

WHAT KIND OF NEIGHBOURHOODS WILL PEOPLE PAY MORE FOR?

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Abstract. This article reviews the evidence on links between value and built form or use in a range of separate categories related to streets: patterns, types and uses. The aim is to examine the evidence around these categories, to help answer the question about how best to inter-weave connectivity and accessibility with everyday life in a way that would appear to work for most residents most of the time and also deliver value to investors and owners in the medium to long term. Some key lessons emerge from the literature review of relationships between place and value that tend to be true most of the time. Ultimately, most people will pay more for a well-connected property away from too much noise, pollution and one way-streets and within walking distance of local amenities.

Keywords: *value, built form, place, data, urbanism, design.*

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1. Introduction

People value and will pay for the contradictory goods of easy access to jobs and income and easy access to greenery. They will pay for good transport but ideally without the trains or the traffic going past their door. The question therefore becomes how best to inter-weave connectivity and accessibility with everyday life in a way that would appear to work for most residents most of the time and also deliver value to investors and owners in the medium to long term. In this article, we review the evidence on links between value and built form, with a focus on issues around connectivity, street type and block layout. Bringing together this range of evidence is important as many studies into urban design are not quantitative. Bringing together those that are quantitative, and understanding trends that transcend individual studies, helps us to gain a more robust understanding. Looking at value is a good way of understanding relative popularity in a way that is broadly comparable across time and geography.

By the nature of the subject there is much collinearity. There is a high likelihood for correlation between apparently separate variables within an urban study. For example, given the influence of movements such as New Urbanism in the US, newly built more conventional street patterns tend to be associated with mixed use or with more vernacular architecture. It can therefore be quite hard to run specific studies into unique aspects of the built environment without very large amounts of data. Fortunately, some developments adopt a more „pick „n mix“ approach to developments permitting researchers to „tease out“ the importance of some aspects (such as the physical form of

the street grid, design or the presence of mixed use) with more confidence. We therefore particularly focus on those studies that have successfully managed to do this through elegant site selection and natural control groups.

2. More traditional street patterns are often though not always worth more

Why might street layout impact value? The nature of the street pattern (how a set of streets is set out on the ground), is one of the areas which has been much discussed in the last twenty years¹. Since the Second World War, a system of loops and cul-de-sacs has dominated much out of town development, particularly in the UK. This approach probably remains prevalent in most (though a declining) portion of developments in the UK. Its advocates argue that this is a good way of separating homes from traffic and providing a safe low traffic surrounding to a home. At the street-specific level this can work. By definition cul-de-sacs have no through traffic and they have been associated with happier residents (Willmott, 1967).

Some designers in Europe and North America (most notably New Urbanists and some supporters of what is sometimes termed Transit-Orientated Development) have advocated a return from this approach to a more traditional pattern of interconnected street grids on which a network of streets meet (normally) on four-way intersections (see Figure 1). This tends to be (though is not always) associated with more mixed use. Advocates of such an approach (who include Create Streets) argue that this approach is normally associated with safer streets, slower traffic, more walking, a greater sense of place, lower crime and happier, more mixed communities (Duany *et al.*, 2001).

We will review some of these associations below but conventional street patterns certainly do seem to be associated, overall, with less traffic and less pollution than areas with cul-de-sacs. In one study, as level of street connectivity (measured by block density) *increased*, some traffic-based pollutants *decreased* (Stone & Bachman, 2000). Two other studies found that traditional street patterns reduce morning rush hour traffic by 10 per cent and some pollutants by 57 per cent compared to areas with less street connectivity. Perhaps most tellingly, a fourth even more carefully controlled study on over 25,000 participants found a significant inverse relationship between the number of street junctions and some pollutants. (Ewing & Kreutzer, 2006). Put more starkly, blocking off too many junctions to vehicular traffic actually increases overall pollution even if it makes some streets more agreeable.

The association between traditional street networks and lower overall pollution would appear to be due to two factors. Firstly, the more traditional streets do not permit the same speed as „through“ roads. Secondly, a neighbourhood with good connectivity through a street grid normally permits a more direct, and shorter, route due to the far greater choices of road permitted. A shorter route (and therefore less road being used) means less traffic. This has been associated in several studies with lower traffic-based pollution².

¹For an excellent recent summary, see Dover, V., & Massengale, J. (2013). *Street design: the secret to great cities and towns*. John Wiley & Sons.

²The extreme counter example of this is an area such as downtown Dubai where frequent dual carriageways and sweeping approach roads often turn an (impossible) walk between two towers of a few hundred metres into a looping drive of several kilometres.

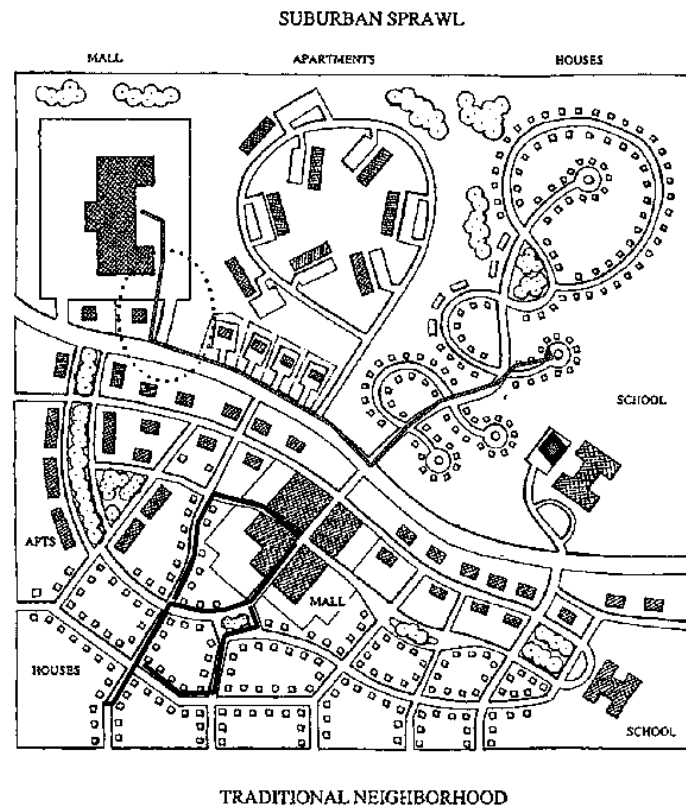


Figure 1. Traditional street-grid versus loops and cul-de-sacs compared (http://1.bp.blogspot.com/-aDis524B6v0/UxO4BqX0Xki/AAAAAAAAABM0/8Nf-3VdJQF4/s1600/cul-de-sac_vs_traditional_grid_street_pattern.jpg)

What impact does such a conventional street grid have on value? This has only recently become the subject of systematic and empirical study. And the answer, in short, seems to be that it depends. Some older studies specifically into the value of properties on cul-de-sacs either found a value premium for properties on cul-de-sacs or found mixed results. However, these studies did not investigate the entire street network but merely compared the value of properties on the quieter cul-de-sac with properties on the busier main road off which the cul-de-sacs turn. Not surprisingly, the cul-de-sac properties were more valuable. Back in 1990 an early Canadian study by Paul Asabere (1990), for example, focused on quantifying the effects that cul-de-sac and a conventional street grid had on house prices. These two were treated as simple binary variables: one if the property was located on a cul-de-sac; zero if it was located -on a street grid. Random samples of 143 and 125 residential sales during an eight-year period (1976 to 1984) were selected from two different areas of Halifax in Canada. Anhedonic model was then used to study the relationship between the two different neighbourhood forms and house prices. The results varied by area but were directionally similar ranging from a cul-de-sac premium of 22 per cent (in non-peninsular Halifax) to 28 per cent (on the Peninsular of Halifax)³.

³Despite these apparently clear findings, the author cautioned that in certain circumstances the building of a cul-de-sac may cost with its lower land use efficiency might nevertheless take out more value that it added due to higher sales costs.

These findings have been echoed elsewhere, including, notably, in Richard Cebula's 2009 study of Savannah, Georgia. This study used an hedonic pricing model to look at the housing market in Savannah's historic district. Amongst many other elements which have a relationship with value, it investigated the impact of cul-de-sac. It found that being located on a cul-de-sac tends to enhance property prices "significantly," with a premium of 9 per cent. In a town of fast traffic there is a premium for no through roads. This is why cul-de-sacs are still built.

A more profound comparison is between two entirely different ways of connecting the streets. John Matthews and Geoffrey Turnbull studied how two measures of street connectivity were related to Washington residential prices in order to try to answer precisely that (Matthews & Turnbull, 2007). The dataset used in this study was 43,650 land parcels in King County, Washington, US examined with hedonic analysis. The data took account of two differing urban contexts, characterised by their street grid layout: the cul-de-sac-dominated "edge city" and the historical city, with more of a street grid layout. Two measures of street connectivity were considered:

- "betweenness" which is a measure of the movement flow in a street network. A road with a high level of betweenness is likely to be characterized by the passage of many pedestrians and cars; and
- the ratio of total street intersections to total street segments. A neighbourhood with low connectivity would have more intersections and fewer segments and thus a lower ratio value. A well-connected neighbourhood, on the other hand, would have more segments and fewer intersections and thus a higher ratio value. A ratio of 1.4 or greater was taken to indicate a well-connected community.

The outcomes were similar for the two connectivity variables. Both methods tended to produce high connectivity scores for the same example streets. However, and crucially, the report also concluded that the impact of a traditional street pattern depends on the nature of other design features. In the context of a traditional street pattern, higher "betweenness" increased house prices as it was linked to higher accessibility. In the cul-de-sac areas, however, higher "betweenness" decreased prices as it was associated with a variation from the dominant pattern (low connectivity with very low traffic) which is related to reduced aesthetic qualities and privacy. Essentially, in neighbourhoods containing features such as narrow street cross-sections and neighbourhood retail, a more grid-like pattern increases house prices. However, in car-oriented neighbourhoods (where there are more cul-de-sacs) they reduce them, as cul-de-sacs are more associated with privacy and aesthetic attributes.

3. More walkable neighbourhoods are worth more

The evidence that people walk more in traditional street grids with mixed use seems hard to argue with. One of the first comparisons (Cervero & Radisch, 1996) of walking levels in a traditional and a typical suburban neighbourhood in San Francisco found that the residents of the traditional neighbourhood made 10 per cent more non-work trips even taking account of income levels and available public transport. Another study (Cervero & Gorham, 1995) in San Francisco corroborated this though the phenomenon was found to be less strongly true in Southern California where there was simply less to walk for. Since then, a range of American studies have built up a remarkably consistent picture. A study which rated high walkability by greater land use mix, higher street connectivity and high population density found that residents took the

equivalent of an additional one to two 13-15 minute walks per week. (Sallis *et al.*, 2004). Another study found that 37 per cent of residents in the most walkable neighbourhoods met the recommended minimum of at least 30 minutes of physical activity compared to only 18 per cent of those who lived in the least walkable neighbourhoods. Residents of the most walkable neighbourhoods were nearly two and a half times more likely to get sufficient physical activity than residents of the least walkable (Frank *et al.*, 2005).

In this context, it is worth asking: do people value greater walkability? Will they pay for it? There have been a wide range of studies that touch on walkability over the last ten years. However, it is not really possible to isolate walkability as a variable as it is consequent on a range of other design choices (street grid, street design, nature of green space, speed limits etc.). There are various organisations and tools for measuring walkability, such as Walk Score (see below), Walkonomics, RateMyStreet and the Walkability Mobile App from Walkability Asia⁴. No doubt all such indices could be discussed at length and are hard to „get completely right.“ Nevertheless, they have been assembled in a well-researched way and studies that research property values in relation to these walkability indices do seem to tell a fairly clear story of the value impact of walkability. For example, in 2012 the US Brookings Institute published a study that compared 201 places by their “walkability” which is worth citing fully. They found that:

- ***Places with higher walkability perform better commercially.*** *A place with good walkability, average, commands \$8.88/sq. ft. per year more in office rents and \$6.92/sq. ft. per year higher retail rents, and generates 80 per cent more in retail sales as compared to the place with fair walkability holding household income levels constant;*
- ***Places with higher walkability have higher housing values.*** *For example, a place with good walkability, on average, commands \$301.76 per month more in residential rents and has for-sale residential property values of \$81.54/sq. ft. more relative to the place with fair walkability, holding household income levels constant; and*
- ***Capitalization rates are lower in places that qualify as walkable urban places than in those that do not, especially in the period after the Great Recession.*** *Development in places with higher walkability has lower capitalization rates. The underlying value of real estate assets in walkable places is higher, facilitating private market financing. On average, before the recession (2000 to 2007), retail and office space in walkable urban places had a 23 per cent premium per square foot valuation. During the recession (2008 to 2010) that premium nearly doubled to 44.3 percent. (Leinberger & Alfonzo, 2012).*

More recently, in 2016, researchers at the Seattle-based real estate firm, Redfin, used hedonic regression to find out how much residents of various American cities people valued walkable neighbourhoods (Bokhari, 2016). They examined over 1 million homes sales in the USA, and accounted for various elements of American homes, including size, age, number of bedrooms and bathrooms, and neighbourhood characteristics including average income. They also looked at the property’s “Walk Score.” This is an “algorithm that estimates the walkability of every address in the

⁴For more information see <http://www.walkonomics.com/>; <http://www.ratemystreet.co.uk/>; <https://walkabilityasia.org/2012/10/03/walkability-mobile-app/>.

United States on a scale of 0 to 100 based on its proximity to a number of common destinations like schools, stores, coffee shops, parks and restaurants”⁵. Their findings showed that increased walkability is reliably associated with higher home values across the country (see Figure 2). They found that a one point increase in a house’s “Walk Score” was associated, on average, with a \$3,000 increase in the house’s market value. There were some caveats, the first of which was that walkability was more valuable in larger, denser cities. A one point increase in Walk Score is worth nearly \$4,000 in San Francisco, Washington and Los Angeles, compared with \$100 to \$200 in Orange County or Phoenix. The research also showed a minimum threshold in walkability. A one point increase in the Walk Score for a home with a very low score has a far smaller impact as an increase in Walk Score for a home with a high Walk Score. The value of homes with a walk score of less than 40 do not seem to be impacted by a small change in walkability. There is no value difference between being able to walk not at all and barely at all.

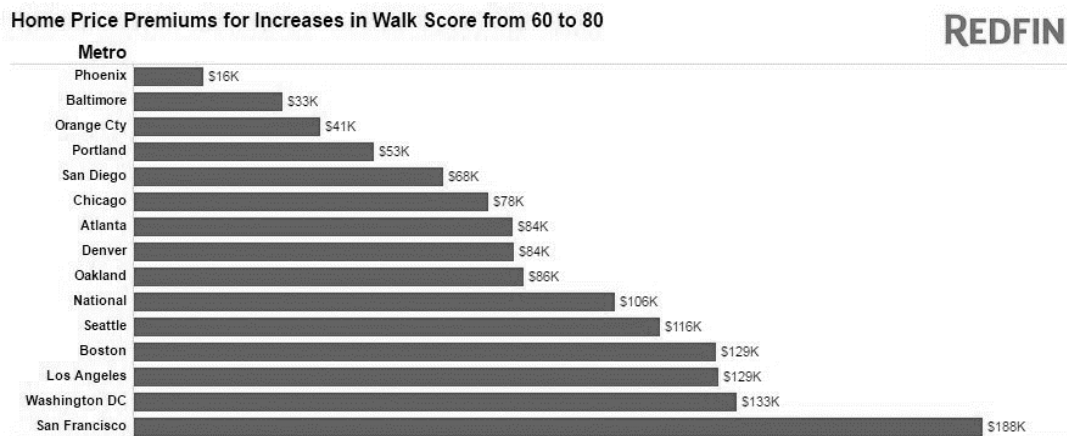


Figure 2. House price premiums for increase in Walk Score from 60 to 80. (Bokhari, 2016)

At the other end of the scale however, the impact is astonishing. Redfin also calculated how much a home’s value might be expected to increase if it went from a WalkScore of 60 (somewhat walkable) to a WalkScore of 80 (very walkable). The average impact of this was to add more than \$100,000 to its market value. As we are seeing in several ways, it is the most prosperous who are most able to pay more for better design. That is consistent with these findings.

It is worth adding, however, that the analysis did not take into account distance from the central business district. They may well be instances when it was the impact of proximity that may have been captured, rather than purely the impact of walkability.

A very different study of a single street found consistent findings. A study (Cervero et al., 2009) analysed the price effects of the replacement of the Embarcadero and Central freeways in San Francisco (damaged in the 1989 Loma Prieta earthquake) by a surface boulevard with slower traffic, high levels of pedestrian access and a

⁵Walk Score measures the walkability of an address using a „patented system.“ It analyses hundreds of routes to nearby amenities and awards points based on the walking-distance to these amenities. The scores range from 90-100 out of 100, named walker's Paradise, which means that „Daily errands do not require a car,“ down to 0-24, „Car Dependiant“ where almost all errands require a car. More at <https://www.walkscore.com/>

reinstated tram. In both cases the effect was strongly positive with the benefit being around \$118,000 per home by the former Embarcadero freeway and around \$116,000 by the former Central freeway. A less robust study into the impact of the replacement of Boston's Central Artery freeway with an underground facility and the transformation of the surface to a linear parkway and boulevard also found strongly positive price impacts (Bartholomew & Ewing, 2011).

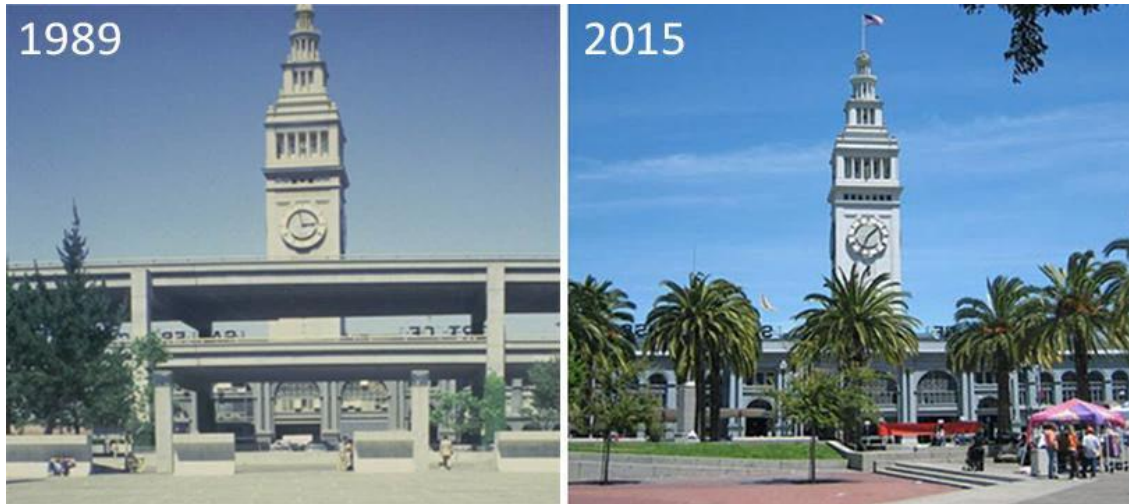


Figure 3. From Embarcadero Freeway to Boulevard led to a value increase of about \$118,000 per unit (https://cdn-images-1.medium.com/max/1000/1*AL-V9AcCwIKgXqdS3T-1Sg.jpeg)

The happy consequence of this is that, within cities, developing areas of “big box” retail sites with their associated sprawled parking into dense networks of walkable streets, blocks and shops adds value for the landowner and local government while providing a healthier urban form. For example, analysis of land values and property tax in the American city of Asheville showed that replacing an acre of box retail and parking with finely grained, mixed use, walkable city would increase sales and property tax per acre from \$6,500 to \$634,000 per acre whilst also increasing residents per acre from 0 to 90 and jobs per acre from 6 to 74 (Montgomery, 2013).

4. One-way streets destroy value

In the context, of the positive impact of walkability and the negative impact of traffic, it is perhaps not surprising that one-way streets seem to destroy value. A range of studies have shown that one-way streets are associated with higher speeds and more accidents than their two-way equivalents⁶. In 2015 John Gilderbloom and William Riggs studied the impact over three years of the 2011 conversion of two one-way streets in Louisville on levels of traffic, crime and sales values (see Figure 4). They found that traffic collisions on the streets dropped by 36 per cent on one and 60 per cent on the other, as did crime, by 23 per cent. This occurred at a time when crime in the rest of the city was rising. Property values rose by 39 per cent while Louisville's overall property

⁶For example, see Ewing, R., & Dumbaugh, E. (2009). The built environment and traffic safety a review of empirical evidence. *Journal of Planning Literature*, 23(4), pp. 347-367.

index was stable. Business revenue rose as did both pedestrian and cycle traffic – which we can correlate with greater wellbeing. These changes were both relative to before the change and to a pair of nearby streets that were used for comparison. Whilst the study is modest in scale and cannot use hedonic modelling, it is still powerfully suggestive.



Figure 4. Abandoned and thriving properties on one way and two segments of Louisville streets. (Planetizen, 2015)

The authors have also more recently compared the 22 Louisville neighbourhoods with the densest concentration of two, three, and four lane one-ways compared to the other 168 neighbourhoods in the city with only two-ways. They found that the neighbourhoods with the most one-way streets had more collisions, more injuries and much lower house prices: “if you own a house in a neighbourhood with one-way streets, your home value drops to approximately half that of homes in neighbourhoods with two-way streets—an average of \$152,629 compared to \$64,681”. They went on to argue that with the average property tax for one-way streets of \$17,886, compared to an average for two-way streets of \$42,820, this computed to around \$2 million in “lost” property tax across the whole of West Louisville (Planetizen, 2015). Two-ways to fix our neighbourhoods. This is over-stating it as the comparison does not fully adjust for other variables but again it remains powerfully indicative we would argue. One-way streets tend to destroy value for landowners and local government.

5. More “traditional”, “sustainable”, “urbanist” or “transit-orientated” developments seem to be worth more per unit and per hectare

We think that, though not completely straightforward, a reasonably clear picture is emerging from most of the data. Too many researchers to date have been overly focused on access and greenery and need to deepen their work on the wider range of place-based value drivers and the city form.

Most people will pay more for a well-connected property away from too much noise, pollution and one way-streets and within walking distance of greenery and other local amenities. Retail stores with ready pedestrian access add value. So, do good schools – sometimes astonishingly so. In the right market luxury towers can add value, sometimes huge value, within this framework. However, they can also be unpopular and reduce liveability. (Boys Smith, 2016) Their economics are not sustainable outside expensive developments with very high land values. Locally-referenced vernacular architecture certainly can and probably normally does add more value. This value uplift can be very significant and, in the limited research to date, can be more significant than

views over water. Living in an environment they aesthetically like contributes to many people's enjoyment of life (Boys Smith, 2016). Flats or terraced houses on what might be termed conventional blocks with clear fronts and clear backs in a legible street network with better organised movement tend to be safer from property crime. Entrances and windows facing the street provide natural surveillance and also keep the streets safe. Lower crime, above all lower violent crime, in turn increases prices. A conventional grid framework of streets does not always but seems increasingly likely normally to add value as opposed to a more twentieth century suburban cul-de-sac urban land pattern. Though cul-de-sacs can have a value premium and there remains a very substantial market for suburban living patterns, it is also possible to combine many of the features of urban and inner suburban living. Most of the time wealthy purchasers are far better able than others to monetise their preference for the best neighbourhood features and urban form - particularly when there are supply constraints.

The final question is therefore: what happens when you „put it all together“ and compare the economic value of this type of traditional, walkable urban development with the alternatives. A range of studies in the US and the UK have asked precisely that question and have reached conclusions that are consistent with the findings above and with the very variable ability of richer and poorer residents to pay for more popular design. Consumers, particularly prosperous consumers, are normally willing to pay a premium to live in a “New Urbanism” development. And the premium per unit can be substantial.

Charles Tu and Mark Eppli (2001) studied the price premium related to what they termed “Traditional Neighbourhood Development” compared to conventional suburban developments. Their research focused on detached homes in three different American developments: Kentlands in Maryland, Laguna West in California and Southern Village in North Carolina. 5,350 housing transactions were analysed using hedonic regression. These developments were chosen because they had built at least 150 homes by 1997, had no or very few second home owners and had nearby contrasting more typically suburban developments. The confident conclusion was that “the price premium for new urbanist housing exists across geographic areas,” though to differing degrees. In Kentlands, the price premium was 15 per cent; in Laguna West, 4 per cent; and in Southern Village it was just over 10 per cent. In a particularly important and detailed 2003 study, Yan Song and Geritl-Jan Knapp (2003) analysed 48,070 detached house prices in Washington County, Portland, Oregon. They controlled for location, public service levels, the physical attributes of a home (number of bedrooms, overall size), proximity to greenery and socio-economic variables (though this was not found to be significant). They found a \$24,255 premium (over 15 per cent) for homes in the (“New Urbanist”) Orenco Station neighbourhood compared to a standardised suburban neighbourhood representing an aggregate of all other Washington Country developments. This was despite the fact that the typical lots were smaller in Orenco being on average 3,500 square feet instead of 8,675 square feet elsewhere. What was particularly impressive about this study was that the wealth of data-points permitted an analysis of which elements of the urban form added value and which elements detracted value. These are set out in Table 1.

Table 1. Impact of different urban characteristics on value of detached home in typical suburban vs. “new urbanist” development, Portland, Oregon (2003)

			Price, 2003 \$	Impact of characteristic, \$	
Value of standard home in typical suburban neighbourhood			132,731		
Impact of different characteristics on detached house value	Property	Lot size	126,965	-5,766	
	Amenity	Golf	126,744	-221	
	<i>New Urban characteristics</i>				
	Reduce value		Cul-de-sacs	126,470	-274
			Unit density	125,822	-647
			Population density	125,414	-409
			Diversity of land use excluding single family homes	125,248	-166
			Distance to nearest commercial use	123,575	-1,673
			Distance to nearest bus	123,184	-391
	Increase value		Street connectivity	123,944	759
			Amount of streets	130,873	6,929
			Block connectivity	133,846	2,973
			Size of blocks	134,091	245
			Shorter cul-de-sacs	136,076	1,985
			Distance between entrances to neighbourhood	142,726	6,650
			Diversity of land use including single family homes	144,207	1,481
			Distance to parks	144,623	416
		Distance to light rail	145,225	602	
		Pedestrian accessibility	149,583	4,357	
Value of standard home in New Urbanist Neighbourhood			149,583		

As can be seen the smaller lot size, the lack of nearby golf facilities, the relative absence of cul-de-sacs, the higher population density, the proximity to busses and to commercial uses all *decreased* value. However, the basic elements of the street design and circulation distances (measures of interconnectivity and small block size) together with levels of walkability and land use mix more than compensated for this lost value with their value add. The study’s important conclusions are worth citing at length:

When combining these features in composite sketches of new urbanist and traditional neighbourhoods, we find that homes in a new urbanist neighbourhood command an aggregate price premium. What’s more, we find that this premium more than compensates for the severe price discount for the small size of new urbanists lots. Much of the premium comes from improvements in internal connectivity that stem from smaller blocks, and shorter streets. Some of the premium also stems from lesser external connectivity, or greater transport isolation. Some of the premium also comes from pedestrian accessibility to commercial uses—even though those uses are not valued in the neighbourhood. It is dangerous, of course, to generalize from the attributes of a single new urbanist development as other developments that could be described as new urbanist could well differ in character a great deal from Orenco. But the Orenco example supports previous research that new urbanist neighbourhoods do provide a price premium.

More importantly, our results show that the price premium, or discount, of any particular neighbourhood depends on the particular design characteristics it has to offer. In short, design matters. Further, though the price of a single-family home is difficult to predict, the statistical relationships among design characteristics and 48,000 sales observations are robust and compelling. Based on market signals, the results suggest that the virtues of new urbanist neighbourhoods include enhanced internal connectivity, improved pedestrian access to commercial uses, better transit access, and less external connectivity. The detractions of new urbanist neighbourhoods include, higher densities, greater mixture of land uses, and smaller lots.

The evidence does not all point one way. One study (Ryan & Weber, 2007) found a 21 to 27 per cent discount for housing located in “traditional neighbourhood developments” compared to infill projects. However, some critics were not convinced that this study adequately controlled for design quality and proportions of public housing. The urbanist Michael Mehaffy, Project Manager for *Orenco Station*, defends its advantages against criticism by giving detailed arguments (Mehaffy, 2011).

Overall, the American developer, Charles Leinberger (2008), has concluded that compact development can command a price premium of 40 to 100 per cent compared to nearby single use sub-divisions. Keith Bartholomew and Reid Ewing (2011), in their literature review, also felt able to summarise the evidence as pointing to the fact that most of the time “consumers seem willing to pay a premium to locate in New Urbanist developments that feature higher-than-average densities, a mix of housing types, commercial centres, interconnected streets, and prominent public spaces”.

Table 2. Price comparison per hectare

	Market value per hectare, £m (2007 prices)			% uplift of new high density from	
	<i>New Urbanism</i>	<i>Suburban development</i>	<i>Older town</i>	<i>Suburban development</i>	<i>Older town</i>
Buckinghamshire	9.64	6.63	6.60	45 %	46 %
Dorset	7.07	5.97	7.51	18 %	-6 %
Scotland	8.03	6.19	7.96	30 %	1 %
<i>Average</i>	8.25	6.26	7.36	32 %	12 %

All of the studies cited above analyse different values for comparable units in different places. This is methodologically robust and very defensible. The problem is that now we have lifted our gaze to the nature of an overall development it does not really go to the heart of how landowners and developers need to think. For any landowner, the question is not „what is the price per building I sell or rent?“ but „what is my return on my overall land?“ This is not a question that can be analysed with usual academic hedonic modelling techniques which, by definition, are taking account of differing impacts of internal and external variables *on a specific unit*. However, ten years ago the British estate agent Savills, working for the Prince’s Foundation (2007), conducted a thorough comparison of three new urbanist developments in the UK with modern suburban developments and historic neighbourhoods. Examples were carefully chosen to be reasonably comparable and differences were fully set out. Prices

differences both in value per square foot of sellable homes and per hectare of land developed were set out with quite clear results (Tables 2 and 3). Although the underlying analysis was not hedonic, the findings are consistent with the more academic American studies and the care taken over the comparators is fairly convincing.

Table 3. Price comparison per square foot built

	Price per square foot, £ (2007 prices)			% uplift of new high density from	
	<i>New Urbanism</i>	<i>Suburban development</i>	<i>Older town</i>	<i>Suburban development</i>	<i>Older town</i>
Buckinghamshire	296	279	235	6 %	26 %
Dorset	319	272	222	17 %	44 %
Scotland	175	171	164	2 %	7 %
<i>Average</i>	<i>263</i>	<i>241</i>	<i>207</i>	<i>9 %</i>	<i>27 %</i>

The Savills report produced some quietly sensational results. The value per hectare of the new urban developments was 32 per cent higher than that of more typical developments. Value per hectare was £8.25m as opposed to £6.26m for a more typically suburban recent private estate development. It was even 10 per cent higher than the nearby historic town centres (£8.25m vs. £7.51m). Nor was this just due to greater density. The actual price per square foot was greater. The price per square foot across the three schemes was 9 per cent greater compared to standard suburban style development. It was 27 per cent higher per square foot than the nearest town centre. A more recent study on the scheme in Dorset (Poundbury) suggests that, if anything, the land value uplift has increased since in the last decade. In 2007 Poundbury was achieving a land value uplift of 18 per cent. That has now increased to 25 per cent (Savills, 2017).

A growing range of anecdotal comparisons in America, South Africa and the UK also support these conclusions. For example, a recent report by the Prince's Foundation for Building a Community set out several examples of how conventionally conceived walkable medium density developments can add value to landowners and developers. The clearest evidence was cited for Cornish developments where higher sales values for houses ranged between 9 per cent to 18 per cent. Taking account of slightly higher build costs, this still resulted in higher profit premiums of between £10,000 and £20,000 per house (Prince's Foundation, 2016).

6. Conclusion

It is important not to be too simplistic in understanding this research. Just because a particular study in a particular place in a particular time finds a very specific association does not mean that that association will be true five years later. It certainly does not mean that it will be true in another city or country. Places change. And economic and social underpinnings in different cities vary enormously. Furthermore, much of the research cited is from model-based estimates. It has not been directly observed and should not always be given the same Talmudic reverence that some analysts would wish. Likewise, this article has not delved into numerous other elements of the built environment which also have an impact on value. Nevertheless, we think

some key lessons emerge from the literature review of relationships between place and value that *tend* to be true most of the time.

1. The simplistic old economic „models“ for land value cannot work as they miss out too many of the key elements that make a good place and for which people (particularly the more prosperous) are very prepared to pay.
2. Most people will pay more for a well-connected property away from too much noise, pollution and one way-streets and within walking distance of local amenities.
3. Flats or terraced houses on what might be termed conventional blocks with clear fronts and clear backs in a legible street network with better organised movement tend to be more popular and spatially efficient with better functioning private and public spaces.
4. A conventional grid framework of streets does not always but seems often to add value as opposed to a more twentieth century suburban distributor road and cul-de-sac urban land pattern. This is probably increasingly the case but it is important to stress that there remains a very substantial market for suburban living patterns. Quieter residential streets *do* have value.
5. Older neighbourhoods are normally worth more in richer societies particularly when protected. They also go up in value at an above average rate and attract more profitable business. The value premium of an historic neighbourhood is greater than that of a new build and more sustained.
6. When you „put it all together“ and compare “new urban” developments to lower density suburban ones, the evidence to date suggest they are normally worth more on a per unit basis and (with less relevant research) on a per hectare basis.
7. Most of the time wealthy purchasers are far better able than others to monetise their preference for the best neighbourhood features and urban form. With a limited supply of „good places“ in many modern cities this creates particularly sharp „sorting effects“ with the more prosperous monopolising many of the better places. This creates many policy challenges.
8. Obviously, there are very many differences of emphasis and degree between different cities, cultures and dates. Nevertheless, we judge that the same basic and very human needs, preferences and desires emerge pretty consistently from the research and from the wider work correlating urban form and wellbeing.

References

- Asabere, P.K. (1990). The value of a neighborhood street with reference to the cul-de-sac. *The Journal of Real Estate Finance and Economics*, 3(2), 185-193.
- Bartholomew, K., Ewing, R. (2011). Hedonic price effects of pedestrian-and transit-oriented development. *Journal of Planning Literature* 26(1), 18-34. See above all pp. 27-30.
- Bokhari, S. (2016). How Much is a Point of Walk Score Worth?
<https://www.redfin.com/blog/2016/08/how-much-is-a-point-of-walk-score-worth.html>
- Boys Smith, N. (2016). *Heart in the Right Street*, London: Create Streets.
- Cebula, R.J. (2009). The hedonic pricing model applied to the housing market of the City of Savannah and its Savannah Historic Landmark District. *The Review of Regional Studies*, 39(1), 9.
- Cervero, R., & Gorham, R. (1995). Commuting in transit versus automobile neighborhoods. *Journal of the American planning Association*, 61(2), 210-225.
- Cervero, R. & Radisch, C. (1996). Travel choices in pedestrian versus automobile oriented neighborhoods. *Transport Policy*, 3(3), 127-141.

- Cervero, R., Kang, J. & Shively, K. (2009). From elevated freeways to surface boulevards: neighborhood and housing price impacts in San Francisco. *Journal of Urbanism*, 2(1), 31-50.
- Bartholomew, K. & Ewing, R. (2011). Hedonic price effects of pedestrian-and transit-oriented development. *Journal of Planning Literature* 26(1), 18-34.
- Dover, V. & Massengale, J. (2013). *Street design: the secret to great cities and towns*. John Wiley & Sons.
- Duany, A., Plater-Zyberk, E., & Speck, J. (2001). *Suburban nation: The rise of sprawl and the decline of the American dream*. New York: North Point Press.
- Ewing, R. H. & Kreutzer, R. (2006). *Understanding the Relationship Between Public Health and the Built Environment: A Report Prepared For the LEED-ND Core Committee*. Organisation for Economic Co-operation and Development, 25.
- Ewing, R., & Dumbaugh, E. (2009). The built environment and traffic safety a review of empirical evidence. *Journal of Planning Literature*, 23(4), 347-367.
- Frank, L. D., Schmid, T. L., Sallis, J. F., Chapman, J. & Saelens, B. E. (2005). Linking objectively measured physical activity with objectively measured urban form: findings from SMARTRAQ. *American journal of preventive medicine*, 28(2), 117-125.
- Frank, L. D., Stone, B., & Bachman, W. (2000). Linking land use with household vehicle emissions in the central Puget Sound: methodological framework and findings. *Transportation Research Part D: Transport and Environment*, 5(3), 173-196.
- Leinberger, C. & Alfonzo, M. (2012). Walk this way: The economic promise of walkable places in metropolitan Washington, DC. *The Brookings Institution*, 9.
- Poyner, B. (1994). Lessons from Lisson Green: An evaluation of walkway demolition on a British housing estate. *Crime prevention studies*, 3, 127-150.
- Newman, O. (1966). *Creating defensible space*. Diane Publishing.
- Leinberger, C., (2008). *The option of urbanism. Investing in a new American dream*. Island Press.
- Matthews, J. W. & Turnbull, G. K. (2007). Neighborhood street layout and property value: The interaction of accessibility and land use mix. *The journal of real estate finance and economics*, 35(2), 111-141.
- Mehaffy, M. W. (2011). In Defense of Portland's Orenco Station. *CityLab*, October 18, 2011. <https://www.citylab.com/equity/2011/10/in-defense-of-portlands-orengo-station/313/>
- Montgomery, C. (2013). *Happy city: transforming our lives through urban design*. Macmillan.
- Planetizen (8 April 2015). Two-ways to fix our neighbourhoods. <https://www.planetizen.com/node/75629/two-ways-fix-our-neighborhoods>
- Prince's Foundation (2016). *Building a Legacy*, 34.
- Prince's Foundation for the Built Environment (2007). *Valuing Sustainable Urbanism*. See especially, 81-96.
- Riggs, W. & Gilderbloom, J. (2016). Two-way street conversion: evidence of increased livability in Louisville. *Journal of Planning Education and Research*, 36(1), 105-118.
- Ryan, B. and Weber, R. (2007). Valuing new development in distressed urban neighbourhoods: Does design matter? *Journal of the American Planning Association*, 73, 100-11.
- Sallis, J. F., Frank, L. D., Saelens, B. E., & Kraft, M. K. (2004). Active transportation and physical activity: opportunities for collaboration on transportation and public health research. *Transportation Research Part A: Policy and Practice*, 38(4), 249-268.
- Savills (2017). *Development: the value of placemaking*.
- Song, Y. & Knapp, G.-J. (2003). New Urbanism and housing value: a disaggregate assessment. *Journal of Urban Economics*, 54(2), 218-238.
- Tu, C.C. & Eppli, M.J. (2001). An empirical examination of traditional neighborhood development. *Real Estate Economics*, 29(3), 485-501.
- Willmott, P. (1967). Social research and new communities. *Journal of the American Institute of Planners*, 33(6), 387-398.