

On the Nature of Neighbourhood

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Summary. The paper advances the conceptualisation of neighbourhood by specifying it as a bundle of spatially based attributes associated with clusters of residences, sometimes in conjunction with other land uses. There follows a discussion of how this ‘composite commodity’ definition relates to the planning challenge of spatially bounding neighbourhood. The paper then probes the myriad idiosyncrasies associated with the concept of neighbourhood: cross-attribute variation in durability and ability to be priced, relativistic evaluations of attributes and consumption impacts on attributes. It discusses how, within this new paradigmatic context, neighbourhoods are produced by the same actors that consume them: households, property owners, business people and local government. Finally, consideration is given to various aspects of the origins and nature of neighbourhood change and it is argued that neighbourhood dynamics are rife with social inefficiencies.

Introduction

Urban social scientists have treated ‘neighbourhood’ in much the same way as courts of law have treated pornography: as a term that is hard to define precisely, but everyone knows it when they see it. Yet, even a cursory survey of definitions in the literature reveals some crucial differences in what the implicit ‘it’ is.

Many scholars have employed a purely ecological perspective. For example, Keller (1968, p. 89) defines neighbourhood as a “place with physical and symbolic boundaries”. Morris and Hess (1975, p. 6) label it “place and people, with the common sense limit as the area one can easily walk over”. Golab (1982, p. 72) uses the phrase “a physical or geographical entity with specific (subjective) boundaries”.

Others have attempted to integrate social

and ecological perspectives, as in Hallman’s (1984, p. 13) definition: “a limited territory within a larger urban area, where people inhabit dwellings and interact socially”. Warren (1981, p. 62) defines neighbourhood as “a social organization of a population residing in a geographically proximate locale”. “Geographic units within which certain social relationships exist” is the definition suggested by Downs (1981, p. 15). Schoenberg (1979, p. 69) specifies the neighbourhood’s defining characteristics as: “common named boundaries, more than one institution identified with the area, and more than one tie of shared public space or social network”.

All extant definitions suffer from common shortcomings. They presume either a certain (if unspecified) degree of spatial extent and/

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or social interrelationships within that space and they underplay numerous other features of the local residential environment that clearly affect its quality from the perspective of residents, property owners and investors.

In this essay, an attempt is made to advance the conceptualisation of neighbourhood, in order to produce ultimately a construct that overcomes the above shortcomings, is rigorously quantifiable and about which testable hypotheses can be formulated. After forwarding a new definition of neighbourhood, a discussion follows of how this definition relates to the challenge of spatially bounding neighbourhood. Planners and policy-makers hope to identify behaviourally meaningful, unambiguous boundaries to devise more efficacious neighbourhood indicators and interventions, but the task often is confounded by lack of congruence among local actors' perceptions of boundaries. The paper then probes the myriad idiosyncrasies associated with the concept of neighbourhood and discusses how, within this new paradigmatic context, neighbourhoods are produced by the same actors that consume them. Finally, consideration is given to various aspects of the origins and nature of neighbourhood change. (For comprehensive reviews of the social scientific literature on neighbourhood, see Hunter, 1979; Schwirian, 1983; Hallman, 1984; and Temkin and Rohe, 1996). It is argued that neighbourhood dynamics are rife with social inefficiencies.

Defining Neighbourhood

Neighbourhood is here defined as follows:

Neighbourhood is the bundle of spatially based attributes associated with clusters of residences, sometimes in conjunction with other land uses.

This definition owes its intellectual genesis to the work of Lancaster (1966), who originally formulated the notion of complex commodities as a multidimensional bundle comprised of simpler (albeit sometimes abstract) goods. In this application, the spatially based attributes comprising the complex

commodity called 'neighbourhood' consist of

- Structural characteristics of the residential and non-residential buildings: type, scale, materials, design, state of repair, density, landscaping, etc.
- Infrastructural characteristics: roads, sidewalks, streetscaping, utility services, etc.
- Demographic characteristics of the resident population: age distribution, family composition, racial, ethnic, and religious types, etc.
- Class status characteristics of the resident population: income, occupation and education composition.
- Tax/public service package characteristics: the quality of safety forces, public schools, public administration, parks and recreation, etc., in relation to the local taxes assessed
- Environmental characteristics: degree of land, air, water and noise pollution, topographical features, views, etc.
- Proximity characteristics: access to major destinations of employment, entertainment, shopping, etc., as influenced by both distance and transport infrastructure.
- Political characteristics: the degree to which local political networks are mobilised, residents exert influence in local affairs through spatially rooted channels or elected representatives (for more on this dimension, see Hunter, 1979; and Temkin and Rohe, 1996).
- Social-interactive characteristics: local friend and kin networks, degree of inter-household familiarity, type and quality of interpersonal associations, residents' perceived commonality, participation in locally based voluntary associations, strength of socialisation and social control forces, etc. (for more on this dimension, see Warren, 1975; Fischer, 1982; and Warren and Warren, 1977).
- Sentimental characteristics: residents' sense of identification with place, historical significance of buildings or district, etc.

The unifying feature of these attributes con-

stituting the bundle called neighbourhood is that they are *spatially based*. The characteristics of any attribute can be observed and measured only after a particular *location* has been specified. This is not to say that neighbourhoods are homogeneous on any attribute, merely that a distribution or profile can be ascertained once a space has been demarcated. Moreover, to say that attributes are spatially based does not mean that they are intrinsically coupled with the geography—some are (infrastructure, topography, buildings), whereas others are associated with individuals who lend their collective attribute to the space purely through aggregation (race, income, life-cycle stage).

It must be emphasised that, while most of the attributes above usually are present to some extent in all neighbourhoods, the quantity and composition of constituent attributes typically vary dramatically across neighbourhoods within a single metropolitan area, let alone internationally. This implies that, depending on the attribute package they embody, neighbourhoods can be distinctly categorised by type and/or by quality. This is, of course, a tenet of social area analysis (Greer, 1962; Hunter, 1974). However, unlike that school of thought, here the dimensions over which neighbourhoods can be classified are extended beyond the demographic- and status-related. The extension is necessary if one is to understand neighbourhood change, for key decision-makers evaluate more than merely the demographic and status attributes of a space before investing in it.

Moreover, in instances where a certain dimension (social-interactive or sentimental, for example) of the neighbourhood bundle is virtually absent at a certain location, 'neighbourhood' in this dimension can be thought of as being absent there. Thus, implicit in my definition is the notion that the type and even existence of neighbourhoods can and often does vary across urban space. This could be termed "the degree of presence of neighbourhood".¹

Commodities are consumed, of course, and in this sense neighbourhood is no excep-

tion. Four distinct types of user potentially reap benefits from the consumption of neighbourhood: households, businesses, property owners and local government.² Households consume neighbourhood through the act of occupying a residential unit and using the surrounding private and public spaces, thereby gaining some degree of satisfaction or quality of residential life. Businesses consume neighbourhood through the act of occupying a non-residential structure (store, office, factory), thereby gaining a certain flow of net revenues or profits associated with that venue. Property owners consume neighbourhood by extracting rents and/or capital gains from the land and buildings owned in that location. Local governments consume neighbourhood by extracting tax revenues, typically from owners based on the assessed values of residential and non-residential properties.

Bounding Neighbourhood

The fact that, once a space has been specified, spatially based attributes can be measured does not imply, unfortunately, that neighbourhood takes on an unambiguous spatial character. If all attributes were to vary across the same spatial scales *and* these scales could be demarcated by congruent boundaries, where one neighbourhood stopped and another began (i.e. the attribute bundle changed) could be designated in unambiguous geographical terms. However, the geographical scale across which an attribute varies often is wildly dissimilar among attributes. For example, structural characteristics may vary dramatically over a few metres, whereas public educational quality may only differ among enrolment zones for elementary schools and air quality may be virtually constant across vast swathes of a metropolitan area.

Thus, my definition does not lead to the Holy Grail sought by much neighbourhood analysis of the 20th century: a means of unambiguously, meaningfully bounding urban neighbourhoods. It does offer a quite different perspective on this issue, however.

It suggests that the investigator would select a different parsing of urban space, depending on the particular neighbourhood attributes (or, equivalently, the neighbourhood typology) of interest.³

This implication is consonant with Suttles' (1972) conceptualisation suggesting a multi-level spatial view of neighbourhood. He argued that urban households could identify four scales of 'neighbourhood'. At the smallest scale was the block face, the area over which children could be permitted to play without supervision. The second level was labelled the 'defended neighbourhood'—the smallest area possessing a corporate identity as defined by mutual opposition or contrast to another area. The third level, the 'community of limited liability', typically consisted of some local governmental body's district in which individuals' social participation was selective and voluntary. The highest geographical scale of neighbourhood, the 'expanded community of limited liability', was viewed as an entire sector of the city. Surveys conducted by Birch *et al.* (1979, ch. 3) have revealed that residents do, indeed, conceive of four distinct spatial levels of neighbourhood, which correspond closely to Suttles' theory. In the context of the definition employed here, the foregoing is interpreted as suggesting that residents perceive clusters of neighbourhood attributes that vary at the same scale across roughly congruent spaces.

Moreover, it is precisely these *perceptions* of boundaries that are most critical in constructing theories or predictive models of neighbourhood change. As will be explicated further below, the stock of attributes constituting neighbourhood at any point are produced by flows of resources and these flows will be governed by perceptions of key actors. The extent to which they will modify their resource flows will depend on whether they perceive that attributes of relevance within *their* bounding of neighbourhood have changed.

In earlier work (Galster, 1986), an attempt was made to formulate this in terms of 'neighbourhood externality space'. A per-

son's externality space was defined as the area over which changes in one or more spatially based attributes initiated by others are perceived as altering the well-being (use value, psychological and/or financial benefits) the individual derives from the particular location.⁴ Three (quantifiable) features were formulated of these externality spaces.

- Congruence*: the degree to which an individual's externality spaces correspond to particular, predetermined geographical boundaries.
- Generality*: the degree to which an individual's externality spaces for different spatially based attributes correspond.
- Accordance*: the degree to which externality spaces for different individuals located in close proximity correspond.

The specification of neighbourhood as a bundle of spatially based attributes, coupled with the notion of externality space and its aforementioned three dimensions, allows for the potential empirical identification of behaviourally meaningful boundaries of 'neighbourhood'. For a predetermined spatial set of individuals, should there be an area over which accordance and generality (for a certain subset of attributes) were high, it would imply that boundaries could be reasonably specified for that scale of neighbourhood. If accordance and generality were low for all attributes, one would conclude that no meaningful spatial bounding existed for that group and their perceptual neighbourhood.

The Suttles (1972) and Birch *et al.* (1979) works suggest in this context that, for a certain subset of attributes among which there is high generality, there are, indeed, high degrees of accordance and congruence at the block face scale. Analogously, for a different subset of attributes, there are high degrees of accordance and congruence at the 'defended community' scale, and so on.

Idiosyncrasies of Neighbourhood

Above it was explained how attributes comprising neighbourhood are spatially based yet inconsistent in their geographical variability,

which yields some challenging implications for the potential bounding of neighbourhood. Here we discuss four additional aspects of spatially based attributes and the idiosyncrasies that result for neighbourhoods. These aspects are: cross-attribute variation in durability, cross-attribute variation in ability to be priced, relativistic evaluations of attributes by consumers, and consumption impacts on attributes.

The spatially based attributes comprising neighbourhood vary in their durability. Some, like certain topographical features, are permanent. Sewer infrastructure and buildings typically last generations. Others, such as tax/public service packages and demographic and status profiles of an area, can change over a year. The area's social interrelationships can be altered even more rapidly. The implication of this observation is as follows. Although some of the key features that define a desirable neighbourhood from the perspective of its many consumers can be counted on to remain constant (and therefore predictable) for extended periods, others cannot. This means that consumers' *predictions* about future changes in these less-durable features will play a major role in determining decisions about mobility, financial investments and psychological investments in neighbourhoods over the long term.

The spatially based attributes comprising neighbourhood vary in their ability to be priced by market mechanisms. In order for potential consumers to make bid offers for a commodity, they must have some modicum of information about the quantity and quality of that commodity and what likely benefit they would receive from its consumption. Real estate markets have been shown to meet this criterion for a vast number of spatially based attributes. Indeed, such is the foundation of over three decades of empirical work estimating 'hedonic indexes' (for a review of theory and evidence on hedonic indexes, see Rothenberg *et al.*, 1991, ch. 3). These studies have shown that attributes like structural size and quality, accessibility, tax/public service packages, demographic and status composition of residents and pollution

can be priced and accurately reflect bidders' willingness to pay. However, most social interactive dimensions of neighbourhood cannot be priced well because they are hard *ex ante* for prospective bidders to assess. The idiosyncratic and personalised nature of neighbourhood social interactions means that prospective in-movers will only be able to ascertain how they will 'fit in' after an extended period of residence. One implication is that long-term residents may have considerably different market evaluations ('reservation prices') for their neighbourhood than prospective residents or investors because the former have capitalised (positively or negatively) their assessments of the social interactive dimension. Thus, the former may be highly resistant to external market forces when they assess a positive social environment, and may be more easily out-bid and eventually supplanted by new owners and residents when they assess a negative one. Another implication is that neighbourhoods are particularly prone to forms of insider dealing, with privileged information communicated to preferred buyers and in-movers by current residents, owners and their market intermediaries.

Even if the market can price attributes comprising neighbourhood, however, their price will typically be based on a comparison of attributes in competing neighbourhoods, not on the intrinsic characteristics of the attribute set.⁵ Perhaps the most obvious example is the status dimension. The absolute income levels of households in a particular neighbourhood may rise but, if they are rising at least as quickly in all other neighbourhoods in the metropolitan area, it is likely that there will be no change in consumers' evaluations of that neighbourhood's status attribute. Analogous arguments can be made regarding other attributes, such as proximity, school quality and public safety. The upshot is that, when new neighbourhoods are created through large-scale construction or rehabilitation projects, they can change the relative attractiveness of existing neighbourhoods. And because *relative* evaluations will alter flows of resources across space, *absol-*

ute changes in the existing neighbourhoods will follow (Grigsby *et al.*, 1987; Galster, 1987, ch. 2).

The spatially based attributes comprising neighbourhood can change by the very act of consuming them. This can occur directly and indirectly. Directly, as households consume neighbourhood by occupying residences in it, they may simultaneously alter the demographic and/or socioeconomic status profile of the neighbourhood if the in-moving households differ systematically from longer-term residents. Analogously, a different type of ownership of homes or stores may emerge if the consumption changes to absentee-owned instead of owner-occupier, for example. Indirectly, changes in the occupancy and/or ownership profiles of a neighbourhood not only change tautologically its current attributes, but may trigger longer-term changes in a wider variety of attributes. This can occur if the occupancy or ownership changes yield different decisions by current or prospective consumers of the neighbourhood that affect the flows of resources into that space—a topic discussed in more depth in the following. Suffice it to note here the corollary of this point: attributes of neighbourhood are mutually causal over time. Changes in one attribute may change decisions by one or more type of consumer, which lead, in turn, to changes in other attributes and so on (Grigsby *et al.*, 1987; Galster, 1987, ch. 2; Temkin and Rohe, 1996).

How Neighbourhoods Come to Be

Although it is tempting to conceive of neighbourhood as a commodity with fixed, clearly defined characteristics, it is more appropriately viewed in a more dynamic perspective. The attributes comprising neighbourhood at any moment are, in fact, the result of past and (typically) current flows of households and resources—financial, social-psychological and time—into and out of the space in question (Galster, 1987, ch. 2). Certainly, when a sub-division of homes is newly constructed, one might say that a neighbourhood

has come into being—although without household occupants, it is not yet a fully formed neighbourhood. From that moment on, what attributes that place will possess—what that neighbourhood will *be*—will be shaped by the decisions of current and prospective consumers.

Thus, in a fundamental way, the *consumers* of neighbourhood can be considered the *producers* of neighbourhood as well. Households consume a neighbourhood by choosing to occupy it, thereby producing an attribute of that location related to that household's demographic characteristics, status, civil behaviours, participation in local voluntary associations and social networks, and so forth. Property owners consume a neighbourhood by buying land and/or buildings in it; they subsequently produce the neighbourhood's attributes through their decisions regarding property construction, upkeep, rehabilitation or abandonment. Business people consume a neighbourhood by operating firms there, thereby producing attributes related to structure types, land use, pollution and accessibility. Local governments consume neighbourhood by extracting property tax revenue and, in turn, produce attributes associated with public services and infrastructure.

The list of producers of importance to any neighbourhood is expansive and diverse. It includes not only the aforementioned consumers: households, property owners, business people and local governments. It also includes, in a secondary but nevertheless important way, those in the real estate brokerage, insurance and mortgage finance sectors. It includes those who currently reside, own property and/or earn income or tax revenues there, and those who do not but may under certain circumstances. It includes those who perceive a vested financial or social-psychological interest in the area and those who do not. It includes those who make decisions using the cold calculus of profit maximisation, those who consider sentiment and personal satisfaction and still others who are motivated by political pressures.

The mobility, purchasing and resource al-

location decisions related to neighbourhoods (what will be referred to hereafter as ‘investing’) are inherently fraught with an unusual amount of uncertainty. First, although the neighbourhood as a whole affects the well-being of each consumer/producer, what happens to that neighbourhood is a function of changes in numerous constituent attributes, each of which has an indeterminate future to varying degrees. Secondly, there is the aforementioned large number of consumer/producers of different types and motivations. The behaviour of this panoply of actors is difficult to gauge, yet the decisions by one will affect directly and indirectly the investment outcomes of all. Finally, the flows of resources across all neighbourhoods in a metropolitan area will be influenced by uncertain metro-wide factors related to the regional economy, technological innovation, population and immigration, state and federal government policy and vagaries of nature (Temkin and Rohe, 1996).

This high uncertainty translates into substantial long-term risk because, once made, investments of resources in neighbourhoods are not easily reversible. Many sorts of potential investment have substantial out-of-pocket and psychological transactions costs—costs which consumer/producers are loathe to incur on a frequent basis. Other sorts of potential investment, especially structures and infrastructures, have long projected life-spans and are spatially fixed. The high-uncertainty/high-risk nature of neighbourhood investments holds important implications for the characteristics associated with neighbourhood change, the topic we turn to next.

Changes in Neighbourhood

Above it was argued that neighbourhoods would change (i.e. their attributes would be altered) based on the risk-laden decisions by consumer/producers that influence the on-going flow of resources to a neighbourhood. These decisions are based heavily on relativistic, interneighbourhood comparisons and futuristic expectations embedded within a

highly interactive, multiactor context. This final section will more deeply probe the nature of the decision-making process related to neighbourhood dynamics. Specifically, it will be argued that changes in neighbourhood are: fundamentally driven by external forces reverberating through the metropolitan housing market; characterised by non-linear processes; and, socially inefficient.

The Dominance of External Forces of Change

For the first claim, we draw upon the model of the metropolitan housing market developed by Rothenberg *et al.* (1991) as framework. This model begins by classifying the housing stock into ‘quality sub-markets’—sets of dwelling units that households perceive as closely substitutable, considering all the myriad attributes of the housing bundle (including spatially based attributes). Each sub-market can be modelled as having its own supply and demand functions. Supply into one sub-market (through new construction and net conversion of dwellings) will be influenced, among other things, by the relative rate of return that owners can reap in this sub-market compared with others. Demand by households in one sub-market will be influenced, among other things, by the market valuations (sales prices or equivalent capitalised rents) in close-substitute sub-markets. Shocks to equilibrium in any one sub-market are transmitted sequentially throughout the sub-market array by housing owners/developers altering their supply decisions in response to a new sub-market pattern of rates of return and by households altering their occupancy decisions in response to new relative market valuations across substitute sub-markets.

This model of housing dynamics can be usefully applied to neighbourhood dynamics (Rothenberg *et al.*, 1991, ch. 9). The connection between metropolitan housing sub-market and neighbourhood is straightforward. Most neighbourhoods in the US consist primarily of residences classified (by households, owners and developers as close

substitutes) in the same quality sub-market, for three reasons (Vandell, 1995). First, economies of scale in construction lead developers to build homes in a sub-division that typically have similar physical characteristics. Secondly, the American (and, perhaps, other societies') willingness to pay premia for class homogeneity, often backed up with various land-use regulations, limits diversity of housing types within small geographical areas. Thirdly, because spatially based attributes contribute to a housing unit's quality and, hence, sub-market, units in close proximity will share many common attributes and thus tend to be classified in the same quality sub-market tautologically.

The foregoing suggests first that any forces affecting a particular housing sub-market will also affect the neighbourhoods where such a type of dwelling is located; the greater the concentration of the given sub-market type in a neighbourhood, the greater the spatial impact there. Secondly, it suggests that forces originally impacting anywhere (either in terms of quality sub-market or geographical location) in the metropolitan area will eventually have some impact everywhere, as the shock is transmitted in progressively damped severity across sub-markets of increasingly dissimilar substitutability.

An illustration is the classic process of 'filtering' (Galster and Rothenberg, 1991). Developers may speculate and build a number of high-quality sub-market homes on ex-urban, undeveloped tracts. Should this increase in supply exceed the increase in demand for the high-quality sub-market (say, due to growth of high-income households), there will be a net decline in the market valuations and rate of return associated with such dwellings. Some households who previously chose not to occupy the high-quality sub-market now do so, as affordability has risen. Concomitantly, some owners of pre-existing dwellings in the high-quality sub-market may choose to downgrade the quality of their units to take advantage of comparatively superior rates of return in the somewhat lesser-quality sub-market(s). They

typically accomplish this by passive under-maintenance: investing insufficient upkeep to maintain the dwelling in its original sub-market. These adjustments jointly restore equilibrium in the high-quality sub-market but upset it in the lower-quality one(s). There, demand has fallen (from some erstwhile occupants choosing instead a superior quality sub-market) and supply has risen (from some owners downgrading from higher-quality sub-markets), thereby driving down market valuations. An adjustment process on both supply and demand sides of the market ensues analogous to the above, but disequilibrating forces are transmitted still farther down the sub-market quality array.

By the time system-wide equilibrium is restored, the model predicts a series of changes in demographic and physical attributes of neighbourhoods constituting sub-markets. In every sub-market, the least competitive neighbourhoods have witnessed: an in-migration of households of somewhat lower means than the typical residents who left; and, a decline in the physical quality of the dwellings—in the extreme, dilapidation and even abandonment. In each case, the new construction of high-quality dwellings in excess of household demand for such rendered the array of lower-quality neighbourhoods relatively less attractive and less expensive. This generated altered flows of resources (occupancy patterns by households, financial resources by owners) that ultimately changed absolutely the attributes of these neighbourhoods.

What should be stressed about this process is that the alterations of existing neighbourhoods in this scenario were triggered by forces originating outside the confines of these neighbourhoods.⁶ These forces external to the neighbourhood in question led those controlling resources flowing into it to change their decisions, based on the connections described by the quality sub-market array of the metropolitan housing market. This leads to the suggestion that the most fundamental sorts of neighbourhood changes are *externally induced*.

Non-linear Processes of Change

Once begun, the process of change from one equilibrium state to another is often non-linear, even discontinuous: what may be called a threshold effect. There are four distinct, not mutually exclusive, mechanisms suggested by extant theory through which thresholds may be produced: collective socialisation, contagion, gaming, preference models (for a review, see Quercia and Galster, 2000; for evidence, see Galster *et al.*, 2000). The first two rely upon collective actions and social intercourse to create thresholds; the other two involve more atomistic attitudes and behaviours. One can analyse: behaviour of households to move out through collective socialisation, gaming and preference models; behaviour of households to move in through gaming models; and behaviour of residents, owners and business people who remain in the neighbourhood through collective socialisation, gaming and contagion models.

Collective socialisation theories focus on the role that social groups exert on shaping an individual's attitudes, values and behaviours (for example, Simmel, 1971; Weber, 1978). Such an effect can occur to the degree that: the individual comes in social contact with the group; and, the group can exert more powerful threats or inducement to conform to its positions than competing groups. These two pre-conditions may involve the existence of a threshold. Given the importance of interpersonal contact in enforcing conformity, if the individuals constituting the group in question were scattered innocuously over urban space, they would be less likely to be able either to convey their positions effectively to others with whom they might come in contact or to exert much pressure to conform. It is only when a group reaches some critical mass of density or power over a pre-defined area that it is likely to become effective in shaping the behaviours of others. Past this threshold, as more members are recruited, the group's power to sanction non-conformists probably grows non-linearly. This is especially likely

when the position of the group becomes so dominant as to become normative in the area.⁷

The basic tenet of contagion models is that, if decision-makers live in a community where some of their neighbours exhibit non-normative behaviours, they will be more likely to adopt these behaviours themselves. In this way, social problems are believed to be contagious, spread through peer influence. Crane (1991) proposes a formal contagion model to explain the incidence and spread of social problems. He contends that the key implication of the contagion model is that there may be critical levels of incidence of social problems in neighbourhoods. He states that if

the incidence of problems stays below a critical point, the frequency or prevalence of the problem tends to gravitate toward some relatively low-level equilibrium. But if the incidence surpasses a critical point, the process will spread explosively. In other words, an epidemic may occur, raising the incidence to an equilibrium at a much higher level (Crane, 1991, p. 1227).

Gaming models assume that, in many decisional situations involving neighbourhoods, the costs and benefits of alternative courses of action are uncertain, depending on how many other actors choose various alternatives. The individual's expected pay-off of an alternative varies, however, depending on the number or proportion of others who make a decision before the given actor does. Thus, the concept of a threshold amount of observed prior action is central in this type of model. The well-known prisoners' dilemma is the simplest form of gaming model (Schelling, 1978), but more sophisticated variants have been developed and applied to neighbourhood change processes (Granovetter, 1978; Granovetter and Soong, 1986). As illustration, consider the situation of a dilapidated neighbourhood for which the market is signalling potential gains in property values were its owners to improve their properties as a group. But, individual owners may believe that they will not earn back the value of

their marginal investment if they were to upgrade but no others followed suit. A conservative gaming strategy of behaving to minimise maximum prospective loss, regardless of what others may do, will lead many owners to refrain from upgrading first. Only if a threshold proportion of owners were to upgrade would these sceptics be convinced to upgrade (Taub *et al.*, 1984).

Preference models claim that actors in a residential environment will respond if the aggregate behaviour of others (or, an exogenous event) raises an undesirable neighbourhood attribute above the level they find tolerable. An endogenous process can be triggered once the attribute reaches the critical threshold. The trigger occurs because actors in a neighbourhood are assumed to have different tolerance levels, with the least tolerant responding first. If additional change in the neighbourhood attribute results from the course of action taken in response to the initial event by those with the lowest tolerance level, the new level of the neighbourhood attribute may now be above the tolerance level of some of the less-tolerant remaining actors. The process may continue with new rounds of attribute change and actor adjustment until the process is completed. At the extreme, the process may end when all the original actors in a neighbourhood have responded. The theoretical development of preference models has focused on changes in a neighbourhood's racial composition, though extensions to preferences for other sorts of neighbourhood attribute are straightforward. For example, if some 'undesirable' household type were to move into a neighbourhood, the original residents least tolerant of the new in-movers may leave. If their vacant dwellings were filled disproportionately by more members of the undesirable group, still more of the original residents may find the now-higher proportion of undesirables intolerable, and move out. And so on. Seminal work in this vein has been produced by Schelling (1971, 1978), Schnare and MacRae (1975) and Taub *et al.* (1984).

Socially Inefficient Processes of Neighbourhood Change

The foregoing discussion implies that changes in the flows of resources into neighbourhoods are not likely to produce socially efficient outcomes. At least four reasons come to bear: externalities, gaming, expectations and inadequate pricing of attributes.

Because the act of consuming neighbourhood can change its attributes directly and indirectly and because such changes affect the decisional calculus of other consumer/producers, the act can be thought of as generating externalities. The choice of a minority to move into an all-white-occupied neighbourhood imposes externalities on the bigots there. The choice of a property owner to repair the façade provides external benefits to neighbours. Because such external costs and benefits do not accrue to the decision-maker, a sub-optimal amount of the activity is chosen.

The aforementioned discussion of gaming serves as reference here. With lack of certainty about the decisions of myriad other consumers/producers in the neighbourhood, yet dependency of one's pay-offs from alternative choices dependent upon such, autonomous decision-makers are likely to adopt strategies that do not produce the greatest good for the collective. The unwillingness to renovate dilapidated buildings in an area until other investors do so first is a classic example.

Expectations are, of course, imperfect and prone to major errors. But this in itself does not imply a systematic bias towards inefficient choices. Rather, expectations about the future may prove to be so 'certain' in the view of the decision-maker that the resulting choice encourages the expectation to transpire. This is the famous 'self-fulfilling prophecy' phenomenon. An illustration is panic selling of homes. Because of some anticipated neighbourhood change, several home-owners become convinced that property values will fall rapidly. They therefore try to sell their homes quickly, offering a discount. But the rash of 'For sale' signs and

the rumours that these homes are selling cheaply convinces other owners in the neighbourhood that, indeed, values are on the way down. As they join in the attempt to unload their properties, panic ensues and prices do, as some prophesied, drop precipitously. The sorts of price produced by these self-fulfilling prophecy dynamics are unlikely to allocate resources efficiently. Instead of accurately capitalising the underlying quality (and replacement cost of the dwellings) in the neighbourhood, these artificially deflated prices encourage the purchase by owners with less personal financial means. These owners are likely to invest less in home maintenance and repair activities than their higher-income forebears (Galster, 1987), thereby shortening the useful lifetimes of these valuable assets.

Finally, it was explained above how certain attributes of the neighbourhood, especially those associated with the sentimental and social-interactive dimensions, could not be evaluated well by potential consumers/producers not yet located in a given neighbourhood, compared with those located there for some time. This divergence in information creates an agency problem in which inefficient transactions are likely to occur. Owners attempting to sell or rent their properties will have a bias toward disguising any undesirable attributes—and not discounting the price appropriately—of the neighbourhood that may not be known to prospective buyers or renters. This means that the latter group will make inefficient choices: they would have chosen a neighbourhood offering a superior quality of life for the money had they but been fully informed.

Summary and Conclusion

In this essay, it has been proposed that the urban neighbourhood could be usefully defined as the bundle of spatially based attributes associated with clusters of residences, sometimes in conjunction with other land uses. This bundle of attributes is multidimensional, consisting of everything from

structures and topography to demography, public services and social interactions. Implicit in the definition is the notion that, depending on the attributes present, the type and even existence of neighbourhoods can and often does vary across urban space.

Bounding the neighbourhood has been a long-standing concern. The specification of neighbourhood as a bundle of spatially based attributes, coupled with the notion of 'externality space', allows for the potential empirical identification of behaviourally meaningful, multiscaled boundaries of 'neighbourhood'. This framework comports nicely with existing work indicating distinct spatial scales of the boundaries of different aspects of neighbourhood.

The stock of attributes comprising neighbourhood at any moment is the result of past and current flows of households and resources—financial, social-psychological and time—into and out of the space in question. Four key users make decisions affecting these flows: households, businesses, property owners and local government; they thus can be viewed as producers of neighbourhood. However, these same actors play dual roles because they potentially reap benefits from the consumption of this complex commodity called neighbourhood. To understand the factors and processes that influence these production and consumption decisions is to uncover the roots of neighbourhood change.

Multidimensional commodities are common, but the neighbourhood offers a variety of significant idiosyncrasies that suggest insights into these decisions

- Different neighbourhood attributes vary in their durability. Investors therefore must take a long-term strategy with durable features, with concomitant reliance upon imperfect and socially influenced expectations. Self-fulfilling prophecies and gaming strategies that result yield inefficient outcomes.
- Social-interactive and sentimental attributes of neighbourhood are not well-priced because of information asymmetries.

The resultant agency problem leads to inefficient outcomes.

- Consumers evaluate neighbourhood attributes relatively. This provides the vehicle by which changes elsewhere in the metropolitan area can lead to changes in the given neighbourhood, as decision-makers alter flows of resources based on new, relativistic evaluations of attributes. This implies that the prime origins of a particular neighbourhood changing are located outside that neighbourhood.
- The act of households or property owners consuming neighbourhood attributes typically changes the attributes. The direct effect occurs tautologically, based on a change in resident population or ownership profiles. The indirect effect occurs because changing attributes changes the evaluations of neighbourhoods made not only by consumers and potential consumers, but also by intermediaries such as lenders, insurers and housing agents, thereby changing resource flows. This means that attributes of neighbourhood are mutually causal over time. Changes in one attribute may change decisions by one or more types of consumer/producer, which lead, in turn, to changes in other attributes and so on. Because this process generates externalities imposed on other consumers/producers operating in the neighbourhood, inefficient outcomes are manifested.

The foregoing suggests an unmistakable case of market failure. For a variety of reasons inherently associated with the concept of neighbourhood, changes in flows of households and resources across space will produce socially inefficient outcomes. There is thus a *prima facie* case for some sort of collective intervention, whether it come from informal social processes, non-profit, community-based organisations or the governmental sector.

Informal social processes might take the form of sanctions and rewards meted out by neighbours that are designed to enforce compliance with collective norms regarding civil behaviour and building upkeep. Community-

based organisations might politically organise, establish neighbourhood bonds of mutual solidarity or promote a positive public image of the neighbourhood. Governments might offer financial incentives, regulations and investments of infrastructure and public services, and target them to neighbourhoods at crucial threshold points. In concert, these actions can help to alter perceptions of key neighbourhood investors, to provide compensatory resource flows, to minimise destructive gaming behaviours, to internalise externalities and to moderate expectations, thereby defusing self-fulfilling prophecies.

In closing, it should be emphasised that much of this essay has been conjectural and based on deductive logic, although consistent with extant empirical evidence. I hope that my claims are viewed as hypotheses worthy of empirical testing. In this fashion, we can enhance our understanding of neighbourhood change, its consequences, the behavioural decisions that underpin it and the policy options for effectively altering it.

Notes

1. I am indebted to Ade Kearns for this expression.
2. Visitors may also consume neighbourhoods in which they do not reside by the act of working, shopping or seeking entertainment there. For simplicity, they are omitted here as key consumers when analysing the main determinants of neighbourhood change.
3. For more on neighbourhood typologies, see Warren (1975). My view is consonant with that expressed recently by Gephart (1997, p. 10)

Insofar as neighbourhood has a geographical referent, its meaning depends on context and function. The relevant units vary by behaviour and domain, and they depend on the outcome or process of interest.

4. Changes initiated by others, not the individual in question, are implicit in the notion of externality.
5. An amendment to this claim is that some attributes may have associated with them an absolute minimum threshold value below which no price will ever be bid, such as the case of air quality.

6. A similar position was articulated in Temkin and Rohe (1996).
7. More modern sociological treatises closely related to collective socialisation also suggest thresholds, such as Wilson's (1987) contention that as a critical mass of middle-class families leave the inner city, low-income blacks left behind become isolated from the positive role-models that the erstwhile dominant class offered. Economists also have developed several mathematical treatises involving collective socialisation effects in which thresholds often emerge as solutions to complex decision problems under certain assumptions (Akerlof, 1980; Galster, 1987, ch. 3; Brock and Durlauf, 2001).

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