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**RELATIONSHIP BETWEEN BUILDING
CHARACTERISTICS AND RENTAL TO SUPPORT
SERVICED APARTMENT INVESTMENT**

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RELATIONSHIP BETWEEN BUILDING CHARACTERISTICS AND RENTAL TO SUPPORT SERVICED APARTMENT INVESTMENT

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ABSTRACT

Apartment and serviced apartment investments in the central business district of Bangkok have been a major attraction in Thailand's real estate business. Investment decisions usually depend on income from apartment rental, which normally has been determined from demand-supply relationship. Beyond the demand-supply relationship, this paper explores other variables to support capital investment decision on building features.

Questions arise on (1) how much luxury investors should spend on building characteristics, amenities and decoration, to attract target clients, and (2) do such investments on building amenities reflect on income in proportion of capital investment, other than apartment location.

This study examines the relationship between apartment rent and building amenities, in term of types and quantity of amenities. The aim is to support decision on apartment capital investment. The data explored was collected in 2003 from apartments in central business district of Bangkok. Approximate 271 apartments and serviced apartments projects are collected from eight districts that are grouped into three zones. Building amenities studied consisting of 27 types (including parking, swimming pool, and business centre). The analyses were done in three parts: (1) analysis of frequency ranking of all amenity types, (2) analysis of relationship between amenity types and rents, and (3) regression analysis, test of correlation between rents and types of amenities. The first two Analyses compare amenities among all projects, apartments only, and serviced apartments data sets. To minimize the impact of demand-supply relationship on rent, the test of correlation between rents and types of amenity were done within each zone then compared results among them.

The analyses produced interesting results. There are seven types of amenities always on the top frequency ranking in all three sets of data. Analyzing of average rent, based on one-bedroom, reveals that apartments with any type of amenities have average rents lower than average rents of serviced apartments with any type of amenities. Correlations between rents and amenities provided are higher than those between rents and unit size. This result implies that rents are more likely to base on amenities provided rather than unit size. This research reconfirms that rent is driven by amenities provided.

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INTRODUCTION

For the past three decades, Bangkok has become as one of the busiest international business capital in Southeast Asia. Such development creates the need for accommodations ranging from daily stay, to yearly stay. Apartment and serviced apartment investments in the central business district of Bangkok have been a major attraction in Thailand's real estate business. Investment decisions of this real estate sector usually depend on income from apartment rental, which normally has been determined from demand-supply relationship.

Beyond the demand-supply relationship, many research focused on building amenities and services as other variables to support capital investment decision on building features (Guntermann & Norrbin, 1987; Sirmans, Sirmans & Benjamin, 1989, 1990). Questions arise on (1) how much investors should spend to create luxury on building characteristics, amenities and decoration, to attract target clients, and (2) do such luxury investments on building features reflect on income in proportion of capital investment, other than apartment location.

RATIONALE:

Apartment and serviced apartment have no standard to separate class and grade. Unlike hotel that have standard grade, such as one to five stars hotel. Investors who aim to invest for luxury apartment tend to put building amenities that show expensive and excessive appearance in order to appeal client and match high rent. But, is that necessary?

Building characteristics of apartment and serviced apartment can be differentiated by building amenities provided (both building amenities and service amenities), in addition to unit size, number of each unit bedroom, and number of unit per story.

Many questions arise including the followed:

- Should an apartment or serviced apartment provide as many types of amenities as possible?
- Which type of amenity is normal, which one is a must have, and which one is the least equipped?
- Do types of amenities provided reflect rent?
- Or, only location is the whole matter for rental rate?

OBJECTIVES:

The main objective of the research is to study the relationship between apartment rent and building amenities. The aim is to support decision on apartment capital investment.

LITERATURE REVIEW

Many prior apartment researches have been done to investigate several related issues. Jud, Benjamin, and Sirmans (1996) summarized these researches in the following groups: demand and supply, vacancy rates and market equilibrium, rent control, demographic determinants of apartment demand, the rent or buy decision, apartments and business cycles, hedonic analysis of apartment rents, and other influences on rents.

Many research that employed hedonic analysis and other analysis techniques have been done to explain the determination market rent by investigating substantial lists. Sirmans and Benjamin (1991) survey three areas of rent determinants including: property-specific factors; rent, rental concessions, property management, taxes and length of residency; and rent and vacancy. Among property-specific factors are amenities, services, and physical characteristics (Guntermann & Norrbin, 1987; Sirmans et al, 1989, 1990, 1994; Rosiers & Theriault, 1996) economic depreciation on aging of property (Malpezzi et al, 1987), location and distance, for examples from town center or university, characteristics of renters and their willingness to pay. Other research focuses on specific issue like apartment security (Hardin III et al, 2003), while other conducts analysis using complex characteristics on average complex rents (Smith & Islam, 1998).

Many prior research results in this area found that some amenities and services such as covered parking, swimming pool, all utilities paid and modern kitchen (built-in disposal, electrical appliances, etc.) are consistently important positive determinants to rent (Sirmans et al, 1989). However, some research results shows that characteristics such as patios, playgrounds, barbecue areas, and boat/camper parking do not have significant effects on rent (Sirmans et al, Summer, 1990). Furthermore, microwave and playground are also not significant determinants to rents (Sirmans et al, 1994). Other amenities such as designated parking, main service, and modern kitchen seem to be consistently valued by the tenant. Research focused on maintenance costs also found them having relationship with some amenities including air conditioning and additional bathrooms (Springer & Waller, 1996).

Besides reviewing previous research within the area of apartment, research in other income producing property like office building are worth study to view the ways to categorize factors in an interesting aspect. Tonelli et al (2004) summarize related research in three groups of variables: macroeconomic determinants, industry determinants, and building determinants.

Both research areas in income producing property, apartment and office, study building characteristics as determinants to rent. Build on this notion, this research further explore by using case specific data from Bangkok central business districts.

RESEARCH METHODOLOGY

The study will focus on the apartment and serviced apartment projects. The analysis will conduct on a set of secondary data from the earlier research work done by the Department of Real Estate, Assumption University. This secondary data collected was performed in the second half of 2003² (Vanichvatana, Neilson & Tongrabin, 2003). This research is sponsored by the World Bank and the Real Estate Information Centre of Thailand (REIC), Ministry of Finance. REIC has authorized of data usage.

² The data explored is from a project sponsored by the World Bank and the Real Estate Information Center of Thailand, the Ministry of Finance.

DATA:

The detail of the data is as followed:

- a) The data consist of 271 luxury grade apartments and serviced apartment projects.
- b) Collected from 8 central business districts in Bangkok. The data are grouped into three zones, as shown in Figure 1.
 - Zone A: Vadhana District and Khlong Toei District
 - Zone B: Bang Rak District, Yannawa District and Sathon District
 - Zone C: Pathumwan District, Ratchatawee District, and Phaya Thai District
- c) Dependent variable:
Rents used in this analysis are average value based on one-bedroom value. Apartment Rents of each project are collected into five unit types: studio unit type, one bedroom, two bedroom, three bedroom, and four bedroom unit types. Rents from one project with various unit types are transformed into one average value. Rents from Studio and One Bedroom unit types will be as is. Where as rents from Two Bedroom and Three Bedroom are divided by two and three, consecutively. All rents data from one project are then averaged to obtain average rent based on one-bedroom.
- d) Independent variables:
Building characteristics determinants are 27 types of Building Amenities provided.
Building Amenities:

From the previous study, apartment and serviced apartment projects can have as many as 27 types of the following amenities:

Car Park	Satellite/Cable	CNN TV
NHK Channel	Conference Room	Business Room
Guards	House Keeping	Maintenance
Laundry	Mini Mart	Coffee Shop
Restaurant	Computer/Internet Area	Salon
Library	Swimming Pool	Fitness
Sauna	Jacuzzi	Snooker
Tennis	Squash	Table Tennis
Driving Golf	Children Playground	Karaoke

ANALYSIS:

This paper has done the following analyses:

1. Analysis of Frequency Ranking of all Amenity Types
2. Analysis of Relationship between Amenity Types and Rents
3. Regression Analysis, Test of Correlation between Rents and Types of Amenity, between Rents and Number of Total Amenity, and between Rents and Unit Size.

These analyses have been done through comparison analysis, graphical analysis, and statistical analysis. In the first and the second analysis, the test will initially analyze all data collect, then this set of data is divided into Apartment only data set, and

Serviced Apartment only data set. The results from all three sets of data are then compared and analysed among them. In the third analysis, the test will initially analyze data within each zone to minimize the impact of demand-supply relationship to rental of different zones. The study will then compare the analysis among the three zones.

1. Analysis of Frequency Ranking of All Amenity Types

The objective of the analysis is to find which of the 27 types of amenity that is least to most likely to be provided among projects studied.

This analysis is done by compare the ranking of frequency of amenity types that applied in each of the 271 projects. This analysis was done by using the three sets of data:

- (1) Analysis of All Projects with 271 data
- (2) Analysis of only Apartment Projects with 213 data
- (3) Analysis of only Serviced Apartment Projects with 58 data

Each set of data is analyzed in the same process. First step is to find the frequency or the number of project(s) that provide each of the 27 types of amenities. Then, these frequency numbers from all amenity types are ranked descending. The analyses results done from the three sets of data are as compared in Figure 2.

In Figure 2, the top seven ranks of the frequency of amenities in the All Projects data set are the same as those of the other two data sets for Apartment Projects and Serviced Apartment Projects. These same top seven ranks are Car Park, Guards, Swimming Pool, Satellite/Cable, Fitness, Sauna, and Laundry.

Figure 2 is then used for further analysis to compare results between Apartment Projects data and Serviced Apartment Projects data sets. The results are as shown in Figure 3. In this step, one-by-one amenity type between the two data sets is analyze to see the ascending and descending of each pair of the 20 types of amenities. The results are quite interestingly. The pairs of frequency ranking comparison, that are downward from apartment projects to serviced apartment projects, are the groups of the sporting amenities and on-air amenities. In contrast, the pairs that are upward from apartment projects to serviced apartment projects, are the groups of house keeping amenities, food, supply, and beauty amenities, and business support amenities.

As the result of the two analyses shown in Figure 2 and Figure 3, we can categorize the 27 types of amenity into Basic Amenities and Special Amenities as categorized as follows:

Basic Amenity, consisting of 7 types of amenity:

General Amenities: Car Park, Guards

Basic House Keeping Amenities: Laundry

Basic Sporting Amenities: Swimming Pool, Fitness, and Sauna

Basic On-air Entertainment Amenity: Satellite/Cable

Special Amenity, consisting of 20 types of amenity:

House Keeping Amenities: House Keeping, and Maintenance

Food, Supply, and Beauty Amenities: Restaurant, Mini Mart, Coffee Shop, and Salon

Business Support Amenities: Business Room, Computer/Internet Area, and Conference Room

Sporting Amenities: Tennis, Squash, Table Tennis, Snooker, and Driving Golf

On-air Entertainment Amenities: NHK Channel, and CNN TV

Entertainment and Leisure Amenities: Library, Children Playground, Karaoke, and Jacuzzi

Additional analysis results can be concluded that:

Top 7 Popular Amenities

From all three sets of data, the top 7 ranked of frequency of amenity type are exactly same, as been categorized as **Basic Amenity**. The results imply that, the project physical buildings both apartments or serviced apartments, should have Car Park, Guard, Swimming Pool, Satellite/Cable, Fitness, Sauna, and Laundry.

Apartment Projects

The analysis results from this set of data are:

- In all 231 apartment projects, no projects facilitate Business Room and Coffee Shop.
- Sporting Amenities, On-air Entertainment Amenities, and Entertainment and Leisure Amenities are ranked higher in apartment data set.
This makes sense since leasers of this set tend to be long stay, or with family, or with more leisure time to use amenities that consume time.
- Amenity groups that rank lower are those with serviced amenities including House Keeping Amenities, Food, Supply, and Beauty Amenities, and Business Support Amenities.
- Amazingly, Business Support Amenity like Conference Room has higher rank in apartment data set.

Serviced Apartment Projects

The analysis results from this set of data are:

- House Keeping Amenities, Food, Supply, and Beauty Amenities, and Business Support Amenities ranked higher in serviced apartment data group, as opposing to the apartment data set.
This result support the impression that leasers of serviced apartments are businessmen whose lifestyle are busy, or single occupancy, or need luxury services.
- Amenity groups that rank lower are those that take time to use including Sporting Amenities, On-air Entertainment Amenities, and Entertainment and Leisure Amenities, as opposing to the apartment data set.
- Jacuzzi and Coffee Shop are only applied in serviced apartments but not in apartment projects.
This may imply that these two types of amenities create the sense of luxurious.

- The analysis results do not show reasons that some serviced apartment projects provide the three lower ranked amenity groups in Sporting Amenities, On-air Entertainment Amenities, and Entertainment and Leisure Amenities. It is possible that such investments are by wrong decision or such projects positioning themselves for the gap of leasers that need House Keeping Amenities and Sporting Amenities.

Number of Total Amenity Types Provided

The next step, the paper investigates the total number of amenity that each project provided. The analysis is done by summing up the number of amenity types that each project data have. Then count the frequency to this totaling number ranging from 27 amenities down to 1 amenity. Then compare the frequency counting of all the three sets of data, as shown in Figure 4. The results are:

- For all projects, the mode of total number of amenity that applied in each project is 6 types.
- For apartments, the total number of amenity that applied in each project is between 2 and 12 types. The mode is 6 types.
- For serviced apartments, the total number of amenity that applied in each project is between 3 and 23 types. The mode is 7 types.

From the above analysis results, one suggestion can be made. That is, if a rented residential project, apartment or serviced apartment, to be built, the minimum amenity should consist of 6 to 7 types, ranking from: Car Park, Guard, Swimming Pool, Satellite/Cable, Fitness, Sauna, and Laundry.

2. Analysis of Relationship between Rents and Amenity Types

The aim of this analysis is to find rental values of any projects that provide the same particular amenity. The rental value outcomes will be in three interval values: minimum value, average value, and maximum value.

For example, from the 213 Apartment Projects data set, only 10 projects provide Jacuzzi. Using these 10 projects data, the analysis get the minimum rental value, average value, and maximum value among the 10 project data as 18,333 Baht, 31, 693 Baht, and 57,500 Baht consequently, as shown in Figure5.

This analysis was done by using the three data sets: 271 All Projects data set, 213 Apartment Projects only data set, and 58 Serviced Apartment Projects only data set. Each set of data are statistically analyzed 27 times to examine the relationship between rents and each particular 27 types of amenity.

The analysis on each set of data is done in the same following process. First, the data in each set is sorted based on the projects that apply a particular type of amenity. Then, using rental values from projects that qualified in the previous step to calculate the three interval value: minimum rent, average rent, and maximum rent.

Another example analyzed the relationship between rent of Serviced Apartment Projects that provide Tennis amenity. First, the process sort data among the 58 projects and get only 10 projects that provide Tennis amenity. Then, the rents of these 10 projects are then used to calculate the minimum rent, average rent, and maximum rent of this sub-set of data. The results are 14,342 Baht, 32,657 Baht, and 51,167 Baht, consecutively.

Figure 5 shows the comparison of average rents (in Baht) based One-Bedroom from the analysis of the three sets of data: All Projects, Apartments only, and Serviced Apartments only. Each sub-set of interval value is the results from the three of 27 analyses following the process explained above. The value shown in each set of data is based on sorting of the average rents descending.

The results in Figure 5 turn out to be very interestingly. In that, **there seems to be a clear cut line between the average value of rents in Apartments only and the average value of rents in Serviced Apartments only.** “The highest average value of rents of Apartment Projects” is less than “the lowest average value of rents of Serviced Apartment Projects”.

In Figure 5, compare data in the 7th column and the 11th column. Data in the 7th column are the average values of rents for Apartment Projects only. Data in the 11th column are the average values of rents for Serviced Apartment Projects only. Notice the upper arrow that points to the average value of rent of Apartment Projects that provide Jacuzzi Amenity, with the value of 31,693 Baht. The other lower arrow points to the average value of rent of Serviced Apartment Project that provides Tennis Amenity, with the value of 32,657 Baht. The highest average value of rents of Apartment Projects which is 31,693 Baht is less than the lowest average value of rents of Serviced Apartment Projects which is 32,657 Baht.

The process disregards the average values of rent from Computer/ Internet Amenity in the 7th column and from Karaoke Amenity in the 11th column. Since the two data are from the two one-point data. The highest average value of rents of Apartment Project of 31,693 Baht is right lower than the lowest average value of rents of Serviced Apartment of 32,657 Baht.

The conclusion from this analysis results deriving here is clear. Average rents of Apartment Projects with any type of amenity are less than average rents of Serviced Apartment Projects with any type of amenity. Investing projects as Serviced Apartments provide value added to rents.

3. Regression Analysis, Test of Correlation between Rents and Types of Amenity

This last analysis is aim to see the correlation between rents and types of amenity. The original All Projects data set is divided into two data sets of Apartment only and Serviced Apartment only. Each data set are then further divided into three Zones: Zone A, Zone B, and Zone C. The location details of each Zone are as explained earlier. The reason to further analyze by Zone is to minimize the impact of demand-supply relationship to rental of different zones.

The regression analysis is run to test the correlation (R value) of the followings:

- (1) To test the Correlation between Rents (Baht) and Types of Amenity
- (2) To test the Correlation between Rents (Baht) and Number of Total Amenity
- (3) To test the Correlation between Rents (Baht) and Unit Size (sq. m.)

Figure 6 shows the results of all tests run. Again, the results are quite interesting and can be summarized as follow:

- The correlations between Rents and Types of Amenity is very high, especially in Serviced Apartment Data
- The correlations between Rents and Types of Amenity are quite higher than the correlations between Rents and Number of Total Amenity in all sets of data.
- The correlations between Rents and Types of Amenity is higher than the correlations between Rents and Unit Size in almost all sets of data
- The correlations between Rents and Types of Amenity in Zone A, Zone B, and Zone C, are high in Serviced Apartment data set, in All Project data set and Apartment data set, and in Serviced Apartment data set, consecutively.

From the above results can imply the following insight:

- Rents are reflected by types of amenity NOT by total number of amenity. That is, providing as many types of amenity as possible does not improve rent.
- Rents are reflected by the providing of types of amenity rather than size of apartment
- Types of amenity may have influence to rent no matter of the location. Providing of types of amenity may be based on the competition within the sub-location.

CONCLUSION

The results from this study show very interesting insight relationship between rents and types of amenity:

1. The top 7 types of amenity that are norm in All data, Apartment data only, and Serviced Apartment only data sets: Car Park, Guard, Swimming Pool, Satellite/Cable, Fitness, Sauna, and Laundry.
2. Sporting Amenities, On-air Entertainment Amenities, and Entertainment and Leisure Amenities are ranked higher in apartment data set, as opposing to the serviced apartment data set.
3. House Keeping Amenities, Food, Supply, and Beauty Amenities, and Business Support Amenities ranked higher in serviced apartment data group, as opposing to the apartment data set.
4. The mode of total number of amenity types provided in any set of data is about 6 to 7 types. This range matches the above number of top 7 types of amenity. Even though, the projects, that provide 6 to 7 types of amenity, do not provide the same groups of amenity.
5. The highest total number of amenity provided in any apartment projects is 12 types.

6. Average rents of Apartment Projects with any type of amenity are lower than average rents of Serviced Apartment Projects with any type of amenity.
7. Correlations between Rents and Types of Amenity is very higher and higher than correlation between Rents and Number of Total Amenity in all sets of data, and also higher than correlations between Rents and Unit Size in almost all sets of data. The implication is that rents may be the result of the combination of amenity types provide, not the result from the many number of amenity types, nor of the unit size.

As the research on apartment and serviced apartment in Thailand is limited, the Real Estate Industry can use this research results as the guide for apartment project design for proper investment and for optimal rental income. Over providing of amenity will reflect on unwisely capital investment, unnecessary operation and maintenance costs.³

Further research is necessary to explain the impact of quality of amenity on rent comparing to the quantity of amenity. Also that it is interesting to see further analysis on the correlation among amenity types.

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³ As discussed by Springer & Waller (1994), more amenities indicate rent increase. However, whether or not to increase addition amenity need to further justify the maintenance cost. Furthermore, the value of the incremental rent increase justifies the investment, add competitive at existing rent levels.

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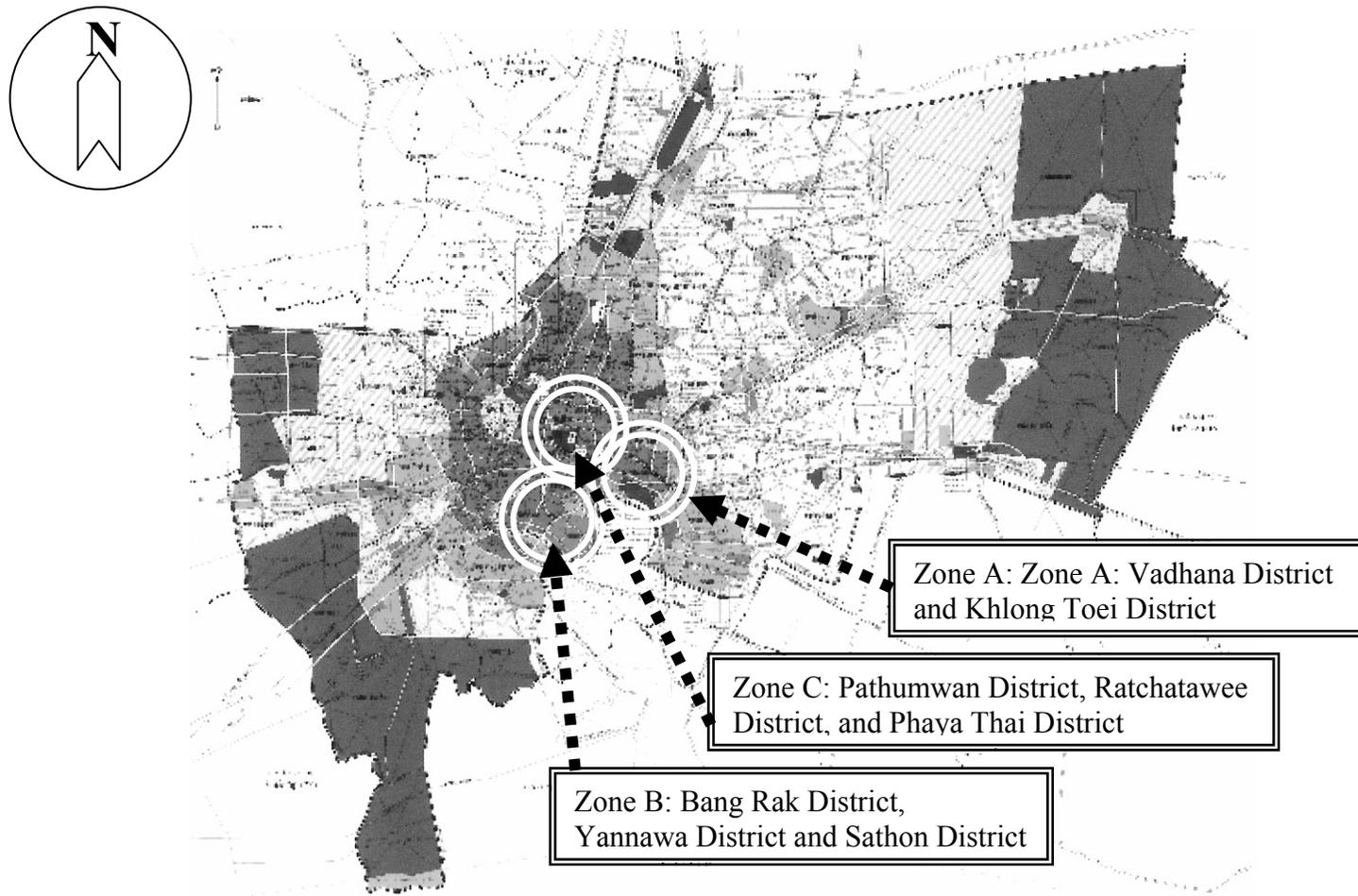


Figure 1: The Map of Bangkok Metropolitan Area Showing the Scope Area of Study in the Three Zones (Total of 8 Districts)

Figure 2: Compare the Number of Projects that Used Each Type of Amenities (Descending Ranking)

Analyze All Projects		Analyze only Apartment Projects		Analyze only Serviced Apartment Projects	
Amenity Types	All Projects	Amenity Types	Apartment Projects	Amenity Types	Serviced Apartment Projects
Car Park	271	Car Park	213	Car Park	58
Guards	271	Guards	213	Guards	58
Swimming Pool	250	Swimming Pool	193	Swimming Pool	57
Satellite/Cable	226	Satellite/Cable	171	Satellite/Cable	55
Fitness	214	Fitness	159	Fitness	55
Sauna	186	Sauna	134	Sauna	52
Laundry	106	Laundry	62	Laundry	44
Restaurant	56	Conference Room	33	Restaurant	37
NHK Channel	53	NHK Channel	30	House Keeping	32
Maintenance	46	CNN TV	24	Maintenance	31
Conference Room	44	Children Playground	24	Mini Mart	27
CNN TV	42	Tennis	21	Jacuzzi	26
Children Playground	39	Restaurant	19	NHK Channel	23
Mini Mart	37	Snooker	16	Salon	20
Jacuzzi	36	Squash	16	CNN TV	18
House Keeping	35	Maintenance	15	Computer/Internet Area	17
Tennis	31	Mini Mart	10	Business Room	16
Squash	28	Jacuzzi	10	Coffee Shop	15
Snooker	25	Library	4	Children Playground	15
Salon	22	Table Tennis	4	Squash	12
Computer/Internet Area	18	House Keeping	3	Conference Room	11
Business Room	16	Salon	2	Tennis	10
Coffee Shop	15	Driving Golf	2	Snooker	9
Library	7	Computer/Internet Area	1	Library	3
Table Tennis	6	Karaoke	1	Table Tennis	2
Driving Golf	2	Business Room	0	Karaoke	1
Karaoke	2	Coffee Shop	0	Driving Golf	0

Figure 3: Compare the "Ranking" of Number Amenities that Used in Each Projects
Between Apartments and Serviced Apartments

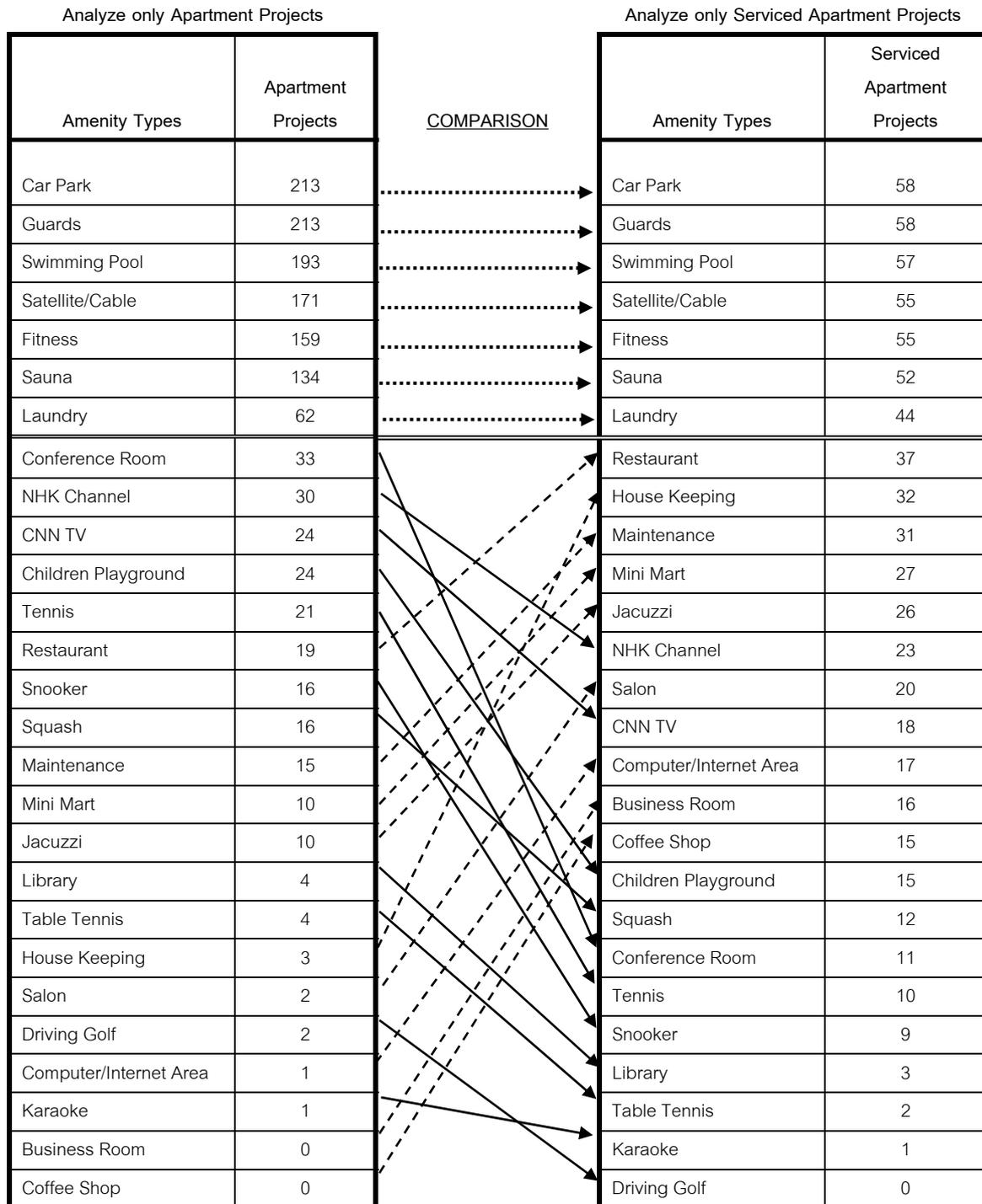


Figure 4: Total Number of Amenity Types Provided in Each Project

Total Number of Amenity Provided in Each Projects	Number of Projects		
	All Projects	Apartments	Serviced Apartments
27	0	0	0
26	0	0	0
25	0	0	0
24	0	0	0
23	2	0	2
22	2	0	2
21	2	0	2
20	2	0	2
19	0	0	0
18	1	0	1
17	2	0	2
16	3	0	3
15	5	0	5
14	3	0	3
13	3	0	3
12	5	1	4
11	6	4	2
10	17	11	6
9	22	19	3
8	33	29	4
7	41	33	8
6	52	49	3
5	32	31	1
4	26	25	1
3	10	9	1
2	2	2	0
1	0	0	0
Total Projects =	271	213	58

Figure 5: Comparison of Average Rents (in Baht) for One-Bedroom

Types of Amenity	All Projects		
	min	average	max
Computer/Internet Area	16,000	41,580	71,111
Business Room	15,250	41,288	71,111
Coffee Shop	16,000	41,137	71,111
Library	15,000	41,036	80,000
Jacuzzi	16,000	38,556	71,111
Salon	16,000	36,258	59,000
House Keeping	6,017	35,697	71,111
CNN TV	15,500	34,891	80,000
Mini Mart	7,100	33,145	80,000
Maintenance	6,017	32,167	80,000
NHK Channel	7,100	31,075	71,111
Squash	14,167	30,672	51,167
Restaurant	4,400	30,239	80,000
Laundry	4,400	29,157	80,000
Children Playground	7,100	29,101	58,083
Conference Room	7,292	29,065	71,111
Snooker	15,500	28,719	80,000
Sauna	4,400	27,346	80,000
Fitness	4,400	27,301	80,000
Swimming Pool	6,017	26,583	80,000
Satellite/Cable	7,100	26,510	80,000
Tennis	7,100	26,048	51,167
Car Park	4,400	25,873	80,000
Guards	4,400	25,873	80,000
Table Tennis	7,100	25,007	37,250
Karaoke	18,333	23,417	28,500
Driving Golf	14,250	14,750	15,250

Types of Amenity	Apartment		
	min	average	max
Computer/Internet Area	18,333	48,167	
Jacuzzi	18,333	<u>31,693</u>	57,500
Library	15,000	30,958	41,667
Satellite/Cable	7,100	28,735	75,000
CNN TV	15,500	27,856	75,000
Salon	25,000	27,083	29,167
Squash	14,167	26,480	45,000
Mini Mart	7,100	25,902	48,167
Children Playground	7,100	25,330	49,722
Snooker	15,500	25,327	45,000
Fitness	4,400	24,927	80,000
Swimming Pool	6,017	24,443	80,000
Sauna	4,400	24,367	57,500
Conference Room	7,292	24,135	40,000
NHK Channel	7,100	24,028	48,167
Laundry	4,400	24,010	57,500
Car Park	4,400	23,672	80,000
Guards	4,400	23,672	80,000
Tennis	7,100	22,900	43,333
Maintenance	6,017	21,948	49,722
Restaurant	4,400	20,839	45,000
Table Tennis	7,100	20,386	28,056
Karaoke		18,333	
House Keeping	6,017	15,686	22,708
Driving Golf	14,250	14,750	15,250
Business Room			
Coffee Shop			

Types of Amenity	Serviced Apartment		
	min	average	max
CNN TV	17,250	45,098	80,000
Conference Room	20,917	43,816	71,111
Jacuzzi	16,000	42,015	71,111
Business Room	15,250	41,288	71,111
Computer/Internet Area	16,000	41,192	71,111
Coffee Shop	16,000	41,137	71,111
NHK Channel	14,333	39,943	71,111
House Keeping	15,250	37,919	71,111
Salon	16,000	37,175	59,000
Maintenance	12,500	37,074	80,000
Laundry	12,500	36,526	80,000
Squash	14,342	36,260	51,167
Children Playground	14,342	35,680	58,083
Restaurant	12,500	35,591	80,000
Sauna	12,500	35,022	80,000
Snooker	16,217	34,750	80,000
Library	17,333	34,528	45,250
Mini Mart	15,250	34,421	80,000
Table Tennis	31,250	34,250	37,250
Fitness	12,500	34,209	80,000
Satellite/Cable	12,500	34,157	80,000
Swimming Pool	12,500	33,828	80,000
Car Park	12,500	33,697	80,000
Guards	12,500	33,697	80,000
Tennis	14,342	<u>32,657</u>	51,167
Karaoke		28,500	
Driving Golf			

Figure 6: Comparison of Correlation Between Rents and Amenity Types, and Rents and Unit Size

Type of Data	CORRELATION (R Value)		
	Between Rents (Baht) and Amenity Types	Between Rents (Baht) and Total Number of Amenity	Between Rents (Baht) and Unit Size (sq.m.)
All Data	0.577	0.431	0.334
All Data, Zone A	0.611	0.408	0.209
All Data, Zone B	0.998	0.163	0.634
All Data, Zone C	0.744	0.523	0.506
All Apartment Data	0.673	0.175	0.245
Apartment, Zone A	0.504	0.260	0.400
Apartment, Zone B	0.995	0.210	0.950
Apartment, Zone C	0.657	0.027	0.826
All Serviced Apartment Data	0.831	0.391	0.245
Serviced Apartment, Zone A	0.983	0.463	0.181
Serviced Apartment, Zone B	NA *	0.025	0.751
Serviced Apartment, Zone C	0.997	0.723	0.463

Note *:

Data is too few to run the analysis