

Sign value, topophilia, and the locational component in property prices

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Abstract. Over the last few decades a certain fragmentation of economy and society has taken place on a global scale. A related observation is that the marketplace for landed property has become more complex, involving more actors and informal networks. The consequence is a cultural and behavioural reorientation of the conceptual model of property-value formation, which traditionally is anchored in equilibrium economics. This postulate is especially relevant for the residential sector as households and their preferences, as well as external factors forcing their mobility, are factors that contribute to the formation of house prices. However, from the early 1970s there was literature that pointed to a multidimensional theoretical framework on aesthetic and other values that ‘make the place’. Using more multiple and idiosyncratic perspectives of value conceptualisation is therefore not a completely new trend, only a neglected line of research. With these potentially powerful formulations as the background, this contribution presents evidence of property-value formation from the 1990s Helsinki housing market. Using the analytic hierarchy process, quality ranks for different bundles of locational attributes were generated based on interactive data, and compared with actual market-outcome data. Both the theoretical and the empirical material compiled for this paper suggest that, to remain a valid concept, equilibrium needs to be treated at the level of market price together with stated actor choice—not just on the level of the first concept.

“Human beings have persistently searched for the ideal environment. How it looks varies from one culture to another but in essence it seems to draw on two antipodal images: the garden of innocence and the cosmos. The fruits of the earth provide security as also does the harmony of the stars which offers, in addition, grandeur. So we move from one to the other: from the shade under the baobab to the magic circle under heaven; from home to public square, from suburb to city; from a seaside holiday to the enjoyment of the sophisticated arts. Seeking for a point of equilibrium that is not of this world.”

Tuan (1974)

1 Analysing residential location and land value: some background

Over the last few decades a certain fragmentation of economy and society has taken place on a global scale (for example, Lash and Urry, 1994). On the other hand, the meaning of the term ‘place’ has become a key element in many of the phenomena affected by such fragmentation. One notable observation with substantial social and economical significance is that the marketplace for landed property has become more complex, involving more actors and informal networks. This also brings inevitable implications for housing-market analysis. To cite Landis et al (2002), “even as the economy and capital markets have gone global, housing markets have gone local.” The stronger the connection between the economy and housing markets, the stronger the competition between locations and the larger the differences in attractiveness between winner and loser locations.

Probably all of us have heard the proverbial ‘location, location, location’ when discussing the determinants of urban property markets (for example, Orford, 1999, page 1). However inflated the phrase may be, it is not just a business slogan.

Location is an extremely important aspect from several points of view: in urban and land economics, the relevant dependent variables to study, such as land-use patterns and land markets, are by definition dependent on location. In property valuation, every point in space is considered different in terms of its composition of characteristics. In the general literature of urban inquiry it is understood that localities are marketable products (for example, see Nijkamp et al, 2002).

When we consider residential properties, additional aspects make research on the price effect of location interesting. In the 'mainstream' type of property research it is assumed that the quality of residential location affects prices, and that the price effect is positive, linear, and quantifiable. Formal economic models, such as classic land-rent, urban residential location, and hedonic price models are considered sufficient (for example, Mills and Hamilton, 1989). There are, however, well-documented counter-arguments stressing the unrealistic underlying assumptions of these models and the fragmented nature of the property market, because of spatial and institutional constraints, asymmetric information and power positions, and the inconsistent behaviour of individual market actors (for example, Bassett and Short, 1980; Grigsby et al, 1987; Healey, 1991; Orford, 1999). The literature has also proposed location as an important determinant of house prices in another, more differentiated, sense, arguing for a more qualitative approach to house-price analysis as an alternative to the commonplace approach (compare Dent and Temple, 1998; Eriksson, 1993; Op't Veld et al, 1992). In particular, two elements of value are usually not accounted for in standard equilibrium models: (1) the *sign value* is immaterial but monetary, and refers to value premiums that may be derived from fashion, the concept of 'patina' (that is, antiquarian value appreciation), Boudieu's claims of specific lifestyles and distinction, and Veblen's conceptualisations of scarcity value (monopoly price) and market disequilibrium; (2) the *emotional value* is nonmonetary, and, though theorised originally by Tuan (1974) and Bachelard, receives a great deal of support from contemporary ideas of lifestyle analysis.

Although these are classic formulations—that is to say, such differentiation and intangibility of preferences may always have been there—they also may be understood as a phenomenon caused by recent attempts to integrate social and economic processes into urban development processes. Guy and Henneberry (2000) argue that, in order to understand the decisions involved better, a more open and interdisciplinary analysis would serve well. 'Post-Fordist' times have witnessed a substantial diversification of preferences and a fragmentation of markets. In response, the analysis of housing locations and neighbourhoods has moved into an era of new methods and concepts.

One fashionable term, albeit a cliché, is that of 'postmodern' method and theory (see Clapham, 2002). How useful is such an approach for understanding housing-market dynamics and residential property prices—a strongly positivist-dominated playing field? Here my aim is not to replace the positivist approach with the postmodern one, but rather to expand its scope. It may be argued that the discussion on the nature and meaning of the 'sign value', following Lash and Urry (1994), is the most relevant (if not the only) input of postmodernism to land-use economics. Can we incorporate such elements of a postmodern approach into more conventional ways of analysing house-price formation that are very much tied to rigid economic equilibrium assumptions, and if so, what would be a feasible research strategy for it?⁽¹⁾

Although in general I have a favourable attitude towards postmodernist-inspired work, I will not go into such discussions within this contribution. Here the issue at

⁽¹⁾ To give one notable methodological rigidity, in die-hard neoclassical economics, price development and moving activity are treated independently.

hand is to isolate certain key relationships and evaluate the attractiveness (that is, potential) of locations, which requires a more rational–positivistic approach, where the propositions will be largely about extending the property-value models towards a more multidimensional and suboptimal picture. There is a variety of approaches to the issue, such as the human behaviour tradition of housing and planning research (for example, Michelson, 1977), and the more recently emerged discipline devoted to relations between human beings and the environment, referred to as environmental psychology (Sundström et al, 1996). Although these approaches recognise that environmental preferences matter for most prospective residents, they do not pay as much attention to the quantifiable and linear effect of location on house prices as the economic equilibrium approaches. The picture is indeed complex, because imperfect and socially inherent expectations of neighbourhood consumers (households, businesses, property owners, and local governments), present as well as potential ones, lead to an *agency* problem of information that is too divergent, especially on the sentimental and social-interactive attributes of the neighbourhood (Galster, 2001). One of the crucial factors to take into consideration is life-style.⁽²⁾

In the next section I present a brief literature review of the topic. In the third section I theorise the distinctions between overheated markets and well-kept secrets at the level of local property sales and renting activity, which can also be treated in the context of moving activity. In the fourth section I apply an operational model based on the analytic hierarchy process (AHP), a decision-aid tool, for value formation in a specific setting: the 1990s suburban Helsinki housing market. In the concluding section 5, I provide some comments about the value of the conceptualisations and empirical results.

2 To what extent do the housing preferences matter in different times and places?

2.1 Topophilia

Almost thirty years ago, Tuan (1974) argued that topophilia was a ‘diffuse concept’, but at the same time “vivid and concrete”, and based on personal experience. He defined it as the “affective bond between people and place or setting”. It may involve the fear of the unknown or a gesture towards the transcendent. It is based on lifestyles, partly determined by exogenous economic and social forces, and partly by idealistic impulses related to one’s self-awareness. Even in ancient times people in different places had different ideals, as a comparison between ancient Athens and Rome reveals. Tuan noted common psychological structures, such as feelings towards either a womb-like shelter (as opposed to an agoraphobic experience in open spaces) or its opposite, feelings towards open spaces to fulfil one’s potential as a free man (as opposed to a claustrophobic experience in a closed space). He also compared feelings to vertical (skyward spirituality) and horizontal (earth-bound identification) dimensions.

These points still offer useful evidence as to why certain spatial density structures may be preferred by some people and not by others. Using evidence from American case studies, Tuan showed that

- (a) working-class residents tend to appreciate the neighbourhood as a whole more than their immediate dwellings, whereas the opposite is true for middle-class residents;
- (b) city dwellers put much more value on neighbourhood factors (6:1) than on house-specific factors and accessibility (3:1);

⁽²⁾ Following Bell’s conceptualisation, Bootsma (1998) defines lifestyle as an orientation towards behaviour with a long-term perspective, and where several changes in social position are possible. He then rejects an alternative formulation, according to which lifestyle depends on social position. The social position changes, but the lifestyle may remain.

(c) black residents were more concerned about their neighbourhood than were white residents, who were more interested in external accessibility.

According to Tuan, the garden-city ideal emerged as a “belief in healthy living away from the metropolis”. Yet he also noted that suburbs may capitulate to urban forces and values. Thus, the balance between the urban and the rural sides of this ideal is constantly subject to change. Besides this, the dominant features of this environment may also be perceived differently (positively or negatively) in different times and places.⁽³⁾

Although the importance of such factors cannot be denied, another question arises: have these concepts always existed, or are they being discovered now amid the renewed interest in a more culturally aware property research agenda [for example, Clapham (2002) for a recent discussion on postmodernity and postmodernism within housing research]? It is of course difficult to answer such a question—the changed context is correct, but so is the more ancient drives of human beings. The conclusion is twofold: the early human behaviour literature can provide guidance, and the notion of a changed, postmodern context brings added value to the model. That added value may then be enhanced further if made operational and analysed empirically against specific criteria. In all times and places the more general behavioural explanations will probably then hold. However, a more refined framework may be used to analyse a specific local housing-market setting. The question is: to what extent can we support the general claims related to topophilia, when we move to a particular place and use this more refined level of analysis? In the following I examine how well one particular country case, Finland, fits the model of locational diversification postulated above.

2.2 Contemporary Finnish housing preferences as a case study

It is indeed possible to find a number of Finnish studies (with a predominantly sociological perspective) that relate to the theme of behavioural and cultural values of housing locations. Ilmonen (2001) isolated three types of urban dwellers based on in-depth interviews of elite groups: (1) ‘the city core–urban’ (*keskustaurbaanit*), (2) ‘the village–urban’ (*kyläurbaanit*), and (3) ‘the nature–urban’ (*luontourbaanit*). Päivänen’s (1997) study is another recent example. Using casual observation and in-depth interviews, he showed how housing preferences are in a broad sense based on rational choice, including status values, and that the role of estate agents as gatekeepers is immense. Furthermore, he showed how ‘sign values’ are attached to the name of the area. Uuskallio (2001, pages 190–195) concluded that, in today’s context, authenticity and cultural historic values are seen as a substantial factor contributing to the choice of residence in that area. Therefore, suburban multistorey housing areas in Helsinki are not popular, as these areas are seen as lacking the personality and smaller scale of the older and more central areas.

In spatial housing-market datasets on Helsinki, the age of the building makes a valid proxy for location: older buildings are situated closer to the central business district (CBD). Possibly, age also has an independent effect as a proxy for aesthetic values attracted to the prevalent architecture or design for the era in which they were built (vintage effect), and is very important. Traditionally, the internal characteristics of the dwelling or the plot have dominated the determination of house prices. This can be

⁽³⁾ An observation from ongoing comparative research by the author is that the concept of a ‘garden city’ is given completely different meanings in three different European urban contexts: in Budapest the garden city (*zöldövezeti társasház*) represents fairly pleasant and highly priced residential areas; in Amsterdam the garden city (*tuinstad*) is associated with cheap houses, low status, and low-quality unpleasant buildings; in Helsinki the several neighbourhoods with a garden city (*puutarhakaupunki*) character have a neutral meaning.

linked with measurable standards of housing that were, in 'Western welfare states', established in the 1960s and 1970s. Today the welfare model has levelled the quality standards and subsequently contributed to a smaller variation of the housing bundle. However, market liberalisation has changed the picture so that aspects related to quality and satisfaction have become more important. In Finland this kind of process began in the 1980s, which also happened to be a period of great economic upswing. Consequently, although the house-specific standards were much the same for everyone, the significant source of variation became the locational aspect: environment, neighbourhood, vicinity, and place (Uuskallio, 2001).

Interestingly, Uuskallio (2001) analysed the sign values of the Helsinki neighbourhoods of Eira and Ullanlinna that emerged in the 1980s, an epoch of strong economic upswing, during which these areas became fashionable to live in. Empirical evidence from Helsinki tells us that apparently these two city-core subdistricts became very popular among Finnish 'yuppie' (young urban professional) types from the 1980s onwards, even though the dwellings in these areas in terms of physical housing attributes were of low quality. It was only the name with its historical connotations that mattered, together with an urge by some people to do whatever was fashionable (Uuskallio, 2001).

Apart from any 'objective' criteria, undoubtedly sociocultural and behavioural factors also matter for the formation of submarkets in contemporary Finland (for example, Jallinoja, 1997). Perhaps the best example of this is the young, by Finnish standards, highly paid professional employees of high-tech companies. Obviously, they may be seen as trendsetters, but they also create their own distinctive segment in terms of their economic or other 'objective' criteria related to their backgrounds or living environment, their preferences and market choices, or more sociocultural factors such as lifestyles and images.

A further issue is that most Finnish people possess a second residence in the countryside (a 'summer cottage'), where landscape and nature obviously play an essential role. The first residence can therefore be a reasonably 'urban' location, though nonetheless 'pleasant' (especially free of negative externalities) and possessing a favourable image, but not necessarily related to scenery and closeness to nature.

This anecdotal evidence from Helsinki suggests that equilibrium applies only at a broader level of rational behaviour than just price formation. There is more to locational value formation than monetary price; choices and intentions also matter. The remainder of the paper addresses the balance between the use value and the sign value—a familiar story in lifestyle research. Instead of analysing an urban housing market as a whole, the study focuses on the microlocational level in relation to behavioural factors of sociocultural, psychological, and economic-rational kinds (compare Welen, cited in Guy and Henneberry, 2000, page 2408). The next section examines whether any useful theoretical insights can be gained from the more economic literature on three interlinked variables: housing-market structure, property value, and preference diversification.

3 Fragmentation of the concept of 'locational value': sign values in housing consumption and place affection

3.1 Seller's market – buyer's market

The discussion above has pinpointed certain behavioural and cultural aspects of housing-market dynamics that require attention. A more open but still analytic theory perspective on the formation of locational property value would need to capture the causality on two levels: that of the choices of the individual actor, and that of the aggregate pattern of price formation in the marketplace. Here metatheory comes in handy.

In a ‘macro–micro model’, suggested by Coleman (1990, pages 1–23), two types of processes are illustrated: (1) the vertical link between cumulative (macro) and individual (micro) level analysis and (2) the horizontal link between perceptions and actual behaviour. This model offers a very simple explanation of how decisions on an individual level, triggered by the motives and constraints of the actors, lead to a set of possible patterns on an aggregate market level.

The key relationships to identify in this model are then the motives of the actor and the nature of the market outcome: is it characterised by *pressure* or *suction*? Aalbers (2003) discusses these aspects in general, and from the point of view of urban renewal strategy in particular. A housing market with monopoly prices is highly profitable for the seller—that is referred to as a suction market. The other side of the coin is that prices are driven by scarcity and conflict between market participants. The opposite situation, when profitability is low and price formation is driven by consumer preferences, is referred to as a pressure market. This would imply a reduction in market value. Furthermore, a pressure area could be situated within a region with suction. There we find the most appealing objects of investment, for example, certain neighbourhoods in Amsterdam that have undergone gentrification. Such locational value premiums as well as discounts are observable phenomena within any metropolitan or urban housing-market context. In a *seller's market*, price bubbles above the quality-adjusted price level cause a price premium (the argument for monopoly price, scarcity value, and so forth). The *bouwfraude* case in the Netherlands is one recent example of this kind of incident, where developers operating under certain VINEX regulations⁽⁴⁾ did not face competition and could therefore extract a monopoly price premium based on scarcity. Scarcity may also arise without any relation to such institutions, simply because of overheated local market activity in certain ‘hot spots’—in a way these locations then have a monopoly with regard to proximity to work and leisure activities, attractive environment, and so forth.

Conversely, in a *buyer's market* the purchaser's subjective valuation may contain a nonmonetary component that he or she derives benefit from—thus the actual transaction price may be perceived as a bargain (the argument for place affection, consumer surplus, and so forth). In spatial analysis these locations represent ‘well-kept secrets’, and may exist surprisingly close to hot spots. The problem in these cases is that excess supply and/or insufficient demand leads to a difference between the buyer's and the seller's perceptions of property value—this is in favour of the buyer. This is actually the previous case in reverse: if it is the seller who attaches extra value on the place and the buyers bid up their price offers, the seller gets an opportunity to extract the place affection as a monopoly premium.

Priemus (2002) predicts that the scarcity that has characterised the Dutch housing market since 1950 will only turn into a surplus after 2030, referring to the claim by economic sociologist, Kornai in the 1970s that “equilibrium is really the exception not rule”. Value formation may thus be seen as only partially based on a competitive market, which, even though it is a long-term macrolevel analysis, resonates with the models above. When the market does not reflect the total costs and benefits, a single market equilibrium represents an ideal—a special case of the value-formation model. The normal states of the market would then be either suction or pressure. That monopoly-priced hot spots (suction submarkets) may be reinforced by affinity value, thereby adding (positively) to the locational attractiveness potential, and that places

⁽⁴⁾ This is the “Fourth Spatial Planning Memorandum Extra” in the Netherlands—a very controversial policy, as it broke with a typically Dutch tradition of strong government regulation of the land-development process and housing provision.

with a wide variety of choice (pressure submarkets) may similarly go together with place dis-affectation, complicates the analysis further.

3.2 Towards a typology of values

Housing-market equilibria are in many contexts fuzzy, and operate at a broader level than market-based price formation alone. That choices also matter means that it is not always possible to ‘monetarise’. Thus, objective variables and aggregate methods alone are not always valid for house-price analysis. The postulations of the previous section seem to fit particularly well into the relatively pragmatic literature on property valuation. The concept of ‘sign value’ may be accommodated into the model of a seller’s market and market tightness. The emotional value in turn may be accommodated into the conceptualisation of a subjective valuation of the location by the prospective owner-occupier. As a consequence, demand is diversified by buyer, location, building format, and possibly other intricacies. There are two opposite sides of the same ‘non-arbitrage’ coin. Obviously, buyers may include sign values in their reservation prices, and existing homeowners may have developed a strong sense of place (for example, Uuskallio, 2001). As a result, they will not sell their homes for market prices.

Symbolic value may be a reflection of a preference for a certain building design, density, or more intangibly defined character of the whole area within the urban housing market (Dom-Bedu, 2001; Gram-Hanssen and Bech-Danielsen, 2000; Kloosterman and Lambregts, 2001; Uuskallio, 2001). It may be a niche market, or a bulk market.

In a multidimensional value-determination framework the value can be either monetary or nonmonetary. If an equilibrium economic approach is chosen, then nonmonetary values are of course nonsense, but in empirical modelling an attempt to infuse nonmonetary values becomes relevant (compare Gregory, 2000). Here the problem is that the definitions are not uniform. For example, Eriksson (1993) divides the value into the following elements:

- (1) functional value, essentially qualitative;
- (2) aesthetic value;
- (3) symbolic value, including antiquarian value, and exchange value, an abstract concept.

Table 1 is an attempt to combine the most feasible elements of the relevant concepts. Monetary values are exchange values, sign values, or, depending on the definitions, use values. Nonmonetary values are use values or emotional values, when the latter refers to the appreciation that stems from nonrational acting (for example, Johansson, 1991). The user’s perspective deals with more than residential property characteristics, it is also about households and their preferences, as well as the external factors forcing their mobility (compare Op’t Veld et al, 1992). For the purpose of

Table 1. Value types.

Symbolic value (for example, Dom-Bedu, 2001)	Monetary (for example, aesthetic sign values used and priced by the ‘new economy’); nonmonetary (for example, unique bourgeois vision of city core).
Emotional value (for example, Tuan, 1974)	Nonmonetary (by definition); topophilia.
Exchange value (mainstream economics)	Monetary (by definition); market value, either transaction price or capitalised rental value; may also be monetary symbolic value.
Use value (for example, Eriksson, 1993)	Nonmonetary (either functional purposes or emotional value); may also be monetary (based on the contract rent of the property).

simplification, in this paper I relate emotional values to the spatial dimension in place affection only.

Table 1 also shows that immaterial sign values are essentially still monetary values, linked to the nonphysical development potential, as a means of reproducing the place (for example, Dom-Bedu, 2001).

In contrast, Lash and Urry (1994) separate different value perspectives as follows: the symbolic importance of the value concept of original or native cultures according to which both the objects and the commodities were long lived; the use and exchange values of modern cultures of the industrial society where the objects to be consumed were short lived; and the concept sign value of the postmodern cultures of the post-industrial society in which the subjects, that is the users, also behave irrationally, playing with images more than with substance.

3.3 Price premiums and discounts: a reduction of dimensions

One difficult question related to this conceptualisation is what is rational and what is not?⁽⁵⁾ We have of course the concept of bounded rationality (coined by Bacharach in general economics) which lies in between *deterministic* economic rationality and *voluntaristic* human behaviour related to intangible factors such as lifestyle or image. Recently, De Bruin and Flint-Hartle (2003) managed to make the concept operational, using an explicit bounded rationality framework to provide an explanation of property-investment decisions in New Zealand. They stress the lack of background information for the investment decision, and the inability to use that information, if obtained. The bounded rationality analysis then accepts that rational intentions may lead to a non-rational outcome. Instead of optimising behaviour, the outcome of the investment behaviour is merely satisfying behaviour: “to sacrifice yield for steady, reliable income”. Although the model is more open than the neoclassical model, the level of analysis is kept the same—that involving empirical modelling.

In order to keep the analysis on a par with current theory and methods of locational house-price analysis, the discussion needs to stay clear of all postmodern and sociocultural influences. The challenge then is to open up the value model to include behavioural and cultural influence, whilst keeping it sufficiently closely defined to allow an analytical approach. The model described below therefore moves from merely engaging in discussion with the socioculturalist and postmodern theory interpretations towards an operational extension of the conventional house-price model. While adopting some of the more discursive strands of reasoning, the aim is to stay firmly in a positivist and bounded rational world view.

In this paper I use a traditional assumption that for the particular site (vacant land or real property) the investment value equals the use value. The definition of ‘use value’ involves a relaxation of the model so that the use value is allowed to include nonmonetary elements: either a sentimental value, or a more specific social, environmental, and ecological benefit accruing to the owner-occupier or tenant of the property. There have been earlier attempts in property research to identify such factors and assign a direction for their impact on cost–benefit terms (for example, Dent and Temple, 1998) but my aim is to go one step further and quantify those nearly nonmeasurable values by using the multiattribute approach and the AHP elicitation technique.

⁽⁵⁾ In the 1950s the rationality of human behaviour as such was questioned by experimental North American psychologists. They pointed out that, if man was truly rational, he would immediately kill himself—then many problems would be avoided on an individual and global level alike (Miller et al, 1960).

3.3.1 *Ideal cases*

The analyses are made in equilibrium when value and rent are assumed proportionate to each other. In a general form this is $V = R/i$, where V is the value, R is the market rent, and i is the discount rate, the minimum percentage yield of the investment dependent upon the interest rate (for example, Mills and Hamilton, 1989, pages 86–87). This formula could be described as the cornerstone of real-estate business. The owner appreciates a monetary present value V , which means the value of all future net income generated by the property in present pricing (Eckert, 1990, page 272).

3.3.2 *Realistic cases*

The above-mentioned ideal case implies that the *use value*, the net utility for the owner-occupier supplied by the bundle of services of the land, is equal to the *exchange value*, the capital value R/i (or a proportional transaction price paid) a property can realise in a competitive market (Orford, 1999, page 3; Evans, 1983). However, such cases are ideal and the use and exchange values are not usually in equilibrium, the difference between these two concepts of value ($V - R/i$) being understood as ‘market friction’. Hence, the selling price of the property would include an artificial monetary premium, either positive or negative (for example, Barlowe, 1986). This would indicate one of the following assumptions:

(a) In cases of a positive premium ($V > R/i$): various institutional reasons cause market friction, for example (1) either R is too low, or i is too high, because of market regulation (see Meen, 1998); (2) apart from a monetary present value V , the owner also appreciates other than monetary present values in his or her reservation price, that is either (A) some uncertain future monetary benefits (the discussion above related to monopoly price) or (B) some nonmonetary benefits due to *consumer surplus* (for example, Evans, 1983), in accordance with the discussion on sign value versus place affection in previous sections.

(b) In cases of negative premium ($V < R/i$) the owner is simply ‘in the market’ and a transaction, either lease or sale, takes place immediately (see Evans, 1983). This may occur, for example, if the tax treatment of property sales has become favourable for the owner (compare Goodchild and Munton, 1985).

A redefined multidisciplinary framework incorporating market friction, monopoly price, and consumer surplus may therefore be more appropriate than the equilibrium framework. In its most general form the equation can be written $V = R/i \pm x/r^2$ (Barlowe, 1986, pages 272–273), where V , R , and i are defined as above, and x/r^2 stands for the spatial or temporal dynamics related to marginal differences in various external and internal determinants of the property value, independent of the exchange value of the property.

There might be other types of situation, where the use value exceeds the exchange value. The first is when the seller can capitalise on the value premium x/r^2 as a monopoly (or rent) (for example, Bassett and Short, 1980, page 193). If the seller cannot capitalise on it, he or she enjoys only x/r^2 as a consumer surplus. If the prospective buyer is not willing to pay the full premium this is, however, merely a nonmonetary benefit. In this case a transaction does not take place until the seller receives a better price offer or until the consumer surplus disappears. Here we see the difference between the cases, where the current owner (the vendor) has a monopolistic power over the buyers (case A above) and the situation where the owner has no such power (case B above) (see Evans, 1983). The same cases may of course be described in reverse: from the point of view of the prospective house buyer or property investor. Should he or she try to bargain, or just accept the premium required for the monopolistic nature of the site?

When the investment demand is differentiated, *choice* becomes a more relevant criterion than *profit* and a nonmonetary element arises (Guy and Henneberry, 2000, page 2401). Mills, a mainstream urban economist, argued in 1971 that transaction prices are not proper estimates of property values, because they rarely represent actual equilibrium prices. The use of transaction prices as a basis for determining compensation might lead to a systematic error due to the variation in the subjective value perceptions of the property owners (Werin, cited in Viitanen, 1999).

3.4 Incorporating the dwellers' preferences into house-price modelling

Given that the demand is differentiated, and that the price formation is dynamic, as suggested in the discussion so far, behavioural tendencies and preference profiles become key aspects. This is the core argument for the empirical application which follows: for a close analysis of location in relation to factors such as 'identity' or 'images', we need typologies that are based on the experience of the resident. The emphasis has to be on the more affluent consumer's diversified and fuzzy preferences, as opposed to standard average estimates: groups that, in general, we do not have up-to-date historical data about. In relation to this, Mulder and Dieleman (2002) have identified, among other things, the following two trends in current research activity on housing models:

- (1) researchers are trying to understand particular groups in detail (immigrants, young adults, and single households, for example), and not just the general picture as was the case before;
- (2) the choice of the dwelling is understood as part of the person's general value orientation, and a deeper understanding of the particular living and housing arrangements necessitates more interdisciplinary work.

Have 'urban' values only recently emerged, or is the notion simply about traditional factors, namely scarcity of appropriate suburban locations and the growing numbers of young households? When looking for determinants for *reurbanisation* in the Netherlands, Bootsma (1998) found evidence for the latter: demographic factors generate a demand that the supply cannot meet, and the result is a 'spillover effect'. Thus it is constraints determined by the economic climate and immigration that are fuelling the process further as opposed to any kind of switch in preference formation related to the rise of the 'new economy', policy changes, or sociocultural aspects. Thus, lifestyle does not have added explanatory power in distinguishing between households over traditional variables in this model. However, this is in the Dutch context only and so we cannot generalise to other places. Identification of the relevant triggers and constraints that shape the local housing market (applying the macro-micro model by Coleman) must therefore be an empirical issue.

To make an interim conclusion based on anecdotal evidence and conceptual reasoning, the opposition between the formation of price driven by constraints and that driven by unconstrained preferences may provide a useful analytical simplification of the decisionmaking and market mechanisms involved in locational property analysis. For that we need, however, to limit the level of ambition; more specifically, to abandon the more complex conceptualisations and remain preoccupied with a more closed, analytical, and positivist research strategy. The extension of scope will thus not cover all new ground offered by current social and economic theory, just that part of it that might be incorporated in a pragmatic sense. In fact, only two postulations are useful here:

- (1) An immaterial 'sign value' may be included in the sales price of a property, if the location is particularly fashionable, a scarce resource, has antiquarian value, or sustains a particular lifestyle. This goes together with market tightness.

(2) On top of the sales price, the property may include an emotional value caused by place affection, because of various idiosyncratic factors that one of the parties to the transaction is unaware of or uninterested in.

The real improvement to conventional thinking is that, instead of dealing with only one exact result, we obtain several results generated by a differentiated model.

4 Evidence of price – quality relations from a suburban context

4.1 Multiattribute value-tree modelling with the AHP

Using the propositions outlined above, we are now ready to deal with the symbolic and emotional values empirically. In a hypothetical disequilibrium setting, the quality of the housing location, if determined through fundamental characteristics (factors that relate to the house itself, accessibility, and neighbourhood) is clearly not in balance with the transaction prices and rents paid. However, the problem is how to capture these influences in a manner valid for the operational model, when they are essentially manifestations of intangible factors that fit poorly into conventional research designs (with dummy variables, etc).⁽⁶⁾

In the multiattribute value tree the idea is first to structure the problem as a hierarchical model and, then, on the basis of the subjective judgments of the respondents, elicit the relative intensities or weights of identified attributes. One particularly attractive option is to use a deterministic *decision method*, such as the AHP (Saaty, 1990). This technique is based on a pairwise preference comparison of elements (attributes or alternatives), and results in a comparison matrix where the relative importance of each element is determined as a ratio between 0 and 1. This technique is suitable for many kinds of analyses, including appraisal problems. The basic principle of the method is given below.

In sharp contrast to the classical multiattribute value-tree modelling approach that is based on the assumption of explicable utility functions, the AHP does not assume that the evaluator is able to express his or her overall elicitation of the problem as one function. Instead, the AHP is based on the assumption that the relevant dominance of one attribute over another can be measured by a pairwise comparison of preferences, systematically made on each level of a hierarchy of factors presented as a value tree (for example, Ball and Srinivasan, 1994). At the top of the hierarchy lies the overall objective of the decision, whereas lower level objectives or attributes lie on the lower levels of the hierarchy (for example, Zahedi, 1986).

The comparison starts at the lowest level of the tree, where the elements (attributes or alternatives) will usually be elicited with the ordinal scale 1, ..., 9, where the values also correspond to verbal expressions, 1 being equivalent to “both are of equal importance” and 9 being equivalent to “A has an extreme importance over B”. The comparisons are then converted into cardinal rankings (for example, Erkut and Moran, 1991). Such a balancing of the pairwise ranks involves the use of measurement theory, as the pairwise judgments are not assumed to be consistent across the whole set of comparisons (for example, Ball and Srinivasan, 1994).

Following Saaty (for example, 1990) the functioning of the AHP technique is explained using a matrix equation. Consider the elements: A_1, A_2, \dots, A_n within one level of the tree hierarchy. In practice, the maximum number of elements to compare within one comparison matrix is nine (the Expert Choice software actually has a maximum of

⁽⁶⁾ Bootsma (1998) concluded that the determinants of housing choice may be of three types: contextual (changes in opportunities of the labour and housing market), compositional (changes in population characteristics), or behavioural (changes in preferences). The exercise documented next is meant to highlight the third of the points above.

seven elements), although in theory no upper limit for the number of elements to compare exists. The comparisons among all the elements ($A_1 : A_2, \dots, A_{n-1} : A_n$) then generate the following matrix:

$$\mathbf{A} = \begin{bmatrix} A_1 & w_1/w_1 & w_1/w_2 & w_1/w_3 & \cdots & w_1/w_n \\ A_2 & w_2/w_1 & w_2/w_2 & w_2/w_3 & \cdots & w_2/w_n \\ A_3 & w_3/w_1 & w_3/w_2 & w_3/w_3 & \cdots & w_3/w_n \\ \vdots & \vdots & \vdots & \vdots & \cdots & \vdots \\ A_n & w_n/w_1 & w_n/w_2 & w_n/w_3 & \cdots & w_n/w_n \end{bmatrix} \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ \vdots \\ w_n \end{bmatrix} = n \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ \vdots \\ w_n \end{bmatrix}. \quad (1)$$

The total number of comparisons is $\frac{1}{2}(A_{n-1}A_n)$. For example, a matrix of four elements generates six comparisons. One can see that each comparison generates a pairwise ratio, for example $w_1/w_2, w_2/w_1$. The ratios along the diagonal are of course all equal to 1 (because there is no need to compare elements with themselves). The overall weight is indicated by the priority vector.

The most common way to estimate the relative weights from the matrix of pairwise comparisons is the ‘eigenvalue’ method (for a full discussion, see Zahedi, 1986). The matrix formula $\mathbf{A}\mathbf{w} = n\mathbf{w}$ applies only for the theoretical ideal situation when the comparison is fully consistent. In observed pairwise comparisons this is usually not the case (unless of course the comparison is unambiguous and the matrix is of a very small size, for instance three elements that compare 2:1, 2:1, and 4:1), and therefore the estimate λ_{\max} is used instead of the exact n . To enable approximation of a less than fully consistent comparison matrix there have to be more observations than weights to estimate. In fact, Saaty (1990) himself has shown that λ_{\max} is always greater than or equal to n , and that the closer it is to n , the more consistent are the values \mathbf{A} . In the AHP terminology this property has led to construction of the consistency index (CI) as

$$\text{CI} = \frac{\lambda_{\max} - n}{n - 1}, \quad (2)$$

and measuring the consistency of the comparisons with the consistency ratio (CR). CR is calculated based on the expected results of consistent pairwise comparisons across the matrix as:

$$\text{CR} = \left(\frac{\text{CI}}{\text{ACI}} \right) 100, \quad (3)$$

where ACI is the average index of randomly generated weights (cited in Zahedi, 1986). Using analogous terminology from statistics, substituting λ_{\max} for n leads to a setting where we have more equations than unknown parameters to estimate. CR is supposed to be very small. There are several opinions about the relevance of CR—for example, it may be used as a filter. In the exercise reported below the CR is disregarded.

Finally, the local weights are transformed into global ones. The most attractive choice may be determined by aggregating the local priorities to global ones (see the Q -values in table 2 below). This means quantifying the relative contribution of each element in the value tree to the overall goal.

4.2 The respondents

In this exercise the respondents had to meet two criteria: (1) a pursuit as stakeholder based on professional responsibility in business or administration, and (2) a deep local knowledge of the spatial housing-market structure gained by professional experience. These experts comprised real-estate agents and assessors, rental agents, representatives of building companies, large rental housing associations, the municipality (City of

Helsinki) private housing corporations, planning officers in Helsinki, and also researchers. There is no fundamental reason either for or against adapting the method by also including the owners and renters of housing as experts—I have already noted the importance of the dweller's experience in the theoretical model. It is, however, suspected that these would, in contrast to the better informed professional expert groups, leave out some of the variation of the attributes determining the location choice or property appraisal decision, because households have much less information at their disposal than a professional in the field. We can expect a real-estate agent to be more familiar with all the specific disturbances and amenities of the area than an ordinary household. Therefore, the general public of owners and tenants were filtered out from the set of potential respondents.

To summarise, the particular grouping of respondents represents either transaction-related services (estate agents and assessors), land and property ownership (builders, the municipality as a landowner, and other investors), and more user-oriented interest groups (planners, rental agents, and other administrators). The questions is: whose agents' values are at stake and with respect to which factor is the relative importance to be determined? In order to standardise the scale it was made explicit to the respondents that when choosing the preferred combination of characteristics and relevant preferences always have to be checked against the preferences of the consumer, the would-be end user in question. This was necessary because these actors are assumed to play a proxy role for actual housing consumers.

It is not only the choice of respondents, but also possible market segments, that have to be taken into consideration. The successful use of AHP requires a homogeneous context. For example, the assumption of an inverse relationship between area density and utility value holds in the majority of the intraurban housing market, but it surely does not hold in a city centre or other very urban setting. The problem is avoided if the AHP is applied on a market segment rather than on the market as a whole. Two segments in a suburban Helsinki metropolitan area (henceforth, Helsinki) were chosen: (1) multistorey housing, (2) single-family housing, including terraced, detached, and semidetached houses.

4.3 The model hierarchy

According to Saaty (1990) the value tree has to be a thorough but at the same time simple model of the phenomenon to be studied. Thus, we have to split up the formation of land value into separate goals, criteria, and attributes. One could say that value is created, on the basis of certain fundamental characteristics. The variables are presented in the following hierarchy, which is based on several studies (for example, Miller, 1982; Nevalainen et al, 1990):

- locational quality of the place (goal),
 - accessibility or proximity (criterion),
 - internal distances: to school, to basic services, to recreation areas (including the coast) (attribute),
 - external distance: to the city centre, public transport (attribute),
 - neighbourhood effect or attractiveness (criterion),
 - the physical environment, both natural and built, that is, density (inverse relation to quality), landscape, scenery (intangible externalities), closeness to nature, residential satisfaction (including negative externalities such as noise, smell, and dust), security provided against traffic accidents, burglaries, and violence (attribute),
 - social factors of the environment: status and social externalities (attribute),

service infrastructure: amount of commercial services and public services (attribute),
 local government factors (differences between the four municipalities Helsinki, Espoo, Vantaa, and Kaunianen), level of taxation (defined as having a negative effect on attractiveness) and other costs and/or benefits affecting attractiveness (attribute).

In this context this land can be either already built on or vacant, but with building expectations. When the unit of analysis is defined as an area larger than a single house, the object is defined as 'the location of a fairly homogeneous residential area of a certain size'. The emphasis is on locational variables describing the vicinity of the neighbourhood, defined as an area, where one can reach all the necessary amenities by foot.

A small number of alternatives were then connected to the model to rate a set of locations according to their quality. The alternative locations were comparable housing locations from both Helsinki segments, where investment—in the form of development, redevelopment, improvements, or transaction—was considered possible in the near future. The idea was to compare the relative quality ranking of different locations with actual price data. In further discussions, some of the respondents were willing to provide relevant micro locations from each segment: multistorey apartments and single-family houses.⁽⁷⁾ The comparisons were performed based on various sources of information.⁽⁸⁾ The locations represented suburban residential areas in the municipalities of Helsinki, Espoo, and Vantaa and were chosen by the respondents. The global ranks generated with the AHP-elicited value-tree model as explained above would—when compared with actual market data—give us some indication of if and where there are bargains (related to place affection) or extremely tight submarkets (related to sign value).

4.4 The results

The quality ranks generated by the AHP as explained above (Q -values in table 2) can serve as an indirect measure of the two main types of relationships conceptualised in previous sections: suction and sign values versus pressure and place affections. As no monetary variable was used in the AHP-comparison,⁽⁹⁾ the Q -values were correlated to the actual price levels of that microlocation and market segment. The last column in table 2 shows the resulting ratios when actual price levels (P) from the selected locations were compared with the AHP-generated result (Q). In this case it shows the relationship between the actual price paid and the result from the aggregate model based on prior comparative information of the alternative locations for the multistorey segment. This indicator, which represents a difference measure of evaluation from the price per square metre measure shown in the third column, varies over the range 31.5–40.3. As shown by Ball and Srinivasan (1994), by comparing the association between actual price levels and the AHP-generated 'ranks', a price/quality relationship (P/Q -ratio, the 'attribute weighted price') can be obtained. This ratio

⁽⁷⁾ To save space, only the elicitation for the multistorey apartment segment is presented here. See Kauko (2002) for a complete documentation of the exercise.

⁽⁸⁾ Aggregate statistic, earlier research, cartographical displays and my own judgment as a native Helsinki resident.

⁽⁹⁾ An alternative method is to use market price as an attribute in the model hierarchy. For example, Strand and Vågnes (2001) carried out an expert-based multicriteria analysis to quantify the value impact of railroad proximity through a much similar type of elicitation process as here, but keeping the price as one of the seven attributes compared pairwise, and this way, obtaining shadow prices for the other attributes.

Table 2. Evaluation of alternative locations in the suburbs of the Helsinki metropolitan area.

Site	Address and residential area (multistorey apartment buildings)	The character of the location	Price per m ² of location ^a	<i>Q</i> -value (aggregate model) × 1000	<i>P/Q</i> -ratio ^b
1	Kirsitie 4, <i>Puistola</i> , northern Helsinki	rental apartments	4000	127	31.5
2	Merirastilantie 40, <i>Vuosaari</i> , eastern Helsinki	rental apartments	5500	155	35.5
3	Kontulankaari 4, <i>Kontula</i> , eastern Helsinki	rental apartments	5000	157	31.8
4	Konalanvuori, <i>Konala</i> , western Helsinki	privately owned securitised housing: has reached the rehabilitation phase	5600	139	40.3
5	Hilapellontie, <i>Konala</i> , western Helsinki	a housing estate near a school	5600	141	39.7
6	On the municipal border between Helsinki and Vantaa, <i>Länsimäki</i> , Vantaa, but the inhabitants use the services of <i>Kontula</i>	a housing estate	4600	115	40
7	Kalastajanmäki 3, <i>Matinkylä</i> , Espoo	mixed-density buildings; rental apartments	5300	166	31.9

^a Mean value (Finnish marks) of price per square metre, calculated for a subdistrict based on a dataset of dwelling transactions in 1993. The expert preferences refer to the situation five years later, but this does not matter, because the intention of the exercise is only to demonstrate the usefulness of the method in analysing locations in terms of quality and market tightness. (House prices rose steadily during the period 1993–98: the increase in national average was 44% in real terms.)

^b Mean 35.8; median 35.5.

may be interpreted as a measure of market tightness. By comparing *P/Q*-ratios of individual locations with the mean or median *P/Q*-values one gains insight into whether the value formation of land and property is essentially determined by market constraints ($P/Q > P/Q_{\text{mean/median}}$) or real preferences towards the specific bundle of locationally determined quality factors ($P/Q < P/Q_{\text{mean/median}}$).

The higher the value of the ratio, the more the location is overrated in the market compared with its fundamental attributes (suction). In other words, the bigger the price bubble stemming from an overheated submarket in the given location compared with other locations with a lower ratio. In such a situation ‘anything goes’, so to speak. Both Konala cases (sites 4 and 5 in table 2) and the Länsimäki case (site 6) represent such overpriced locations (the ratio is 40), where relatively poor amenities and accessibility are not reflected in the price level.

On the other hand, the lower the ratio, the larger the share of those fundamental attributes in the price formation, which might indicate the existence of localised non-monetary benefits (pressure). In an ideal situation no shortages exist and only the quality of the location matters for the resident’s preferences and decisionmaking. In such a case the price formation is strongly demand driven and dependent on individual tastes and attitudes. The Puistola, Kontula, and Matinkylä cases (sites 1, 3, and 7) are favourable in this respect (for each of them, the ratio is about 32, which is less than the mean and median figures). In all these cases the amenities and/or the accessibility are of a high quality compared with the actual price level. In other words, these are good bargains.

The exercise has presented a situation where spatial arbitrage conditions do not hold. The evidence shows that both of the theoretical models of value formation outlined in the previous sections fit well here: market tightness and potential ‘sign values’, on the one hand; good bargains and possibly subjective place affection, on the other hand. To investigate the matter regarding ‘sign value’ or affective bonds further, I concluded in-depth interviews with the same selected respondents.

As the estimates in table 2 concern only average profiles, it is reasonable to assume that the picture becomes more complex when we split the models into a variety of distinctive submodels. We can then distinguish between various groups of housing consumers, such as those with a ‘dormitory-type lifestyle’, with a strong preference for external access and public transport and those with a ‘hang-around-type lifestyle’, with a strong preference for local activity and pleasant surroundings (note the similarity to Tuan’s evidence on white versus black residents, in subsection 2.1). In this exercise two completely different preference profiles of suburban multistorey-housing consumers in Helsinki were linked with the actual cases for which the measures were calculated. Consider, for example, the Kontula location (site 3 in table 2) according to the following two preference profiles that were derived from the in-depth interviews referred to above:

profile A: a strong preference for the availability of all kinds of services and accessibility to various places (parks, services, CBD, work) both within and outside the area;

profile B: strong preferences for status and avoiding social disturbances in the area.

Kontula has fairly good accessibility and services but is bad in a social sense, so profile A ranks it as the best location whereas profile B ranks it as the second worst location. The disaggregated models are shown in table 3. From a theoretical point of view, the situation implies a differentiated demand structure. If a location has a favourable P/Q -ratio, the mainstream economic argument would be that demand gravitates towards this location and housing bundle and that, consequently, its price level would rise until the P/Q -ratio is not favourable any more. However, in this case such spatial

Table 3. Disaggregated models for alternative locations based on preference profiles of the respondents. (The sites are listed in table 2.)

Group 1(a) (7 respondents)		Group 2 (3 respondents)	
site	Q	site	Q
3	0.166	7	0.160
7	0.164	2	0.154
2	0.159	5	0.150
5	0.140	4	0.150
4	0.139	1	0.146
1	0.118	3	0.138
6	0.115	6	0.102

arbitrage or equalisation of differences in market structure over space does not happen; the B-type consumer simply does not demand this type of product and buys a house elsewhere. Subsequently, the price level does not rise to its equilibrium level and the case remains a well-kept secret among like-minded consumers who attach nonmonetary, sometimes symbolic, values to the house and surrounding environment. We can, therefore, not only identify demand-side market segments, but also make a qualitative connection from each segment to certain typical consumer profiles and possibly distinct lifestyles.

Two findings from the in-depth interviews lend support to a behaviourally and culturally modified model of value formation. According to the first finding “a typical feature for this era is a preference for satisfaction rather than for efficiency, which was the case some ten years ago” as the respondents put it, and relatively intangible and qualitative factors related to the conceptual bundle of a given site and its vicinity are today more important for the buyer than the area density in itself. According to the second finding, the residential location is always important. For example, the mythological east (negative) contra west (positive) split seems to apply to Helsinki as well. To pick one quotation that shows the importance of the image of the intraurban location: “no matter how much fine birch hillside or seaside shore there is [in the garden], it does not rescue it [if the location is the wrong one]” and “the location in Kauniainen [a small and wealthy enclave municipality within the boundaries of Espoo, west of Helsinki] is more important than the quality of the house”.

The exercise also recognised the importance of the ‘image’ of the city in determining residential location choice. On the other hand, density, scenery, and closeness to nature were attributes that were not perceived as important in any of the models. The density variable has been a predominantly quantitative one, and has traditionally played a crucial role in house and plot sections but, as noted above, seems now to be unimportant. However, scenery and closeness to nature—two qualitative variables—have not taken their place among the bundle of important locational attributes, possibly because many Helsinki residents own a summer cottage (see subsection 2.2), which already fulfils the aspirations for beautiful scenery and close proximity to pristine forest, lakes, and so on. This is, however, only a partial explanation, because in a suburban residential context scenery includes not only landscape in a traditional sense, but also the ‘streetscape’. It may therefore be plausible to use the image factor as a proxy for identification of the more fuzzy element of locational choice.

Apart from using the results as a median or average profile, a broader range of important preferences can also be clearly identified. Nearly all respondents showed some idiosyncratic combinations of weights and attributes, although the number of idiosyncrasies was smaller than the number of respondents, indicating the existence of ‘shared meanings’. There is reason to believe that the idiosyncrasies are dependent on the respondents’ backgrounds in terms of profession, age, possibly gender, and (present or childhood) home environment background, but the extent to which this occurs remains open. It is also clear that attitudes towards a certain combination of preferences may change over time.

5 Discussion: the methodological improvement

The main premise for writing this paper was the change in decisionmaking and market analysis within the property discipline towards a more behaviourally diverse and culturally sensitive picture of value formation (compare Guy and Henneberry, 2000). Furthermore, at the beginning it was argued that such a view would resonate with a more open social world. In the proposed ‘behavioural–cultural’ model of locational attractiveness, we can observe three types of dynamics: first, location has clearly taken

over the role of house-specific factors in explaining the variation in house price and choice; second (and related to the previous point), among the locational factors more intangible factors have taken over the position of tangible factors; and, third, a differentiation of preference profiles based on agency background matters. Demand-side segments may be based on the values of individuals, and completely different segments may exist in close geographical proximity.

It may now be concluded that the most relevant mode of analysis for this problem area needs to be sensitive to locational influence, intangible factors, and agency relationships. Furthermore, the most universally valid 'point of equilibrium' is the stated choice based on the intentions of the actor and market price together (see the quotation from Tuan at the beginning of the paper. Choice is surely an element in the determination of price, which is the argument for why explanations do not hold when choices are accounted for only insofar as the revealed, constrained type of choice behaviour is captured, and not the stated, more unconstrained type.

That these concepts were observed, systematised, and modelled a long time ago, is a key aspect of this contribution. It indicates how various ideas are first forgotten and later rejuvenated, and how difficult it has become to come up with genuinely new scientific claims. In order to explore the possibilities of this 'forgotten model', my contribution has combined the two elements of 'fragmentation' and 'place' into a framework that enables both the examination of empirical material against grounded theory and elaboration of a new theory of location-specific market processes. The model was tested on the 1990s suburban housing market context of Helsinki, Finland.

Looking back, what did we achieve with the conceptual discussion and the empirical analysis of local house-price formation that followed? The discussion began by confronting two completely different schools of thought: the postmodern–socioculturalist and the rational–positivist. Although the first tradition today is seen as state of the art by many, its level of analysis is both too conceptual and too critical to allow us to build on the existing knowledge in the house-price-analysis paradigm that belongs to the relatively straightforward, second tradition. Inevitably, any attempt to fit 'sign value' and place affection on top of a conventional approach would be viewed as reductionist, and thereby fundamentally problematic for a postmodernist and socioculturalist.

In order to avoid such tensions in the line of reasoning, the rational–positivist type of analysis was taken as the starting point for the exercise. The aim was thus to broaden the operational model that is grounded in microeconomics towards including certain (only vaguely specified) behavioural and cultural factors that affect location-specific moving and investment decisions. In doing so, we not only managed to capture something that in housing-market modelling is referred to as localised disequilibria (for example, Grigsby et al, 1987), that is to say, preference formation in relation to certain objective features of the location, but also more diversified patterns of behaviour that may lead to suboptimal market outcomes. Such an openly formulated, and behaviourally and culturally expanded model is by definition related to the tastes, preferences, and aspirations of housing consumers. Furthermore, the explanations allowed for by this model are of two kinds: through an individual's belonging to a certain group (team-agency), or more subjectively, through individual experience. However, the proposed method of generating AHP-ranks of certain key attributes and then correlating them with market data is useful only in the closed world of positivist modelling. It is surely regarded as false and reductionist in the completely open world that postmodernists subscribe to.

In an empirical analysis of the formation of price and choice there is a general problem with preference–perception models: how to consider them explicitly, when it is a lack of supply that generates a scarcity value? In such a situation, demand is much

greater than supply. It is, however, reasonable to assume that, even then, this kind of voluntaristic analysis (that is to say, analysis based on pure preferences and quality) is useful. First, it prepares for the situation when the macroeconomy will become favourable and an increase in supply is possible. Second, it provides background information for a policy amendment in terms of the optimal locational and functional feasibility distribution: where to build and what type of houses.

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