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Dimensions of Tenants' Office Leasing Behaviours: An Introductory Study

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Abstract. The greenness of office buildings is becoming a more important issue as it contributes to the sustainability of the building sector. Moreover, by leasing greener offices, tenants can be benefitted by the improved indoor environmental quality and better corporate branding attributed to its positive image. These benefits, however, often come with relatively expensive prices that tenants need to pay. Nevertheless, the sources of the price premium have not been fully explored especially from the aspect of tenants' leasing behaviours. To address this, a questionnaire survey was conducted. Then, exploratory and confirmatory factor analysis were performed to identify the underlying dimensions of tenants' leasing behaviours and to ensure their reliability and validity. The results show that tenants' office leasing behaviours must be explained by several dimensions. Also, it is found that the obtained results have a sufficient reliability and validity. These allow proceeding to the next stage of the research to explain if and to what extent the greenness level of tenants' offices and the rents they pay are influenced by various motivational variables based on the established analytical model.

1. Introduction

Since green building certification schemes such as NABERS and Green Star were introduced in Australia in the late 90's–2000's, the number of green office buildings, buildings rated over 4 Stars from either of the certification schemes, has been increased steadily nationwide. Sydney Commercial Building District (CBD), the nation's biggest metropolitan area, has led the incremental trend as it is reflected by the most significant number of both NABERS and Green Star certified buildings in its local governing area [1]. From the tenants' perspective, the increasing number of green buildings provide more opportunity to enjoy the superior indoor environmental quality (IEQ) and energy efficiency which may lead to productivity and financial gains [2]. In addition, the positive image to customers and employees allow them to brand themselves as environmentally-conscious organisations [3].

However, these benefits often come with a hefty price tag. Studies show that tenants need to pay higher prices for greener office buildings with a certification compared to the non-green counterpart [4]. This is no exception to the tenants of the Sydney CBD office market as NABERS 5 Stars certified buildings command extra rents up to 2.7 percent compared to the buildings with lower ratings [5].

Meanwhile, many of these studies also pointed out that it may not only the greenness of the buildings that contribute to the price premium. This is supported by several studies suggesting that prices of buildings may be better explained as the results of collective effects of their tangible (e.g. building quality) and symbolic (e.g. the green image) aspect [6-7]. In particular, Kim et al. [4, 8]



suggested that tenants' organisational identity, as well as values and expectations that they place on their buildings, may be helpful to explain why they are paying the premium price for the greenness of their office buildings. Nevertheless, investigation on this is very limited, especially in the Australian office market context.

2. Research Aim and Methodology

The aim of this paper is to perform an introductory study on the impact of tenants' leasing behaviours on the greenness level of their offices and rents. To this, an online questionnaire survey was designed based on the research framework [8], results of a systematic literature review and meta-analysis [4], and preliminary interviews [9]. The survey is mostly composed of the 7-point Likert-scale questionnaires asking respondents to self-report their views on a range of different questions. The survey was distributed to the key leasing decision makers (e.g. CEO, office leasing director, sustainability director, national director) of the tenants from the top three sectors occupying the Sydney CBD office market (i.e. finance and insurance sector, real estate sector, and professional, scientific and technical sector) [9]. The key leasing decisions makers were contacted because they are either directly involved in their organisation's office leasing decision or have a sufficient knowledge in the leasing decision. Eventually, 51 responses containing expert opinions on their organisation's leasing motivations were obtained. The obtained responses were analysed using exploratory and confirmatory factor analysis (EFA & CFA). To this, IBM SPSS Statistics 3.0 and SmartPLS 3 software were used.

3. Results and Discussions

3.1. Exploratory Factor Analysis (EFA)

Firstly, EFA on the obtained data was undertaken using SPSS. The primary purpose of EFA was two-folds; (i) construct extraction and (ii) variable reduction. These are to identify the underlying dimensions (or factors) of tenants' leasing behaviours and to ensure their reliability and validity. A total of 82 variables included in the questionnaire survey were assessed based on multiple criteria (e.g. KMO and Bartlett's test of sphericity, item-to-total correlations, Eigenvalue, communalities, loadings, cross-loadings, Cronbach's alpha) [10–13]. This eventually led to a reduction in the number of variables from 82 to 50. These variables are composed of total 13 constructs including the single construct that showing the level of the greenness of tenants' office buildings and their rents (Table 1).

Table 1. Categorisation of the constructs

Tangible aspect of office buildings (X1)	Building sustainability (X1 _{Blds})
	Lease contract features (X1 _{Leas})
	Building quality (X1 _{BldQ})
	Proximity (X1 _{Prox})
Symbolic aspect of office buildings (X2)	Occupant related symbolic values (X2 _{Occu})
	Organisation related symbolic values (X2 _{Orgs})
Tenants' expectations (X3)	Become a socially conscious organisation (X3 _{Soco})
	Become a sustainable organisation (X3 _{Suso})
Tenants' identity (X4)	People-focused organisation (X4 _{Peop})
	Sustainability-focused organisation (X4 _{Sust})
	Unique and approachable organisation (X4 _{Unia})
The greenness of office buildings (X5)	Greenness (X5)
Office building rents (Y)	Rent (Y)

Table 2 shows the four constructs associated with the tangible aspect of office buildings (X1) and their associated variables. The first construct (X1_{Blds}) consists of 5 variables of building lighting

quality, indoor air quality (IAQ), acoustic quality, water efficiency, and environmental performance (e.g. CO₂ emissions). All these variables are closely related to the sustainability aspect of an office building as it is reflected by the NABERS certification for office buildings [14]. The next construct (X1_{LEAS}) consists of four variables which are all closely related to lease contract features. The third construct (X1_{BLDQ}) contains three variables of office space size, building amenities (e.g. provision of end of the trip facilities, bicycle racks). and building grades (e.g. Premium, A, B and C) which all reflect building quality. The importance of this construct could be highlighted by the responses obtained from the preliminary interview that tenants leased their current offices because they ‘tick the boxes’—reflecting that green buildings in Sydney CBD are also the high-quality buildings [9]. Lastly, the fourth construct (X1_{PROX}) only consists of two variables of proximity to major roads and to major competitors. This highlights the importance of accessibility and may indicate the existence of the ‘urban agglomeration’ that similar businesses within the CBD tend to cluster together. Collectively, the results show that the variables used to assess tenants’ motivation towards the tangible aspect of office buildings (X1) could be explained based on the above-mentioned four constructs.

Table 2. Factor matrix for the tangible aspect of office buildings (X1)

	X1 _{BLDS}	X1 _{LEAS}	X1 _{BLDQ}	X1 _{PROX}
TA14_Building's lighting quality	.812			
TA15_Building's indoor air quality	.801			
TA13_Building's acoustic quality	.747			
TA17_Building's water efficiency	.718			
TA18_Building's environmental performance	.712			
TA23_Lease pre-commitment		.799		
TA22_Lease type		.769		
TA24_Build-out		.757		
TA21_Lease term		.748		
TA6_Office space size			.786	
TA11_Building's amenities			.785	
TA9_Building's grade			.763	
TA3_Proximity to major roads				.874
TA5_Proximity to major competitors				.833

Table 3 shows the symbolic aspect of office buildings (X2) which consists of two constructs, namely, occupant related symbolic values (X2_{OCCU}) and organisation related symbolic values (X2_{ORGS}). The variables associated with the first construct (X2_{OCCU}) well-reflect the interests of building occupants (e.g. employees) as these often influence their job satisfaction and performance [15]. This is further supported by the findings of preliminary interviews that the provision of employee benefits by finding more occupant-friendly offices is one of the key considerations for many organisations. Meanwhile, the second construct (X2_{ORGS}) is rather closely related to the interests and the demand of organisations themselves. For instance, the cutting-edge image of an organisation's office building may help them to be perceived as an innovator in their business, not a follower.

Table 3. Factor matrix for the symbolic aspect of office buildings (X2)

	X2_{OCCU}	X2_{ORGS}
SY6_Aesthetically pleasing office environment	.839	
SY7_Employee-friendly office environment	.832	
SY1_Comfortable office environment	.810	
SY10_Healthy office environment	.669	
SY8_Collaborative office environment	.594	
SY11_Office environment with cutting-edge technologies		.821
SY9_Environmentally-friendly office environment		.811
SY14_Office environment that well-reflects the corporate identity		.710
SY13_Office environment to attract future employees		.681

It is found that two constructs were extracted from the variables measuring tenants' expectations (X3) (Table 4). The first construct (X3_{SOCO}) represents the tenants' expectation to become a socially conscious organisation as these variables are well aligned with the Corporate Social Responsibility (CSR) of organisations and its impacts on stakeholder relations [16]. The other construct (X3_{SUSO}) refers to the tenants' expectations to become a sustainable organisation. This construct covers a range of expectations related to Corporate Sustainability (CS) which could be described as meeting the needs and interests of direct, indirect, and future stakeholders while contributing to the three domains of sustainability; i.e. environmental, economic, and social sustainability [17-18]. This is also supported by the findings of the preliminary interview that 'Keeping up with the Joneses' was one of the leasing motivators for tenants in a competitive industry [9].

Table 4. Factor matrix for the tenants' expectations for their offices (X3)

	X3_{SOCO}	X3_{SUSO}
EP9_Innovative organisation	.938	
EP10_People-first organisation	.893	
EP12_Flexible organisation	.888	
EP8_Trustworthy organisation	.883	
EP13_Publically well-known organisation	.851	
EP14_Approachable organisation	.818	
EP6_Collaborative organisation	.789	
EP7_Ethical organisation	.767	
EP11_Fair organisation	.728	
EP5_Environmentally friendly organisation		.897
EP2_Fast follower organisation		.861
EP3_Socially responsible organisation		.815

Table 5 shows the matrix for tenants' organisational values that reflecting their identity (X4). The first construct (X4_{PEOP}) includes a range of variables related to the values promoted by people-friendly organisations. These include the values associated with the organisation's current employees as well as their customers and potential employees. The second construct (X4_{SUST}) explains the tenants' identity as a sustainable organisation. All associated four variables of this construct are well-aligned with the triple bottom line of sustainability. Moreover, a variable of acknowledgement is well-supported by the interview findings that one of the biggest motivators for leasing a 'certified' green building is to be acknowledged by others as a sustainability-focused organisation. Meanwhile, the last construct (X4_{UNIA}) represents the tenants' identity as a unique and approachable organisation. It should be noted

that the community variable is cross-loaded across the first and third construct. However, considering the gap between the two loadings are over 0.2 [12], the cross-loading can be disregarded.

Table 5. Factor matrix for tenants' organisational values (X4)

	X4_{PEOP}	X4_{SUST}	X4_{UNIA}
OV13 Customer satisfaction	.875		
OV1 Leadership	.805		
OV14 People (Employee)	.798		
OV8 Innovation	.777		
OV5 Openness	.776		
OV4 Teamwork	.751		.485
OV15 Community (Corporate Citizenship)		.898	
OV10 Social responsibility		.894	
OV12 Environmental sustainability		.791	
OV16 Acknowledgement		.741	
OV17 Uniqueness			.865
OV18 Approachability			.803

Lastly, the level of the greenness of tenants' office buildings (X5) extracted only a single construct (Table 6). This is because only two variables (i.e. NABERS and Green Star ratings) were used to assess the level of the greenness. This is consistent with the dependent variable of this research (Y), rent, that used a single variable. Nevertheless, all these two variables meet the requirements to be used for the subsequent stages of the analysis.

Table 6. Factor matrix for the greenness of tenants' offices (X5)

	X5
NABERS ratings	.884
Green Star ratings	.884

3.2. Confirmatory Factor Analysis (CFA)

Upon the successful removal of irrelevant (or inconsistent) variables and extraction of the constructs through EFA, CFA was undertaken based on the analytical model of the research (Figure 1). The established analytical model depicts the hypothesised relationships among the constructs identified through the EFA procedure. As a part of CFA, internal consistency reliability and construct validity of the retained data were assessed as it is recommended by Hair et al. [19]. Firstly, the results show that the retained data have a sufficient level of internal consistency reliability as all the constructs meet the required value of Cronbach's alpha and composite reliability of 0.7 or above. This confirms that variables loaded as the same construct measure the same factor (or dimension). Then, construct validity of data was evaluated. To this, assessments of convergent validity and discriminant validity were undertaken. Convergent validity indicates which two measures are related to each other, thus capture a common construct [20]. Firstly, it is found that Average Variance Extract (AVE) of all the constructs involved in the model meet the recommended thresholds of 0.5 or above. Moreover, the size of loadings, commonly known as indicator reliability, are all above the recommended 0.7 thresholds. These all confirm the establishment of convergent validity. Lastly, discriminant validity was assessed. To establish discriminant validity, correlations between variables related to each other must be higher than variables from other constructs that are theoretically meant not to correlate [21]. Assessments on discriminant validity were undertaken based on several approaches including cross-loadings, Fornell-Larcker criterion, and Heterotrait-Monotrait (HTMT) ratio of correlations. The results show that the variables used in the analytical model are not cross-loaded across different constructs. Moreover, the results of both Fornell-Larcker criterion and HTMT ratio of correlations

deemed as satisfactory. Therefore, it can be confirmed that the model and its variables have no discriminant validity issues.

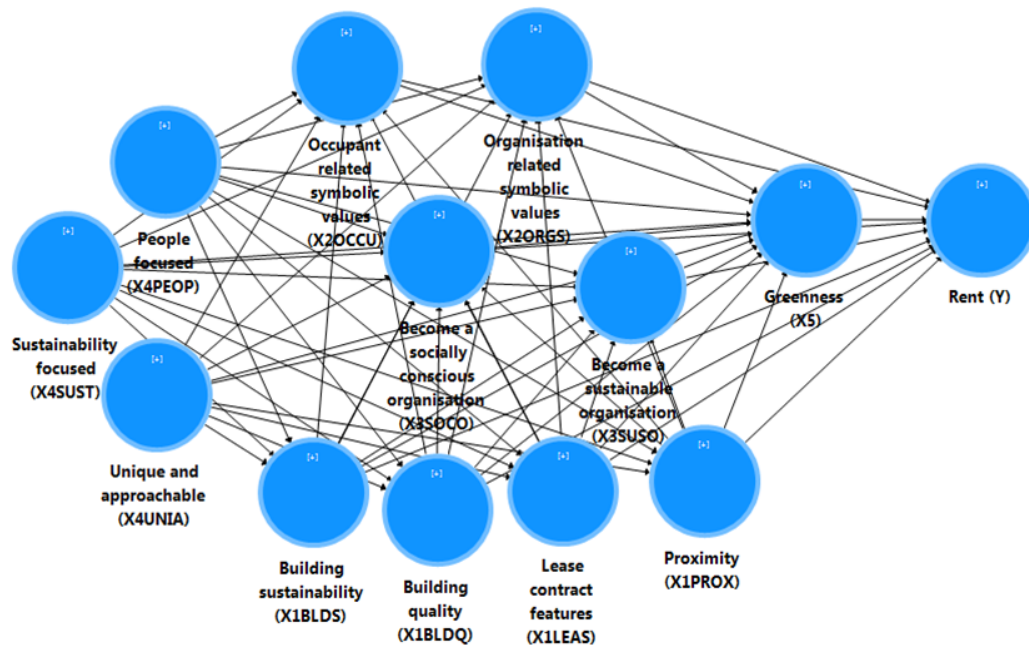


Figure 1. Analytical model of the research

4. Conclusion

The results of the analysis identified several underlying dimensions of tenants' office leasing motivators. Moreover, the internal consistency reliability and the construct validity of data were established. Collectively, these allow proceeding to the subsequent stages of the research to analyse the impact of tenants' behaviours on the level of the greenness of their offices and rents they pay using the developed analytical model.

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