Measuring Crime & Criminality

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Many ecologically oriented communities and crime theories discuss ecological processes or attributes that mediate between crime features and community structure. These models might be interested in crime or delinquency as an exogenous community attribute that over time alters fundamental neighborhood structural features like socioeconomic status (SES), housing quality, stability, or racial composition. These models are of the following form:

Topics pursued along these lines include changes in house value, changes in SES of residents, and out- and in-migration patterns (Taylor, 1995).
And more generally pursued by researchers in this area, there are models about

Of course well-known models such as social disorganization (SD), collective efficacy, or routine activities, as well as several others, address these matters. For example, Sampson and Wikstrom (2008) found somewhat comparable impacts of neighborhood-level collective efficacy on neighborhood-level violence in both Chicago and Stockholm neighborhoods. Neighborhood-concentrated disadvantage shaped collective efficacy at the neighborhood level and also had an independent impact on ecological violence levels.

The current chapter suggests that some portion of the empirical tests of some theories of either variety suffer from one or two deficits:

1. Researchers confuse key mediating community attributes with demographic community setting conditions, treating the latter as an acceptable proxy for the former and/or
2. Researchers rarely conduct ecologically based comparisons of the relative merit of two or more alternate theories.

This chapter further contends that deficit (2) arises because of (1) and that (1) arises not only because of data limitations, but also because communities and crime theorists have not yet engaged in needed construct validation activities. Researchers have not yet established the convergent and discriminant validities of indicators for mediating constructs from different conceptual frameworks using multiple methods to operationalize indicators from each key construct (Campbell and Fiske, 1959).

Because of the lack of systematic multimethod ecological construct validation, a situation of semantic ambiguity exists (Abbott, 2001: 69). It is not clear what constructs various indicators represent. Indicators thought by one researcher to reflect one concept (absence of SD) (Bursik, 1986) are thought by another researcher to reflect a different concept (sense of community) (Cantillon et al., 2003). If no one can agree which construct is reflected by which indicator, it is not possible to test one theory against another. Such comparison testing is important (Taylor and Wikstrom, 2009).
Finding empirical support for one theory does not promote that one theory over and above another theory, absent a test of the latter (Platt, 1964). Blalock has framed the issue as follows:

Tests of the theories . . . will involve empirical tests of the derived theorems. Clearly if the theorems prove false the theory must be modified or the axioms of the theory even abandoned. But if they are true, one cannot claim that the theory has been “verified” unless all possible competing alternatives can be rejected. . . . Therefore we shall be in the unfortunate situation of having to proceed by eliminating inadequate theories, rather than ever really establishing any of them. This is of course a very general situation that is not peculiar to the social sciences. (Blalock, 1969: 11–12)

**Resolution Challenges**

An experienced ecological researcher is likely to contend that it is extremely difficult to establish community-level multimethod convergent and discriminant validities because of the well-known effects of aggregating by geographic proximity on relationships between variables (Hannan, 1991). What is going on behind the scenes conceptually as one aggregates is rather complicated (Blalock, 1964: 98–99). But the “bottom line” is that relations among indicators, even those from different concepts, are likely to tighten, making the establishment of multimethod discriminant validity all the more difficult.

There are two aspects of this deficit. Community structure and process cannot be differentiated. In addition, the impacts of a meditational process specified by one theory may not be distinguishable from the meditational process specified by a distinct but related theory. Consider the challenge, for example, of separating willingness to intervene (WTI) indicators derived from SD/collective efficacy/informal social control theory, from capable guardianship (CG) indicators derived from routine activities theory (RAT).

If the establishment of discriminant validity, a key part of the construct validation process, is needed but challenging to accomplish with data aggregated by geographic proximity, what is to be done?

**Outlines of a Solution**

The suggested answer has two parts. The first is to move to a unified perspective (Messick, 1995) on the construct validation process. This opens up the range of empirical relationships that are relevant to establishing construct validity. The second is to carry out the activities associated with unified construct validation within a particular
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metamodel, a Boudon–Coleman diagram capturing macro-to-micro, micro-to-micro, and micro-to-macro processes (Boudon, 1986; Coleman, 1990). This moves the focus away from the macro-input → macro-output links that are the focus of the research with only community-level variables. Even if the study is multilevel with individuals or households grouped within communities, and an individual-level or household level outcome, the impact of community indicators are capturing only macrolevel ecological relationships (Taylor, 2010).²

Organization of Chapter

The next section documents the suggested semantic ambiguity in the area of SD. A few examples are described, and then the results of a more systematic review are reported. Messick’s unified perspective on construct validation is introduced, and those ideas are then placed within a Boudon–Coleman diagram. A hypothetical example applying the unified perspective to construct validation is described.

Definitions

For a brief definition, crime means community-reported incidence or prevalence rates for adults of delinquents or reported resident victimization prevalence rates. Actions of local community justice agencies reflected in arrest, incarceration, return, and supervision rates contribute in important positive (Cousineau, 1973) and negative (Clear, 2007) ways to these crime rates.

Although some scholars argue and this author accepts that there are important differences between “community” and “neighborhood,” these terms are used interchangeably here (Hunter, 1975; Brower, 1996: 57). Each of these two concepts has received scholarly attention for a century or more, has waxed and waned in that period as a topic of interest to both scholars and policymakers, and has been defined in numerous ways.

One publication that has appeared more than five decades ago listed more than ninety definitions of community tapping into sixteen different themes (Hillery, 1955). The concept of neighborhood is similarly diffuse, precluding scholarly consensus (Keller, 1968).³ “There are many ways of defining neighborhood,” and “different definitions serve different interests” (Brower, 1996: 17). At the core, however, all that can be really agreed upon definitionally is that neighborhood “is considered a social/spatial unit of social organization, and that it is larger than a household and smaller than a city. The problem with presenting a further list of
definitive characteristics is that they often become normative rather than descriptive” (Hunter, 1979: 270). Hunter’s minimalist but uncontentious definition is accepted as a definition of both community and neighborhood, with two additions: the lower bound is set at the single streetblock—the two sides of the street bounded by cross streets at the ends—and the upper bound is sub-municipality areas, smaller than a jurisdiction. Spatially, communities are (1) imbricated and (2) nested arenas, as are the spatially delimited accompanying social patterns and dynamics (Suttles, 1972; Hunter, 1974; Taylor and Stough, 1978; Hunter, 1985, 2003). The imbricated nature of communities means that residents are members of multiple partially overlapping socio-spatial units, as well as progressively nested socio-spatial units (e.g., streetblocks (Taylor, 1997) within communities).

**Semantic Ambiguity Examples: SD**

When researchers fail to carry out the needed construct validation activities, key ideas in theories get operationalized in widely divergent and sometimes inappropriate ways. Abbott’s (2001) semantic ambiguity surfaces. In SD, this ambiguity is reflected when researchers either equate demographic attributes of communities with SD processes or state that they know that demographic conditions are only proxies for the processes, but go ahead and use the one for the other anyway. Previous warnings against such practices for routine activity theorists (Sampson and Wooldredge, 1987), SD theorists (Bursik, 1986), and anomie theorists (Gordon, 1967) have gone unheeded by some.

The practice is incorrect for at least two reasons. Most obviously, demographics or land use is not the described conceptual processes. Second, community demographic structure or community land use patterns are broad setting conditions; each can set in motion any number of specific processes relevant to any number of theories. The range of processes that can be set in motion by something like variations in household SES or variations in the incidence of certain types of nonresidential land uses is vast.4 In Wikstrom’s (2006) terminology, they are the “causes of causes” not the causes of crime.

**The Concept**

SD theory has, of course, a convoluted and controversial interpretive past. But there does seem to be agreement on key elements (Bursik, 1986):
[T]he current formulation of social disorganization assumes that the breadth and strength of local networks directly affect the effectiveness of two forms of community self regulation. The first reflects the ability of local neighborhoods to supervise the behavior of their residents . . . informal surveillance . . . movement governing rules . . . direct intervention . . . (p. 527). . . . [T]he second form of community self regulation implicit in the notion of social disorganization reflects the socializing, rather than supervisory, capability of a neighborhood. (p. 529)

Several of these elements were captured in one of the most widely cited SD articles that used having friends nearby, participation in local organizations, and perceptions of troublesome unsupervised teen groups, the latter reflecting an inability to regulate the behavior of locals, to reflect SD processes (Sampson and Groves, 1989).

A couple of examples of indicator/concept slippage are presented in narrative form, followed by a more systematic review of empirical studies.

**Select Examples**

A study of 342 gang homicides in Newark (New Jersey) concluded (abstract) that “the SD measure did not predict gang homicide” (Pizarro and McGloin, 2006). At the census tract level, four demographic variables (e.g., percent unemployed) “conceptually tapped into the poverty dimension of social disorganization” and three demographic variables (number of racial/ethnic groups in tract, population size, percent living there less than five years) “addressed other dimensions, such as residential mobility, ethnic heterogeneity, and urbanization” (Pizarro and McGloin, 2006: 202). The study included no indicators of the intervening mechanisms described by SD theory (Bursik, 1986).

A study of violent and property crime rates in nonmetropolitan counties sought to test the idea “that predictors of crime from social disorganization theory exert different effects on violent and property crimes at different levels of population change in nonmetropolitan counties” (Barnett and Mencken, 2002: abstract). In some places, the authors preserved the distinction between setting conditions and mediating properties: “Conceptually, crime is indirectly a function of county structural characteristics (SES, residential mobility, population heterogeneity), and these measures affect crime indirectly through their impact on county social organization and social control” (Barnett and Mencken, 2002: 379). But they later maintained that the demographic setting conditions were relevant largely because of the unmeasured mediating properties: “We maintain that counties with high levels of poverty, income inequality, unemployment, and female-headed households suffer
a structural disadvantage in the community resources needed to achieve formal and informal connections among members so as to realize common values and work toward solving or preventing social problems” (Barnett and Mencken, 2002: 380). No data relevant to this assertion were presented.

Researchers found a positive effect of resource disadvantage on crime rates, with more powerful impacts in counties losing populations and concluded “a model based on social disorganization is useful for explaining crime in rural America” (Barnett and Mencken, 2002: 390). No reference was made to potentially competing theoretical frameworks. The study included no SD variables (Bursik, 1986).

Jacob (2006: 37) used census demographic “structural factors, which represent the cohesiveness and informal social control of a community.” These were linked to male and female youth crime rates. More specifically “in order to capture the level of SD in a community, five concepts were operationalized—SES, residential instability, urbanization, ethnic heterogeneity, and supervision” (p. 38). Percentage of single-parent families was used for the latter.

Mustaine and colleagues (2006) reported finding “RSOs (registered sex offenders) are likely to live in areas with greater social disorganization” (abstract) in two Florida and Kentucky counties. “Based on the traditions of social disorganization theory . . . the following characteristics were assessed: the percent of households in the tract that are headed by females, the percent of the homes in the census tract that are owner occupied, the median household income, and the median housing value in the tract” (339–340). The study contained no indicators of SD processes as described by Bursik.

A number of studies do not completely downplay or overlook the differences between land use or structural setting conditions and intervening SD, but do skirt the issue. They do this by arguing that the impacts of demographic or land use setting conditions have strong implications for one particular theory, like SD (e.g., Osgood and Chambers, 2000: 86; Ouimet, 2000: 138; Kane, 2006: 197, 203). They fail to mention that these same setting conditions have strong implications for a number of other theories as well.

A More Systematic Consideration

To gain a more systematic picture, the following search was conducted. Using Web of Science, all publications from their social science database appearing between 1995 and January 21, 2010, with “social
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disorganization” (SD) appearing in the title were listed and reviewed. Fifty-four articles surfaced. Eleven were dropped from further analysis either because the outcome was not crime/victimization/delinquency or a reaction to crime (e.g., psychosocial adjustment, child maltreatment rates), or because they did not address SD theory. Of the remaining forty-three, forty were retained that provided empirical analyses, and three solely conceptual pieces were dropped from further consideration.

Of these forty studies, only eight (20 percent) included indicators clearly referencing SD-related processes and only referencing disorganization-related processes. An indicator was classified as reflecting SD if it captured one or more of the following attributes or processes: WTI, local organizational participation, features of local social networks, other features of local social climate, perceptions of disorderly conditions, or some indicator combining one or more of the above specific features. It seems that the instances where SD was operationalized in a manner theoretically misaligned with the underlying construct far outnumbered the instances that were theoretically congruent.

The empirical studies examined outcomes at a range of units of analysis from the individual (7 or 17 percent), to sub-city communities (24 or 60 percent) to cities or municipalities (2 or 5 percent) to larger entities such as states or metropolitan statistical areas (5 or 12 percent). (Two studies considered both individual- and community-level outcomes.)

In short, it appears that SD theory in the last fifteen years has addressed crime and related outcomes at a range of levels of analyses, with an apparent underlying presumption of comparable applicability across scales of analysis. It also appears that in about four out of five studies the content of the SD indicators is conceptually off target because those indicators include at least one element that is outside of core SD ideas. The semantic ambiguity appears to be widespread.

Messick’s Unified Perspective on Construct Validation

Focusing solely on ecological, community-based multimethod patterns of convergent and discriminant validities for gauging the construct validity of SD mediators, or of mediators from other relevant communities and crime theoretical models (e.g., routine activities), faces several difficulties. Some of these arise from the nature of urban neighborhood-based samples and the attendant limitations including difficulties separating demographic structure from key mediating processes (Cook et al., 1997) and some from the conceptual challenges associated
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with aggregating by geographic proximity (Blalock, 1982). So pursuing standard construct validation procedures proves problematic.

Difficulties are reduced, however, if Messick’s (1995) unified perspective on construct validation is adopted. It opens up a wider range of relevant empirical patterns for construct validity considerations.

Messick (1995) has argued that beyond links reflecting convergent and discriminant validities, and beyond criterion validities, other features of how key indicators link to other parameters are relevant to construct validation. He put the argument for a broader perspective this way:

Historically, primary emphasis in construct validation has been placed on internal and external test structures—that is, on the appraisal of theoretically expected patterns of relationships among item scores or between test scores and other measures. Probably even more illuminating in regard to score meaning are studies of expected performance differences over time, across groups and settings, and in response to experimental treatments and manipulations. (Messick, 1995: 743; emphasis added)

Messick’s (1995) updated unified perspective on construct validity argues that other types of validity, such as criterion and convergent validities, are themselves part of construct validity. Investigations of these other validities could provide evidence relevant to the two major threats to construct validity:

- **construct underrepresentation** [where] the assessment is too narrow and fails to include important dimensions or facets of the construct [and] . . .
- **construct-irrelevant variance**, [where] the assessment is too broad, containing excess reliable variance associated with other distinct constructs as well as method variance. . . . Both threats are operative in all assessments. Hence a primary validation concern is the extent to which the same assessment might under-represent the focal construct while simultaneously contaminating the scores with construct-irrelevant variance. (Messick, 1995: 742; emphasis added)

Much of the construct validity discussion in psychology has centered on interpretations of individual-level test scores. Nevertheless, the same points pertain to interpretations of community-level indicators. For example, in a study of state-level ecological models of high school crime rates, Gary Gottfredson (1979: 316) applied the test of construct irrelevance. He found that the high school crime rate model predicted other outcomes conceptually unrelated to the intended outcome as well as it predicted the intended outcome. Introducing theoretically irrelevant outcomes is an important model-testing step.

Messick’s expanded treatment of construct validation proposed six different aspects of the process and linked the interpretation of indicators to their consequences as well as their correlates and criterion-related
The important point of Messick’s work in the current context is that researchers seeking to establish the construct validity of particular indicators need to take a wide-ranging perspective and pay attention to a number of empirical patterns.

**The Boudon–Coleman Metamodel**

From the perspective of methodological individualism (Boudon, 1986: 29–32)—the view that the individual is the fundamental unit in analyses of social structures and changes, like community crime rates, changes in community crime rates, or community-level consequences of crime rates—a case can be made that ecological analyses based on community-sized areas and linking macrolevel inputs with macrolevel outputs are conceptually somewhat off the mark. Such analyses miss the underlying dynamics (Liska, 1990). These dynamics include context effects, individual-level functioning, and agency.

Such a broad alternate view about the relevant dynamics can be called a metamodel. The Boudon–Coleman metamodel, also sometimes called a “boat” metamodel, is depicted in Figure 4.1 (Boudon, 1986; Coleman, 1990; Bunge, 2006).

Increasing spatial scale appears on the vertical axis. The passage of time is depicted moving left to right on the horizontal scale. Dynamics
are depicted at two levels: the individual or microlevel and the community level or macrolevel. (Supra-macrolevel dynamics above the community level also are obviously relevant but are not depicted.) Such a model assumes that underlying a macrolevel relationship between an input and an output (the dashed Ma-I → Ma-O line—macrolevel inputs lead to macrolevel outputs) are three fundamental links: impacts of context on individuals (Ma-I → Mi-I—macrolevel inputs affect individual-level inputs), individual-level attributes that lead to individual-level outcomes (Mi-I → Mi-O), and ways that over time individual-level outcomes shape community features (Mi-O → Ma-O). The Ma-I → Mi-I link addresses the question: How does context affect individuals? The Mi-O → Ma-O link addresses the question: How does agency work?

The Boudon–Coleman “boat” metamodel is a particular way to organize a view toward human behavior called systemism, a view that assumes that “the constituents [i.e., individuals] interact both among themselves and with their environment” (Bunge, 2006: 13). Such a perspective concerns itself in part with linking microlevel and macrolevel theories, an area of perennial and long-standing interest in sociology (Liska, 1990).

If one combines this type of metamodel with Hawley’s (1950: 401–4) focus on change in the ecological sense (Bursik, 1988), then each input and output can be operationalized as an ecological or individual-level change (Δ).

Combining the Three Ideas

Messick’s ideas about a unified perspective on construct validation can be combined with a dynamic Boudon–Coleman metamodel, and a focus on comparative theory tests, to suggest a construct validation research program for specific theories relevant to communities and crime research. Putting aside for the moment extremely important questions about temporal and spatial scaling (Taylor, 2010), a hypothetical assessment program follows below. There are two parts: assessing convergent and discriminant validities of features at different levels in the model and assessing additional links, as described by Messick. A longitudinal framework is assumed, with changes operationalized according to Hawley’s ecological view. Each link in the boat metamodel (Ma-IΔ → Mi-IΔ; Mi-IΔ → Mi-OΔ; Mi-OΔ → Ma-OΔ) deserves attention as part of the broader connections of interest from a unified perspective on construct validation.
The suggested resolution involves a research program with the following features:

- Construct validation efforts are pursued by complementing a traditional focus on convergent and discriminant validities with Messick’s unified perspective and attention to additional links.
- The investigation separately examines the attributes and links for each element in the appropriate boat metamodel that corresponds with the theory under consideration.
- Each link in the metamodel chain is investigated independently. Understanding how context or neighborhood effects work, and understanding the roles of agency, represents separate albeit related dynamics. And those context and agency dynamics are themselves separate from the within-person processes taking place over time (cf. Wikstrom’s (2007) separation of developmental/situational/social mechanisms).
- Longitudinal data are used; all indicators are operationalized as unexpected changes (Bohrnstedt, 1969; Bursik, 1988). Not only is this appropriate given an ecological orientation, and not only is it the only appropriate test of a causal proposition (Lieberson, 1985: 180), it will help to uncouple aggregate-level variables. Of course, different patterns of results should be expected for longitudinal as compared to cross-sectional work (Lieberson, 1985: 181).
- For each link, the researcher examines the relative strength of indicators from different theories. Researchers in this arena need to move beyond just testing their preferred theory and instead start contrasting the strengths and weaknesses of complementary theories. For each of the three link types in the simplest boat metamodel, the key is to compare relative strengths of different theoretical approaches.

**Working through an Example**

This section illustrates a longitudinal approach to resolving the construct validation question relying on a dynamic boat metamodel. Two simplified models, one relying on a key construct in SD and the other on a key construct in RAT, will be considered.

**Assumptions**

1. The researcher has resolved questions about time horizons for theoretical cycles. They know how long it takes for significant
shifts to appear on key indicators for a sufficient number of ecological units.

2. The range of competing theories within a particular arena yields just a relatively narrow set of theoretical alternatives.

3. And finally, perhaps most challenging of all, the researcher has requisite longitudinal data not only for the key theory of interest, but also for the alternative competing theories whose relative inferiority the researcher wishes to establish.

The Examination Framed in a Boat Metamodel

What is proposed next is a metamodel-based procedure for learning about construct validity and simultaneously for gauging the differential relevance of different theories.

The procedure is illustrated with reference to a specific two-level dynamic example set within a metamodeling frame (see Figure 4.2). The example is intended just to illustrate the key points deserving examination. More complex models of course will require more points of examination.

In this example, the mesolevel reflects streetblocks. For simplicity of exposition, impacts of neighborhood context on streetblocks are omitted. A two-level example could instead have examined neighborhood effects on individuals. The example here uses streetblocks and individuals because of the specific theoretical dynamics hypothesized to be relevant.

The microlevel reflects individuals on streetblocks. The model is presented in a longitudinal frame (e.g., $Mi-I_{(t-1)} \rightarrow Mi-I_{(t)}$), which means that each input and output in the metamodel chain of links actually reflects unexpected change ($\Delta$).

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*Figure 4.2* Generic two-level dynamic metamodel. Mesolevel represents streetblocks, microlevel represents individuals. Macrolevel inputs and outputs are not shown for the purposes of simplifying the example.
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Theoretical Specifics

This section describes specific variables that would be of interest in a model that was predicting larcenies from motor vehicles. Two specific mediating processes, one from SD, and the other from routine activities, are described.

Model Setup

The outcome in question (Me-ΩΔ) is changes over time in the number of larcenies from motor vehicles while those vehicles are parked on respective streetblocks. Larcenies from motor vehicles owned by those living on the streetblock, as well as larcenies from motor vehicles whose owners do not live on the streetblock, for example, people going to a location nearby, or visiting friends or relatives on the block, are all of interest.

The mesolevel input (Me-ΙΔ) is changes in the percent of nonresidential land use on streetblocks. Imagine that the neighborhoods in which these streetblocks are located are experiencing significant demolition of some housing structures due to an ongoing, city-wide neighborhood transformation initiative and conversions of multifamily units into mixed commercial/residential land uses as part of recent zoning changes in the city (McGovern, 2006). Thus, over a two-year period, many blocks are seeing changes with increasing vacant lots and increasing small businesses on primarily residential blocks.

The microlevel input (Mi-ΙΔ) that is shifted because of the change in land use patterns (Me-ΙΔ) is local social legibility. Various environmental psychology and criminology models would anticipate reduced social legibility on the streetblock as a result of increases in nonresidential land uses like small commercial stores and their attendant increases in foot traffic (Baum et al., 1978). Depending on neighborhood context, the researcher also might anticipate decreased social legibility arising from demolition of abandoned structures and their replacements with vacant lots. Such lots might be widely used for things like car washing/waxing, kids playing games, or teens or adults hanging out and drinking (St. Jean, 2007). These activity shifts represent an associated mesolevel change that also could contribute to decreased social legibility at the individual level.

Note that the social construct is not about social ties, or cohesiveness, or perceived similarity with neighbors, or sense of community, or related social dynamics, although these undoubtedly also link to social...
legibility. At issue is the extent to which a resident householder on the streetblock knows or recognizes by face or name the people they see there.

The researcher is interested in contrasting two elements of two different theories: the WTI component from SD/collective efficacy theory and the CG component from RAT. It is hypothesized that both of these dynamics will be shifted due to the land use changes and the consequent shift in social legibility. Changes in WTI and CG, therefore, serve as individual-level changes (Mi-OΔ).

Following the strong inference guide (Platt, 1964), the researcher has set this up so that each theory makes a different prediction about the Mi-IΔ → Mi-OΔ link (impacts of changed social legibility on either WTI or CG). They expect that decreased social legibility will lead to a weaker WTI because of increased uncertainties about whether someone belongs on the streetblock—that is, lives there, has a relative or friend there, or is legitimately using a business on the streetblock—and heightened worries about not being backed up by other residents on the block. They also expect that decreased social legibility will lead to stronger CG. As a resident’s neighbors become less familiar, the resident feels they must be more vigilant because of that increased uncertainty about whether the neighbors can be relied on to spot something amiss or to do something once they have seen something.

The researcher recognizes that numerous other dynamics relevant to other theoretical models also could be set in motion by the land use changes on streetblocks. Therefore, it is important, if the researcher wishes to present their research as a test of specific components of either SD/collective efficacy or routine activities theory, that these theoretically irrelevant but plausibly related dynamics be controlled. After carefully considering theories that are outside of the two under consideration here, the researcher decided that the strongest competing theoretical framework was fear of crime/perception of risk (LaGrange and Ferraro, 1989, 1992; Ferraro, 1994). Indicators for those constructs will be included and controlled. Other potential competitors, like ecological strain theory (Agniew, 1999), although generally relevant given the predictors in the model, were deemed less applicable given the specific crime outcome under consideration.

The researcher has carefully considered and monitored additional ecological changes that, albeit outside the highlighted dynamics within each of the two central theories of interest, could prove relevant. For example, target attractiveness is a key component of routine
activity theories. On a streetblock with a large number of home sales or apartment renovations, it is plausible that significant gentrification could take place in a short period. This could change the mix of vehicles parked on the streetblock and linked changes in offenders’ perceptions that those vehicles either contain worthwhile theft targets or that they are alarmed. Such gentrification also could shift other local dynamics as well, including those involving local community groups’ relations with police (Taylor, 2001: 346–54). Again, additional relevant indicators would be desirable for these ancillary dynamics.

*Initial Construct Validation Assessment*

For each of these two indicators, WTI and CG, the researcher has examined individual-level multi-construct, multimethod convergent and discriminant validities, when focusing on changes taking place over a two-year period. Regardless of how satisfactory or unsatisfactory that pattern of results was, the researcher would want to investigate additional links, as recommended by the unified perspective on construct validation.

*Additional, Unified Perspective on Relevant Construct Validation Links*

Following Messick’s unified construct validation approach, and focusing on a model that links changes, the figure below describes the metamodel approach to ecological construct validation of relevant indicators. Δ indicates an unexpected change captured over a two-year period. Solid lines represent the metamodel links suggested by the theory in question, for example, SD. Dashed lines represent relevant links from other theoretical frameworks such as routine activity (Figure 4.3).

More specifically, if the WTI component of SD is the primary focus and the CG portion of RAT the primary alternative framework under consideration, then indicators in the figure are as follows:

- Me-\(\Delta\): changes in land use patterns on the streetblock.
- Mi-\(\Delta\): individual-level changes in social legibility.
- Mi-\(\Omega\): individual-level changes in WTI.
- Me-\(\Omega\): streetblock changes in numbers of larcenies from parked vehicles.
- Me-\(\Delta_{alt}\): other potentially influential streetblock changes, for example, shifts in organizational climate or residential composition.
- Mi-\(\Delta_{alt}\): individual-level changes in fear/perception of risk if the alternate model is a fear/risk one. If the alternate model is RAT, the input is the same as under SD.
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Establishing such construct validity has implications for establishing
the broader validity of the theory and its strength relative to competing
theories.

In this instance, more specifically, for SD/collective efficacy theory, the core hypotheses to be examined include the following:

- **Me-IΔ → Mi-IΔ**: Streetblock-level increases in nonresidential land uses on a streetblock link negatively to individual-level changes in local social legibility.
- **Mi-IΔ → Mi-OΔ**: Individual-level changes in social legibility link positively to individual-level changes in WTI around incidents/scenarios plausibly related to larceny from motor vehicles.
- **Mi-OΔ → Me-OΔ**: Individual-level changes in WTI around incidents/scenarios plausibly related to larceny from motor vehicles link negatively with changes in rates or counts of larcenies from motor vehicles on the streetblock.

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**Figure 4.3** Metamodel links deserving attention as part of a unified construct validation effort investigating key indicators. *Solid arrows* indicate links of interest to the key theory being tested. *Dashed arrows* indicate links involving indicators from alternate, potentially competing theories.
Suppose that all three hypothesized links receive empirical support in the direction expected for each. The researcher might be ready to conclude, especially if satisfactory convergent and discriminant validities were obtained, that the chosen theory has passed all tests and has been validated.

Such a conclusion, however, would be premature. Connections involving indicators from alternate theories are needed to gauge both the completeness of the key theory as specified and its merits relative to potential competitors. Some of the additional pieces of the pattern to be considered include the following:

Me-IΔalt<begin dashed arrow>=Mi-IΔ: This link describes the impact of *other* ongoing streetblock-level changes on changes in individual-level social legibility of the streetblock. Examples of changes from outside the theory might be as follows: changes in residential composition of the block due to any number of factors such as gentrification or a large similar-aged cohort of residents on a block moving away or passing away.

What is crucial is the strength of this link (Me-IΔalt<begin dashed arrow>=Mi-IΔ) relative to the Me-IΔ→Mi-IΔ link. If one of the purposes of the version of SD/collective efficacy theory tested by the researcher was to deepen our understanding of SD-collective efficacy processes as shaped by key land use parameters, the theoretically central link (→) should be much stronger than the link(s) from outside the theoretical domain (<begin dashed arrow>=<end dashed arrow>). To the extent links from outside the domain prove equally strong or stronger, that would suggest the researcher needs to extend the theory. For example, broader consideration of stratification and political economy (Hunter, 1974; Logan and Molotch, 1987) might be merited. In other words, testing these alternative links provides a potential guide needed for further theoretical elaboration.

Mi-IΔ<begin dashed arrow>=Mi-OΔalt: This link might address the impacts of changes in social legibility on changes in CG.

Suppose that the researcher finds that this link is statistically significant and in the anticipated direction. It would suggest some relevance for the element of RAT being investigated and would deepen our thinking about the relationship between CG and WTI. It would suggest that CG’s strengthening is spurred by exactly the same social changes that weaken WTI. Perhaps the two dynamics, WTI and CG, each are “compensating” for each other at the individual level. Perhaps SD theory and routine
activity theory, each provide an *incomplete* picture of the impacts of changing social legibility on dynamics key to this crime outcome.

But the broader significance and construct implications also depend on the *pattern*ing of links. For example, if the impacts of changes in CG on changes in larceny from motor vehicles (\(Mi-O\Delta_{alt} \begin{dashedarrow} \rightarrow \) \(Me-O\Delta\)) are stronger than the theoretically central link between changes in WTI and changes in larcenies from motor vehicles (\(Mi-O\Delta \rightarrow Me-O\Delta\)), this would raise questions about the *relative* value of one theory versus another, at least for this outcome. This information is crucial from the unified construct validation perspective.

\(Mi-O\Delta_{alt} \begin{dashedarrow} \rightarrow \) \(Me-O\Delta_{alt}\): Individual-level changes in CG link to ecological changes in an alternate ecological outcome.

For example, suppose that a noncrime ecological outcome is considered, such as some features of the overall pattern of streetblock activity. It might be the incidence of young children playing outside, unsupervised, on the streetblock at certain times of the day or week. Or it could be another crime outcome, but quite different in nature from larceny from motor vehicles. For example, it might be the presence of open drug dealing on the streetblock.

The connection of the individual-level outcome from the alternate theory (e.g., CG from routine activity theory) with an alternate outcome, especially if that outcome indicator relies on a different data source than does the larceny from motor vehicle data, could be important. Suppose the link is strong. It speaks to whether the CG/routine activity dynamics are telling us about crime dynamics, or about broader residential dynamics, which just also happen to prove relevance to crime. It speaks to the range of streetblock features shaped by individual agency, in this case changes in CG at the individual level.

Testing what happens with an alternate ecological outcome is especially important for the test of construct irrelevance. The theoretically key individual-level outcome changes should not link to ecological outcomes that could not possibly be linked theoretically to those same dynamics. If such connections do emerge, it would suggest that some form of temporal spuriousness is driving everything.

Suppose we were to now expand the thinking about additional alternate theories and allow “alt” to stand in for a third potentially relevant theory, such as perceptions of victimization risk, or fear of crime and how they change. Presume that these were captured at the individual
level and that indicators for this construct converge as expected and diverge as expected from indicators for WTI and CG changes. Consider the following two links:

\[ \text{Mi-I} \Delta_{\text{alt}} \rightarrow \text{Mi-O} \Delta \]

Individual-level changes in fear of crime/perceived risk link might link to WTI changes.

Suppose that the researcher finds this link is negative and significant. That would suggest expanding the SD framework to take safety concerns into consideration. Indeed, exactly this connection has been proposed (Bursik and Grasmick, 1993b: 103).

But again, the patterning across links is crucial as well. Are the effects of fear changes on WTI changes stronger than the effects of social legibility changes on WTI? Suppose that the effects of fear changes on CG changes also are strong and that they are stronger than the effects of social legibility changes on CG changes. Finally, suppose that changes in social legibility, WTI, and CG all demonstrate significant links of comparable strength to changes in larcenies from motor vehicles and that those links weaken when perception of risk/fear of crime is partialed.

If all the above points were observed, and ignoring for the moment the significant question of nonrecursive effects, it would argue in favor of thinking about how fear changes might be driving the social legibility, WTI, and CG dynamics. This might lead to an alternate type of modeling for the individual-level dynamics portion of the model. The alternate modeling is shown below in Figure 4.4.

If such alternate modeling were suggested by the links observed, there are implications for the meaning of the indicators involved. Ultimately, this is what construct validity is all about.

In other words, even if all these indicators have excellent convergent and discriminant validities, the hypothetical pattern of links discussed

![Figure 4.4](potential_alternate_theoretical_modeling_of_individual-level_dynamics.png)
above is relevant to construct validity questions following the unified perspective. Fundamental rethinking would be needed about the relationships between the four constructs shown. Such a reexamination would require panel design data with at least three observation times to further unpack the relationships between the different changes and to better understand the ordering of the different changes.

**Closing Comment, Including the Broader Agenda**

This chapter draws attention to two limitations in current communities and crime research. At least in some theoretical frameworks, confusion abounds regarding key constructs. There is, to use Abbott’s (2001) term, substantial semantic ambiguity. Further, there have been few systematic attempts to compare the relative adequacy of different theoretical perspectives (Taylor and Wikstrom, 2009). Such comparisons have been hampered in part because of semantic ambiguities. Both these matters can be resolved only by careful attention to construct validation efforts.

Of course, construct validation in the context of any ecological theory interested in community effects poses several challenges. These challenges are even more considerable for communities and crime models, given their heavy reliance of census and reported crime data.

A two-phase approach was recommended for pursuing construct validation. Both phases presume that the researcher has resolved the temporal and spatial scaling concerns (Taylor, 2010); has indicators for each key construct derived from multiple data sources; and has data available that can be organized into a dynamic longitudinal boat metamodel as described in chapter 7. In the first phase, the researcher examines patterns of multimethod convergent and discriminant validities for key indicators in the theory of interest and preferably for competing theories as well. The investigation is conducted separately for each different segment of the metamodel (e.g., Ma-IΔ, Mi-IΔ, Mi-OΔ, and Ma-OΔ). Once these have been established, and in accord with suggestions from Messick’s (1995) unified construct validation perspective, there is a second phase in which each of the links (→) in the model is investigated both for the model of interest and for potential competing models with a similar metamodel structure. Then, as Cronbach described in his opening quote, “reasoning and imagination” come into play.

There is a broader and much more fundamental theoretical purpose at issue here: How do we integrate levels of explanation for crime across disparate levels of analysis such as individuals, situations, settings, and communities (Wikstrom and Sampson, 2003)? This will involve
figuring out how different causal mechanisms—“developmental,” “social,” and “situational” (Wikstrom, 2007: 129–30)—operate, connect, and condition one another. Progress along these lines has been quite limited, perhaps in large part because “criminology lacks a developed theory of action through which causal mechanisms can be addressed and levels of explanation integrated . . . [the field lacks] a tool for integrating levels of explanation” (Wikstrom, 2004: 4). The types of investigations suggested here along the lines suggested by the unified perspective on construct validation may help spur thinking along such integrative lines.

Notes

1. Cook et al. (1997: 116) described the situation as follows:

   The lack of clear discriminant validity within the process and demographic domains also has implications for testing neighborhood theories, the vast majority of which are couched in terms of specific, rather than global neighborhood attributes. The preference for such theory implies that some neighborhood processes produce different consequences than do others (emphasis added).

2. Although it sounds nonsensical at first to say that a cross-sectional, individuals-within-neighborhoods multilevel model with a community predictor and individual-level outcome is examining only an ecological relationship, this is what is happening, before or after conditioning on individual-level or other ecological predictors. The community predictor, if it yields a significant impact, does so because of connections with the between-community portions of the outcome variable.

3. Many of these definitions (Dahir, 1947; Mann, 1965; Keller, 1968; Suttles, 1972; Haney and Knowles, 1978; Crenson, 1983) highlight that (1) people live there, (2) it is more familiar or recognizable to its residents than locations farther away and that recognition may be externally recognized and politically represented, (3) within the neighborhood there may be some degree of social recognition or interaction among some fraction of the households living there, (4) nonresidential land uses and amenities contribute to or detract from the quality of neighborhood life, and (5) it is a geographically delimited locale, even though there may not be strong agreement among all residents about exactly where it begins and ends, depending on a range of housing, land use, and political factors (Firey, 1945; Taylor, 2001: 303–16).

4. More specifically, in the case of demographics, others have described the relevance of community SES (Sampson, 1985; Logan and Molotch, 1987; Bursik and Grasmick, 1993; Krivo and Peterson, 1996; Crutchfield and Pitchford, 1997), racial or ethnic composition (McDougall, 1993; Sampson and Wilson, 1995; Wilson, 1996; Peterson and Krivo, 2010), family composition (Sampson, 1987; Sampson and Lauritsen, 1994), and stability (Bursik and Webb, 1982; Bursik, 1988; Covington and Taylor, 1989; Bursik and Grasmick, 1993; Morenoff and Sampson, 1997) for a broad range of sociopolitical, cultural, social, psychological, and economic consequences, many of which may link to crime and/or delinquency and/or victimization. Given the multi-threaded impacts of each of these demographic components, each has been tied to a broad set of outcomes. Low community SES, for example, has been interpreted to generate, among other things, frustration (Gordon, 1967; Agnew,
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1999; Maume and Lee, 2003), inability to access external resources (Morenoff and Sampson, 1997), inadequate internal social resources, the presence of large numbers of potential offenders (Cohen and Felson, 1979), or other aspects of routine activities (Sampson and Woolardge, 1987; Osgood and Chambers, 2000), or institutional profiles (Peterson et al., 2000).

Land use patterns generally, including not only the patterning, density, and types of nonresidential land uses but also street traffic patterns and residential structure types, can influence a host of diverse processes (Harries, 1974, 1976, 1980; Brantingham and Brantingham, 1981, 1991, 1993) including but not limited to informal control (Kurtz et al., 1998), upkeep or lack thereof (Taylor et al., 1995), densities and patterns of guardians and potential victims (Roncek, 1981; Roncek and Bell, 1981; Roncek et al., 1981; Roncek and Lobosco, 1983; Roncek and Faggiani, 1985; Roncek and Pravatiner, 1989; Roncek and Maier, 1991), and neighboring and outside space use patterns (Baum et al., 1978). Specific local land uses can interact with potential offenders’ perceptions and behaviors in complex ways (St. Jean, 2007).

Given all these connections, it is easy to understand how these inappropriate conceptual substitutions arise. But it does not make them acceptable.

5. Those six aspects were content, substantive, structural, external, consequential, and generalizable (Messick, 1995).

6. Of course, each of these theories has a larger number of important theoretical threads. One thread of each is examined here in order to create a simple exposition.

7. For WTI, the researcher has surveyed residents with the usual items asking about hypothetical WTI in some manner if disorderly, mischievous, or criminal behaviors were witnessed. Several of these items focus on passersby looking into cars parked on the street, leaning on cars, and the like. Individual-level behavioral observation data were obtained as well. Trained research confederates traveling in pairs that were racially appropriate to the neighborhood moved through sampled streetblocks at times under weather conditions when residents were likely to be home and outside, and they intentionally dropped litter directly in front of sampled households. They then moved on at a slow pace and waited to see if someone in the respondent household would respond. After dropping litter at all sampled households, they picked up all litter not previously drawn to their attention by someone in a sampled household, being prompted to pick up the litter counted as being willing to intervene. Survey data from respondent households permitted controlling for household size and likelihood of someone being home at assessment times.

For CG, multiple methods also were used. Survey questions included those like the following: “Do you lock your car when it is parked out on the street in your neighborhood?”; “How important is it to be able to park your car right in front of your house?”; “How important is it to you to be able to park your car somewhere on the street where you can look out and see it?”; “On a typical weekday evening, if your car is parked in front of your house/apartment, how often do you look out to check on it?”; “How about on a typical weekend evening?”; “On a typical weekday evening, if your car is not parked on the street where you can see it from your house, say it is around the corner, how likely is it that you will go out and check on the car during the evening?”; “How about on a typical weekend evening?”; “If you were out of town for some reason, and you had to leave your car parked at home in front of your house, how likely would you be to ask a neighbor to check on it to be sure it was OK?”

Behavioral observation data collection for CG involved trained research confederates in pairs moving repeatedly through the streetblock on randomly selected dates under specified weather conditions, which made it likely that residents would be
outside. Following training, the groups moved slowly and acted rambunctious, veering close to and looking into cars as they moved along. If residents said something to the group, or if they perceived intentional surveillance from others on the block, they pressed a dedicated handheld device that noted the location where this occurred; the downloaded GPS information, accumulated over repeated trials on each study block, allowed the researcher to estimate how much surveillance existed near each sampled respondent’s address. Since a large number of research confederates were trained and employed in the study, and the groups of confederates reconstituted, and the confederates adopted different clothing styles at different times, it seemed unlikely that residents’ responses would be keyed to identification.

8. Of course, in the case of SD theory, this is what Sampson and Grove did in the late 1980s with their systemic version (Sampson and Groves, 1989). That version, however, did not answer key questions about political economy/social control links, and this remains an area of some conceptual confusion in this theory.

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