

Exploring the Tapestry of Real Estate Value

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"Time unfolds beauty, wonder, and mystery to reveal the auspicious tapestry of life." A.D. Posey

Abstract

Real Estate's value is unquestioned in terms of its measure financially and in economics. But there are forms and areas of value that do not lend themselves to easy or obvious modes of measurement and whilst these may be appreciated, they are not easily formally assessed or measured. This paper looks into the 'tapestry' of real estate value, recognizing that tapestries comprise multiple threads that are woven together to reveal a pattern or picture that can only be appreciated when the observer takes a step back and considers the contribution made by these multiple threads.

The paper is conceptual and draws on both existing theories and cases. These are linked via the use of the 'triple bottom line' approach to the recording of areas of value: economic, social and environmental. The paper considers the concept of value and the definition of real estate and, from weaving together the various concepts of value and illustrations of cases that illustrate aspects of the variety of value creation and destruction, seeks to reveal a rich, diverse and underappreciated world of real estate value.

The paper's conclusion reflects on the need to bring different views and expertise together and notes the creation of a new academically created forum that is being opened to further explore and understand better these many and varied areas of value that are in and from real estate.

Keywords: real estate value areas; economic and financial value; social value; environmental value

1. Introduction

This paper starts with full recognition that all that we understand the term 'Real Estate' to comprise is valuable. Indeed, the estimated total financial value of this real estate is almost incomprehensibly large; Savills estimated that the total value of developed real estate in the world was US\$217 trillion as of end of 2015 (Savills Global Research, 2016).

The paper seeks to build on this platform of recognized value by exploring the concept of value domains in and of real estate. To achieve the paper's objective it will go back to first principles, reflecting on the key terms of both 'real estate' and 'value' and then to argue, from a built environment perspective, that the terms real estate and value are both multifaceted and multidimensional and that the need to understand these facets and dimensions has never been more pressing, and goes well beyond balance sheet value. This then establishes the rationale for why we as a

collective of scholars, practitioners and policymakers with interests in real estate still have much to learn and understand when it comes to the modern and future concepts of both what we understand and mean when we refer to both real estate and value.

This paper is considered conceptual in nature and takes an abductive approach, drawing together the fundamental theories with evidence presented via cases from desktop research. The cases presented will draw upon a limited set of examples arising principally in the UK to illustrate where 'non-obvious' forms of value have arisen, both positively and negatively.

The paper will first consider the issue of definitions of the key terms. Then will come the main argument as to why there is the need to go beyond what we already routinely understand real estate to offer in terms of value, and move into the areas where traditional real estate thinking and practice is not working in terms of ex-ante market pricing. Where the market can measure objectively and independently the real estate attributes then market clearing prices result, we can and do price value effectively. However, as the paper will show, there are many forms of value created by or arising from real estate to which we are not yet able to apply these principles and practices. This leads to what are effectively examples of market failure through both the presence of externalities – as is the case with climate change, and/or with latency, where real estate offers attributes that are not factored in to the market clearing price – such as the spatial provision's specific impact on things like creativity, productivity and collegiality. Finally, a set of conclusions and a course of action will be presented.

1.1 Definitions and Principles

The Oxford English Dictionary offers two relevant and associated definitions of value:

"Worth or quality as measured by a standard of equivalence."

And:

"The material or monetary worth of something; the amount at which something may be estimated in terms of a medium of exchange, as money or goods, or some other similar standard." (OED, 2018b)

The key point to take from these definitions is that for value to occur it requires estimation and/or measurement. Appreciation is necessary, but not sufficient for value to be ascribed. This point is vital for consideration of real estate value.

A basic search of Thomson Reuters Web of Science database in March 2018 reveals there are 14,132 items with the term 'real estate' included in either the title or abstract. This clearly suggests that the term is widely used and is established. Whilst referring to Wikipedia may draw comments of scorn from fellow scholars, it is increasingly common to find it being considered as the 'go-to' modern day authoritative encyclopaedia. In the case of the definition of 'Real Estate', Wikipedia draws on the Oxford English Dictionary's definition, and indeed the OED's first definition is that real estate is:

"Property consisting of land and the buildings on it, along with its natural resources such as crops, minerals, or water" (OED, 2018a, online, 2018).

Building off this definition, the website Investopedia has a particularly interesting definition that starts to unpack the catchall use of the term:

"Real estate is property comprised of [sic] land and the buildings on it, as well as the natural resources of the land, including uncultivated flora and fauna, farmed crops and livestock, water and mineral deposits. Although media often refers to the "real estate market", from the perspective of residential living, real estate can be grouped into three broad categories based on its use: residential,

commercial and industrial. Examples of residential real estate include undeveloped land, houses, condominiums and town houses; examples of commercial real estate are office buildings, warehouses and retail store buildings; and examples of industrial real estate include factories, mines and farms.” (Investopedia, 2018)

Whilst this Investopedia reference is provided as a pre-existing definition, this paper will consider the above three-way segmentation as being only ‘a way’ of looking at the composition of real estate. A key argument is that the boundary limits of ‘traditional real estate’ are increasingly colliding with the interests and actions of others who are providing insights into this real estate.

The Investopedia definition also introduces the notion of the “real estate market” and this would be, for many people, what real estate is about, it is the process of creating and then trading the land or land-and-building(s). And as this real estate provides us all with shelter, which is a basic human need, it is not at all surprising that over the millennia various parties have been creating buildings for our habitation, occupation and use (Morgan, 1877). This wide ranging real estate – measured both geographically and temporally can easily outlast those individuals who brought it into existence (Brand, 1995). If we add ‘modern’ to real estate markets we would have what many real estate practitioners and scholars know, practice and study. The markets for real estate in our modern era do comply with the three categories that are listed in the definition above, and the various markets for residential, commercial and industrial land and land+building are global, highly established and extremely sophisticated, with dedicated branches of economics, finance and law all orientated around the idiosyncratic nature of real estate / property / land. But there is growing concern that this established way of understanding and practising real estate is necessary but not sufficient.

2. Theory: Building or Testing?

The study of Real Estate involves implicit recognition that you are studying something that is tangible and visceral – it is real. This makes empirical study of real estate easy and as a result there is a substantial amount of empirical data and studies on or about real estate. But there is no underlying theory that is unique to real estate. It principally relies on the argument presented in economics that goes all the way back to Adam Smith, that is that real estate is part of land – and land is a scarce resource (Smith, 1776). Traditional and modern real estate is, in the context of its relationship with theory, akin to many other areas where its reality needs to be explained by drawing on a variety of theories that have been developed elsewhere and which are tested and modified to make them appropriate and useful for those in real estate. Not surprisingly, real estate is reliant on the field of finance as well as economics for many of the theories, with the result that we recognise real estate as examples of *fixed capital assets*, and *investment class*, and part of investors’ *portfolios* (Elton, Gruber et al., 2009). Underlying economics and finance is the reliance on law and legal title as applied to both the land on which real estate is placed, and the issues of the buildings and other constructed artefacts that sit in, on or over this land. In combination these can lead to theories emerging in areas such as real estate valuation (Lawson, 2008) and investing (Pagourtzi, Assimakopoulos et al., 2003).

2.1 From theory to reality: real estate is about space and place

There are, arguably, two immutable points about real estate. First is that real estate creates artefacts that have purpose or utility. This is true for all, including some oddities and niche sub-genres, such as somewhat eccentric fad started in the Victorian for follies, created for nothing more than a visual treat – see figure 1.



Figure 1 Example of a Victorian Folly - Mow Cop Castle, UK, Source www.geograph.org.uk. © Copyright Jeff Buck

The second simple fact is that real estate is about the creation of space. Whilst we can pay a great deal for the buildings that we construct, it is the functional offering provided by the space they create that has the utility that we are willing to pay for, whether this is the space for us to locate servers in datacentres, a variety of ‘stuff’ that we first make in factories and then hold in warehouses and sell in shops, or that we seek out for our shelter, work, education, leisure, wellbeing and more (Hillier, 1996). Indeed, the development of the analytic method known as Space Syntax arising from the work of Hillier and his colleagues, is an excellent example of the recognition of the science that sits behind the way that we as human beings understand and choose to use the space created in and by buildings. This analytic technique, drawn from large amounts of empirical observation and using graph theory amongst others (Bondy and Murty, 1976), is widely used by those carrying everything from the master-planning of new cities, through the development of new property, to the architectural design of individual buildings or areas within buildings (Hillier, Leaman et al., 1976).

Understanding how we both interpret and then use space is important if we are seeking to optimise appreciation, effectiveness and the efficiency of the real estate we create. To illustrate this point, consider the solution to the post-WWII housing problem faced by the UK. Large public housing estates were seen to be the solution to the combined problems of war-damaged property, dislocated populations, and the poor conditions arising from pre-war impoverished housing that many endured. These new estates were built by the public sector using what was then cutting-edge design, manufacturing, and construction techniques and were initially welcomed for the levels of space, comfort and convenience they brought. However, these same estates, whilst potentially offering individual improvement within the dwelling – a spatial improvement, also brought a host of new problems. There emerged both internal problems of poor thermal comfort as well as the more social issues of residents’ isolation and fear. Homes that opened onto streets on the ground were replaced with long, sometimes maze-like corridors built at multiple levels to take advantage of stacking dwellings. Here we see a trade-off in values as the economics meant land was expensive and so by constructing taller buildings, greater accommodation densities could be achieved per unit of land area. Over time, these heralded solutions to a former housing problem, increasingly became a new problem driven by poor appreciation of our human needs and wants coupled with poor specification, manufacturing and construction decisions and techniques. A variety of problems started to manifest and in addition to the emergence of a chronic set of socially-based problems there were acute incidents that made both the professionals and public realise that all was far from well, such as the explosion and partial collapse of Ronan Point in east London – see figure 2. Thus, we have recognized the potential for what are in effect, value-trade-offs in real estate, but for a trade-off to occur, one must first appraise the value.



Figure 2 Ronan Point partial collapse, *Source: Wikipedia, Image rights "London Over the Border" [1], a historical website produced by the London Borough of Newham. Image is credited to The Daily Telegraph, 1968*

2.2 The challenge of appraising real estate value

The value of real estate can be considered as being determined in two markets: the private sector where a price can be established through the traditional valuation techniques for many categories of real estate such as commercial, industrial and private residential (DiPasquale and Wheaton, 1992, Harvey and Jowsey, 1996), but which quite clearly does not cover all aspects of real estate; and the public sector, which is created when the public sector has or indeed wants to step in to provide the elements of real estate that the private sector is not willing, able or permitted to do (DiPasquale, 1996). This fragmentation of real estate into that which is provided privately, that which is provided publicly and that which is (increasingly) provided through partnerships between public and private still leaves a number of poorly understood aspects of value that are of growing concern. We can presume that the private market for real estate has considered and factored in to appraisal the traditional economic and financial concepts of value arising from scarcity, utility and emotional appeal. The public sector has looked after the areas of real estate value associated with issues such as provision of welfare, national and civil defence and primary environmental protection. However, there are more areas of value that are recognised and for which we are still learning how to appraise appropriately so that the correct price is paid.

2.3 The triple bottom line of real estate space and place

This recognition has been emerging for some considerable time and, following the Brundtland Report of 1987 (Brundtland, 1987), there is now widespread recognition of the need to consider three areas of value: economic, social and environmental. The paper has already noted and considered the economic and financial value. We have also illustrated the significance of one of the many social values arising from real estate with the example of some of the problematic post-WWII public sector commissioned larger housing estates. This is one aspect of the social value of real estate, but increasingly there is great interest in the commercial aspects of this social real estate as we move to optimising workplace real estate for higher levels of creativity and productivity.

During the twentieth century industrial era, Henry Ford was widely recognised as being the one of the most important figures, pioneering the mass-production line that demonstrated the benefit of carefully organising people, plant and built space. The relationship between the machinery, other plant and people inside factories led to recognition that designing the operational processes better could improve spatial utilisation and cut down on the need for expensive new real estate to house expanding production operations. The work of Frank Duffy and his architectural and design firm DEGW became synonymous with this, first in the factory genre and then increasingly

into the office genre (Duffy, 1998). Research and development in this area has become increasingly important as we move to a post-industrial, knowledge-based and service environment. This shift in what we do at work and the real estate we require for this work is significant. From banks to telephone exchanges, we have seen technology make buildings obsolete (Nutt, 1988). For IT-enabled, knowledge-based workers the emphasis is away from the computer that we use, and into the way that we work, and learn. Our spatial needs for this avant-garde, knowledge-based work are still being explored and whereas we may think of this type of work needing an 'office', what actually is a modern office's function? Given the ubiquity and portability of information technology, many knowledge-based workers can now 'work' pretty much anywhere. Hence modern banks, and other forms of office-type space are moving away from single form – be that cellular or open-plan, and instead we see the development of various forms of space within the 'office' – for activities such as conversing, meeting, thinking, writing, and so on (Harrison and Dourish, 1996, Hill, Ferris et al., 2003). And the changes that we are seeing in offices are being mirrored in other sectors, such as retailing, health, education, culture and leisure.

The key message from this is that if the space is configured and created well, it will be appreciated and hence become more valuable than if it is not. This directly challenges the commodification of real estate by simple measure of area and use type.

As well as the space that real estate generates, real estate also creates places. Accumulation of property leads to the escalation from isolated building to hamlet, village, town, city and now mega-city (Hall and Raumplaner, 1998). These nomenclatures define typically size and indicate the shift from the rural to the ultra-urban. This is an area of academic study that crosses the boundaries between geography and the built environment, and includes contributions from anthropologists and psychologists amongst many others (Low, 2003, Stedman, 2002). As we have noted through the previous reference to the impact of technology on built space, so places can be and are deeply affected by factors external to the architecture of buildings and juxtaposition of these buildings according to the urban use and planning rules and regulations. For example, macroeconomics and political decision-making can make a place go from boom to bust. The shifting location of heavy industry such as steel fabrication, has seen the emergence of 'the rust belt' in US and the collapse of the UK coal industry in the 1980s resulted major impact to many communities across parts of England and Wales. The recognition of the need to understand better the importance of place has spawned the interest in 'place-making' (Carmona, 2010).

Making a place 'successful' needs many elements to work together and must coincide with the right external environment, including timing in the economic cycle. The example of the original failure of Canary Wharf in London demonstrates what happens when not all the elements are in place (Pugh, 1996). Canary Wharf only became successful due to the public sector investment in the expansion of the urban rail system via the Jubilee Line Extension (Daniels and Bobe, 1993). Contrast this with the developer Argent, which has undertaken the major redevelopment of the formally neglected and arguably notorious area surrounding Kings Cross main rail terminus in central London. This required careful planning, design and long-term committed effort along with substantial amounts of money to *transform* the area (Bishop, Williams et al., 2016, Hall and Tewdwr-Jones, 2010).

The key message here is that the cliché that real estate is all about 'location, location, location' is true, but masks the complicated and intricate web of factors that move with and against each other to finally yield the 'value' of the place.

There is a great deal more that could be said about the more social aspects of value e.g. the value of iconic architectural design and heritage. However, the paper now moves to the final area of Brundtland's triple-bottom-line: the value of the environment.

The most obvious place to start is with the impact that real estate and the built environment have on greenhouse gas emissions and all that entails. For example, according to the CIOB's Carbon Action 2050's fact summary, 47% of all the UK's CO₂ emissions are linked to the construction and operation of the built environment (CarbonAction2050, undated). The UK's built environment can be considered as relatively typical of many other countries that have variable age built environments and the general heuristic is that all such built environments have significant opportunities to improve in terms of embodied and operational carbon footprint. This opens up a substantial field of opportunities and challenges, from the location and type, through the design and materials, to the use of technology and user behaviour. Whilst much is being done on all these fronts with new buildings, with a good example being the new environmentally-design-driven Bloomberg European headquarters in London as seen in Figure 3, a substantial problem is remedying the sub-optimal performance of many existing buildings. This is a known problem (Committee on Climate Change, 2017, Ruparathna, Hewage et al., 2016) and has resulted in action at the international and national level across government, industry and academe. The key message here is that due to relatively recent awareness of our species' collective impact on the planet's climate, we have inadvertently created a problem of relatively poor energy efficiency in our real estate that means that we continuing to use fuel-inefficient capital assets as the cost (both in money and effort) is currently too high.



Figure 3 The new Bloomberg EU HQ in London opened in 2017, Source: Flickr by David Holt London at <https://flickr.com/photos/12982516@N02/34065245474>

Other sectors are grappling with the same environmental issues and concerns, including the automobile sector. Established automotive propulsion technologies are being improved and new technologies are emerging. The short lives of automobiles compared with buildings have meant that there is both evidence of the impact of governmental action (through toughening regulations, applying taxes, introducing new laws) as well as the opening of commercial opportunities through technological innovation. If carbon-pricing of real estate becomes the norm (Brown, 2013) then the challenge of reducing value of poor-performing existing real estate that can only be effectively tackled with one of two options – remedy or replacement (Dixit, Fernández-Solís et al., 2012). There is still much research and innovation needed for refurbishment and retrofit to become viable at scale (Ma, Cooper et al., 2012). Replacement via full demolition is standard when buildings are considered 'at end of life', but in demolishing buildings we are destroying embodied carbon used to create that building, and much like the arguments for natural capital (Helm, 2015), we are recognising that the destruction of embodied carbon value implied in full demolition, may not be sustainable in the long-run.

3. Conclusions and next steps

This paper's purpose and proposed contribution is in recognising that the value of real estate is a multifaceted and multidimensional proposition - a tapestry - that is not fully understood and appreciated. The paper has sought to recognise that different parties create different forms of value and these differing value areas can be appropriated or captured by parties that haven't created them – as in the case of Canary Wharf. In contrast, it is becoming clear that we are failing to recognise the value of the damage we doing the planet through continual greenhouse gas emissions that are directly associated with the creation and operation of the built environment. Woven in to this real estate value tapestry are further considerations of the value impact of real estate on areas like social cohesion and sense of community, the workplace's impact on productivity, innovation and creativity, the importance of real estate in terms of ability to learn, stay healthy and well, and thrive: at the individual, local, national and international levels.

To help address the issues and challenges identified in this paper we need these forms of value to be explored, understood and operationalized better – and this requires a forum to be created. The argument for a forum is simple – it is a place for exploring, discussing and learning. The forum requires experts from different areas to come together to share and learn from each other. Thus we need to create an opportunity space, both real and virtual, that allows those interested and willing, to come together to focus on the areas of value that are entwined within and/or arise from our creation, operation and adaptation of all that we refer to as real estate. The view at this paper's author's built environment faculty is that academe has a pivotal role to play in the creation of this forum, in the form of a new interdisciplinary institute of and for real estate. This institute will act both as an honest broker and generative source of wisdom. We need concurrently, more research into this value bundle to further understand what is going on and how to independently, objectively and consistently measure this value; we need to transmit this knowledge to those individuals who will go on to shape, develop and operate this twenty-first century real estate and; critically, we need to expand and enhance the understanding and practice of those already involved in this world of real estate. These needs are being met by creating a new Institute that has this remit as its brief. This new institute will seek, over time and critically in conjunction with others so motivated, to look at the many forms of value that real estate generates and contributes.

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