

THE IMPACT OF THE FLIGHT TO QUALITY ON OFFICE RENTS AND VACANCY RATES IN TOKYO

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ARTICLE INFO	ABSTRACT
Keywords: flight to quality, amenities, office rent, vacancy rate, propensity score	With the rapid spread of telecommuting since the COVID-19 pandemic, companies have been relocating to high-end business centers, thereby enhancing the workplace experience for employees, a phenomenon called the "flight to quality." However, this trend's impact on rents and vacancy rates in individual office buildings has not been extensively studied. To determine the effects of the flight-to-quality phenomenon on individual buildings, we examine the impact of modern amenities, which directly influence employee lifestyles, on rents and vacancy rates in the Tokyo office market. Using a propensity score-based quasi-experimental method, we find that commercial properties with such modern amenities command higher rents and experience lower vacancy rates than those without. The difference in vacancy rates has increased since 2020. However, the significance of these amenities diminishes for properties less competitive in age, size, and location. The results indicate that the "flight to quality" may further polarize the office real estate market into two categories: one for high-end buildings experiencing increasing demand, and another for those with modest amenities experiencing decreasing demand. The findings have implications for office building owners/investors and the government, make educated decisions as to whether to invest in modern amenities, join the quality competition, or encourage urban restructuring.
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1. Introduction

Mandatory telecommuting during the pandemic made organizations realize its benefits, encouraging the hybrid work model (Van Nieuwerburgh, 2023). Contextually, many companies are relocating to high-quality buildings to encourage employees to work more comfortably and productively from offices (CBRE, 2022). This trend, known as the "flight to quality," has been noted in many countries, including the United States (U.S.) and Europe, becoming a global trend (Cushman and Wakefield, 2023a; Deloitte, 2022; Jones Lang LaSalle, 2021). However, to date, "flight to quality" discussions have focused on the macro trend of office demand concentrated in high-end corporate buildings, with limited research being conducted on the trend's impact on individual office buildings.

Therefore, the purpose of this study is to clarify the impact of the "flight to quality" on rents and vacancy rates in individual office buildings.

According to Jones Lang LaSalle (2022), the "flight to quality" has led to market polarization, as high-end buildings are in high demand while others suffer from high vacancies. Brookfield (2022) notes that, under these circumstances, office building owners compete for "quality," making capital investments to improve their property's quality, converting them into retail spaces, hotels, and commercial or industrial buildings, or otherwise, accept high vacancy rates.

The aforementioned concept is also relevant to the regional economy. Barrero et al. (2021) show a dip in employee spending in larger urban centers by 5–10% owing to telecommuting, which could also be

associated with office attendance and high vacancy rates. Since the COVID-19 pandemic broke out, office vacancies have increased around the world. In some areas, especially in the U.S., vacancy rates exceed 20% (Jones Lang LaSalle, 2023). Furthermore, as of January 2022, office attendance rates varied widely by country and region, ranging from 40% to 80% compared with pre-pandemic levels (Sakuma et al., 2024). A future in which everyone returns to the office is no longer conceivable. However, if the "flight to quality" brings employees back to the office, their consumption demands and spendings may increase in the neighborhoods where high-quality buildings are located.

In the Tokyo office market - the subject of this study, the vacancy rate for Class A buildings has risen from 0.6% before the pandemic to 6.7% in the third quarter of 2023, with rents also exhibiting a downward trend (Figure 1). With the supply of large-scale office buildings scheduled to continue, building owners persist in searching for ways to attract tenants.

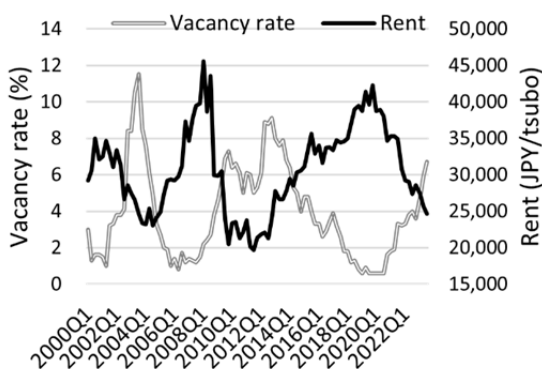


Fig. 1. Class A office rent and vacancy rate in Tokyo's five central wards. Source: Sanko Estate (2023).

This study is the first in the literature to unravel the impact of the recent phenomenon of flight to quality with a focus on modern amenities, which directly affect the office worker's lifestyle in the workplace, thus providing valuable information for office building evaluation and strategy development.

The remainder of this paper is structured as follows. Section 2 summarizes the existing literature, and Section 3 describes the dataset and methods. Section 4 reports the results, and Section 5 presents the discussion. Finally, Section 6 provides the conclusions.

2. Literature review

2.1. Concept of the flight to quality

"Flight to Quality" is not a new concept. However, there has been a change in the need for quality. In

their office market analysis, Vandell & Lane (1989) were probably the first to examine this phenomenon, finding that structures rated in the top 20% for design quality extracted almost 22% higher rents than those in the bottom 20%. However, they could not confirm the "flight to quality" hypothesis that buildings with better design features are selected and have fewer vacancies during market downturns.

Fuerst et al. (2015) tested this hypothesis as a risk-averse behavior during the financial crisis, proving that during market downturns, there is a flight to low-risk, high-quality Class A buildings instead of riskier, low-quality non-Class A ones, widening the price gap between the two. Gubareva and Borges (2013) define the "flight to quality" as an underperformance of a risky asset's total return due to an investment shift from risky to safe assets.

The "flight to quality" in the office real estate market during the COVID-19 pandemic differs from that in the 2010s and is similar to the hypothesis of Vandell and Lane (1989). The recent "flight to quality" aims not to avoid risk but to improve employee satisfaction. Cushman and Wakefield (2023a) describe the phenomenon during the pandemic as a behavior in which tenants seek to create a culture providing the best workplace experience as they compete for the finest talents. Additionally, Cushman and Wakefield (2023b) listed seven features of high-quality buildings considered escape destinations: location, amenity-rich neighborhoods, space versatility, modernity, wellness and lifestyle amenities, outdoor space, and activation. They also suggest that buildings with high amenities have a rent premium of 11–22% compared with the average submarket. However, these studies need to be more detailed.

2.2. Amenities as determinants of office rents

Amenities are an important factor in the attractiveness of a property and have a significant impact on property prices or rents. In particular, office buildings are more individualized than residential ones, and owners add various amenities to make their buildings more attractive. Therefore, controlling for the presence of various amenities when analyzing prices and rents is crucial. Numerous studies incorporate parking facilities, restaurants, meeting rooms, lobbies, healthcare facilities, stores and banks as dummy variables in their models (Bollinger et al., 1998; Cervero & Susantono, 1999; Clapp, 1980; Hough & Kratz, 1983; Mills, 1992; Öven & Pekdemir, 2006). However, these data are sometimes unavailable.

Additionally, owing to the multicollinearity risk of incorporating a vast number of amenities individually as independent variables, researchers have used dummy variables set to 1, in the presence of any one of several amenities (Chegut et al., 2014; Eichholtz et al., 2010), variables leveled by the amount of service that can be received (Glascok et al., 1990; Ryan, 2005), the number of available amenities as a variable (Fuerst, 2007), and the percentage of common areas as a proxy variable (Frew & Jud, 1988; Slade, 2000).

Amenities have been perceived in different ways, with several studies classifying them as neighborhood (Vandell, 1995), on-site (Eichholtz et al., 2010), firm, and worker amenities (Sivitanidou, 1995). Neighborhood amenities include the office's proximity to nearby restaurants, retail stores, banks, public facilities and train stations, representing various accessibility factors. Pivo & Fisher (2011) use the walkability score as a proxy variable for neighborhood amenities, showing a positive relationship between walkability and rent. Neighborhood amenities are shared among neighboring office buildings and thus, have a solid public element. By contrast, on-site amenities are private, as their benefits are restricted to tenants in the building and work as a differentiating factor from neighboring office buildings.

Firm amenities enable firms to benefit from increased productivity, reduced operating costs, and advertising. Sivitanidou (1995) indicates firm amenities using the distance to CBDs, highways and airports. Green certification may also be considered a firm amenity if the main objective is to fulfill corporate social responsibility. Worker amenities enhance employee utility and may include education quality, neighborhood crime rate and accessibility to service facilities (Sivitanidou, 1995). Worker amenities are similar to the walkability index. In terms of accessibility to service facilities, on-site amenities could also be considered a type of worker amenity if they provide services to employees.

Based on the aforementioned studies, Figure 2 organizes amenities along two axes. Neighborhood amenities are exogenous, making it difficult for an existing owner to make significant changes through capital investment. However, on-site amenities are variable and controllable by the property owners. Furthermore, there is a growing interest in providing utility to employees rather than to firms in the "flight to quality" era. Therefore, this study focuses on on-site worker amenities that are changeable by property owner decisions, providing direct options for

employees.

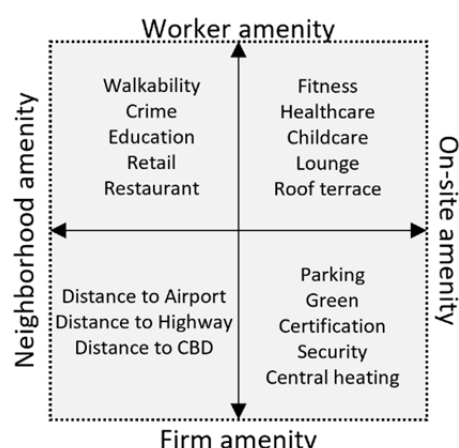


Fig. 2. Classification of Amenities. Source: our study.

3. Material and methods

This study examines the phenomenon of the "flight to quality" in the Tokyo office market using a dataset owned by Sanko Estate Co., an office brokerage firm in Japan. To investigate whether modern amenities are present, the survey was limited to 375 standard rental office buildings in Tokyo's five central wards, with single and total floor areas of at least 200 tsubos¹ per floor and 3,000 tsubos², respectively. Standard rental office buildings exclude company-owned buildings and those with only one tenant. The analysis period covers the first quarter of 2015 to the fourth quarter of 2022, and includes quarterly information on rentable floor space and vacancy rates. Vacancy rate data is in the form of balanced panel data, with a total sample size of 10,138. We use asking rent for rent data, as it reflects the price offered by the lessor, differing from contracted rent and the equilibrium price in the actual market. The sample size is 5,351, smaller than the vacancy rate data, as it includes only those properties with disclosed asking rents.

In this study, the variable of interest is modern amenities, including on-site service facilities for employees of the tenants in the building such as lounges, rooftop terraces, fitness centers, and

¹ "Tsubo" is a unit of land measurement unique to Japan. One tsubo represents approximately 3.3 m².

² A floor area of 200 tsubos or more is the definition of a large office building for Sanko Estate Co. A total floor area of 3,000 tsubos or more is the definition of a large office building used by several firms in the Japanese office market. Furthermore, the 3,000 tsubo requirement also approximates the 10,000 m² used by the government to identify large-scale developments (Kawai et al., 2019).

childcare. These facilities fall under "versatility of space," "wellness and lifestyle amenities," "outdoor space," and "activation" in Cushman and Wakefield's (2023b) classification. In this study, these facilities are referred to as "modern amenities," a dummy variable that takes 1 if any of these are present and otherwise 0. This variable was created by examining the details of each building based on brochures and other information on each property held by the brokerage. See Appendix B for more details.

We estimate the effects of modern amenities using a hedonic approach. Using the log-transformed asking rent or vacancy rate of property i at time t as the

explained variable, Y_{it} a regression model is formulated as in Equation (1).

$$Y_{it} = \alpha_0 + \sum_{k=1}^K \alpha_k X_{it,k} + \alpha_{MA} MA_{it} + \varepsilon_{it} \quad (1),$$

where MA_{it} is a dummy variable for the presence of modern amenities, and $X_{it,k}$ is the k th control variable, which includes the Table 1 variables. ε_{it} and α_0 are the error and constant terms, respectively, and α_k and α_{MA} are the explanatory variable coefficients. α_{MA} being positively significant indicates the presence of rent or vacancy premiums for modern amenities.

Table 1

Description of variables		
Variable	Unit	Details
Modern amenity	Dummy	Takes 1 if there are modern amenities
Seismic performance	Dummy	Takes 1 if seismic performance (vibration control and seismic isolation) is present
Green label (Rank 1)	Dummy	Takes 1 if Rank 1 green certification is obtained
Green label (Rank 2)	Dummy	Takes 1 if Rank 2 green certification is obtained
Green label (Rank 3)	Dummy	Takes 1 if Rank 3 green certification is obtained
Walk time to station	min.	Walking time to the nearest station (min.)
Number of accessible train lines	Lines	Number of accessible rail lines within 500m (lines)
On-site traditional amenities	Dummy	Takes 1 if there are traditional amenities (hotels and restaurants) in the building
Neighborhood leasable space	Tsubos	Total rentable floor area within 500m (logarithm and tsubo)
Neighborhood restaurants	Restaurants	Number of restaurants within 500m (logarithm)
Floors	Floors	Number of floors above ground (logarithm and floors)
Area per floor	Tsubos	Area per floor (logarithm and tsubo)
Age	Year	Age of building (years)
Wards	Dummy	Each ward
Quarter	Dummy	Each quarter

Source: authors' own study. See Table A-1 in the Appendix for Green-label rank classifications.

To examine the "flight-to-quality" phenomenon regarding modern amenities, addressing selection bias is crucial, considering that high-quality buildings are more likely to be granted modern amenities. Therefore, this study uses propensity scores, which are widely used in the context of the economic benefits of green buildings (Chegut et al., 2014; Eichholtz et al., 2013; Onishi et al., 2021). The propensity score is the probability that an individual fits into a treatment group under a given set of covariates. In this study, the propensity score is defined as the probability of investing in modern amenities and is estimated based on logistic regression using the same explanatory variables as in Equation (1). We use two types of propensity score-based sample adjustment methods: propensity score matching (PSM) and propensity score weighting (PSW).

PSM is a well-recognized sample adjustment

method that was applied here to match properties with and without modern amenities using propensity scores. The matched data are balanced samples of covariates, with few differences other than the presence or absence of modern amenities. Therefore, the difference between the two groups' average rent and vacancy rate is the average treatment effect on the treated (ATT). However, as characteristics cannot be fully considered in the average difference for highly individualized data (Onishi et al., 2021), we estimate the ATT using the hedonic model in Equation (1) for the matched data.

PSW is a method that approximates the control group sample to the treatment group by assigning greater weights to samples without modern amenities as the propensity score increases. PSM excludes samples that do not match, whereas PSW uses all samples in its estimations.

4. Results

4.1. Propensity score and sample adjustment

First, we estimate propensity scores using a logistic regression model. Table 2 presents results with the modern amenity dummy as the explained variable. It indicates that the propensity score, that is, the probability of investing in modern amenities, is higher for recently built, larger, high-rise commercial buildings with seismic performance, the highest green certification, more concentrated office space and better train accessibility.

Next, we summarize the sample bias for properties with and without modern amenities. Table 3 presents the mean and standardized mean difference (SMD) for each covariate for properties with (treated) and without (control) modern amenities. The full, matched, and weighted samples represent samples without

sample adjustment, with propensity score-based one-to-one nearest neighbor matching, and with weighted statistics based on PSW, respectively.

Table 2

Results of logistic regression			
	Coeff	t-value	
(Intercept)	-13.45	-15.66	***
Seismic performance	0.32	3.72	***
Green label (Rank 1)	-1.53	-10.02	***
Green label (Rank 2)	-0.12	-1.24	
Green label (Rank 3)	0.71	9.81	***
Walk time to station	-0.01	-0.42	
Number of accessible train lines	0.02	2.64	***
On-site traditional amenities	0.38	4.55	***
Neighborhood leasable space	0.19	3.09	***
Neighborhood restaurants	-0.09	-1.82	*
Floors	0.65	8.43	***
Area per floor	1.16	17.83	***
Age	-0.01	-4.10	***

Source: authors' own study. The explained variable is a dummy variable for modern amenities. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3

Sample bias between treatment and control groups								
Full sample				Matched sample			Weighted sample	
Mean		SMD		Mean		SMD	Mean	
Treated	Control			Treated	Control		Treated	Control
Seismic performance	0.75	0.49	0.62	0.72	0.72	0.02	0.75	0.73
Green label (Rank 1)	0.02	0.13	-0.71	0.03	0.03	0.00	0.02	0.02
Green label (Rank 2)	0.09	0.09	0.00	0.10	0.11	-0.02	0.09	0.10
Green label (Rank 3)	0.32	0.10	0.46	0.27	0.28	-0.02	0.32	0.32
Walk time to station	2.70	3.09	-0.20	2.80	2.91	-0.06	2.70	2.86
Number of accessible train lines	6.69	5.36	0.26	6.67	6.55	0.02	6.69	6.63
On-site traditional amenities	0.84	0.62	0.61	0.83	0.83	-0.01	0.84	0.85
Neighborhood leasable space	12.31	12.16	0.23	12.29	12.27	0.03	12.31	12.27
Neighborhood restaurants	5.56	5.52	0.06	5.55	5.49	0.09	5.56	5.49
Floors	3.28	2.99	0.60	3.25	3.25	0.00	3.28	3.27
Area per floor	6.49	6.16	0.69	6.45	6.43	0.03	6.49	6.48
Age	14.45	20.16	-0.47	15.26	15.22	0.00	14.45	14.92
n	1964	8174		1762	1762		1964	8174

Source: authors' own study. SMD stands for standardized mean difference, which is the distance between the two group means. In general, when the SMD is less than 0.1, we consider that there is no difference in the means between the groups and interpret the results as balanced. Treated and control represent a group of properties with and without modern amenities, respectively.

In the full sample, the covariates' SMD's absolute value between the treated and control groups is greater than 0.1, which is a threshold for declaring imbalance (Stuart et al., 2013). Contrastingly, all covariates' SMDs in the matched and weighted samples, adjusted using propensity scores, are less than 0.1, indicating that the treated and control groups are well-balanced.

4.2. Rent and vacancy rate premium of modern amenities

Table 4 presents the estimation results of the three methods for rents and vacancy rates. Columns (1) to (3) show that the impact of modern amenities on rents is approximately 6–7%. Consistent with previous literature on green buildings' economic effects (Robinson & Sanderford, 2016), these estimates do not deviate significantly between ordinary least squares (OLS) without sample adjustment and PSM

and PSW with it. Similarly, this can be observed in Columns (4)–(6), with the vacancy rate as the explained variable. The effect of modern amenities on vacancy rates ranges from -0.8 to -0.9 percentage points and, as with rents, is significant, showing slight variation, indicating that the presence of modern amenities tends to raise rents, making buildings more attractive for tenants.

4.3. Trends and heterogeneity of modern amenity premium

While the previous section's results indicate that modern amenities significantly impact rents and vacancy rates, the effects may be heterogeneous across market conditions and building characteristics.

Figure 3 shows the estimated coefficients for modern amenities using PSM by year. Modern amenities' rent premium is significantly positive at a 5% significance level, except in 2019, as the overall market had meager vacancy rates, which may have caused rents to skyrocket, thus weakening the presence or absence of modern amenities' function as

a differentiating factor. The impact of modern amenities on vacancy rates was not significant until 2019. However, it became non-significant at the 5% level in 2020, with the negative impact growing since then. Estimates as of 2022 indicate that properties with modern amenities have a 2.3 percentage point lower vacancy rate than those without, which could be evidence that the deteriorating market conditions during the pandemic and the "flight to quality" associated with the proliferation of hybrid work are increasing the demand for properties with modern amenities.

Next, we clarify the stratified premium heterogeneity by classifying the sample into five clusters using high and low propensity scores. Cluster 1, with a bottom-20% propensity score, has, on average, older, mid-rise office buildings located far from the station. Cluster 5, with a top-20% propensity score, contains many new high-rise office buildings, located closer to the station (Figure 4).

Table 4

Regression model results for rents and vacancy rates																				
		(1)			(2)			(3)			(4)			(5)			(6)			
Dependent variable	log(Rent)			log(Rent)			log(Rent)			Vacancy rate			Vacancy rate			Vacancy rate				
	method			OLS			PSM			PSW			OLS			PSM			PSW	
	Coeff	t-value		Coeff	t-value		Coeff	t-value		Coeff	t-value		Coeff	t-value		Coeff	t-value			
(Intercept)	7.33	123.79	***	7.04	62.09	***	6.93	111.63	***	-0.029	-1.60		0.012	0.33		0.018	0.88			
Modern amenity	0.06	11.65	***	0.07	10.28	***	0.06	18.09	***	-0.009	-4.97	***	-0.008	-3.36	***	-0.009	-6.90	***		
Seismic performance	0.05	9.03	***	0.07	6.97	***	0.05	8.10	***	0.008	4.08	***	0.005	1.49		0.004	1.99	**		
Green label (Rank 1)	-0.01	-0.95		0.06	3.68	***	0.08	7.62	***	0.004	1.63		0.012	1.57		0.014	3.01	***		
Green label (Rank 2)	-0.03	-3.80	***	-0.05	-4.96	***	-0.04	-6.94	***	0.004	1.57		0.005	1.19		0.007	2.84	***		
Green label (Rank 3)	0.02	3.62	***	0.02	2.78	**	0.02	3.38	***	-0.002	-1.10		0.001	0.29		0.000	0.04			
Walk time to station	-0.02	-20.33	***	-0.01	-8.46	***	-0.01	-12.92	***	0.001	4.20	***	0.001	1.86	*	0.001	3.96	***		
Number of accessible train lines	0.00	9.00	***	0.00	2.29	*	0.00	3.69	***	0.000	2.10	**	0.000	-0.18		0.000	0.28			
On-site traditional amenities	0.01	1.65		-0.03	-2.66	**	-0.03	-4.01	***	0.000	-0.11		-0.003	-0.73		0.002	0.96			
Neighborhood leasable space	0.15	34.61	***	0.17	21.82	***	0.17	40.49	***	-0.003	-2.34	**	-0.004	-1.73	*	-0.005	-3.86	***		
Neighborhood restaurants	0.07	22.55	***	0.08	13.76	***	0.10	30.83	***	0.003	2.56	**	0.007	3.58	***	0.008	7.20	***		
Floors	0.09	16.81	***	0.11	12.85	***	0.10	21.02	***	0.000	0.14		-0.004	-1.36		-0.004	-2.49	**		
Area per floor	0.09	19.55	***	0.10	12.22	***	0.09	21.03	***	0.011	6.84	***	0.006	2.24	**	0.008	4.90	***		
Age	0.00	-16.50	***	0.00	-10.20	***	0.00	-17.55	***	0.000	1.05		0.000	0.69		0.000	1.08			
Adj. R ²	0.725			0.708			0.718			0.070			0.060			0.072				
n	5,351			1,774			5,351			10,138			3,524			10,138				
Rate	0.21			0.50			0.21			0.19			0.50			0.19				

Source: authors' own study. The explained variables are log rents in Columns (1)–(3) and vacancy rates in Columns (4)–(6). OLS means ordinary least squares; PSM means propensity score matching; and PSW means propensity score weighting. Rate represents the percentage of properties with modern amenities in each sample. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

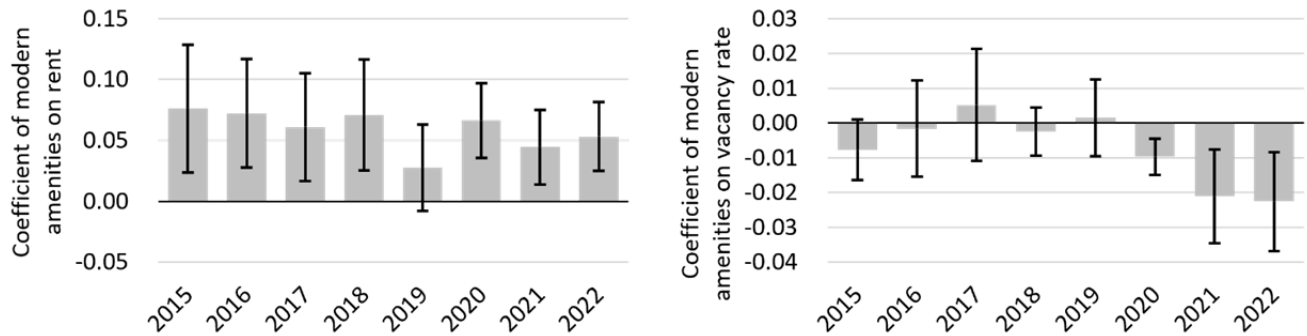


Fig. 3. Time trends in the impact of modern amenities on rents and vacancy rates. *Source:* authors' own study. Results are based on PSM applied to data by year. Error bars represent 95% confidence intervals. (2-column)

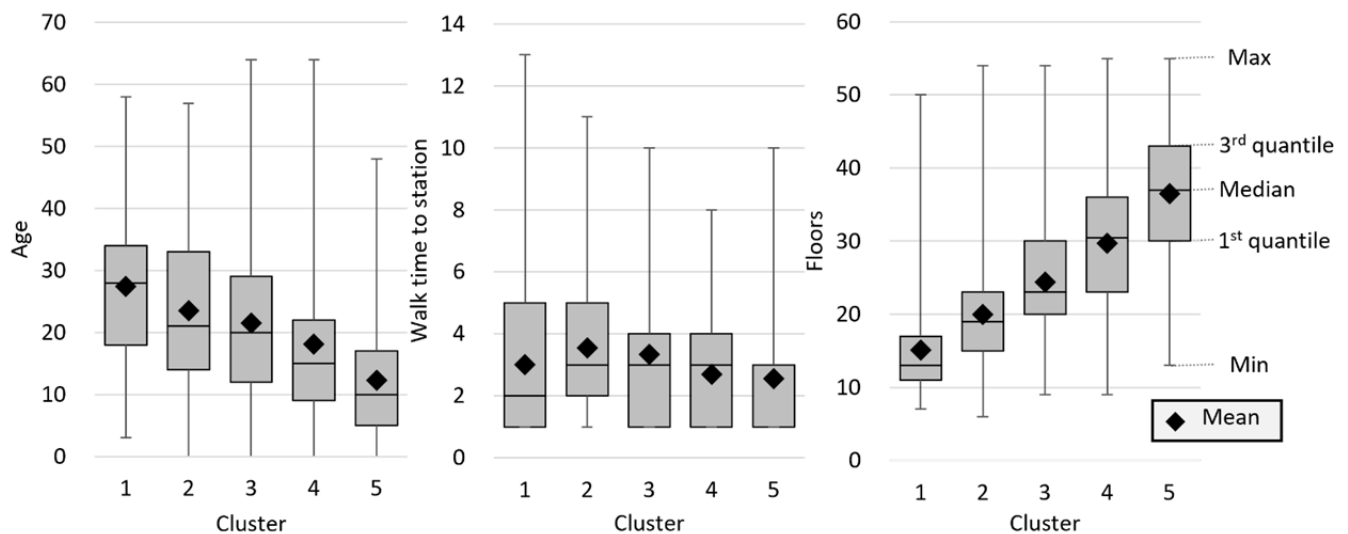


Fig. 4. Box plots of building attributes by cluster.

Source: authors' own study. Clusters are classified in descending order of propensity scores: Cluster 1- bottom 20%, Cluster 2- bottom 20–40%, Cluster 3- bottom 40–60%, Cluster 5 top 20–40 %, and Cluster 5 top 20%. (2-column)

Because each cluster is a sample of office buildings with close propensity scores, the effect of covariate bias is smaller. Therefore, we use OLS to estimate the impact of modern amenities on each cluster (Figure 5). The results reveal a negative or insignificant impact of modern amenities on properties with low propensity

scores. The impact on rents is most significant for Cluster 3, approximately 9%, with the impact for Clusters 4 and 5 being 2.9% and 4.9%, respectively. Vacancy rate effects are significant at the 5% level only for Clusters 4 and 5, with percentage points of 1.36 and 0.68, respectively.

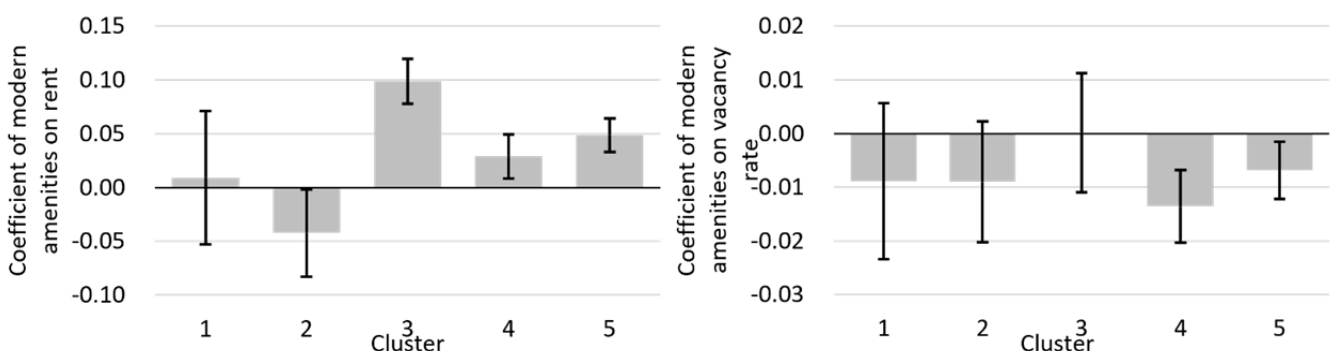


Fig. 5. Coefficient of modern amenities per cluster.

Source: authors' own study. Clusters are classified in descending order of propensity scores: Cluster 1- bottom 20%, Cluster 2- bottom 20–40%, Cluster 3- bottom 40–60%, Cluster 5 top 20–40 %, and Cluster 5 top 20%. Error bars represent 95% confidence intervals. (2-column)

Variances in the impact of different clusters may be related to each office building's competitiveness in the market, the quality of the amenities, and their degree of diffusion. Less competitive properties in terms of location, size, and newness may not add value through modern amenities. However, highly competitive properties are generally equipped with modern amenities and state-of-the-art facilities. Therefore, such amenities may not be considered a strong differentiating factor within a cluster. This trend is consistent with some findings from green building-related arguments (Onishi et al., 2021; Robinson & McAllister, 2015). Modern amenities' quality may differ significantly between buildings in Clusters 1 and 2 and those in Cluster 5. Larger office buildings may have larger-scale lounges or rooftop terraces. However, the quality of amenities in office buildings in Cluster 1 is likely to be inferior to those in Cluster 5. Therefore, modern amenities may be evaluated not only by their existence, but also by their "quality."

5. Discussion

Based on the empirical analysis results described above, this study provides micro-data-based insights into the "flight-to-quality" phenomenon in the office real estate market, which is being discussed worldwide.

We find that the presence or absence of modern amenities significantly increased divergence in vacancy rates during the post-pandemic market downturn, indicating that firms prefer office space with modern amenities, thus supporting the "flight-to-quality" phenomenon. Considering that the vacancy rate level in the Tokyo office real estate market is among the lowest in the world (Japantimes, 2023; Jones Lang LaSalle, 2023), there may be more significant divergences present in other markets. However, the causes of the "flight to quality" must be discussed. During the financial crisis, this phenomenon was caused by investment orientation changes brought about by the market slump. However, the recent "flight to quality" is strongly associated with changes in working styles, though there is still a possibility of the market slump causing it. These identifications will become more apparent after the market upturn. Therefore, monitoring the divergence in vacancy rates associated with the presence or absence of modern amenities' is essential.

Furthermore, our study shows that the modern amenity premium is as heterogeneous as the green premium. Additional investment-related quality

improvements are ineffective for less competitive properties. This result may be related to the quality of the amenities. Competitive, high-quality office buildings are more likely to have large, sophisticated amenities associated with them, which may attract more tenants and lead to increased premiums. However, the relationship with quality has yet to be fully discussed, owing to data limitations.

Finally, these results do not completely rule out the existence of potential bias. To ensure the robustness of the results, it is essential to expand the study scope and apply quasi-experimental methods other than propensity scores.

6. Conclusions

As hybrid work practices gain momentum worldwide, companies are adopting the concept of the "flight to quality" to improve employee workplace experiences, indicating companies' willingness to respond to changes in work practices prompted by the pandemic, and this approach is expected to spread in the future. With the expected long-term decline in the demand for commercial space (Florida et al., 2023; Hensher et al., 2023), building owners will have to choose between exiting the market or providing competitive quality. However, more information is needed to make these decisions.

In this study, we assumed that office building quality, emphasized in the "flight-to-quality" phenomenon, is represented by the presence or absence of modern amenities, which empirically and multidimensionally shows its effects on rents and vacancy rates in the Tokyo office real estate market. The results indicate that the presence or absence of amenities significantly impacts both rents and vacancy rates. Specifically, the impact on vacancy rates has increased since the pandemic, indicating that the "flight to quality" has become more pronounced. Even though this trend has only recently emerged, its future impact is expected to magnify even further.

Furthermore, modern amenity premiums vary, being lower for newer, less conveniently located, smaller, and moderately priced buildings. These results indicate that the aforementioned phenomenon may accelerate the polarization of the office real estate market into two categories: one for high-end buildings and the other for modest ones. Building owners should decide whether to enter the quality competition, depending on their property's price range and characteristics. If a quality premium cannot be expected, they may have to rebuild the building or

repurpose it.

In addition to helping owners and investors make decisions about the future of their buildings, the phenomenon may provide an opportunity to convert office stock. It may also lead governments to encourage urban restructuring by providing appropriate incentives. Discussions on the "flight-to-quality" phenomenon in the commercial real estate market have just begun. In the future, researchers need to agree on the definition of modern amenities and accumulate detailed information regarding the amenities of individual office buildings. In addition, as in the case of green building research (Leskinen et al., 2020), it is necessary to apply and analyze multiple methods from various perspectives, including but not limited to rents and vacancy rates, in markets of various countries and cities, to ensure the robustness of the results and gain a better understanding of the so-called "flight to quality" phenomenon.

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Appendix A

Various green building certifications are granted, each ranking buildings on a scale of 2 to 5. As each

certification has different objectives and evaluation items, a single building may have multiple certifications. In this study, we focus on the Development Bank of Japan (DBJ) Green Building Certification, Building-Housing Energy-efficiency Labeling System (BELS), and Comprehensive Assessment System for Built Environment Efficiency (CASBEE), which are the most widely used certifications in Japan, and aggregate the three levels of green certification based on the one that has the highest rating among the certifications obtained by each building. This classification is based on the external certification acquisition status published by Japanese real estate investment trusts, and many of them require the top two or three ranks in terms of certification results as criteria for issuing green bonds (Sumitomo Mitsui Trust Bank, 2022). For details on each certification, see Onishi et al. (2021).

Table A.1

Green certification summary and rank classification					
Type	DBJ Green Building	BELS	CASBEE		
			Architecture	Real estate	Wellness office
Rank	3	★5	★5	S	S
	2	★4	★4	A	A
		★3	★3	B+	B+
	1	★2	★2	B-	B-
		★1	★1	C	C

Source: Authors' own study.

Appendix B

We use the presence of modern amenities as a proxy variable for office building quality to estimate the "flight to quality" impact. Modern amenities include lounges, rooftop terraces, and fitness and childcare centers. Of the 376 office buildings surveyed, 92 (24.5%) have at least one of these amenities (Figure B1). A detailed breakdown shows that lounges are the most common amenities attached to 37 office buildings, followed by fitness centers and rooftop terraces in 29 and 28 office buildings, respectively. Only 15 of them have childcare centers and 13 other modern amenities (e.g., large clinics).

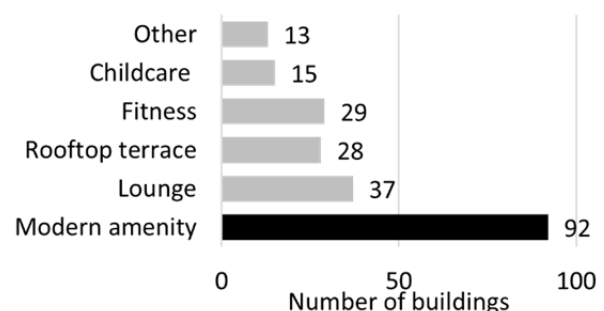


Fig. B.1. Details of modern amenities. Source: authors' our study.