



RETHINKING THE CHALLENGES TO ATTAINING SUSTAINABLE CITIES AND COMMUNITIES: LESSONS FROM SOCIAL NORMS AND STATUS QUO BIAS

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There is widespread agreement among building construction stakeholders about the need to reduce the negative environmental impact of construction activities. Globally, a wide range of policies has been instituted by governments to encourage the adoption of sustainable (green) technologies and practices to help in the attainment of sustainable cities and communities. However, building construction stakeholders are unwilling to adopt it. Several studies continue to proffer that the reasons behind this unwillingness are lack of knowledge and awareness, lack of regulations and codes, lack of financial incentives, high upfront cost amongst others. On the other hand, this paper takes a Behavioural Economics perspective to explain why there is a misalignment between the high-level consensus for the attainment of sustainable cities and communities, and the willingness of building construction stakeholders to adopt the sustainable (green) technologies and practices which can help in the attainment of this goal. The paper sought to identify the 'elements' that can impact building construction stakeholders' decision-making and bring about the tendency for them to prefer non-adoption to adoption. It was found that two elements, social norms and status quo bias, can impact building construction stakeholder's decision-making, and thus, two propositions were put forward. The aim of this paper was accomplished through a literature review. For policy-making, by explaining how social norms and status quo bias impact building construction stakeholders' decision-making in the context of green construction adoption, we make a case for the need to supplement existing policy mechanisms to make them more effective or employ more innovative policy tools. Theoretically, this paper provides a basis for welcoming the Behavioural Economics perspective into Construction Management research. In terms of further studies, there is the need for empirical investigations to be carried out to support, refute or modify the findings of this paper. Also, further research can be undertaken along the Behavioural Economics perspective to find the factors taken into account in the decision-making.

Keywords: barriers, behavioural economics, decision-making, green construction, sustainable construction, sustainable development

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INTRODUCTION

According to The Global Status Report 2017, “progress towards sustainable buildings and construction is advancing but improvements are still not keeping up with a growing buildings sector and rising demand for energy services” (UN Environment and International Energy Agency, 2017, p. 6). Globally, buildings and construction are responsible for 36% of final energy use and 39% of energy-related carbon dioxide (CO₂) emissions when upstream power generation is included (UN Environment and International Energy Agency, 2017). Yet, the Sustainable Development Goal 11 of the 2030 Agenda for Sustainable Development which was endorsed in 2015 in New York, seeks to make cities and human settlements inclusive, safe, resilient, and sustainable by 2030 (United Nations, 2015). To be able to achieve this goal, changes in construction processes are imperative since the activities of the building construction industry contribute significantly to the emission of carbon, which is regarded as a major contributor to climate change (Zhang et al., 2011b, Jagarajan et al., 2017). According to Kibert (2007), different terms such as ‘sustainable construction’, ‘green construction’, and ‘green building’ amongst others are used to refer to the pursuance of sustainability in the construction industry. But this paper make use of the term ‘green construction’ to signify *the use of healthier and more resource-efficient techniques and materials to deliver building projects for the attainment of sustainable cities and communities*.

As a result of the need for the attainment of sustainable cities and communities, there are plentiful commitments and actions by countries, city authorities, industry and related stakeholders through various policy mechanisms to help put the global construction sector on a sustainable path. Yet, construction practitioners and clients (building construction stakeholders) are reluctant to pursue this sustainable path (UN Environment and International Energy Agency, 2017). The paradox is that, with the exception of a few people⁵, everyone agrees that the climate is changing (United Nations Treaty Collection, 2019). It is also widely acknowledged that: (1) the climate is changing as a result of the increase in carbon emissions (UN Environment and International Energy Agency, 2017); and (2) energy use in the building and construction sector contributes to 25% of global carbon emissions (Monahan and Powell, 2011). Specifically, The 2017 Global Status Report pointed out that the building and construction industry is one of the most significant sources of carbon emission in various countries (UN Environment and International Energy Agency, 2017). However, energy-efficient and low-carbon technologies are slowly diffusing in the building and construction industry (Gluch et al., 2014, UN Environment and International Energy Agency, 2017). This means, there is a misalignment between the high-level consensus for the adoption of green construction and the willingness of building construction stakeholders to adopt. This situation is described in this study as the ‘consensus-behaviour discrepancy’.

Several researchers have investigated this ‘consensus-behaviour discrepancy’ and suggested possible barriers (see for example Zhang et al., 2012, Shari and Soebarto, 2014, Windapo and Goulding, 2015, Wadu Mesthrige and Kwong, 2018, Martek et

⁵ As of May 19, 2019, the countries yet to formally ratify the Paris Agreement were Angola, Eritrea, Iran, Iraq, Kyrgyzstan, Lebanon, Libya, Oman, Russia, South Sudan, Turkey, and Yemen.

al., 2019). According to these studies, there are multiple barriers responsible for the unwillingness of building construction stakeholders to adopt green construction including high costs, lack of regulations, lack of knowledge and awareness, lack of promotion from government amongst others. However, the most reported challenge is the perception that it costs more to apply sustainable technologies and practices (Dwaikat and Ali, 2016). In contrast, other researchers have also claimed that the perceived higher costs associated with the application of sustainable technologies and practices are mere illusions (Bartlett and Howard, 2000, Rehm and Ade, 2013). More so, if we assume that building stakeholders are rational decision-makers then they should seek to minimise costs and maximise profit. However, the puzzling tension is that, even though it is widely cited that sustainable technologies and practices have long-run cost savings features and outperform their conventional counterparts during their lifecycle, their application still remain at a lower rate. Another interesting observation in the literature is that most of the studies report lack of incentives, lack of building codes and regulations, lack of knowledge and awareness even in settings where they acknowledge that the government have created strong green construction environment (Hammond et al., 2019).

Even though most of these studies do not point out their theoretical foundations (Mensah et al., 2018), it can be inferred from their findings that they come from the mainstream (neoclassical) economics paradigm where building construction stakeholders are regarded as cost-minimisers or profit-maximisers. Therefore, the 'perceived high upfront cost' will lead to a rational response – non-adoption. However, from the perspective of the same neoclassical economics theory, rational (profit-maximising) agents should adopt green construction, because it is widely cited that green buildings outclass conventional (non-green) buildings in several areas during their life-cycle. Particularly, it is reported that the life-cycle operational cost savings associated with green buildings outweigh the high upfront cost (Dwaikat and Ali, 2018). Thinking along this line, then non-adoption constitute irrational and inefficient behaviour.

While the findings from existing studies explain parts of the green construction 'consensus-behaviour' discrepancy, the influence of the 'real-world decision-making' of building construction stakeholders (decision mechanisms in the adoption of green construction) remains unexplored. In terms of the real-world, building construction stakeholders might not be acting as cost-minimisers or profit-maximisers, but just choosing acceptable solutions – satisficers (Barros, 2010). Behavioural Economics (BE) which integrates insights from the behavioural sciences and mainstream economic theories, advocate that human decision-making and behaviour violate the maxims of mainstream economic theories (Tversky and Kahneman, 1992, Altman, 2017). Specifically, human decision-making and behaviour are powerfully influenced by context, and particularly subjected to cognitive biases, emotions, and social influences (Kahneman and Tversky, 1979, Thaler and Sunstein, 2008). BE is devoted to reintegration of behavioural concepts that were removed from economics over a century ago to improve the realism and generation of theoretical insights, in order to make better predictions of field observations and allow for the creation of much better policy (Camerer and Loewenstein, 2004). In line with this, this paper takes a Behavioural Economics perspective to describe how social norms and status quo bias can impact building

construction stakeholders' decision-making and bring about the tendency for them to prefer non-adoption to adoption (of green construction) in spite of the high-level consensus for the attainment of sustainable cities and communities

It is discussed in this paper that social norms and status quo bias bring about the tendency for building construction stakeholders to prefer conventional (non-green) construction to green construction in spite of the outstanding benefits associated with the latter. This is because these elements impact the individual level decision-making, which in turn aggregate into the group-level decision-making and choice (Hammond et al., 2019). After this introduction, follows the methodology section. The next section present a literature review demonstrating the need for this study, and an explanation of the bounded rationality approach to decision-making. After this follows an overview of how social norms and status quo bias can impact building construction stakeholders' decision-making. The last section summarises the findings, provide policy implications and suggest areas for further research.

METHODOLOGY

Taking a pragmatic paradigm, this study used the literature review as a method to achieve the aim (Onwuegbuzie and Frels, 2016). With this methodology, pertinent and scholarly literature such as journal articles, conference papers and book chapters were searched, examined and chosen from databases such as Scopus, Web of Science and Google Scholar based on the authors' 'evaluative decisions' (Birmingham, 2000). The criteria that informed the examination and choice of literature for the study were 1) the relevance of the literature to the study, and 2) the authoritativeness and scholarliness of the literature.

LITERATURE REVIEW

The following sub-sections provide information on the origin and evolution of green construction, reviews current research in the area, and establish the gap in knowledge. Furthermore, the Behavioural Economics insights (an explanation of the bounded rationality approach to decision-making) are also provided.

Green Construction

After the Brundtland's Commission's report in 1987, 'sustainable development' has come to stay as the holistic approach for improving the lives of people everywhere. Policy agendas have been instituted to promote this course. The latest among them is the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs). Particularly, SDG 11 seeks to make cities and human settlements inclusive, safe, resilient, and sustainable by 2030. The term 'sustainable construction' was officially proposed in 1994 at the First International Conference on Sustainable Construction in Tampa to describe the responsibility of the construction industry to attain sustainable development (Hill and Bowen, 1997). Since then, various terms and definitions have been used to refer to the pursuance of sustainable development in the construction industry (Kibert, 2007). Terms like 'sustainable construction', 'green construction', 'high-performance building', and 'green building' amongst others are used. But Kibert (2007) suggest that the use of 'green building' or 'sustainable building' is best to describe the product of a

process – ‘green construction’ or sustainable construction’. The pursuance of sustainability in the construction industry revolves around the application of materials and techniques that minimise environmental impact, enhance occupant’s health and well-being and provide high returns on investment through reduced life-cycle operational cost.

Benefits of Green Construction and Policies Encouraging the Adoption of Green Construction

There is a widespread agreement about the benefits accompanying green construction (Dwaikat and Ali, 2016). Generally, the reduction of the negative environmental impact of construction activities is the defining feature of green construction. Adopting green construction will lead to sustainable land use and reduction of waste and carbon dioxide emissions. The output of green construction – green building – also has several benefits. Green buildings cost less to operate as there are reduced water consumption and energy savings (Zhang et al., 2018). Energy-efficiency is one of the primary features of green buildings. It is also reported by several studies that green building have enhanced indoor environmental quality, resulting in comfortable, healthier, and productive occupants (Ahn et al., 2013, Vandenbroucke et al., 2015, Balaban and Puppim de Oliveira, 2017). Other green building benefits include enhanced corporate reputation and increased market value (Zhang et al., 2018). In spite of these benefits, there are cases where green construction adoption is undeveloped, even though there exist adequate steering mechanisms such as regulatory policies and incentives. Examples of such cases include Malaysia (Shari and Soebarto, 2014, Isa et al., 2018), South Africa (Windapo and Goulding, 2015), Hong Kong (Wadu Mesthrige and Kwong, 2018), Australia (Martek et al., 2019), China (Deng et al., 2018) amongst others. Specifically, this occurrence was recently captured by the UN Environment and International Energy Agency (2017) that, there is continued use of less efficient techniques and materials even though energy efficient and low carbon products are available in most markets. Citing China as a case, Zhang et al. (2011c) questioned why residential developers are not adopting green construction given the strong green environment (market) as well as policy mechanisms.

Barriers Impeding Green Construction

Darko and Chan (2017) reviewed 36 empirical studies on barriers to the adoption of green building practices and a total of 61 barriers were identified. The study concluded that the major barriers to the adoption of green building practices are lack of information, education and research, knowledge, awareness, and expertise; higher cost; lack of incentives/support; lack of interest and demand; and lack of green building codes and regulations. The perceived high upfront cost is one of the widely cited barriers impeding the adoption of green construction (Ahn et al., 2013, Yu et al., 2018). Therefore, incentives, both financial and non-financial are provided to offset the high initial cost (Choi, 2009). Lack of knowledge and awareness is considered as a critical barrier to green building practices adoption in China and Australia (Zhang et al., 2011a, Zou and Couani, 2012). Zainul Abidin (2010) claimed that adopting sustainable construction practices starts with awareness and knowledge, thus, awareness and knowledge of green building practices is regarded as the most critical barrier in Malaysia. On the contrary, Ofori and Kien (2004) pointed out that, architects in Singapore indicated they are aware

of the environmental impacts of buildings and knowledgeable about possible measures which would help avoid these problems. However, they seem to be unable to translate their environmental awareness and knowledge into appropriate design solutions (Ofori and Kien, 2004).

Bounded Rationality: The Impact of 'Real-World Decision-Making' on Green Construction Adoption

The diffusion of green construction requires choices to be made by building construction stakeholders (Du Plessis, 2007). However, choice results from decision-making. Typically 'decision-making' and 'choice' in building projects is made by a 'group' of individuals and groups – clients, users, building professionals, and external parties (Olander, 2007, Mok et al., 2018). However, group decisions are mostly a combination of individual preferences (Grubb, 2014, Savage, 2018). Also, group decisions are normally preceded by discussions among individuals who have varying opinions and preferences and individuals with convincing arguments can drive group decisions in their individual preferences (Hinsz and Davis, 1984, Ambrus et al., 2015). Therefore, it can be put forward that, building construction stakeholders' decision-making in the adoption of green construction can be influenced by the factors that can influence individual building construction stakeholder's decision-making (Hammond et al., 2019).

The investigation of decision-making has long been a dominant research area in psychology and economics. Mainstream economics assumes a world containing calculating and utility maximizing decision-makers with unbounded rationality, unbounded willpower, and unbounded selfishness (Altman, 2017). Nevertheless, "at the core of behavioural economics is the conviction that increasing the realism of the psychological underpinnings of economic analysis will improve economics on its own terms – generating theoretical insights, making better predictions of field phenomena, and suggesting better policy" (Camerer and Loewenstein, 2004, p.1). Explicitly, behavioural economics has proven that people will respond to interventions based on their framing, the methods through which they are transmitted, and the decision-making environment (Loewenstein et al., 2013).

"A choice is a selection of one, among numerous possible behaviour alternatives, to be carried out" (Barros, 2010, p. 457). Decision-making is a process that produces a choice. Theoretically, rationality is regarded as the gauge used in decision-making, leading decision-making agents to make the best choices. According to mainstream economics (rational choice theory), a rational agent is assumed to take account of available information, and potential cost and benefits in determining preferences, and to act consistently in choosing the self-determined best choice of action (Bicchieri, 2004). From this standpoint, humans are perfectly rational decision-makers with an undoubtedly ordered set of preferences. Also, they are maximisers or optimisers, thus, inefficient behaviours should not happen. However, "bounded rationality" was suggested by Nobel Prize recipient Herbert A. Simon – the founder of what is nowadays referred to as behavioural economics – as the explaining element of real-world human decision-making and behaviour (Barros, 2010). Simon proclaimed different views about human rationality and considered mainstream economics' view of rationality to be impractical (Barros, 2010, Altman, 2017).

According to Simon, decision-makers tend to make decisions by satisficing rather than optimizing. A key hypothesis according to Simon is that human beings are 'satisficers' – try to find a course of action that is 'good enough'. At the core of this behavioural perspective on human rationality is that decision-makers display 'bounded rationality' which leads to a considered choice behaviour based on the choice environment and the decision-making capabilities of the decision-maker. (Kahneman and Tversky, 1979, Altman, 2017). The key idea is that just because decision-makers are not behaving according to neoclassical rationality does not imply that they are irrational (Altman, 2017). From this perspective, sometimes, behaving according to the postulations of mainstream economics can also be irrational given the decision-making environment (Altman, 2012, Altman, 2017). Bounded rationality can provide likely explanation for the 'consensus-behaviour discrepancy'. As a consequence of bounded rationality, building construction stakeholders may neglect the benefits of green construction and stick with conventional (non-green) construction, even when good information is given and suitable incentives are provided.

LESSONS FROM SOCIAL NORMS AND STATUS QUO BIAS

From the explanation of the principle of bounded rationality, human decisions and behaviour are significantly influenced by biases, emotions, and social influences, deviating from the classical economic theory of rationality (Dolan et al., 2012, Thaler, 2015). These factors bring about human limitations which can lead to outcomes that were either unforeseen or incompatible with their intentions. To explain why there is a sustained inclination towards conventional (non-green) construction in the construction industry in spite of the benefits associated with green construction, and the manifold policy mechanisms, a review of two factors that can be impacting decision-making is presented below.

Social Norms

Human minds depend on heuristics to interpret information and make decisions (Tversky and Kahneman, 1974). There are three main types of heuristics: representativeness, availability, and adjustment and anchoring (Tversky and Kahneman, 1974). The availability heuristic is a mental shortcut that comes into a person's mind when appraising a specific topic, concept, or decision (Tversky and Kahneman, 1973). However, it has been suggested that social norms perform the same role as availability heuristic (Banczyk et al., 2018). According to (Bicchieri, 2005), a social norm is a behavioural rule for a situation (or type of situations) that a sufficiently large share of the population: (a) knows the rule and knows that it applies to this particular type of situations, and (b) conditionally prefers to conform to the rule in this type of situation. It has also been reported that social norms are the behavioural prospects, within a group to which individuals try to conform (Axelrod, 1986). Social norms can influence behaviour because, individuals take their cues from what others do and use it as the standard against which to compare their own behaviours (Clapp and McDonnell, 2000). The operation of social norms is at least partly sensible since we may obtain pleasure from choosing to behave like everyone else, even though this choice may not be maximising overall utility (Dolan et al., 2012). Social norms can lead to behaviour that is difficult to explain in terms of mainstream economics rationality. The more widely that a norm is followed by members of a group, the more everyone wants to adhere to it (Dolan

et al., 2012). Another reason why social norms can be of importance is that it impacts social uncertainty. Two types of norms are relevant to social norms. Social norms that characterise the perception of what most people do is referred to as descriptive social norms whereas those that characterise the perception of what is approved or disapproved by others is referred to as injunctive social norms (Thøgersen, 2008).

Proposition 1: *Social norms impact on the decision-making of building construction stakeholders leading to an inclination for conventional (non-green) construction.*

In the choice of green construction, what other building construction stakeholders do may lead others to over-estimate or under-estimate the cost and benefits. If it is known that few are prepared to adopt green construction, or do not consider it an obligation to adopt, people may be less inclined to stand up for the common good. On the other hand, a non-adoption choice may be considered unequivocal 'immoral' if most people adopt (Dawes, 1980).

Status Quo Bias

Status quo bias is the tendency to choose the current state over more optimum alternatives (Samuelson and Zeckhauser, 1988). Status quo bias is different from a preference for the status quo when it is objectively superior to the available alternatives (Rippon, 2012). According to (Samuelson and Zeckhauser, 1988), when a university added new options to its employment-based healthcare plan, faculty joining after this point understandably took advantage of most of the new options. However, faculty who were previously employed and had the right to take advantage of the new options chose to opt for the new options to a far lesser degree (Samuelson and Zeckhauser, 1988). This implies that, when there is an existing pattern of behaviour (reference point), people exhibit a strong preference for it (Samuelson and Zeckhauser, 1988). Reference point-dependent valuations is a pivotal concept in behavioural economics (Tversky and Kahneman, 1992). It is proffered that decision-makers adopt a reference point against which alternatives are valued and an alternative that serves as a referent gain an advantage through the valuation process. According to Riella and Teper (2014), an option is considered as a replacement for the status quo if and only if it better than the status quo with respect to every criterion.

Proposition 2: Status quo bias impact on the decision-making of building construction stakeholders leading to an inclination for conventional (non-green) construction.

Green construction outperforms conventional (non-green) construction in many areas (Dwaikat and Ali, 2016). It will save the environment, reduce lifecycle cost, etc. But the practice also comes along with cost (losses) such as complex project delivery process (Zhang et al., 2012); high capital and transaction cost (Qian et al., 2015); sophisticated level of expertise for fabrication and installation (Zhang et al., 2012, Li et al., 2014). More so, conventional (non-green) buildings can substitute green buildings i.e. conventional buildings can satisfy the necessary need of human habitat even though they may not be green. Hence, because building construction stakeholders are satisficers, the losses will appear larger than the gains. This will lead to a preference to stick with what they know, even though in reality, the

benefits from switching to green construction outweigh the costs involved. Status quo bias will cause them to misperceive the true cost and benefits, leading to a preference for conventional (non-green) construction, even though green construction is regarded as superior.

CONCLUSION, IMPLICATIONS, AND FURTHER RESEARCH

In this paper, we have drawn on the concept of bounded rationality to explain why there is a misalignment between the high-level consensus for the attainment of sustainable cities and communities, and the willingness of building construction stakeholders to adopt sustainable or green technologies and practices. Our findings demonstrate that, social norms and status quo bias impact on the decision-making of building construction stakeholders leading to an inclination for conventional (non-green) construction. Whereas previous studies have investigated the barriers hindering the adoption of green construction, this study contributes to the existing literature by providing insights into how building construction stakeholders' decision-making in the real-world may influence the adoption of green construction. Inferring from the findings and policy recommendations of previous studies, it can be concluded that, they come from the perspective of mainstream economics where building construction stakeholders are regarded as cost-minimisers or profit-maximisers. However, this paper takes a behavioural economics perspective which suggests that building construction stakeholders are 'satisficers' – they try to find a course of action that is 'good enough'. The findings show that, as a result of social norms and status quo bias, building construction stakeholders may neglect the benefits associated with green construction and stick with conventional (non-green) construction even when good information and appropriate incentives are provided.

This paper has implication for both policy (practice) and theory. For practice, the findings of this study bring to light that attention should not only be on the implementation of government policies but also to: (1) the way these policies are framed, (2) the means through which they are transmitted, as well as (3) the decision-making environment. For example, incentive policies that offer building construction stakeholders little but frequent disbursements can be more effective than those that are less visible because they are folded into subsidies. For theory, this paper provides a basis for welcoming the Behavioural Economics perspective into Construction Management research.

While this a good step towards understanding why there is a misalignment between the high-level consensus for the attainment of sustainable cities and communities, and the willingness of building construction stakeholders to adopt sustainable or green technologies, empirical studies that seeks to support, refute or modify the findings of this paper would be welcomed. It is also recommended that more research should be undertaken along the behavioural economics perspective to investigate the considerations (factors taken into account in the decision-making) of building construction stakeholders and their influence on the adoption of green construction. These studies will help to disclose how policies should be designed to break the green construction 'consensus-behaviour discrepancy'.

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