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Price impacts of built environment quality

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Parallel session 2: Workscapes

The issue

The 2018 Davos Declaration identified a trend towards the loss of quality in the built environment. Such a trend has been related to Type I tragedy of the commons defined as the undersupply of professional services that are standardly associated with delivering quality in the built environment, namely architects and urban designers (Webster, 2007). The game field of built environment production (property development) is characterised by a wide variety of players where developers hold a powerful position. A common view shared by those in the planning, architecture and design professions has been that developers tend to undersupply professional services delivering quality because such services are inefficiently priced.

The link with economics

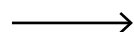
Article 13 of the Davos Declaration states that “high quality *Baukultur* adds economic value...” and this has been considered the ‘holy grail’ for research on the added value of urban design (Carmona, 2014). The need for empirical evidence showing that the quality of the built environment is associated with higher prices, in other words that quality sells, has been widely advocated in urban design literature. Existing research in this area builds upon behavioural economics and utility theory by relying heavily on econometric tools. The most common tool, hedonic modelling of real estate prices, uses multiple regression analysis where the left-hand side represents property prices and the right-hand side a bundle of attributes, among which quality measures. Marginal prices are then estimated for each of these measures. The lack of interface between design and economics, two diametrically different disciplines, poses various challenges to the empirical analysis of price impacts of built environment quality.

The challenges

To date, the biggest challenge in this area remains the definition of quality in the built environment and its subsequent quantification. Most attempts to quantify different aspects of quality rely on scoring via expert panels. Whilst this approach removes the bias coming from individual tastes, it is far from being perfect. The resulting quantitative measures are the input for the econometric models that relate quality to (real estate) prices and the quality of these quality measures is poor. The answer to this by researchers has been to use the so-called ‘proxies’, such as the number of street nodes divided by street segments to estimate the value of built-up fabric permeability. This approach provides better input to the econometric modelling part, however, it risks not being able to capture the essence of quality.

It is quite hard to train designers with good econometric skills and equally hard to explain design paradigms and design thinking to very quantitatively-minded researchers. This brings us back to the issue of the Type I tragedy of the commons where the skillset required for measuring the quality of *Baukultur* is undersupplied, probably due to inefficient pricing in academic terms.¹ Notwithstanding the above challenges there is a body of knowledge that has estimated the value of different design attributes.

1 The two disciplines seem to be so far apart that there is hardly any incentive for researchers operating in any of the fields to dive in depth into the other.



The measuring mechanism

Hedonic pricing theory postulates that the price paid for a certain property can be ‘decomposed’ into marginal prices based on the attributes it possesses. Typically such characteristics are namely age, size, location. Researchers add items to this list of control variables others that measure design quality and estimate their implicit prices via the estimation of regression coefficients. Implicit prices show the willingness to pay or revealed preference of buyers for particular attributes. This is very clear when we consider buying and selling of homes where a prospective homeowner might be willing to pay more for a specific attribute, a lake view for example. Nase et al. (2016) use a combination of expert scoring and proxies to measure the quality of *Baukultur* in Belfast and conclude that homebuyers value mostly building design features that are easy to perceive visually. More complex quality design features indicated by the experts do not seem to be properly reflected in homebuyer behaviour.

Workspaces (a.k.a. office property)

When considering this measuring mechanism it is important to underpin fundamental differences between end users and buyers among various property sectors. Homes are bought (or rented) by people to live in, hence represent a direct relationship of willingness to pay for quality and the utility derived from it. Office property prices are determined by investors who are willing to pay a certain price given the potential of a particular asset for future cash flows (in paid rents). Office space is mostly rented by firms to host their businesses and the end users are employees. From an economic perspective, the firm’s goal is to increase its profit via minimising costs or maximising revenue. A key feature in the latter is employee productivity and the firms will pay for quality design features if this increases productivity of their employees by, among others, increasing their satisfaction. A growing body of knowledge provides evidence of increased employee satisfaction and increased productivity, also in relation to workplace design. The link of the above with evidence from paid rents is, however, missing.

The evidence

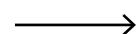
It is perhaps no surprise that the first attempts to measure quality of design come from researchers outside architecture and urban design domains. It is easy for quantitative researchers to use proxies and quality scores in the econometric models and analyse the outcomes. Hough and Kratz (1983) use award-winning building designation to quantify quality and Vandell and Lane (1989) employ expert scoring to measure quality. Both find significant rent premiums in offices related to quality measures. More recently, Fuerst et al (2011) find that office buildings designed by ‘signature architects’ have higher rental and sales prices compared to other buildings in the same submarket. Nase et al. (2013) report that higher design quality specifications at three levels namely interior, exterior and urban scale generate rent premiums in office properties. Given the ‘blame’ about inefficient pricing in providing quality, evidence about construction and professional service costs is an area of study that calls for further attention.

The impact

During recent years, particularly in western and north European countries, there seems to be more awareness among developers and investors that various aspects of quality *Baukultur* sell. This attitude has still to become mainstream though and what we generally experience, also in student graduation research, is that we end up researching the ‘trend setters’. This small group of developers and investors constitutes roughly 5% of the profession cohort and is usually guided by strong corporate social responsibility goals based on so-called ‘softer’ values. Increasingly it is being observed, particularly in the delivery of flagship projects, that these soft values are being prioritised over the ‘harder’ economic ones. Such prioritising can be related to firm image and branding, however, a combination of factors leads to the delivery of quality in the built environment among which an important role is played by strong local governments, committed to high-quality *Baukultur*.

The way forward: a common platform

Article 16 of the Davos Declaration states that “high-quality *Baukultur* can only arise in the context of interdisciplinary discourse and through multi-level and cross-sectoral cooperation...” It is true that there has



been a continuous call from the planning/design side on the need for more quantitative-based evidence on the economic value of quality. Probably in response to this call, particularly the field of real estate and urban economics, has shown a growing interest in recent years in the analysis of asset pricing of *Baukultur* quality attributes. Getting the measure of *Baukultur* will improve only through multidisciplinary efforts and the creation of a communication platform where the two fields can interact for the advancement of knowledge and professional practice that delivers high-quality *Baukultur*.

In academia, it appears that schools of the built environment seem keener to take the first steps towards addressing the undersupply of the skillset required for measuring the quality of *Baukultur*. The introduction/inclusion of real estate programmes in such schools is encouraging and carries hope for the future. However, we should be careful with the practical applications of extant methodologies, as even the most popular and widely used econometric approaches are not a silver bullet. As the quote often attributed to Box goes: “*All models are wrong, but some are useful*”.

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