

Factors of housing decisions for low and middle-income households in the greater Bangkok area

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ABSTRACT

This study is primarily concerned with housing decisions; trying to analyze the determining factors of housing decisions for low and middle-income households in the greater Bangkok area. The hypothesis of this study is that economic, physical environment, and household characteristics are determining factors for housing decisions. A Binary Logit model is used for this analysis. The study shows that both low and middle-income households decide to buy houses. The most important determining factors of current buying-decisions are monthly housing payment, social environment, housing price, and transportation cost while monthly housing payment is the most important for future buying, and transportation cost is the most important for future renting. Increasing monthly housing payment is the most important factor because it is the connecting factor for current and future buying decisions. This means that economic factors play a very important role for housing decisions. The government has an obligation to continually provide and maintain a good public facility and utility, social environment, and transportation system. Moreover, increases in affordability are essential for current and future buying decisions. The rent to buy option can be used to solve the problem of existing unsold units' and enhance home ownership.

Keywords: Housing Decisions, Low Income, Urban Area

JEL Classification: D70, D31, R21

1. Introduction

The United Nations' XXI Housing Policy Agenda emphasizes that each country should support adequate housing for the entire population. Therefore, it is a duty for the government to plan and set up housing policies in order to support houses for the growing population. Housing is one of the most essential inputs to national development. It creates opportunities in economic, social, political, and civic development. Residential construction stimulates the economy directly, by generating jobs, wages, and tax revenues, and indirectly, by increasing demand for goods and services created by new homes.

A strong economy creates demand for labor, increases household income, and finally enhances the household demand. Housing investment is a key-major-driver for economic growth. On the social side, housing is one of the fundamental basic needs, after food, clothing, and medical care. Safe homes and neighborhoods, in which residents are satisfied due to housing conditions and public services, build social security and stability. In addition, housing is also an effective way to promote democracy, public participation, and good governance.

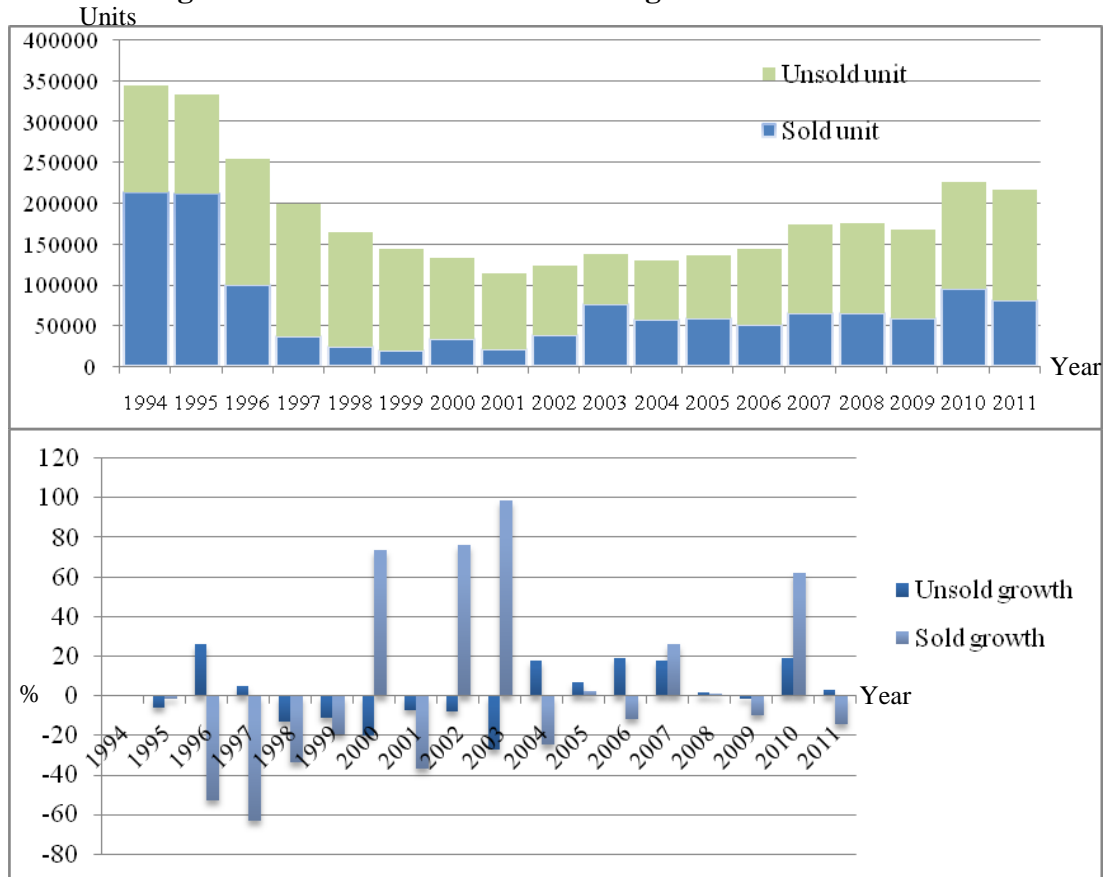
Low-income households need to live close to income-earning opportunities in the commercial and industrial city centers and towns in order to minimize the cost and time spent in getting to work (UNESCAP, 2008); but good land in the central places is correspondingly always in high demand and expensive. As a result poor households are forced to occupy land that is not in demand or try to find low-cost housing.

For Thailand, the government, National Housing Authority, keeps building low-cost housing every year; so the stock of unsold units increases. Market principle mobilizes well for middle and high-income, more than low-income households. However, the private housing market also faces the problem of unsold units' (Figure 1) even if the demand for housing increases (Real Estate Information Center, 2011).

The government has constructed "Baan Eur Arthorn", which is the low-cost housing project for low-income households. The selling cost is around 390,000 Baht (US\$ 13,000) per unit. The government refuses to reduce the price of "Baan Eur Arthorn" because the selling price is already subsidized by around 80,000 Baht (US\$2,700) per unit. The selling price has never been negotiated. The government still has many unsold units and most of the options are to sell. Moreover, in Thailand there are few public rental houses.

Unsold and mismatched housing problems need to be solved urgently in order to reduce the fiscal burden for public housing projects and stimulate people to own houses. Everybody aims to own a house, but affordability may be the problem.

This paper is primarily concerned with housing decisions by trying to analyze the determining factors of housing decisions for low and middle-income households in the greater Bangkok area. A low-income household is defined as a household which has a monthly income less than 30,000 Baht (US\$1,000).

Figure 1: Sold and unsold units and growth from 1994 to 2011

Source: Real Estate Information Center (2011)

Moreover, owning a house is the most prominent aspiration of a family, as such the study tries to find the connecting factors between renting and buying by setting the hypothesis that economic, physical environment, and household characteristics are the determining factors for housing decisions.

In the next section, I will present the literature review, section three contains field survey and data, section four is the model and methodology, section five shows the results, and the final section presents the conclusion and policy implications.

2. Literature review

There are many studies concerning the housing decisions considered by every income group in developed and developing countries. Most of the studies found that location, environment, and transportation are important.

Cupchik et.al. (2003) and Danko et.al (1990) found the distance to the workplace, schools, convenience stores, and public transportation are significant points for consideration when buying house. Kauko (2007) found that a good location is an important factor that determines the success or failure of the housing development project. Location factors such as quality of neighborhood, schools, and perceived safety

are considered when making decisions (Wachs, Talor, Levine, and Ong (1993). Levine (1998) also found location to be the most important decision factor because it helps to reduce the commuting time. Whereas, Kauko (2006) found that consumers consider functionality and spaciousness as more important than location.

Wang and Li (2006) found low and middle-income households in China consider living convenience and accessibility to public transport, and that buying a house is a multidimensional exercise, such as tenure options, housing types, neighborhoods, and locations. Dokmeci, Berkoz, Levent, Yurekil and Cagdas (1996) found that every income group in Istanbul decided to live close to relatives, in a clean place and a quiet neighborhood. Al-Momani (2003) found housing space, good roads, good transportation, single-story houses, greenery, high quality neighborhood, and quiet communities are important for Jordan households.

Marife (2002) showed that housing demand in the Philippines is determined by housing affordability, which includes income, price, and credit accessibility. In addition, housing prices in Philippines rapidly increases when compared with income. Meanwhile, the Thailand Development Research Institute (2009) constructed a choice-selection model and estimated this by using a multinomial Logit/Probit technique which is similar to the Heckman's selection bias correction models. The results are that permanent household income and household head's age have a positive effect on the buying demand, and that married persons are more likely to have higher housing demand than single people.

According to the literature survey, buying and renting have pros and cons as summarized in Table 1. However, the housing decision depends on each household's characteristics, economic situation, and future expectations.

- 1) **Price:** most of the monthly rent is fixed for the whole contract or the term of the lease. Therefore, renters have to save the same amount of money for rent. While housing prices fluctuate depending on location, time, and related factors.
- 2) **Equity:** renters cannot gain equity because they do not have the selling right. There is no guarantee on housing equity for buyers because the housing price fluctuates.
- 3) **Movement:** renters can move easily to live in other locations, while it will be more difficult and complicated for buyers because selling houses may not be possible during the first few years of ownership.
- 4) **Maintenance:** there is less work in maintaining a rental house or apartment, but when you own a house you have to pay for everything by yourself.
- 5) **Up-front cash:** renters have to pay a smaller amount of cash up-front while buying the house entails a large initial investment. The owners have to prepare certain money for a down payment and subsequent monthly installments.
- 6) **Fixed payment:** the landlord can increase the monthly rent after the lease contract ends, but buyers can stabilize their payments because monthly payments are relatively steady if your loan has a fixed interest rate.
- 7) **Remodel:** limited or no ability to remodel and redecorate the rental house while you can remodel and redecorate your own house to match your needs and desires.

Table 1: Pros and Cons of Renting and buying house

Item	Renting		Buying	
	Pros	Cons	Pros	Cons
1) Price	Fixed price	-	-	Fluctuating price
2) Equity	-	No equity build up	Equity build up	Fluctuating equity
3) Movement	Move easily	-	-	Difficult and complicated
4) Maintenance	Less payment	-	-	Large payment
5) Up-front cash	Small	-	-	Large amount of down payment
6) Fix payment	-	Fluctuating payment	Fixed payment	-
7) Remodel	-	Cannot	Can	-
8) Right	-	No selling right	Selling right	-
9) Tax advantage	-	No tax advantage	Gain tax	-
10) Ownership	-	Do not have	Have	-
11) Community	-	Less community relationship	Close community relationship	-

Source: Author's compilation, 2013

- 8) Right:** renters do not have the selling right and never gain the equity. On the other hand, owners can sell a house when the equity increases.
- 9) Tax advantage:** no tax advantage for renting but buying may gain tax advantages attached to home ownership, in terms of mortgage interest rate.
- 10) Ownership:** a rental house cannot be used as heritage, while buying a house is a stable and secure place for the family to live and grow and can be used as heritage.
- 11) Community:** rental house may not have the close community relationship while buying a house may gain a sense of community. Most homeowners are involved in the well-being of their community such as working together for better facilities and less crime.

As mentioned, most of the studies do not separate the research by income group and specify the study in terms of the renting or buying decision. The uniqueness of my study is in considering both current and future housing decisions and separation of the study into (i) renting decision, and (ii) buying decision, which is considered by low and middle-income households.

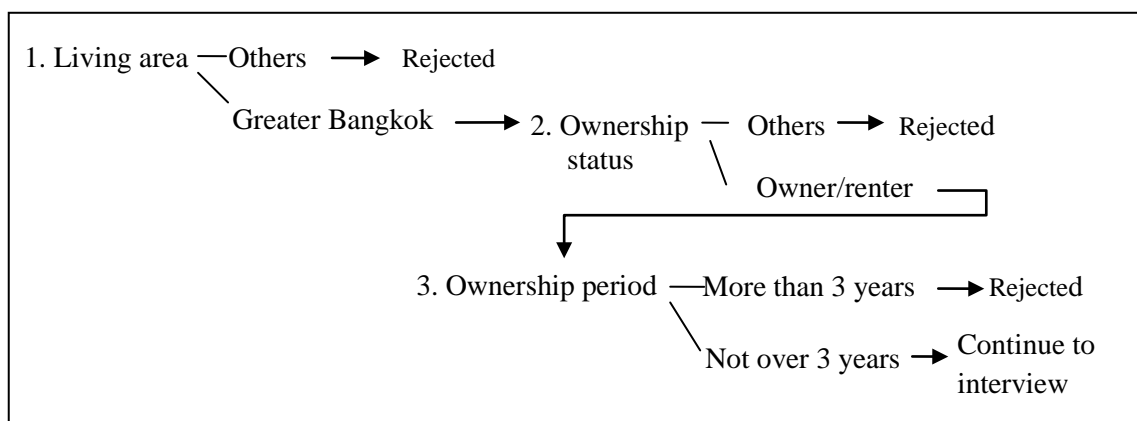
3. Field Survey and Data

To complete this housing analysis, it is necessary to collect primary data from a field survey (1,488 samples). The target group is low and middle-income people who (i) currently live in greater Bangkok area and (ii) attend Home Buyers' Expo 2012 (August 23-26), or live in public or private housing projects. The data is collected from a face-to-face interview, followed by a questionnaire where a Binary Logit is used for analysis.

A 'buyer' is defined as a person who has already bought a house by himself or herself, and stayed in that house less than 3 years. The reason is the preference and economic situation may not change much. A 'renter' is defined as a person who rents a house and does not specify the stay period, because the renting contract is less than two years. 'Future expectation' is defined as the expectation to buy or rent within 5 years.

The screening target group process, as shown in Figure 2, starts from asking (i) living area, (ii) home ownership status, and (iii) home ownership period. Refer to Table 2 for questions asked during the survey.

Figure 2: Screening process



4. Model and Methodology

The function of the housing decision depends on economic aspects, household characteristics and physical environment factors.

$$D^h = f(\text{Economic factors, Household characteristics, Physical environment factor})$$

According to the housing decisions equation, the assumptions are set as

1. Economic factors: Household income (+), Household payment (-) and Housing price (-)
2. Household characteristics: Cannot predict because of taste variation
3. Physical environment factors: Location (+), Transportation system (+), Community and social quality (+) and Transportation time and cost (-)

Table 2: Variables description

Variables	Description	Code
1. Dependency ratio (DPR)	How many people are there in your house?	Number
2. Location (LOC) (Near the main road, work place, school and relative and easy for commerce)	Do you think the location is important?	Importance level 5=Very important 1=Not at all important
3. Income (INC)	How much of your monthly family income?	Number (Baht)
4. Housing price (HPRICE)	Do you think housing price is important?	Importance level 5=Very important 1=Not at all important
5. Transportation cost (TCOST)	How much do you pay for daily transportation?	Number (Baht)
6. Transportation system (TRAN) (Toll way, mass transit and public transportation)	Do you think transportation system is important?	Importance level 5=Very important 1=Not at all important
7. Public facility and utility (PUBF) (Convenient store, market and hospital)	Do you think public facility and utility are important?	Importance level 5=Very important 1=Not at all important
8. Social environment (SENV) (Security, neighborhood and friendship)	Do you think social environment is important?	Importance level 5=Very important 1=Not at all important
9. Monthly housing payment (MPAY) (Only rent and installment)	How much of your monthly rent or installment?	Number (Baht)

Source: Questionnaire

The Logit model in general form is presented as;

$$Z_i = \beta_0 + \beta_1 DPR_i + \beta_2 LOC_i + \beta_3 INC_i + \beta_4 HPRICE_i + \beta_5 TCOST_i + \beta_6 TRANS_i + \beta_7 PUBF_i + \beta_8 SENV + \beta_9 MPAY + \varepsilon_i$$

By the same model, the analysis is divided into low-income households for renting decisions, and low and middle-income households for buying decisions. The variables and code descriptions are explained in Table 2.

The reason for analyzing low-income households renting decisions is to find the determining factors of renting decisions, in order to solve the existing problem of unsold public units' and enable low-income households to have stable houses. In addition, the reason for analyzing low and middle-income households' buying decisions is to increase home ownership.

4.1 Determining factors of housing decisions for Low-Income households

The dependent variable is Z value, which means the log value of the probability of the sample group to rent houses, is;

Current decision

Z=1 when the sample group decided to “rent” a house (365 samples)

and Z=0 when the sample group decided to “buy” a house (81 samples)

Future decision

Z=1 when the sample group decide to “rent” a house (44 samples)

and Z=0 when the sample group decide to “buy” a house (244 samples)

The current decision comprises only buy and rent (446 samples). The person who stays with family has already been dropped from the current decision. While in the future decision there are 288 samples. The reason that future samples drops more than 81 samples is that some people have not yet thought about future decisions or plans.

4.2 Determining factors of housing decisions by Low and Middle-Income households

The dependent variable is Z value, which means the log value of the probability of sample group to buy houses, is;

Current decision

Z=1 when the sample group decided to “buy” a house (690 samples)

and Z=0 when the sample group decided to “not buy” a house (798 samples)

5. Results

The results of determining factors for housing decisions are separated into two parts (i) considered by low-income households and (ii) considered by low and middle-income households.

5.1 Determining factors of housing decisions by Low-Income households

As presented in Table 3 - current decision, low-income households will decide to buy houses if their dependency ratio, income, and transportation costs increase. In the same way, if location, housing price, transportation system, public facility, and utility and

social environment are good, they will decide to buy. Moreover, if they have to pay more on their monthly housing payment, meaning having higher monthly housing payments and more challenging affordability; they will decide to buy. For the current decision, monthly housing payments, transportation cost and social environment are significant at one percent, and housing price is significant at five percent.

For the future decision, most of the variables follow the same direction as the current decision but only transportation cost displays the opposite trend. Monthly housing payment and transportation costs are significant at one percent; income and location are significant at five and ten percent, respectively.

If low-income households can be in a good condition of economic and social environment, they will decide to buy a house rather than rent.

Table 3: Estimation renting results: Low-income households

Renting Independent variables	Current decision		Future decision	
	Coefficient	Prob.	Coefficient	Prob.
Constant	6.536	0.000	2.037	0.138
Dependency ratio	-0.091	0.603	-0.360	0.177
Location	-0.733	0.197	-0.746*	0.079
Income	-0.444	0.190	-0.691**	0.022
Housing price	-0.634**	0.020	-0.050	0.899
Transportation cost	-0.007***	0.001	0.012***	0.001
Transportation system	-0.085	0.750	-0.368	0.348
Public facility and utility	-0.116	0.662	-0.684	0.116
Social environment	-1.635***	0.004	-0.045	0.859
Monthly housing payment	-0.558***	0.000	-0.001***	0.000
	N=446		N=288	

Remark: *, ** and *** are significant at 10%, 5% and 1 % respectively.

Source: Author's calculation (2013)

When comparing the significant variables between the current and future renting decisions, it is found that low-income households emphasize a consideration of monthly housing payment, social environment, transportation cost, and housing prices for their current decision. They will consider income and location more for the future decision. Buying houses is a large and long-term investment and needs to be considered carefully, for the future income and stability. Moreover, it is not easy to move or sell a house which has already been bought.

The difference determining factors for housing decisions for low-income households between current and future decisions is the transportation cost. If current transportation cost increases, they will decide to buy a house. Their income may not increase while transportation cost increases. Therefore, they may try to find and buy a house in a good location, which can help to reduce transportation costs. While if future transportation cost increases, they will decide to rent. They may think if they have to pay more on transportation costs in the future, while they are not confident about their future income or jobs they will decide to rent in order to avoid the risk of higher transportation costs.

5.2 Determining factors of housing decisions by Low and Middle-Income households

Monthly housing payment, income, dependency ratio, housing price, social environment, transportation cost, and transportation system are the determining factors for current buying decision in low and middle-income households, which exhibits the opposite trend when compares with current low-income decision (Table 4).

Table 4: Estimation buying results: Low and Middle-Income

Independent variables	Coefficient	Prob.	Marginal effect
Constant	-5.785	0.000	-0.870
Dependency ratio	0.449***	0.000	0.066
Location	0.171	0.176	0.027
Income	0.600***	0.000	0.090
Housing price	0.345***	0.007	0.050
Transportation cost	0.001*	0.077	0.000
Transportation system	0.222*	0.068	0.032
Public facility and utility	0.061	0.701	0.009
Social environment	0.287***	0.001	0.045
Monthly housing payment	0.204***	0.000	0.031
N=1488			

Remark: *, ** and *** are significant at 10%, 5% and 1 % respectively.

Source: Author's calculation (2013)

Having higher monthly housing payment means having more housing affordability, so they decide to buy a house. When they decide to buy, they do not want to pay more on transportation cost because they have to pay money for monthly housing installments for the house that they have already bought. The housing payment may consume nearly one-third of their income. Therefore, houses that they have already bought need to be located in a place that helps to save transportation cost.

Income has the highest impact or marginal effect on the buying decision. If income increases while other things being equal, the chance of buying a house will increase by around nine percent. The marginal effect of housing price and social environment is around five percent and location, monthly housing payment, and transportation are around three percent. It is difficult to set a low-cost housing price in the city, but the "New Town" may help to decrease the housing price. It is easy for the policy maker to prioritize the policy, by considering the marginal effect of each factor. Obviously, if the government emphasizes income and monthly housing payments, it will impact the buying decision by at least three percent.

According to a potential buyer forecast, it is found that, among 798 people who are not current buyers, they comprise of 110 potential buyers and 688 non-potential buyers. Without changes in policy and regulations, around 110 people have buying potential. Therefore, enhancing home ownership is vital to capitalize on the number of people who are currently not considering buying, but could have the potential in the future.

6. Conclusion and Policy Implications

6.1 Summary of Results

This paper has attempted to analyze the determining factors of housing decisions for low and middle-income households in the greater Bangkok area. The hypothesis is that economic, physical environment, and household characteristics are the determining factors for housing decisions. A 'low-income household' is defined as a household which has a monthly income less than 30,000 Baht (US\$1,000). A method of questionnaire interviews is used to collect primary data (1488 samples), and a Binary Logit model is used for analysis.

As presented in Table 5, both low and middle-income households decide to buy houses. The most important determining factors of the current buying-decision are monthly housing payment, social environment, housing price, and transportation cost, while monthly housing payment is the most important for future buying, and transportation cost is the most important for future renting.

Increases in monthly housing payment that means an affordability increase is the most important factor, because it is the connecting factor between current and future buying decisions. Economic factors play a very important role for housing decisions. When housing affordability increases, people will decide to buy houses, which will help to solve the existing problems of unsold units' and the fiscal deficit. Moreover, it will generate an economic growth cycle through increasing in consumption, investment, and employment.

Table 5: Housing decisions under conditions

Variables	Conditions	Low-income			Low and middle-income
		Current	Future	Direction	Current
Dependency ratio	Increase	Buy	Buy	Buy	Buy***
Location	Important	Buy	Buy*	Buy	Buy
Income	Increase	Buy	Buy**	Buy	Buy***
Housing price	Important	Buy**	Buy	Buy	Buy***
Transportation cost	Increase	Buy***	Rent***	-	Buy*
Transportation system	Important	Buy	Buy	Buy	Buy*
Public facility and utility	Important	Buy	Buy	Buy	Buy
Social environment	Important	Buy***	Buy	Buy	Buy***
Monthly housing payment	Increase	Buy***	Buy***	Buy	Buy***

Source: Author summarization, 2013

6.2 Policy Implications

The government has an important role to play and solve the existing problem of unsold units' and enhance home ownership by;

1. Continually providing and maintaining good public facilities and utilities, transportation system, and social environment.
2. Finding possible channels to increase or enhance low and middle-income household incomes and affordability, such as providing knowledge of saving discipline, housing vouchers or discounts.
3. Introducing the possible housing options through public housing projects in terms of;
 - (i) Buying options for people who have buying potential;
 - (ii) Renting options for low and middle-income people who do not have the capacity to buy. However, the government has to monitor renters' income regularly in order to keep public houses for the neediest low-income households and let well-off occupants find a suitable house in the private housing market;
 - (iii) Rent to buy option for low and middle-income people who wish to own houses but may have some difficulties and as a result postpone their buying decision. The government may provide a renting contract for low and middle-income where renters have to pay monthly rent without default for a certain period. After fulfilling this payment plan, they can apply for housing credit from financial institutions and change the contract from rent to buy. This option may help low and middle-income households own a house when they are ready to settle in the same place and community. Therefore using rent to buy options can function as the option for ownership.

Furthermore, the government should provide knowledge about a "Housing Ladder Plan" to people in order to persuade and help them to have housing stability. Home ownership can be used to present families with housing stability, better well-being, and to upgrade their social status. Moreover, it can be used as a credit guarantor or mortgage when the owner wants to borrow money from others or a family's economic situation get worse. On the other hand, houses can be passed to the next generation in terms of heritage.

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