbaugh and Leonard S. Cottrell
1929 *Delinquency Areas*. Chicago: University of Chicago Press.
- Short, James F., and Fred Strodtbeck
1965 *Group Process and Gang Delinquency*. Chicago: University of Chicago Press.
- Skogan, Wesley G.
1976 "The victims of crime: some material findings." Pp. 131-48 in Anthony L. Guenther (ed.), *Criminal Behavior in Social Systems*. Chicago: Rand McNally.
- Sutherland, Edwin H.
1937 *The Professional Thief*. Chicago: University of Chicago Press.
- Szalai, Alexander (ed.)
1972 *The Use of Time: Daily Activities of Urban and Suburban Populations in Twelve Countries*. The Hague: Mouton.
- Theil, Henri
1971 *Principles of Econometrics*. New York: Wiley.
- Tobias, J. J.
1967 *Crime and Industrial Society in the Nineteenth Century*. New York: Schocken Books.
- U.S. Bureau of the Census (USBC)
1973a *Census of Transportation, 1972*. U.S. Summary. Washington, D.C.: U.S. Government Printing Office.
1973b *Who's Home When*. Working Paper 37. Washington, D.C.: U.S. Government Printing Office.
1975-1976 *Statistical Abstract of the U.S.* Washington, D.C.: U.S. Government Printing Office.
1947-1976 *Current Population Studies*. P-25 Ser. Washington, D.C.: U.S. Government Printing Office.
- U.S. Department of Justice (USDJ)
1974a *Preliminary Report of the Impact Cities, Crime Survey Results*. Washington, D.C.: Law Enforcement Assistance Administration (NCJISS).
1974b *Crime in the Nation's Five Largest Cities: Advance Report*. Washington, D.C.: Law Enforcement Assistance Administration (NCJISS).
1974c *Crimes and Victims: A Report on the Dayton-San Jose Pilot Survey of Victimization*. Washington, D.C.: Law Enforcement Assistance Administration.
1976 *Criminal Victimization in the U.S., 1973*. Washington, D.C.: Law Enforcement Assistance Administration (NCJISS).
1977 *Criminal Victimization in the U.S.: A*

- Comparison of 1974 and 1975 Findings. Washington, D.C.: Law Enforcement Assistance Administration (NCJISS).
- Washnis, George J.
1976 *Citizen Involvement in Crime Prevention*. Lexington: Heath.
- Wellford, Charles F.
1973 "Age composition and the increase in recorded crime." *Criminology* 11:61-70.
- Wilks, Judith A.
1967 "Ecological correlates of crime and delinquency." Pp. 138-56 in President's Commission on Law Enforcement and the Administration of Justice Task Force Report: *Crime and Its Impact—An Assessment*. Appendix A. Washington, D.C.: U.S. Government Printing Office.
- Williamson, Henry
1968 *Hustler!* New York: Doubleday.
- Wolfgang, Marvin E.
1958 *Patterns of Criminal Homicide*. Philadelphia: University of Pennsylvania Press.

INTERGENERATIONAL OCCUPATIONAL MOBILITY AND FERTILITY: A REASSESSMENT*

FRANK D. BEAN AND GRAY SWICEGOOD

University of Texas, Austin

American Sociological Review 1979, Vol. 44 (August):608-619

This paper examines the relationship between intergenerational occupational mobility and family size; it focuses on the partition of cumulative fertility into two components—intended and unintended births—that may respond differently to social and economic sources of influence. Four theoretical perspectives are drawn upon to set forth alternative predictions of the relationship between unintended and intended births for upwardly and downwardly mobile couples. The results of regression analyses of 1970 National Fertility Survey data lend support to Easterlin's *relative economic status* hypothesis, which advances the expectation of a positive relationship between direction of mobility and fertility, although this pattern is observed only for unintended births. The implications of this finding for certain theories of fertility, as well as for the inconclusive nature of previous research into the mobility-fertility relationship, are discussed.

Social mobility provides one of the major points of articulation between social stratification and demography. Not only is social mobility an integral feature of all systems of social stratification (e.g., Lopreato et al., 1976; Tyree and Hodge, 1978), it also has noticeable demographic correlates, both for societies and individuals (Blau and Duncan, 1967:361; Featherman and Hauser, 1978). One of the most important would seem to be fertility, as evidenced by numerous empirical studies conducted during the past 25 years (e.g., Berent, 1952; Goldberg, 1959; Tien, 1961;

Westoff, 1953; Westoff et al., 1961; Westoff et al., 1963; Boyd, 1973). The cumulative research evidence, however, has been inconclusive, if not totally negative. Scarcely any substantial basis has been found for the conclusion that social mobility accounts for additional variation in fertility above and beyond that which is associated with measures of origin and destination position themselves (e.g., Duncan, 1966; Boyd, 1973).

For the most part, explanations of these negative results, as distinct from theoretical interpretations that are consonant with the idea that knowledge of origin and destination positions suffices to explain the fertility of the mobile (e.g., Blau, 1956:29), have taken either of two tacks. On the one hand, they have suggested that the methodological basis for assessing relationships between mobility and fertility is biased against the discovery of such relationships (e.g., Hope, 1971; 1975; Lopreato et al., 1976). On the other hand, they

*Direct all communications to: Frank D. Bean; Department of Sociology; University of Texas; Austin, TX 78712.

The data upon which this paper is based were collected pursuant to contract #PH-43-65 1048 with the National Institute of Health, Public Health Service, Department of Health, Education and Welfare. We would like to express our appreciation to Carolyn Boyd, Norval Glenn, Joseph Lopreato, Alberto Palloni, and two anonymous reviewers for helpful comments on an earlier draft of the paper.