

FROM MODELLING TOOLS TOWARDS THE MARKET ITSELF – AN OPPORTUNITY FOR SUSTAINABILITY ASSESSMENT?

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ABSTRACT. Market based analyses of residential property value traditionally fall within two broad research traditions: a ‘more practical’ *value analysis* tradition and a ‘more academic’ *market analysis* tradition. While there is a steady flow of information from the latter to the former direction, until recently very little such information diffusion has occurred from the former to the latter modelling tradition. In such a learning process, the value modelling performance could serve as a guideline for what kind of market model is valid and feasible for a given dataset with certain recognisable tendencies. On the other hand, the characterisation of particular market circumstances is a key determinant of real estate sustainability. A sustainable market generates a sustainable value, which then can be used as an attractiveness indicator in a broader sense; or in the opposite case, an unsustainable market diagnoses a problem in unsustainable value.

KEYWORDS: Modelling; Market; Sustainability; Residential property value

1. INTRODUCTION

In real estate studies it seems normal to assume a tension (or even incompatibility) between *sustainable development approaches* on one hand, and *microeconomic modelling approaches* on the other. Recently, however, this dichotomy in paradigms is beginning to change. We are witnessing an emergence of a variety of alternative conceptualisations that explicitly recognise how the market structures are being shaped by institutional and behavioural processes that involve considerations of a differentiated and partly qualitative nature.

Market based analyses of residential property value traditionally fall within two broad research traditions: ‘the more practical tradi-

tion’ is preoccupied with improving the modelling performance for mass appraisal purposes, whereas ‘the more academic tradition’ primarily attempt to ascertain associations and correlations between property price and other physical, social-economic and environmental (and sometimes behavioural and institutional) variables in order to determine an empirical relationship or at least patterns. We could here distinguish between a ‘value analysis’ tradition and a ‘market analysis’ tradition. While there is a steady flow of information from the latter to the former direction, first through the hedonic price/market modelling concept that was developed in the late 60s to early 70s, and then from the late 70s onwards through the segmentation/submarket concept (e.g. Ma-

clennan, 1977; Grigsby et al., 1987; Watkins, 2001), until recently very little such information diffusion has occurred from the former to the latter modelling tradition (but see Lentz and Wang, 1998; Kauko, 2004b; and Borst, 2007). This reveals an untapped opportunity to develop socio-economic and environmental methodology for broader assessment of the built environment based on ‘value analysis’, given that the communities involved in state-of-the-art quantitative and practice-driven value modelling (i.e. mass appraisal) possess a remarkably powerful arsenal of methods and techniques – with a varying degree of reliance on computerization as well as ‘behaviouralist’ and ‘rationalist’ assumptions. Arguably mass appraisal has a broader importance, as it offers a generic possibility to link the property value with various characteristics of the building, plot and its vicinity, as well as with social and functional features of the neighbourhood and local area.

It can however be argued that the research community of real estate appraisal and market modelling needs a better understanding of differentiated market processes and micro structures. In a forthcoming volume (edited by Kauko and d’Amato, 2008) several authors compared and assessed a variety of approaches, some of which may be considered *advanced* and others *emerging*. Using the accuracy of value prediction and other performance criteria against the linear, parametric multiple regression analysis (MRA) benchmark, the relative accuracy performances of the methods varied across the datasets. In fact, using datasets that are more heterogeneous in term of the composition of the property, location and environmental characteristics (several house types, varying features of the nature and population etc), the more advanced methods tended to outperform MRA, but using a more homogeneous set the advantage in favour of the advanced method was smaller or non-existing. In a few cases the result was the op-

posite: MRA outperforming the more advanced method. This indication of context dependent market modelling performance is potentially a powerful finding that moves the discussion to another level. On the other hand, by being able to conduct such a more comprehensive/realistic analysis of the market, we can at the same time take the opportunity to provide tools for sustainability analysis. Sustainability is defined as a long-term criteria for development that has (at least) social, cultural, ecological, environmental and – indeed – economic dimensions. Thus there is also an *economic sustainability* – or sustainable market! This refers to material growth and prices of commodities, but the perspective essentially is long term, and related to a corresponding development in measurements of affordability as well as quality of life (QOL) in its tangible and intangible dimensions. Town planners use terms such as attractiveness and economic viability – probably meaning similar concepts. However, this is not the same as *economic efficiency*. In fact, empirical evidence shows that it is not economic efficiency but economic security together with QOL that induces the most sustainable economic growth (Rothschild, 2005). While countering the neoclassical dogma, and therefore not widely applied in real estate economics, this reasoning involves potentially valuable concepts for a long-term analysis of the real estate prices. Let us now enter this evolving discussion.

2. ECONOMIC GROWTH DISCOURSES AND REAL ESTATE: ‘IT’S QOL AND SECURITY, NOT EFFICIENCY, STUPID’

Discourses in general economics and economic geography tend to distinguish between ‘real costs and benefits’ on one hand, and ‘transaction costs’ on the other. The latter is a more recently established concept, which is meant to ascertain seemingly non-rational but in the long-term economically efficient market

behaviour and courses of action. According to the popular mantra of ‘New Institutional Economics’ (NIE), economic efficiency will induce growth. Following ideas by Douglass North, this universal goal will be achieved through minimizing the transaction costs. It is as simple as that, and for the real estate – an applied field of economics – the same principle applies. In one such account, Fisher and Jaffe (2000) investigate the nature of restitution in transition countries.

Arguably, this view is only partial – a half-truth at the most. In reality public institutions that incur transaction costs can be advantageous for the market too. For example, in the renewal of the ninth district in Budapest inner city (Hungary), using a Public-Private-Partnership (PPP) agreement the quality of the environment and the dwellings were improved fundamentally, which consequently led to a property price premium. Such circumstances of ‘stabilising (positive) transaction costs’ may, for instance reflect information costs (see D’Arcy, 2006 on the role of intermediaries in the UK real estate markets) or the determination of exchange prices in a strictly regulated context (see Buitelaar, 2004, on the land prices in the Netherlands).

This alternative view contradicts the conventional wisdom in general economic theory as well as NEI. According to ‘heterodox’ claims it is not economic efficiency but economic security together with QOL that induces the most sustainable economic growth. Recent time-series evidence on a country level provided by Rothschild (2005) backs this up, and, Barry (2006) puts forward arguments that are in the same spirit, although using a more theoretical angle and cross-disciplinary approach. Let us next take a closer look at each of the arguments *pro* and *con* the essence of NIE.

Fisher and Jaffe, citing a World Bank study, note the significance of securing the property rights “in creating a stable and promising economic environment”. Whilst this claim is exact-

ly what one would expect from someone working for the World Bank, given the practices and ideology of that organisation, a credible position can be negotiated also from here. Namely, if we extend the argument beyond just property rights to involve all kinds of institutions, such as infrastructure plans and anti-corruption laws, we come to a position that is compatible with the alternative view. Another argument that easily generates consensus is the notion by Fisher and Jaffe about organisations possibly having “vested interests in certain institutional designs”. Indeed, active institutions or just lock-ins may turn out effective in keeping a situation suboptimal from either efficiency or equity point of view. (One only needs to take a look at the succession of governments in those Central and Eastern European (CEE) countries, where the old socialist regime has made a timely comeback). Further, their notion about private rights being context dependent is also a neutral observation – although on a technical level to determine benefits and costs rarely is straightforward at all. Nonetheless, according to these authors, who cite Bertrand Renaud (World Bank), the context is favourable for all CEE countries. One is left wondering: in many (if not most) of these countries obstacles caused by corruption and backwardness are not surmountable using tools as simple as those propagated by the NIE community.

These being largely empirical questions, let us now take a look at the alternative view. Rothschild presents empirical material against “the simple neoliberal folklore” using a thirty-five year time-series of sixteen Western European countries, where relevant variables (inflation, unemployment, economic growth, government expenditure, trade union density and corporatism) are paired and compared so as to see the extent to which the conventional wisdom is valid. He concludes that “generalizations in general and some neoliberal articles of faith in particular rest on weak foundations or are altogether untenable”.

Barry in turn proposes an alternative system for gaining economic development based on ecological modernisation. He notes that any planning for growth needs to be interlinked with considerations of economic security, a strong welfare state and policies of increasing well-being and QOL. Thus it is not just economic efficiency and rapid accumulation of wealth or income that matters (although such considerations do of course matter to a lesser extent). Barry's *green vision* allows for diversity and tolerance in lifestyles, and even market regulation, but the main focus in this model is on economic security.

Because the starting point in the problem field of real estate is how the economic/market efficiency criterion can be replaced by a more apt economic/market sustainability criterion it is probably not directly relevant to consider the more radical, multidimensional dimensions of sustainable development (when consumption patterns are expected to become sustainable due to consumers somehow becoming more educated in sustainability affairs), or even the more moderate propositions of ecological modernization (when technology is expected to somehow become sustainable even if consumption patterns remain unchanged). Nevertheless, *ecosystem services* (i.e. Nature's services; services maintained by Earth's ecosystems) comprise yet one more subfield that deserves mention, due to its indirect impact on real estate economic processes and outcomes. The ecosystem can, for example, provide natural protection against external compounds and pests that would otherwise harm the viability of a site or building. Ecosystem services may provide a cheap infrastructure alternative at the level of a city or city region, and to identify and internalise such amenity benefits and externality costs is crucial from a real estate sustainability point of view. If many species are lost, the ecosystem collapses, and the individual and the community lose these services.

This is essential in aiding economic decisions, as many of the physical, economic and social aspects involved call for preparation of different (e.g. maximum, minimum and mean) scenarios where potential benefits of preserving species are balanced against various risks, hazards, costs and cost savings – and if possible, transaction costs. However, as the Budapest case in section 4 illustrates, this is often poorly understood due to 'the tragedy of the commons'. (See e.g. Daly, 1997; Norberg, 1999)

The selection of arguments above show how we can make a connection to the concept of 'sustainable economics' when discussing the nature of science, paradigms in economics and ideological orientations: according to Söderbaum (2007) a dominating discourse is bad news for the discipline, and therefore, when interpreting the market as a phenomenon, it is vital to include the institutional perspective alongside the neoclassical perspective. Given the traditional dominance of the neoclassical perspective in real estate economics, it is then to note that the institutional methodology in general is far more qualitative than the neoclassical methodology. Apparently, faced with the increasing importance of the sustainability criteria, the core of the real estate price/market analysis paradigm is found wanting – a wholesale reassessment currently appears inevitable. On the other hand, as real estate is a relatively new field, it is not too much constrained by tradition, and this opens up opportunities to capitalise on the new impetus of sustainability, whatever its precise operational definition may be.

3. SUSTAINABILITY ASSESSMENT OF THE REAL ESTATE MARKET

The proposed methodology for analysing economic sustainability is based in classification and assessment of residential real estate and locations, and their development in an

urban setting. How do we then know if the situation is *sustainable*, *economically sustainable*, or *unsustainable*? One way to approach the issue is by correlating the monetary price development with measurements of non monetary quality as well as affordability and welfare (see Table 1).

The two cases on the left hand side of the table are unsustainable, because whether or not the price level is affected is not corresponding to any improvement in QOL or welfare/affordability conditions. The outcome in the lower left quadrant is at least to be considered ‘economically efficient’ outcome [the market needs affordable packages too, cf. Quigley and Raphael (2004) on affordability], whereas the outcome in the upper left quadrant simply notes a situation of ‘artificial’ value formation that is neither efficient nor sustainable in any ways. The two cases on the right hand side of the table in turn are sustainable, but whether both or only one of them are considered sustainable depends on the criteria applied. The outcome in the lower right quadrant is considered sustainable in non economic dimensions, because an improvement in QOL or/and welfare/affordability conditions has taken place even if this is not reflected in the price level. The outcome in the upper right quadrant in turn is to be considered at least economically sustainable, that is to say, the market is sustainable in the sense that an increased price

corresponds with an improved quality (or/and improved affordability). This outcome is also to be considered economically efficient, because price increases correspond to increases in quality/affordability.

It can be concluded that, as both of the right side quadrants involve economic security or QOL considerations, they are to be considered more sustainable, and thereby more favourable outcomes than the outcomes of the left side quadrants. In a sustainable market (i.e. the upper right quadrant), which may be sustainable in other dimensions too, prices increase, which then is being reflected in the attractiveness indicator. Furthermore, this effect is likely to produce a spatial pattern. The other dimensions probably are spatial too, in which case geo-demographic classification of residential milieus is useful for the analysis (see Webber, 2007). We see that economic sustainability is determined by the degree of validity of the attractiveness indicator based on property value when related to quality and affordability. For all other kinds of sustainability (i.e. the lower right quadrant), we need to look at particular dimensions of the built environment and its inhabitants.

Prices and values of residential property ideally provide a handy attractiveness indicator for urban development and management analysis of the kind conceptualised above. Improving the quality of the environment, for

Table 1. The relationship between monetary property price and non-monetary residential quality (The targeted outcome in bold font)

Development of quality (and economic security) and prices	The quality (or economic security) does not increase	The quality (or economic security) increases
The price level increases (effective project)	P+, Q- : price bubbles without a link to quality improvements; unsustainable	P+, Q+ : economically efficient and (at least) economically sustainable
The price level does not increase	P-; Q- : economically efficient but unsustainable	P-; Q+ : bargains; economically inefficient but environmentally and socially sustainable

example by building children's playgrounds or high-tech buildings, will, after a lag of time, as predicted by urban economic theory, be reflected in the prices of nearby properties. However, to validate the attractiveness indicator the market needs to be sustainable: only if the market development is sustainable the investment and moving opportunities provided are attractive. Then this measurement of attractiveness can also conveniently be seen as a measurement of sustainability – at least in economic terms. Otherwise, prices and values can be considered valid only as indicators for scarcity or speculative market place, in which case such measurements are apt to diagnose a market failure. The effect of physical and institutional constraints on the residential property market may this way be understood as a defining parameter of sustainability, because too tight markets lead to serious shortage and overcrowding problems in a given location.

In this way, a sustainable market is here defined through sustainable demand, supply, prices and values. On the other hand, an unsustainable market is of a 'casino' type. According to Smith and colleagues (2006), in a residential property market potentially fallible actors believe a market is external and rational, and therefore they act accordingly using two different strategies for marketing a house: either *calculate prude prices*, or be ignorant and *perceive speculative bubbles*. If most actors select one of the two strategies, they then define the market reality. In such a situation then, in order to beat the market, one should act as accordingly: either as if at 'a normal market place', or as if at 'a Casino', where buyers throw money and agents become ignorant.

The opportunities and constraints of the marketplace, together with the way the market actors perceive and respond to them, are partly static and partly dynamic; and can also be characterised as neither completely objec-

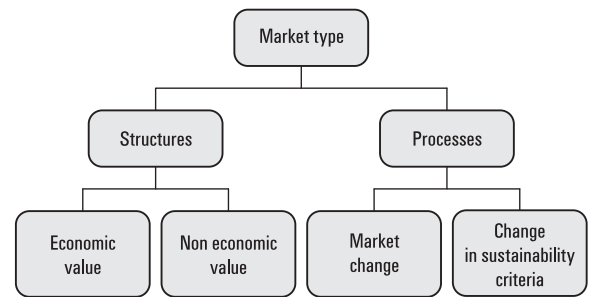


Figure 1. Components of a sustainable market

tive nor completely subjective. It can furthermore be argued that the particular nature of the market structures and processes determine the price formation. Value and price is reflected in the market type in terms of its distribution and development (see Figure 1). Below I explain the four elements under consideration: (1) economic value; (2) non economic value; (3) market change; and (4) change in sustainability criteria.

3.1. Economic value

Economic values concern quantitative (usually monetary) assessment of attractiveness. The starting point is price theory in terms of supply (land use control imposed by the government, developers' willingness to invest) and demand characteristics (population growth, household formation, building costs, incomes and employment, taxation and interest rate) following neoclassical microeconomics, and possibly location following urban economics and economic geography. It is about environmental costs and benefits that are assumed capitalising in market prices. For example, the provision of a certain infrastructure (or even better: utilisation of an ecosystem service, as explained earlier) leads to the improvement of the residential quality and traffic in the area, which also is – with a lag – reflected in prices.

In most cases this is considered sufficient for valuation and there is no need to go beyond this conceptualisation. The question is: do we

need to add the messy reality to this neat picture? Instead of isolating variables of cause of effect, it may be more relevant to give a holistic picture of the behavioural and institutional aspects of the local property market activity. To give an example of such conceptualizations, Weston (2002) shows how house-builder behaviour is not dependent on macroeconomic factors in a mechanical sense, but that the picture is rather more discontinuous and ‘patchwise’ – a process which depends on the context and is influenced by the behaviour of actors. This is not to deny that, spatially, price and new construction tend to overlap. Association is not the same as dependence, however. Thus the role of institutions as a determinant of property value can be seen when the market place is affected by normative impediments of various degree.

3.2. Non economic value

Non economic values concern *partly qualitative assessment of attractiveness* (measured in ordinal scale at the most). Arguably real estate market dynamics and the locational component therein (locational value) comprise a multidimensional problem area involving differentiated preferences: social, cultural, environmental, ecological, aesthetic and so forth. In some geographical-institutional contexts it may occur that consumers have widely diversified preferences on the one hand (bringing non-monetary benefits), while on the other hand the markets are very severely constrained (bringing costs related to scarcity value). This calls for a serious discussion on location assessment beyond the standard economic value assumptions. Firstly, we need to treat the problem with a systematic other than market equilibrium; secondly, we need to apply stated (and not just revealed) preference and choice methods in a partly qualitative context. Among some contributions that seem promising in broadening their intellectual horizons

are works such as Gregory (2000) in the US, and Dent and Temple (1998) in the UK.

Accepting the proposition that the property value may consist of various incommensurable parts, how plausible is the notion of non-monetary benefits and value? Dent and Temple (1998) question the basis for economic valuation altogether. On the one hand *fundamental economic changes* and on the other hand *evolving methodologies and culture or philosophy of the economics discipline* forces the property research community to refine the approach to valuation. They suggest that land and property need to be described qualitatively in impact terms as well as quantitatively in reward terms whilst assessing the value of a property asset. Besides, it is a ‘virtually unattainable’ assumption to identify and quantify all the value characteristics.

A related discussion concerns the compatibility, nature and validity of objective vs. subjective data on QOL as the two main categories of data: objective evaluations based on socio-economic databases and interviews of the residents themselves may pertain to different spatial scales. [An on-going study by Marix Koopman (OTB Research Institute for Housing, Urban and Mobility Studies, Delft University of Technology, The Netherlands), addresses this issue].

3.3. Market change

Smith, Munro and Christie (2006) offer a fascinating characterization of housing market processes. In their line of theorizing the formation of prices are closely related to *market disequilibria* and *local cultures* (cf. Kauko, 2004a). Where do the market prices come from in a local/urban housing market? Who and what determines price changes, if it is not the fundamental real estate economic factors? How large is the spread between the actual transaction price and the theoretical quality related price formation? Markets are not en-

tirely 'economic', as the work of intermediaries may help to place the system beyond control by acting as if the system is self-regulating. (See Smith et al., 2006)

Political and technological developments cause economic externalities, which leads to market change. Ascertaining this process may enable us to identify an extra element in the price formation? This concerns *assessment of positive attractiveness, as defined by evidence*. There are two different approaches:

- residuals analysis of statistical modelling (Renigier-Bilozor, 2008);
- to carry out interviews, if datasets do not exist (e.g. housing demand surveys).

If we build a simple valuation model that misses relevant new – either negative or positive – externalities that occur because of technical or political influence (including the best case scenario of capitalising on ecosystem services, as was noted in section 2), we have a problem. For instance, a wind-farm is built or a local tax is levied and the actual market prices are reduced because of that, but the value estimated by the old model remains higher. Or, similarly, a river is cleaned, with a subsequent lift in the real attractiveness value of the location, but which remains unexplained by the old model. Or a new rock drilling technology allows digging a tunnel through a mountain, with anticipations of improved accessibility in travel time and subsequently higher price expectations for the areas affected [but see Kilpatrick et al. (2007), who argue that this effect is a net effect including nuisance related value losses]. This problem persists as long as the proxy variables included in the model remain without update with regards to the new market effects. Now, the approach were residuals are reduced or added to the modelling estimates can mitigate much of such problems. Alternatively, we can use methods based on questionnaire survey, semi-structured expert interviews or even multi-criteria decision making instruments for the same purpose.

3.4. Change in sustainability criteria

According to economic geographer John R. Bryson (1997, p. 1444) a building undergoes “a spiralling process of obsolescence as alterations in the organisation of work patterns, industrial production technologies and building construction techniques occur”. In a follow-up study, Bryson and Lombardi (2008) note the following:

Incorporating sustainability into the property development process can enhance product differentiation, attract tenants and investors that have incorporated corporate social responsibility into their business practices, reduce long-term running costs, play an important role in negotiations over sites and potentially enhance the long-term value of the development whilst perhaps increasing the initial cost.

Sustainability in relation to the valuation criteria necessitates adapting new principles: to add penalty or bonus on top of the observed price depending on if the building or site is considered unsustainable or sustainable. [This idea of bonuses/penalties for sustainable properties and property classes is elaborated by David Lorenz (Lorenz Property Advisors – Chartered Surveyors, Gaggenau, Germany)]. In other words, a new environment requires new criteria of appraisal. When databases improve and such info (health, environment, social issues) is recorded, then the valuations become sustainable, and subsequent investments become sustainable in the long run. This concerns assessment of normative (and semi-normative, i.e. scientific, but not classic/positivist) *attractiveness defined by assumptions* (and perhaps ideology). The issue to decide on is which sustainability aspect is apt in a given situation.

Lützkendorf and Lorenz (2005) demonstrate the importance of sustainable valuations in a property investment context. In follow up on

this topic, Lorenz and colleagues (2006) address risk and uncertainty issues in valuations with particular applicability in Germany. They argue that the whole credibility of the valuation profession is at stake here: whereas accuracy is impossible, sustainability is a necessity here.

Real estate markets have been analysed in various European countries since the 1950s-60s, from both points of view: academia and practice. The former analyses have pertained to hedonic and other kinds of scientific analyses, whereas the latter often has been subject to a normative approach. Both analyses offer useful prospects here. Marco A. S. González [Universidade do Vale do Rio dos Sinos (UNISINOS), São Leopoldo, Brazil] suggests two ideas for combining sustainability indicators and real estate values:

(1) To use hedonic price models as a way to meet client/user requirements, thereby contributing to the economic sustainability (González and Kern, 2007). Assuming that the market participants (consumers, producers, intermediaries and regulators) are educated, the *shadow prices* derived for the characteristics of the commodity can be weighted against the costs put into a given project in order to obtain a verdict of the economic liability of the project.

(2) To propose different taxation for sustainable and unsustainable buildings through mass appraisal, thereby creating the basis for the penalty/bonus proposition by Lorenz above. This is a more direct and, as noted above, also a more normative approach to assuring sustainability, than the shadow price approach.

3.5. Further considerations

In all four discussed elements that defined the market it is essential to recognise the following relationships:

- The role of institutions and behaviour.
- Whether it is about tangible or intangible factors.

- That market equilibrium is likely to persist only on the level of *intentions* (see Kauko, 2004a).

It is obvious that, whatever the particular outcome, the requirements are always high for data quality as well as for giving a realistic representation of the market context (i.e. methodological validity). In the following, an example is provided about an extremely unsustainable market context.

4. THE CASE OF BUDAPEST, HUNGARY

4.1. The urban context

Throughout Central and Eastern Europe policy makers have adapted neo-liberal policies to circumstances where old social equality considerations have been substituted, rather discontinuously, for typically western urban management and development jargon such as ‘image creating for city marketing’ and championing of PPP. The housing policy in some (if not most) of these countries follows neo-liberalism in the US and UK with a thirty years lag. It was the easiest policy choice as the social-democratic welfare state and Keynesian economy is not popular anymore (almost anywhere). It is a sign of the times. However, these policies cannot be expected to work here due to the communist legacy – there was no public revenue to reduce in the first place! (Besides, it is very debatable whether these policies even worked well in the UK and US.)

Moreover, this takes place in an environment, where there is, on top of financial constraints, other problems related to competence of the authorities. These are obviously due to the general handicap caused by the communist regime, but there is another, country specific explanation too. The fact is that in Hungary really substantial changes did not happen as in the neighbouring countries. A sad and paradoxical observation at the macro level is

that in Hungary only 'lukewarm communism' was implemented, and as a consequence, after 1989 the communist elites were quickly able to adapt comfortable positions, and later more leading roles, in the new system.

During 1990-2005 uncoordinated, irrational and unconsidered urban development activities took place in Budapest, with the result of losses and missed opportunities. Even at present, the conservation of architecture is not comprehensive nor efficient; and 'science and technology parks' and most recently also projects of 'cultural use' are debatable; and developments of industrial lofts for residential use is more difficult than into office use due to the lack of an institutional framework. (Barta et al., 2006)

While some academics say that at present a more appropriate turn is taking place in relation to spatial development, it is not seen in daily life. Symbolic monuments are built, even if that means increasing armadas of homeless roaming the streets and dysfunctional hospital facilities. Decisions are still made purely on political grounds. Thus, lots of corruption occurs at the district authority level, and conflicts prevail between district authorities, when these are in the hands of different political parties. When tendering contracts are given to friends of the Mayor, the outcome is economically inefficient. The government is accused of not being democratic, and in Budapest several public investment decisions have led to problems that have developed into scandals. To give some examples of this situation, motorways are built in various peripheral parts of the country and somehow funding was found for an expensive tram system, even though the orbital motorway (ring-road) around Budapest is not yet completed and trucks are still driving through the city!

A lot depends on how local regimes can be coordinated to strengthen the policy making environment in facilitating a change towards the better. In many Western countries a rela-

tively centralised approach has been the key to creating successful housing systems and high quality environments. In a CEE context such an approach is obviously unpopular – also in Budapest planning and policy is decentralized and fragmented, as already noted.

4.2. Unsustainable market segments

While some more privileged segments of the housing market, for example, the inner city upper-market segment (see Kauko, 2007), may be efficient – but not sustainable – most of the Budapest housing market is neither efficient nor sustainable. In this case much of the housing market unsustainability is caused by the wholesale privatization of the housing stock that took place during the early 1990s, when those who became homeowners were (and still are) unable to afford the maintenance of the stock. The most pessimistic verdicts concern the 1970s gigantic panel housing estates and the turn of the century tenement blocks at the outskirts of the inner city, respectively. If a location is peripheral or poorly connected, the problems are increased further. Those who can afford it, tend to move elsewhere.

Since the late 1990s a new housing market product has emerged: the residential parks (e.g. Kovacs and Wiessner, 2004). While these are meant – depending on the particular project – for upper or middle class movers, the extent to which these can be considered sustainable is questionable. Given that segregation in general in today's discourse is considered unfavourable (and thereby unsustainable) from a social point of view, plenty of doubt can be expressed concerning these buildings and blocks, as their function is to isolate the occupants from the surroundings. Furthermore, the economic aspect is not convincing either, as the marketability of these products often suffers from poor quality of location and construction materials, in other words, from the same problems as the housing estates. In fact, experts warn that the

risk for making *lakopark* (residential park) synonymous with *lakotelep* (panel housing estate) will be real in the future.

In Budapest there is currently hardly any urban policy making related to housing and real estate, and given the current trend it looks unlikely that the focus will be turned back on affordability issues. In attractive areas the market takes care of the development; in other areas the passive planning system cannot improve the situation and these areas are left derelict, as any active planning lacks resources and political support (e.g. Barta et al., 2006). As already noted, this is much related to who is in power, and where. Paradoxically, in Hungary the socialist agenda today is Neo-liberal in the extreme, whereas the ‘rightwing’ agenda is preoccupied with social cohesiveness.

5. CONCLUDING DISCUSSION

This discussion has shown that to connect the valuation to market sustainability circumstances is something very relevant in today’s real estate and urban research fields. One cannot value a property unless one knows about the market it is part of. And if the market is assessed in terms of sustainability, that is to say, the value is considered as a long term concept, the valuation result is – or at least should be – potentially different from the result of a myopic valuation. When carrying out sustainability assessment the modelling accuracy and other performance indicators could serve as a guideline for which market model is valid and feasible for a given dataset with certain recognisable tendencies. In such a project the aim is to first classify the citywide residential property market (or a segment thereof), and only based on that outcome estimate value. In the long term, the market can be classified as sustainable or unsustainable, and this is not the same as classifying it as efficient or inefficient (although the two dimensions may over-

lap). From the concept of market sustainability we can deduce the premises for value sustainability: a sustainable market generates sustainable value, which then can be used as an attractiveness indicator in a broader sense; or in the opposite case, an unsustainable market diagnoses a problem in unsustainable value. This general model of the market place subsequently needs to be subject to empirical verification. Follow up research will therefore be conducted by relating city-level data on long term house price development with corresponding data on various QOL and economic security indicators.

Here one should remember the broader context and dynamics where the valuation takes place. The CEE circumstances were noted as a particularly illustrative case in point. Market structures and processes depend on institutional and cultural circumstances – both supply and demand side dynamics. Therefore, the market modelling fields cannot afford to look inwards, but have to be tied to the local market conditions, whether it is about segments of inner city renewal, (supposedly) unbalanced/problematic housing estates, environmental hazard prone areas or plain ‘white suburbia’, for instance. In a sustainable market environment the modelling tools applied for real estate valuation can be applied as one particular category of urban sustainability indicators. This ties the argument to our starting point. Empirical property value modelling brings added value for sustainability assessment where the markets are classified as sustainable; elsewhere, such applications can be used to diagnose problems of market dysfunctionality. For the sustainable and unsustainable case alike, the challenge is how to successfully make this connection, which, depends on our expertise in this relatively immature problem field situated at the interface of the technical, economic and geographical sciences.

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SANTRAUKA

NUO MODELIAVIMO ĮRANKIŲ PRIE TIKROS RINKOS: GALIMYBĖ ĮVERTINTI DARŅĄ?

Tom KAUKO

Gyvenamosios nuosavybės vertės analizės pagal rinkas paprastai skirstomos į dvi plačias tiriamojo darbo tradicijas: „praktiškesnę“ vertės analizės tradiciją ir „akademiškesnę“ rinkos analizės tradiciją. Nors akademinės analizės informacija nuolat pasiekia praktiškąją pusę, dar visai neseniai informacijos tekėjimas iš praktiškosios pusės į akademinę buvo labai nedidelis. Naudojant tokį mokymosi procesą, vertės modeliavimas galėtų tapti gairėmis, nustatant, kuris rinkos modelis yra veiksmingas ir įmanomas pagal turimus duomenis su tam tikromis atpažįstamomis tendencijomis. Kita vertus, konkrečių rinkos aplinkybių charakterizavimas – pagrindinis lemiamas veiksnys, darantis įtaką nekilnojamojo turto darnai. Darni rinka kuria subalansuotą vertę, kurią vėliau galima naudoti kaip patrauklumo rodiklį platesnioje prasme, o priešingu atveju, nedarni rinka rodo nesubalansuotos vertės problemą.