KTH Architecture and the Build Environment
Department of Real Estate and Construction Management
Thesis no: 98

A study on housing preference of young households using stated-preference approach

Author: Tutor:

Hoang Thi Huong Lan   Lars Silver

Stockholm 2011

MASTER OF SCIENCE THESIS

Title	A study on housing preference of young households using stated-preference approach
Author	Hoang Thi Huong Lan
Department	Department of Real Estate and Construction Management
Supervisor	Lars Silver

ABSTRACT

The isssue of housing preference has been widely researched in housing literature, because it provides valuable information for the planning and development of housing for various residential groups with different needs. In Vietnam, the issue has not received proper attention from scholars and developers though the local housing market is going through a phase of rapid development and transformation. This thesis examines housing preference of young household in the capital city Hanoi with focus on condominiums in new urban areas, due to strong demand of the residential group for the specific type of housing.

The thesis employed a stated-preference approach with application of direct measurement and conjoint analysis methods to answer research question. A total of 92 responses were collected by mean of questionnaires delivered to customers who visited two real-estate agents in Hanoi.

Analysis of the empirical data shows that, households are most concerned about developers' commitments and basic quality of the housing units.They appreciate child-friendly qualities of the living environment, as well as child-friendly facilities and services. The analysis also reveals that price is the most influential attribute to households' preference, followed by location and floor area. Of the households, majority prefer living close to city centers in order to have good access to jobs, schools, health-care and recreational services; while a small portion choose to live further from city center to get better living conditions, larger space, and lower price. The preferences are then discussed in connection to current conditions of Hanoi urban areas in order to give implications for urban planning policies and new housing projects.

ACKNOWLEGEMENT

TABLE OF CONTENT

TABLE OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1. Background

Residential market in urban areas in Vietnam is expanding at a very fast pace. Thanks to economic growth and rapid urbanization, housing spending has been increasing drastically in the last decade. At the same time, investment in housing projects has soared up to fill in the enormous shortage, which is estimated at 20 millions housing units in total (Vietnam Housing Forecast to 2013, 2010).

As a result of the overwhelming demand and housing scarcity, good sales are viable for developers without heavy investment in market research. Meanwhile, numerous constraints on real-estate market, financial market, legal system as well as transaction process are making home-ownership very hard to attain. Homebuyers become less demanding in their purchase, and developers are not very eager to study buyers' needs. The issue of households/dwellers' preference thus does not get much attention from developers as well as researchers in Vietnam. Most commercial reports just slightly "tap" the issue. And to the author's knowledge, there are barely comprehensive studies on housing choice, housing preference, and decision-making process of homebuyers in local context.

This soon needs to be changed. Numerous projects have began construction and a large amount of apartment buildings will come on the market over the next few years (Vietnam Housing Forecast to 2013, 2010). Consumers require better-fitting dwellings, thus competition is anticipated to be significantly higher. The urgent need for better market efficiency calls for a better understanding of homebuyers' choice and preference. Besides, Vietnamese residential market, with its distinctive legal framework and rapid transformation, has shown many problems in urban planning. Studies on residential preference may possibly provide good input to crack some of these problems in urban planning practice.

1.2. Young households and housing market

The target of this paper is housing attributes favoured by young households (households in which the head is younger than 35) for condominiums in Vietnamese new urban areas, due to the high and rapid growing demand of this group for this type of housing.

According to the 2009 Vietnam population and housing census (2010), population living in urban areas accounts for 29.6% of total population, and increases rapidly at 3.4% annually. However, merely 41.4% were living in permanent dwellings while the rest living in semi-permanent, temporary and simple ones without proper housing facilities. The country has young population, of which 65 percent of about 85 million people are younger than 35. The proportion of people who are married at the age under 40 are very high, and the number of young

households are increasing 2.5% annually. Smaller size families (2-4 people) are dominant in urban areas (76%). Demand for housing of this group, therefore, is enormous.

Due to very high price housing as well as the lack of reasonably priced rental accommodations, many young people and young households have to live in their parental home, whereas a minority have houses purchased by parents (Gough & Tran, 2009). Having their own houses is the desire of most people living in urban areas, for both financial and cultural reasons. Financially, the cost of rental housing is a substantial burden for average income households (The 2009 Vietnam population and housing census, 2010); besides, the rapid rise in housing price makes homeownership much more pricey, but also provides good capital gain. Culturally, homeownership is a symbol of settlement and wealth of a household, while rental housing is seen as temporary and unstable. Most young households, therefore, tend to spend a significant part of their savings on buying a dwelling rather than hiring one.

As income is increasing, young professionals move out from their parents' houses after getting married and buy a condominium in urban areas or a small house in surburbs (ADB , 2007). This new trend is emerging regardless of the long-time tradition that the eldest or the only son must live with the parents. Besides, the mobility happens along with the urbanization process and the migration of households to cities also contribute to enormous demand for housing. It is estimated that there is a need for 60 million square meter of urban residential space, almost double the current stock (Brooke, 2008).

The increase in average income over the last decade as well as the popularity of dual-earner family pattern in Vietnamese society are favourable premises for young households to afford an apartment. Young households are also more open to banking sevices and loans compared to the old generation (McKinsey&Company, 2008), which provide them with more flexible options to finance their housing.

Among many housing options, condominiums in new urban areas (NUAs) are favored by many young households. NUA is a distinctive urban development model in Vietnamese market, which promotes the development of a complete infrastructure system and public facilities in conjunction with mix-used residential constructions. Introduced in Vietnam in the late 1990s, NUA projects have become one of the main sources of housing in big cities. The model offers various advantages over the traditional housing types, such as lower price, good infrastructure with various facilities and services, which are suitable for the needs of young households. For these reasons, demand of young households for condominium properties in NUAs has been increasing massively in the last few years. Residential preference of households for this specific type of housing, therefore, makes an interesting topic for research.

1.3.   Aims and objectives

This thesis aims to conduct a survey on housing preference of young households in Vietnamese new urban areas, with the objectives of examining desired housing attributes as well as preferred housing profiles of condominium buyers, and providing some implications for new condominium projects.

The research is confined to preference of households who want to buy new condominiums in NUAs in the capital city Hanoi. As the second largest city in Vietnam with population of 6.5 million, Hanoi has the most active real-estate market nationwide, which represents most of typical housing issues of Vietnamese metropolitan cities. An investigation of young households' preference in Hanoi therefore would be helpful for various actors on the housing market.

1.4.   Research question

A research question is formulated to guide the research and clarify research problem: "What are the preferable attributes of young households for condominiums in new urban areas in Hanoi, Vietnam?"

The research employs a stated-preference approach with application of direct measurement and conjoint analysis to examine households' preference for various attributes. The research result is expected to contribute to a better understanding of housing choice and preference of people in Vietnam; which may be beneficial to residential developers, marketers and policy makers. The author also hopes the study would raise the interest among researchers on this topic, which will result in much broader and deeper research.

1.5.   Research layout

The thesis is organized as follows: The second chapter makes a sketch of Vietnamese residential market and major constraints that homebuyers generally encounter, which serves as a background for the understanding of homebuyers' preference. The third chapter presents a review of some studies on housing preference, and a conceptual framework developed by the author. The fourth chapter describes research approach and the methods used for data collection and data analysis. The fifth chapter presents and analyses the findings of the survey. The sixth chapter discusses the main results of the analysis; and finally, the concluding chapter answers the research question and gives some recommendations for further research.

2. VIETNAMESE HOUSING MARKET AND CONSUMERS' CONSTRAINTS

More than 20 years after the formation of its real-estate market, Vietnam has observed rapid growth of both residential and commercial sectors. However, during the short history, buyers' needs and demands have not been a matter of concern for developers. As the housing market has

been constantly a sellers' market, developers are always in favorable position, which does not induce them to get a good understanding of buyers' needs and preference. Homebuyers, on the other hand, are not used to having their needs satisfied. Being aware of limited housing options and various difficulties in obtaining home-ownership, the buyers are generally not so demanding in their purchase. Following are the main constraints in housing market that lead to the lack of concern for homebuyers' needs and preference.

2.1. Supply constraints

Inadequate housing stock nowadays is a huge problem to all stakeholders in the housing market, including regulators, developers and homebuyers. It is alleged that no more than half of the demand can be satisfied by the current stock, and the situation is even worse for the medium-low and low income segments. The reasons are many; some of them can be traced back to the early happenings of Vietnamese housing market.

2.1.1. Long-standing shortage

Before the introduction of economic reform (Doi Moi) in 1986, housing supply was in serious shortage. The state secured a monopoly of city planning, housing design and housing production. However, the State was by no means able to meet the housing demand, even of its own employees due to the severe lack of funding. In the capital city Hanoi, people had to live in uniform residential areas with only 4 square meters per capita; while about 40.000 households had no more than 2 square meters per capita (Gough & Tran, 2009).

In the influence of Doi Moi, housing market started to grow with the withdrawal of state housing provision and subsidies, as well as the permit of private housing development and self-help housing production (Ming, 2008; Gough & Tran, 2009). These changes took place after the introduction of Land Law in 1993. Although land ownership continued being retained by the State, the new law secured "land use rights" of individuals and organizations in the same way as they were in China. Individuals had the rights to possess, transfer and mortgage uses of a parcel of land for a specific period; while economic organizations could use land allocated by the State or land lease with one-time payment and have rights to transfer, lease, mortgage use and contribution as capital. These rights were verified by the provision of land titles in the form of "land use rights certificates" to households and organizations (Thu & Perera, 2011).

Such market-oriented transformation has resulted in the diversification of housing production in terms of quality, scale, and housing cost. New policies facilitated the roles of new actors such as private developers, housing banks, and households as buyers or builders in residential market. In the period 1985-1997, about 70% of new accommodation was built by households using their own funds (Gough & Tran, 2009). Majority of these accommodations, however, were constructed without official land-use right certificates or construction permits, and lack of basic

neighborhood infrastructures including environmental utilities and services such as water and electricity (Labbé, 2010).

Subsequent to the changes in legal framework, the State also granted a number of policies to promote large-scale development. Major developers may get tax breaks and land premium exemptions when they invest in high-rise buildings. As a result, more than 4 million square meters of floor was constructed in Hanoi from 1998-2005, of which 60% were built by private developers. Average living space increased from 4 square meters in 1993 to 10.5 square meters in 1999 (Gough & Tran, 2009). The late 1990s marked the introduction of the so-called "new urban areas", the urban development model as mentioned above. Following the issuance of Land Law in 2003, which created framework for large-scale investment, and Housing Law in 2005, which facilitated foreign investment and enhanced real estate funding options, hundreds of new urban areas erected in Hanoi over the last decade. Since the turn of the century, urban housing stock has increased by 15% on average, with 22.5 million square meters added each year. On average, housing projects and new urban areas produce 1.2 million square meters of living space for Hanoi and 3.5 million square meters for Ho Chi Minh City each year; while urban residential space increase 15% every year (Nguyen, 2010).

2.1.2. Weaknesses in land management

In spite of the large amount of dwellings produced by both self-help production and new urban areas development, supply could not catch up with the ever-growing demand. Hot money pouring in during the economic boom, population growth, rapid urbanization and migration to metropolitan cities have stimulated not only hefty demand but also heavy investment and widespread speculation in real estate market. These factors repeatedly boost up prices of properties, which often exceed actual prices.

The development of real-estate market in this period, nevertheless, has not been matched with appropriate land management and urban planning. In a thorough research on Vietnamese real-estate market, Waibel *et al.* (2007) have described the "artificial shortage of land and land use rights" and "a sub-optimal use of scarce land resourses", which caused by "unclear and incalculable land policy", "remarkable lack of legal land rights allocations" and "overlapping institutional planning competencies in terms of land use and property" (pg. 63).

Two-price scheme

It is essential to mention the two-price scheme for land use rights and its effects on the shortage of land resources. The two-price scheme has its root in land ownership system, where land is conceptually owned by People. Individuals and organizations cannot privately own land; but can have land-use rights. The State, on behalf of People, has the right to own, control, distribute and administer land-user' rights. With the purpose of controlling the market price of land and

promoting investment, the State issues Land Price Framework, which sets the price at a certain level which is generally lower than market price. The framework serves as a base for the practice of all of State's rights to land such as acquistion, allocation, compensation for site clearance, lease, tax, etc. Transactions on the market between developers and land-users, however, are not based on the regulated price but the price shaped by demand and supply, unlike what the State expected.

Numerous conflicts arise at this juncture, especially ones concerning land acquisition and allocation. To supply land resources for projects, land use rights are acquired from original land-users and allocated to developers at regulated prices. Nonetheless, transactions between developers and land users later on are all based on market price. As such, the displaced land-users have no chance to get any benefit of the real potential value (market price). Though no longer have right to land use, these land-users still hold private ownership rights to dwellings built on the land, which is legally regconized. These lead to disputes between displaced land-users and the State, and between land-users and developers. The land-users are forced to leave the dwellings they legally own when the compensation price are far lower than market price and cannot help them resettle. To get out of the dilemma, the displaced land-users strive for compensation price that is close to market price. The State and the developers, conversely, only accept price based on Land Price Framework. Such disagreements lead to lengthy negotiations and extremely high costs for land acquisition.

Furthermore, existing problems such as illicit transactions, illegal constructions, serious lack of legal titles and certificates also contribute significantly to difficulties in land acquisition, which are faced by 96% of developers (Thu & Perera, 2011). The survey by Thu & Perera (2011) revealed that, about 30% of 494 projects in Ho Chi Minh city in the period 1996-2006 could not acquire land or could acquire only half of the land. The implementation of two-price scheme thus contributes to the lack of land for residential projects, which in turn adds up to the shortage of housing supply.

Corruption and bribery
Corruption and bribery are among the major causes for the rise of costs for land acquisition as mentioned above. Local authorities have the "absolute rights" to decide which individuals or organizations to be granted land since the law does not provide clear clarification on whether the land should be granted or auctioned. To take advantage of " the State's price" for land, which is set far below market price, individuals and organizations pay local authorities generously to achieve their desired land lots (World Bank, Embassy of Denmark, Embassy of Sweden, 2011). These expenses are included in land acquisition expenditures, which make up an unsually high rate of 80% of housing price. As a consequence, housing prices have been pumped so high that most mid- and low-income households cannot pay.

Another outcome of corruption and bribery is the misuse of land resources, as pointed out by Waibel *et al.* (2007). A report on corruption risks in land management in Vietnam by World Bank (2011) has showed a trend of land use and urban planning being formulated, revised and approved on the basis of commercial projects. This created room for bribery in which investors paid the authorities a share of profit obtained by increasing land value through conversion to other purposes. For instance, office buildings or shopping centers may erect on land intended for residential projects. Direct outcome of such shortcomings in land use management is the deficiency of residential land resources, which further exhausts housing supply.

2.1.3. *Unbalanced investment*

Apart from the shortage, housing stock in metropolitan cities is severely distorted when the State failed to regulate unbalanced investment in residential market. Local and foreign developers have invested massively in the construction of high-end serviced apartments due to huge profit from this segment. From 1988-2005, foreign investors have implemented 121 projects for luxury apartments in Ho Chi Minh City with total volume of over USD 5.5 billion (Waibel, Eckert, Bose, & Martin, 2007). Oversupply for this segment is predictable while supply for lower income segments remains very poor. The situation gets worse when the reconstruction/renovation of outdated buildings or low-income areas tends to replace those with high-priced residential buildings. It is estimated that prices of apartments in new high-rise buildings are approximately 3 times higher than attainable prices of mid- and low-income groups (Waibel, Eckert, Bose, & Martin, 2007), which make them home to high-income groups alone.

In order to promote a more affordable housing stock, the State has granted many incentives on investments and land allocations to encourage housing development for middle and low-income groups. However, developers seem to be not interested. Overly high cost for land acquisition makes medium-priced projects unprofitable. Meanwhile luxury projects are potentially lucrative thanks to high demand and big budgets of both high-income homebuyers and speculators.

2.1.4. *Lack of transparency*

Another cause for the distorted housing stock is the lack of transparency in housing distribution. There is a common practice that developers who finance their projects by cooperation contracts with organization, individuals or secondary developers distribute a proportion of completed housing units to those investors as profit. As a result, only a small proportion of the housing units are sold to homebuyers through real estate agents or transactions floors. The majority are allocated to individual or enterprise investors, who do not intend to reside but to sell them at market prices.

2.1.5. Limited public infrastructure

Housing stock is even more limited in the sense that, infrastructure and public facilities such as electricity, water supply, drainage, telecommunications, hospitals, schools, shopping centers, entertainment etc. are centrally located. Public transportation is underdeveloped and overloaded, meanwhile personal vehicles (mostly scooters and motorbikes) are not suitable for distant travelling. Communication routes linking current urban areas and new urban areas remain deficient and insufficient. Hence, housing projects in the peripheries, about 20-30 kilometers from city centers, do not attract many buyers. Investors also lose their interest in urban housing areas that are far from city center.

2.1.6. Delayed projects

Slow construction and completion of development projects also contribute to the supply deficit. The reasons for these delays are escalating construction costs, overdue procedures to attain construction rights and delay in land acquisition. As reported by Thu & Perera (2011), barely 5.67% of residential projects in Ho Chi Minh city were completed during the period 1996-2006 due to dragging bureaucratic procedures, difficulties in site clearance, mounting construction cost and developers' capability.

2.2. Demand constraints

2.2.1. High income housing price ratio

Inadequate supply has caused successive "land and housing fevers" which boost up property prices drastically. Prices soared up tenfold between 1991 and 1992 and fivefold between 1991 and 1994. In 2007, a mid-range building apartment at the periphery was selling for about USD1000-1500 per square meter, and an apartment in a lower range resettlement building was selling for about USD800 per square meter (Labbé, 2010). Accordingly, a new apartment may cost USD100.000 to 200.000, which is tenfold or twenty-fold annual income of an average worker (Ming, 2008). In 2008, Vietnam ranked 17th on the list of countries that have highest property prices while its income per capita was in the lowest group, as stated by local media.

Another cause for unaffordable housing is speculation. According to experts, speculation plays a critical role in the "land and housing fevers" in the last decade. Because of low interest rate and high inflation rate, people are unwilling to deposit money in banks. At the same time, newly established security market remains wobbly and gold investment proves to be highly risky. All these factors make purchasing properties a preferred capital investment channel, especially when prices increase rapidly. Consequently, Vietnam is among the countries that have highest income housing price ratios in the world (Waibel, Eckert, Bose, & Martin, 2007), and housing ownership is getting out-of-reach of many mid- and low-income households.

It is clear that the State's policies have not paid proper attention to average income segments, regardless of some attempts in recent years. Some policies have been issued to acquire a number of new housing units (5-20%) from commercial housing projects (in exchange for land premiums reduction) and sell to state employees at reasonable prices. In addition, a number of public projects were carried out to provide housing for low-income groups. However, due to corruption and poor administration, these policies hardly reached their goals (Gough & Tran, 2009).

2.2.2. Credit constraints

Credit constraint or borrowing constraint is one of the biggest challenges to homeownership of consumers in Vietnam. Since the regulatory framework for capital markets is still under construction, Vietnamese banking sector is undergoing strong reforms and remains financially weak and unstable (World Bank, 2006). Homebuyers thus face many barriers when applying for home loans.

The initial barrier is the limited availability of mortgage loans. Most of Vietnamese banks lack of long-term funding and are unable able to grant long-term loans for housing. According to a report of Asian Development Bank (2007), tenors on mortgage loans normally vary between 3 to 5 years. Since monthly payments increase as the tenors decrease, mortgage loans have not been choices of most people. Mortgages therefore account for merely 3% of total loans in the banking sector.

With mortgage lending regulations considerably improved in recent years, banks have started offering homebuyers many more mortgage products of which loan-to-value ratio is up to 90%. However, very few households have access to these products for many reasons.

Firstly, mortgage rates in Vietnam are among the highest in the Asia. Lending interest rates offered by most banks vary from 18% to 20% per annum (2010), much higher than mortgages rates in neighboring countries such as Singapore 5.23%; Thailand 7%; Japan 2.375%. As housing prices are too high, homebuyers may find it hard to pay interests let alone principals. This explains the lack of buyers' interest in purchasing on installment.

Secondly, banks impose very high payment-to-income ratio in mortgage evaluation, which is up to 75%, that is to say the monthly payment could take up nearly all income of a household.

Thirdly, down payment required by banks is between 20-30%, which is possibly a burden for households providing that property prices are very high. Besides, banks require mortgage assets, which can be land use right or other property assets. Additionally, homebuyers are hardly able to acquire fixed-rate mortgages for their loans; while floating/adjustable rate mortgages are highly risky, considering the strong rise of inflation rate in the last few years.

Finally yet importantly, loan application procedures remain very time-consuming and house prices could even rise considerably when the loan applications are being processed.

2.3.   Transaction constraints

Beside the constraints in supply and demand, homebuyers in Vietnam may have various concerns about transaction process when they make a purchase.

2.3.1. Information transparency

The first concern is the lack of information access. A recent report on land information disclosure in Vietnam reveals that, it is highly difficult for local people to navigate the land administration system. Information on land-related administrative procedures, land use planning, urban planning, land allocation, as well as information concerning compensation and resettlement are restricted. Land officials at all level are likely unaware of the rights to information access of individuals and non-state organizations. Non-service oriented culture toward citizens is common in public office. Information seekers may encounter being directed from commune level to district level and vice versa. Likewise, individuals are also uninformed about their rights to information access. Individuals hardly know which information is accessible, nor whether the information is sufficient and complete (Anh, Nhat, Thuy, Prickett, & Van, 2010). The importance of a comprehensive housing and real estate information database has been mentioned frequently but non-existent yet. Consequently, buyers must rely on personal contacts or approach land sellers in unofficial ways to acquire information on the properties they want to buy. However, information about ownership, housing status and other related issues provided by sellers or brokerage agents might be rather slanted.

2.3.2. Transaction procedures

The next concern may be the risks occurring during transaction process. Thus far, there are no standardized procedures for property transactions. A large amount of transactions takes place unofficially and may put buyers at risk. Trading through real-estate transactions floors, though formally regulated, is not very popular. The country has about 600 real-estate trading floors, which handle no more than 15% of real estate transactions since buyers do not have tradition of trading on-floors. Neither do they have trust in this transaction model because the floors are not strictly regulated, few services are available and the quality of services is mediocre.

Transaction process, in general, may be very time and money consuming due to the complication of paperwork and the bureaucracy of administrative and notary authorities. Consequently, many have to rely on intermediaries or bribery to smooth out the process. A report on land management and use corruption in Vietnam has pointed out that, 85% of the surveyed households said they encountered corruption while 30% of enterprises had to give bribes to get land-use right certificates (World Bank, Embassy of Denmark, Embassy of Sweden, 2011).

15

2.3.3. Advance payment purchase

It is worth to take in consideration transactions in the form of advance payment of houses and buildings to be formed in the future, which make up 60-70% of total transactions of housing market. Developers may finance their projects by receiving advance payments from individuals or entities that can own or purchase residential housing in Vietnam, and distribute completed housing units as profits. Most developers find this form of raising capital highly favorable since it allows a generous flow of capital at low cost, especially when long-terms loans from banks are hard to attain and interest rates are high. People are eager to deposit money in these projects as advance payment contracts allow buyers to obtain housing units at base price, which is considerably lower than market price. Payments can be made multiple times. Buyers may also get quick profit by selling these housing units on the market later on. These advantages induce the expansion of advance payment contract for the purchase of projected residential units in Vietnamese market. Many developers heavily depend on this to mobilize capital, while homebuyers may have to compete to achieve the right to sign advance payment contracts with developers in well-located projects. Nonetheless, homebuyers may be exposed to a number of risks when enter this type of contract.

To begin with, developers may start to receive advance payments when they have not obtained approval of the projects, or have not completed the foundation of the projects as regulated by law. If any problems occur, homebuyers may lose part of their advance payments or they have to wait endlessly for the projects to be finished. Some common problems are disapproval of relevant authorities, delays in land clearance, conflicts between developers/secondary developers/constructors, developers being too dependent on advance payment and unable to mobilize capital from other sources, or the misuse of capital obtained from advance payments.

Besides, quality of completed housing units and completion time may be of great concern. Buyers may also find themselves in situations such as developers require higher payments than previously agreed, developers' capability is insufficient, developers transfer the projects to other developers without informing their buyers, etc.

It is also risky for buyers to base their housing decisions on information revealed by developers. Developers are not obliged to make public information about projects and other related issues, whereas a third party is not available to notarize declared information. Some risks may even occur to homebuyers post-ante, such as delays in the completion of transaction documents and ownership certificates, high building management fees, delays in maintenance, etc.

In short, it is clear that existing regulations are not strong enough to control developers' commitments while homebuyers hardly have legal protection to cope with potential risks.

3. LITERATURE REVIEW

Young adults have specific preference on housing as they experience various milestones of life, such as leaving parental home, job opportunities, marriage and children (Wu, 2010). Therefore, when buying a house, young-adult consumers do not buy "a concrete box" but a package of environmental attributes and services at a particular location. These may include "the actual area of living space, an address, accessibility to employment, a set of neighbors, a neighborhood environment, a diverse collection of services including schools, clinics and retails, and sense of belonging to the community of residence" (Kain and Quigley, 1970, pg.175).

In housing literature, young households' preference is widely discussed as a part of homebuyers' preference and choices. A variety of studies focuses on housing characteristics such as cost, size and location. Others give attention to demographic characteristics such as age, sex and income as determinants of preference. Some investigate housing preference in the connection with family life cycle and residential mobility. A brief review of related literature below will provide a background for discussion on young households' residential preference.

3.1. Preference on housing characteristics

Housing studies have widely investigated homebuyers' preference for various housing characteristics. These characteristics vary from intrinsic housing attributes such as cost and size; to extrinsic attributes such as exterior design and space; or neighborhood and location attributes such as public amenities, transportation, etc. The relative importance of intrinsic and extrinsic attributes also makes up a good topic for researchers (Opoku & Abdul-Muhmin, 2010).

Lindberg, Gärling, & Montgomery (1989) examine the role of life values to consumer behavior through preference of 36 adult respondents in Sweden for 12 housing attributes. These attributes include intrinsic attributes of (cost, size, standard); location attributes (distance to work, friends, recreation, downtown), and neighborhood attributes (facilities, noise level, transportation, reputation) which are presented at different level and linked to various values of life.

Louviere and Timmerman (1990) examine a wide range of housing attributes in a survey with 315 respondents who have just changed residence in Roermon, Netherland. The authors assume that individuals who face complex decision-making will categorize influential attributes into subsets, and then rank these subsets into overall preference or choice. They make distinction of four subsets: housing attributes, residential environment attributes, economic and social ties, and relative location. *Housing attributes* include number of rooms, type of house, mortgage/rent, size of backyard, building period and tenure. *Environment attributes* consist of distance to parking facilities, amount of traffic, view, privacy, greenery and children's playgrounds. *Economic and social ties* include relatives, friends, work in municipality and previous residential place. *Relative*

location characterizes accessibility to primary school, bus stop, neighborhood shopping center, regional shopping center, work and urban recreational facilities.

Besides major attributes such as cost, size, type of dwellings and location, elements such as design of living and dining room (Lawrence, 1987), interior decoration (Amaturo, Costagliola, & Ragone, 1987), energy use (Wan & Yik, 2004) etc. also attract attention of researchers. Al-Momani (2000) investigates the needs and preference of homebuyers in Jordan regarding interior and exterior design. The author conducts a survey questionaire with 400 respondents and finds out that space and cost of housing are the main factors considered by consumers. The interior design of building, out-door space, exterior appearance, functionality, kitchen size, type of community and neighborhood, housing proximity to public facilities, and heating system are also important attributes.

About the relative importance between intrinsic and extrinsic attributes, there are many studies in different contexts which provide wide-ranging results.

A large scale study on commuting patterns between home and work by Wachs, Taylor, Levine, & Ong (1993) proves that, choices of residential location are based on many factors besides home-work separation of which quality of neighbourhood, quality of schools and perceived safety are found to be critical. Differently, a study by Levine (1998) shows evidence that commuting time is the most influential factor in the choice of residential location at regional level (Opoku & Abdul-Muhmin, 2010).

In a research on preference of Beijing residents, Wang & Li (2004) discover that neighborhood attributes such as accessibility, public services, convenience, environmental quality are more important than dwelling attributes. Kauko (2006) performs a cross-country research on housing consumer preference based on expert elicited residential location quality profiles. The result shows that location is significantly more important than the house itself. Consumers choose factors such as accessibility and "pleasantness" over housing quality and spaciousness. In research by Opoku & Abdul-Muhmin (2010), low-income consumers in Saudi Arabia rank living space and aesthetics dimensions (intrinsic attributes) far higher than proximity to relatives, outdoor space and street location (extrinsic attributes).

In constrast, various studies show that location/accessibility is not as important as housing attributes and neighborhood attributes. Whitbread (1978) observes that quality of the dwelling is crucial to people' preference while environmental considerations are insignificant. Research by Louviere and Timmerman (1990) (as cited above) shows that housing attributes are the most important subsets, follow by residential environment and social and economic ties. Relative location, or accessibility, is the least important set of attributes (in research by Molin &

Timmermans (2002). Another study by Molin, Oppewal and Timmermans (1999) explores preference of respondents in Eindhoven based on housing and location attributes. Housing attributes include housing type, number of bedrooms, size of the bedroom for children, monthly costs and tenure; and location attributes are represented by type of neighborhood, frequency of public transport and travel time to work of father, work of mother, and school. The result provides strong evidence that housing-related characteristics are more important than location-related ones. Among location attributes, child's travel time and type of neighborhood are ranked higher than the rest. Some other studies carried out in Europe (Molin & Timmermans, 2002) also reveal that accessibility is much less important than housing characteristics and neighborhood attributes. The authors assume that, as long as people are able to afford flexible means of transport, accessibility does not have significant influence on housing choice behavior.

3.2. The role of demographics and socioeconomics in housing preference

3.2.1. Demographic and socioeconomic determinants

Many researchers have attempted to explain homebuyers' preference based on demographic and socioeconomic characteristics. A classic study is the one by Rossi (1980) which examines housing preference in respects to age, household composition, income and current housing situation (Sirgy, Grzeskowiak, & Su, 2005). Various studies follow, with the extension of demographic and socioeconomics variables. Dökmeci & Berköz (2000) investigate residential preference for different age groups and family sizes in Istanbul,Turkey. The result reveals that young people prefer living close to job locations, and older groups prefer living close to relatives. Empirical results in study of Al-Momani (2000) suggest that the needs and preference of households are in line with their lifestyles, values and family patterns. Wang and Li (2004) also observe that factors such as family income, age, education, nature of employment organization etc. have influence on housing preference. Niedomysl (2008) carries out a questionnaire with response collected from 5000 Swedes in order to study residential preference with respect to demographic, socioeconomic and geographical determinants. He points out that all the chosen demographic variables (sex, age and number of children) produce significant effects on residential preference, while socioeconomic variables do not.

Most of studies on housing preference based on data collected from individuals. But Molin, Oppewal, & Timmerman (2001) argue that most of households consist of more than one person, and family members may have similar or dissimilar preference for housing. The authors employ a group-based conjoint analysis to address the association between residential preference and socio-demographics. Family members are asked to express their joint opinion on residential profiles. Socio-demographic characteristics are age, educational level, income, number of children, working time. The result suggests that residential preference of a family are highly

indiosyncratic, or at least not systematically related to the chosen socio-demographic attributes. Similarly, Fransson et al (2001) state that socioeconomic variables such as income and education are important but have fairly small effects on preference for neighborhood attributes of residents in major Swedish cities (Niedomysl, 2008).

The change of residential preference during lifespan and family life cycle, as well as the relation between residential preference and mobility are major branches of housing studies concerning demographic determinants. A review of these topics is put under a separate title to make it easy to follow.

3.2.2. Family life-cycle and residential mobility
One of the earliest studies on residential preference and life cycle is the one by Peter Rossi (as cited in McAuley & Nutty, 1982). The author states that housing requirements are closely connected to a family's life cycle stage, and residential mobility is the result of households' efforts to satisfy housing needs generated by changes in each stage.

In their research on residential decision-making and family life cycle, McAuley and Nutty (1982) review some previous researches that name space deficits as one of the biggest concerns that come along with life cycle changes. In particular, families have desire for larger living space during the expansion and child rearing stages; and experience space surplus at later stages. Additionally, the "overcrowdedness" seems to be more of a concern to younger households than the "undercrowdedness" to older households.

Some studies cited by in research of McAuley and Nutty reveal that during the child rearing stage, local amenities such as parks, clinics, as well as schools and neighbourhood are carefully considered by families. Concerning distance to the city central as well as to services and stores, family at different life cycle stages have dissimilar preference. Unmarried people may prefer living closer to downtown areas while married couples and those who have young children tend to move to suburban areas (AbuLughod and Foley, 1960; Pickvance, 1973). Commonly, households with children tradeoff the quality of living environment againt accessibility to job location. Research by Lindberg, Terry, Garvill, & Garling (1992) also comes to similar conclusion that households with children at home like to live further from city centers while the youngest and oldest households prefer living close to city centers.

For people who choose to live far from city centre, the most important qualities are lower cost of living, less crime, good air and water, better environment for raising children; while better jobs and wages, recreation and culture are the most important to those who prefer living close to city cores (Fuguitt & Zuiches, 1975). Lindberg, Terry, Garvill, & Garling (1992) take another approach that links housing attribute evaluations with beliefs about the value fulfilments. Their

reseach shows that values change over the life-span, and these changes influence residential preference. Particularly, people who choose to live further away are more influenced by values such as freedom, well-being and togetherness, while comfort is the preference of people who remain in cities.

Regarding distance to cities, Fuguitt & Zuiches emphasize proximity to a large city as an important determinant of preference for living in rural areas or small towns. The authors figure out that a majority of respondents want to live within 30 miles or "in commuting range" of metropolitan central city. Some authors share the similar findings when investigate the distance from city centers with regards of residential locations within the city (Lindberg, Terry, Garvill, & Garling, 1992).

In general, housing studies conducted in developed countries come to a common conclusion that households with young children tend to move to surburban areas because of the child-friendly features. However, a recent study on preference for residential location (Karsten, 2007) points out that there is a tendency against the dominant trend of households with children moving towards suburbans. That is, a portion of middle-class households decide to stay in the city though they can afford surburban houses. Based on empirical data collected from interviews with middle-class families living in Rotterdam, the author developed three sets of explanations for the retention of these households in city. Daily activity patterns and commuting time are named as the first explanation. Living in the city where the parents both work is their strategy to cop with the lack of time in lives. Social networks with neighbors, friends and relatives are also strong motivation for staying in the city. And lastly, these family have preference for being "true urbanite", they love the feeling of belonging to a city, and do not think that surburbans are the most favorable living environment.

Regarding mobility, McAuley and Nutty (1982) prove that young singles and young couples with preschool children are the more likely to response to the availability of their favourable housing attributes than older people. In developed countries, young adults at the ages of 20-35 are the most mobile in the population. The mobility decreases in middle-age group (35-64) and is lowest in elder group (65 and over).

Dökmeci & Berköz (2000) review two studies by Speare et al.(1974) and Clark and Onaka (1983) on the relationship between age and mobility. The studies show that at all age groups, the most regular reason for mobility is housing unit adjustment (or space adjustment), i.e young couples need smaller houses than older couples with more children, and the elderly couples who have children leaving home may return to smaller houses. The second and third reasons for mobility are changes in life course and neighborhood adjustment. For young people, either married or not, housing cost, tenure and structure type are the most important, while middle age

households (with the head between 35-45 years old), normally with young or teenage children, tenure, housing unit size and housing quality are the key factors that could motivate relocation.

In their study on residential location in Istanbul, Dökmeci & Berköz (2000) recognises that, contrary to findings in studies in Western world, middle and older age groups have a strong desire for mobility. According to their study, majority of young people choose to live in the periphery, due to the proximity to job location. Middle and older age people have a preference to move to the intermediate area between the core and the periphery, which is the most accessible to a city. They appreciate proximity to relatives, and a clean and quiet environment. Other findings are: the desire for mobility decreases when the households live closer to city center; and bigger size the households show more desire to live in the periphery.

3.3. Motivational determinants of homebuyers' preference formation

Traditional and contempory research on housing preference have rather different views on motivational determinants of homebuyers' preference or choice formation (Sirgy, Grzeskowiak, & Su, 2005). In their study, Sirgy, Grzeskowiak, & Su review the role of the two approaches, functional-congruity and self-congruity, in determining homebuyers' preference and choice.

Traditionally the home is viewed as a bundle of utilities that need to be traded off against cost. Homebuyers evaluate the home using functional (utilitarian) criteria, which are the features related to core functions of a home, i.e. to house daily activities including eating, sleeping, living, etc. Traditional view of housing preference thus base on "functional congruity", which is defined as "the psychological evaluation of a home based on comparison of utilitarian aspects of the home with ideal features" (pg. 330). The authors propose that, housing preference/choice is positively influenced by functional congruity; i.e the better match between perceived utilitarian features and homebuyer's desired features, the more probable that the homebuyer will have preference for and be motivated to buy that home.

In a different way, contemporary research state that housing preference/choice is affected by the match between image of the home and the self-concepts of homebuyers (self-congruity). This means that a homebuyer may perceive a residential unit to have certain occupant features, which serve as a symbol of his self. For instance, a high-income manager usually buys a house with luxury amenities. The authors assume that, housing preference/choice is positively influenced by self-congruity; i.e the better match between the residential occupant image and the homebuyer's self-concept, the more probable that the homebuyer will have preference for and be motivated to buy that home.

According to Sirgy, Grzeskowiak, & Su, both functional congruity and self-congruity seem to cooperate to influence housing preference and choice, and their effects are moderated by

homebuyers' experience, homebuyers' involvement in the purchase, and time pressure. This has various implications for developers, real estate agents and policy makers. Developers could identify the perceived utilitarian features and investigate the occupant image of the house to construct housing that better fits the desire of target homebuyers. Agents could help to polish or to form occupant image of the home in perception of target groups. Policy makers may promote housing projects that have desired features of a certain group to retain them in a certain area.

3.4. Conceptual Framework

This study focuses on preference for condominiums' attributes and their relative importance, as well as the trade-off among various attributes of potential homebuyers. Based on reviewed studies and a study by Andersen and Floor & Van Kempen as presented below, a conceptual framework is created to illustrate different groups of attributes that make up a condominium as a whole; as well as relative importance of such attributes to homebuyers' preference.

Andersen (2009) examines the relative importance of housing characteristics through four groups of attributes, which well capture the most important chartertistics of a dwelling. The first group is *the dwelling and its environment*, including size of the dwelling and number of rooms, the standard and furnishing, tenure, housing costs, types of houses, options for activities, views, air, light and noise, etc. The second group is *the local area*, including physical characteristics of buildings, noise and pollution, access to green space and water, private local networks, lifestyle, crime and security, etc. The third group is *local public and private service facilities* that consists of shops, restaurants, social activities, culture and entertainment, institutions, sport facilities, playgrounds and conditions for children, etc. The last group is *location and transport*, including distance to work/education, urban centers and transportation opportunities, distance to family and friends, etc.

Floor and Van Kempen (1997) has another approach where they differentiate housing attributes based on homebuyers' perception. The authors examine features of dwelling in the Dutch cities of Rotterdam and Tilburg and make a distinction among *absolute preference* (features that are undeniable conditions for accepting a dwelling), *trade-off preference* (features which may be sacrified if other benefits are available as compensation), and *relative preference* (which doesn't entail a rejection of the dwelling if missing) (Andersen, 2009). This approach has an advantage that it partially reveals the trade-off decision of homebuyers for different housing attributes.

The conceptual framework in Figure 1 describes a condominium as a package of physical, environmental, service and location attributes. Homebuyers form their preference by combining various attributes based on its relative importance to their utility, of which some attributes are of absolute importance, others are important but can be traded off for essential ones, and the rest do not have significant impact on purchase decision.

HOUSING ATTRIBUTES and LEVELS OF PREFERENCE

THE CONDO

THE BUILDING

AMENITIES & SERVICES

LOCATION & ACCESSIBILITY

Relative preference

Trade-off preference

Absolute preference
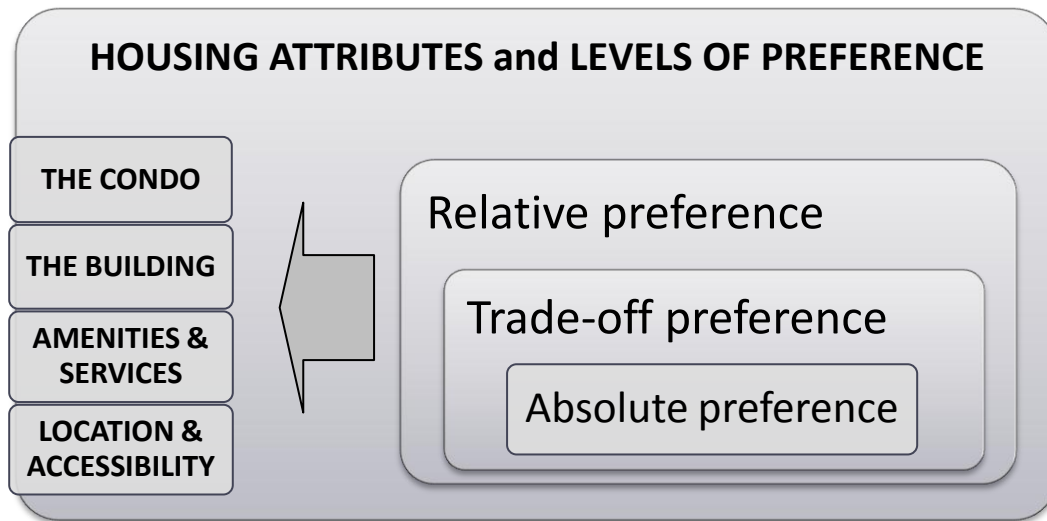
Figure 1: Homebuyers' preference for groups of housing attributes

4. METHODOLOGY

The research approach and applied methods are introduced hereafter. Followed is a discussion on methodological validity and a description of research design and data collection procedures.

4.1. Research approach

4.1.1. Revealed preference and stated preference

The topic of housing choice and housing preference has been extensively explored in literature with two main appoaches: revealed preference and stated preference. The former is based on observation of households' actual choices in real markets. The latter is based on people's responses to hypothetical dwellings (Timmermans, Molin, & Noortwijk, 1994), of which two methods are employed. One separately and explicitly measures respondents' evaluations of different attributes and the relative importance weight of each attribute (direct measurement), and the other uses hypothetical profiles comprising combinations of attributes (conjoint analysis) (Molin, 1999). The first method will not be reviewed because of its popularity. The second method, conjoint analysis, will be briefly described below.

4.1.2. Conjoint analysis in housing research

4.1.2.1. Conjoint analysis

Conjoint analysis has its origin as a method that decompose consumers' preference into partial contribution (part-worth) of product features so that the researcher could "explain the preference of existing products" and furthermore "stimulate preference for entirely new products that were defined by feature combinations" (Hauser & Rao, 2002). Since then it is used universally in

24

marketing research to predict consumer behavior (Cheung & Chung, 2008), and is adapted to measure housing/residential preference by various authors.

In view of that, a housing unit can be depicted in terms of a set of attributes and homebuyers form preference by cognitively combining the utilities they derive from the attribute levels into an overall measure of preference. A number of hypothetical housing alternatives are designed using the principles of constructing statistical experiments; then respondents are asked to express their strength of preference for each of the alternatives. These overall preference measurements are decomposed into the utilities that is connected with each attribute level in order to estimate a utility function. Afterward, a conjoint analysis is used to test the validity of the function and estimate the utilities. (Timmermans & van Noortwijk, 1995; Orzechowski, et al., 2005).

As described, conjoint analysis is based on the evaluation of the housing unit as a whole to examine the importance level of attributes (which is different from the revealed approach which is based on the subject's evaluation of separate attributes), therefore it allows different evaluation perspectives and their "trade-off" relationships (Cheung & Chung, 2008).

4.1.2.2. Some researches using conjoint analysis

Conjoint analysis has been a generally acknowledged method for measuring residential prefrence in the last decades (Orzechowski, Arentze, Borgers, & Timmermans, 2005).

One of the early studies is by Knight & Menchik (1974), in which the authors study home-owners preference for suburban land development patterns, including off-lot visual environment quality, on-lot space-using characteristics, and house price. Another study by Louviere J., (1979) investigates consumers' preference for housing alternatives, focusing on asking price, distance to work/major shopping centers/neighbourhood shopping, number of bathrooms and bedrooms, garage, landscaping etc. and proposes a general conceptualization of the individual residential location choice. Research by Veldhuisen & Timmermans (1984) confirms the validity of conjoint measurement in specifying and assessing residential utility functions.

Some studies focus on buyers' preference for the dwelling and its environment. For instance, Bond (2001) examines the importance of land contamination and other property attributes in buyers' purchasing behavior of remediated residential land. Others consider preference for access and location of dwellings. A typical study is by Louviere and Timmermans (1990) where the authors survey the preference of 315 people who have just changed residence. Hypothetical housing profiles were created with attributes from two groups: housing attributes (number of rooms, type of house, mortgate/rent, tenure, etc) and attributes of the residential environment, economic and social ties and relative location (access to school, bus stop, shopping center, work and urban recreational facilities). Likewise, research by van de Vijvere, Oppewal and

Timmermans (1998) assumes that "individuals when choosing a house base their opinions on higher order decision constructs", and the order of decisions in this case is house - residential environment - accessibility. The two studies and some others studies on this subject are reported in Molin & Timmermans (2002).

In a study on housing preference in Chinese transitional housing system, Wang & Li (2004) examine the joint choice of dwelling and neighbourhood by potential homebuyers in Beijing. Housing profiles are constructed using orthogonal designs, with features of the neighborhood consisting of accessibility, public services, convenience, environment quality, and exterior appearance; and features of dwellings including dwelling type, size, layout and interior design. Data are collected by interviewing 1600 households residing in the eight urban or inner-suburban districts of the city in the year 2001. The study shows that, neighbourhood variables are more important than dwelling ones in the choice of housing in Beijing, of which districts with good reputation and neighbourhood security are highly favoured. So is good accessibility to major districts and to fresh and daily markets. Regarding dwelling layout, Beijing citizens prefer small bedrooms and large living rooms.

In a study on buyers' preference for condominium properties, Abdun Hamid, Kamarudin, & Lay Hoon (2008) adopt the traditional full-profile conjoint method to examine the attributes favoured by middle-income people in the city of Johor Baru, Malaysia. A group of 76 respondents were presented with eighteen sets of profiles made up from three most important attributes of condominium properties. Utility was measured with a rating scale, where 10-point score stands for very high level of preference and a zero-point score represents non-preference. The findings verified that the most preferred attributes by buyers were related to price, built-up area and location. Accordingly, the authors offer some implications in condominium marketing, particularly for product characteristic mapping and buyer's demographic mapping. They also emphasize the use of conjoint analysis in helping property marketers estimate the utility of typical condominium-buyers with regards to certain combinations of attribtutes in their purchase decision.

From a different angle, Orzechowski, Arentze, Borgers, & Timmermans (2005) present a conjoint analysis of housing preference to illustrate the effect of presentation styles. An experiment was designed with attributes concerning possible extensions of a base design of a house and the additional costs that would arise. Specifically, a set of attributes including layout, number of bedrooms, presence of dormer windows, and price with different attribute levels were used to construct 128 hypothetical profiles; then an orthogonal fraction design was adopted to create 32 choice sets. The respondents were then presented with these choice sets in two different styles: verbally/textually, and visually (using multi-media). The authors found out that presentation style does not have considerable effects on the estimated utilities for the attributes

levels. Therefore researchers could adopt verbal description style, which is less costly, to produce valid housing preference. However, the reliability of the experiment could be improved using visualization presentation style.

The extension of conjoint analysis method in housing preference research has also been considered by various authors. Molin, Oppewal, & Timmermans (1997, 1999) start with traditional individual-based conjoint preference models of residential preference and develop an approach to modelling group preference. The findings reveal that preference structures are different between individuals and groups, the group model surpasses the conventional models in predicting group preference for new residential environments. Some authors use conjoint analysis (stated-preference) in combination with revealed preference method, e.g to examine "environmental amenities at residential location" (Earnhart, 2001) and "recreational site choice" (Adamowicz, Louviere, & Williams, 1994). They all suppose that the combination yields some benefits in estimation. Last but not least, conjoint preference analysis are extended by including the similarity between attributes and taking in many different attributes (Orzechowski et al., 2005).

4.2. Methodological validity

4.2.1. Research approach validity
Both stated-preference and revealed-preference approaches have their own methodological problems. Revealed-preference approach relies on actual observations of consumers' choices and interprets these data in terms of utility-maximizing behavior. However, the actual choices do not always mirror the underlying preference of buyers but the joint influence of preference, market conditions and availability (Timmermans, Molin, & Noortwijk, 1994). Apart from households' preference, limit in real housing opportunities on the market, financial resources, market regulations or demand-supply imbalances may influence housing choices (Andersen, 2009), therefore it is very difficult to interpret the choices in terms of preference. Differently, stated-preference approach is based on people's expressed preference and choices on hypothetical alternatives. However, the hypothetical nature is also its methodological problem because by this approach people do not necessarily take into account the possibilities of realizing their preference.

In terms of validity, revealed-preference approach is highly applicable for predicting housing choice in short-term, because it estimates residential preference under prevailing market conditions. Alternatively, stated-preference approach is more suitable for identifying underlying preference functions because it allows unbiased estimation of housing preference. With application of conjoint analysis, it is possible to estimate preference for not-yet-existing housing profiles by collecting responses to hypothetical alternatives. Stated-approach therefore is very

appropriate for predicting preference for new residential areas, which are typically planned for long-term (Molin E. J., 1999). Taken together, stated-preference seems to be a better approach for the objectives of the research.

4.2.2. Research method validity

Two common means of stated preference, direct measurement and conjoint analysis, will be adopted to examine young households' preference. The author will conduct a survey where participants are asked to express: a) their preference on various attributes of condominium properties; and b) their joint-preference on a number of hypothetical housing alternatives.

The two methods have their own advantages and validity concerns. Direct measurement allows the examination of a broad range of attributes, though there is a concern that when directly asked to rate the importance of various attributes on a rating scale, respondents often assign high importance scores to all the attributes (Chiam, Soutar, & Yeo, 2009). Conjoint analysis, on the other hand, is not efficient in examining a large number of attributes, but can be designed to incorporate some "realistic" financial and location restrictions. These restrictions, to some extent, may improve the validity of stated preference approach that preference of consumers is not bounded by financial restrictions and limited choices in real world. In this particular research, the two methods are expected to complement each other in reaching research purpose.

4.3. Research design

The research was carried out in the form of a questionnaire, considering the advantages of this technique in collecting opinion/attitude towards products or services, especially when the research involved a large sample size. Questionnaire is also cost-effective and familiar to most people.

The author employed a paper-and-pencil questionnaire, which make it easy to comprise a wide range of questions. This questionnaire administration also assists data compilation and statistical analysis. The questionnaire was composed in English and translated into Vietnamese language. An English version can be found in the Appendix.

The experimental questionnaire consisted of three sections. The first section included questions regarding demographic characteristics of the respondents. The second section was a direct measurement of preference for a range of condominium's attributes. The third section was designed to examine respondents' joint-preference on a number of hypothetical housing alternatives.

4.3.1. Respondents' profile

The first section aimed at identifying homebuyers' motivation when purchasing a new home, as well as some demographic features of the respondents.

4.3.2. Average strength of preference

The second section was designed to measure average preference of respondents on various attributes of the condominium. These attributes were selected on the basis of previous studies (Floor & Van Kempen, 1997; Andersen 2009) and current practice of local market. The attributes were grouped in four headings: the condominium, the building, local amenities and services, and location, as illustrated in the conceptual framework.

Preferences for the condominium include subjects such as design and appearance, well suited to with daily activities, orientation, layout, etc. In addition to the physical layout and design of the condominium, three attributes "developers' price policy", "developers' reputation" and "time of completion/closing time" are added because these are of high importance to purchasing decision of homebuyers when buying and advance payment dwellings. *Preferences for the building* consist of conditions of the building that accommodate the condominium, such as safety and security, view to green space, management fees, etc. Preferences for local amenities and services include groceries stores, restaurants and café, daycare and playgrounds, etc. *Preferences for location* include attributes such as good access to public transport, good access to central districts, proximity to kindergartens and schools, proximity to shopping centers, etc.

Respondents were asked to directly rate the importance of the attributes to their purchasing decision. As discussed above, a major weakness of direct measurement is that respondents tend to give high importance scores to most of the attributes. To avoid this, an importance scale of three levels, as introduced in Floor & Van Kempen (1997) is adopted in order to capture the "trade-off" decisions of the respondents. The levels are:

- Highly important: the attributes are significant to the respondents' purchasing decision and they will not buy the property if these attributes are missing (absolute preference).
- Important: the attributes are important to respondents' purchasing decision but can be sacrificed if other benefits are satisfied (trade-off preference).
- Not important: the attributes are of some important but does not lead to the abandonment of purchasing decision if missing (relative preference).

Corresponding indexes were then calculated to measure the average strength of preference for the examined attributes. Index 100 meant that all respondents evaluate the attribute "highly important", 50 meant that they assessed the attribute "important", and 0 meant they estimated the attribute "not important".

4.3.3. Conjoint analysis

The third section was a conjoint analysis experiment that was intended to examine the preference functions of respondents.

4.3.3.1. Assumptions

Two basic assumptions of conjoint analysis for housing research are: a dwelling or housing unit can be depicted as a combination of various levels of a set of attributes, and the levels of attributes determine overall measurement of buyers, i.e. homebuyers will trade-off some attributes for others when forming their preference for housing alternatives.

4.3.3.2. Experiment design

As reviewed in 4.1.2, conjoint analysis has been widely used in examining preference for a wide range of residential attributes, including house price and land development patterns (Knight & Menchik , 1974); house price, distance to work and major shopping centers, number of bathroom and bedrooms, landscaping (Louviere J., 1979); housing charactertistics vs. characteristics of the residential environment, economic and social ties and relative location (Louviere and Timmermans, 1990); dwellings attributes including dwelling type, size, layout, interior design and neighborhood attributes including accessibility, public services, convenience, environment quality, and exterior appearance (Wang & Li, 2004). In this research, the conjoint analysis did not include a large number of attributes because the respondents may find it difficult to evaluate many attributes at a time. A large number of attributes would also increase the number of possible hypothetical profiles, which may confuse the respondents. Taking into accounts the choices of the previous studies and the scope of the thesis work, only three important attributes (location, price and floor area) are selected for the experiment. These attributes are supposed to be among the most important factors considered by households when buying a dwelling.

Different levels of the attributes are determined based on common practice in local real estate market. Location is assessed as distance to city core with two levels: within 15km (the central districts) and over 15km (outside the central districts). The levels are based on the differences between social infrastructure and living conditions in and outside the central districts. Floor area is determined as small and standard, as commonly classified in condominium construction in Hanoi. Large floor-area condominiums (120-150m^2) are not included since these typically are not targeted at young households with average income. Price (per square meter) includes three levels (low, medium and high), as commonly classified by local real-estate agents. The attribute levels are presented in the table below:

Attributes	Description	Attribute levels
Location	Close	Within 15km from city centre
	Far	Over 15km from city centre
Floor area (per unit)	Small	Under 80 square meters
	Standard	From 80 to 100 square meters
Price (per square meter)	Low	Under USD1200
	Medium	From USD1200 to USD1500
	High	From USD1500 to USD2000

Table 1: Attributes and attribute levels

These attributes form 12 hypothetical profiles. Since the number of attributes and the number of attribute levels are small, full factorial design is chosen to achieve the best estimation of main effects.

The profiles are directly presented to respondents; and the respondents are asked to express their strength of preference of each profile on an eleven-point scale (0-10) according to their preference, where 0 represents "I definitely wouldn't buy" and 10 represents "I definitely would buy". These profiles as part of the whole questionnaire can be found in the appendix.

The basic model of conjoint analysis assumes a linear relationship between utility and each attribute level as follows (Molin E. J., 1999):

$$U(X) = \sum_{i=1}^{m} \sum_{j=1}^{k_i} \alpha_{ij} x_{ij}$$

where
U(X)   = overall utility of a profile
α_{ij} = the part-worth contribution or utility associated with the j th level (j, j = 1, 2, . . . k_i) of attribute (i, i = 1, 2, . . . m)
x_{jj} = 1 if the j th level of the i th attribute is present; = 0 otherwise
k_i = number of levels of attribute i
m   = number of attributes
The importance of an attribute, I_i, is defined in terms of the range of the part-worths, α_{ij}, across the levels of that attribute.
The attribute's importance is calculated to determine its importance relative to other attributes, W_i:

$$W_i = \frac{I_i}{\sum_{i=1}^{m} I_i} \quad \text{so that} \quad \sum_{i=1}^{m} W_i = 1$$

OLS regression technique will be applied to estimate the preference functions of each respondents. Dependent variable is the profile rating, and independent variables are formed by the coded attributte levels. The estimated regression coefficients are then interpreted as the part-worth utilities that make up overall ratings of the profiles. The attribute's importance are understood as the extent to which each attribute contributes to the determination of the utility, i.e. to the overall preference. At last, total utility of every profile is computed and ranked from largest to smallest, assuming that the respondents are utility maximizers, who will select the profile that yields highest utility.

4.4.   Data collection

Respondents were chosen among customers who visited two real estate agents in Hanoi. The two agents offer a wide range of condominium properties at different price levels, in various new urban areas, which are delivered by many developers. Both agents are located in good locations and attract a large number of customers. By this way, the author expected to get a representative sample of young households who are potential condominium buyers in metropolitan areas of Hanoi.

Customers who expressed their interest/demand for condominiums in new urban areas were asked to answer the questionnaires during their waiting time. They were informed that the questionnaires were part of a research aiming for a better understanding of homebuyers' needs, and served the purpose of improving the design of condominium properties and surroundings in new urban areas. It was confirmed that personal information collected from the questionnaires would be kept confidential; and all the data would be use solely for the stated research purpose.

On average, it took the respondents 8 minutes to complete the questionnaires. Data were collected in four weeks, with the help of some agents' staff. In total, 103 responses were obtained. However, 11 of them were eliminated due to important information missing. The remaining 92 responses were qualified for data analysis.

There is a concern on selection bias as the two real-estate agents mostly offer condominiums from low to medium-high price; majority of customers who visit their offices therefore are potential buyers who are searching for condominiums at these price ranges. Buyers who look for very high price condominiums may be omitted to a certain extent.

5. FINDINGS AND ANALYSIS

Findings from the analysis of collected data are be presented in this section. The first part depicts some demographic features of the respondents. The second part shows preference of the respondents for various attributes, which were derived from direct measurement. The third part illustrates results of the conjoint analysis.

5.1.   Respondents' profile

Table 2 shows the demographic profile of the respondents. Nearly all are at the age of 25-35 (~98%). Half of 92 respondents are at the age of 25-30, the golden age for marriage and first child in Vietnam. Majority (72%) are married, though only one-third have their own home. Half of them are living with parents and 18.5% are living in rented home. Typically, young people start their housing career at the age of 25-35, after marriage or after the birth of the first child, due to the cultural perception that homeownership is a symbol of settlement and wealth of a

household (as presented in section 1.2). For that reason, a permanent dwelling is the first priority of most young households.

Majority of the respondents (74%) want to find a home for 3-4 family members, the common size of young households in Vietnam. Very few want to find a condominium that will house 5-6 people. It is reasonable to infer that the young households mostly buy condominiums for their small families, including parents and one or two children (not their extended ones with grandparents). Families with more than 6 members probably prefer living in independent housing than living in condominiums.

Regarding the reasons for buying a new home, the most popular reason is housing status improvement (chosen by 29% of the respondents who may move out either from parental home, rental home, or home with less comforts and conveniences). Approximately 20% buys a new home to prepare for their family life. About 24% of the respondents need bigger space when they have more children. About 17% want to buy the condominium for investment purpose, and 17% suppose it is a good time to buy a new home.

Demography	Frequency	Percentage
Age groups		
Under 25	2	2.2
25-30	47	51.1
30-35	43	46.7
Marital status		
Married	66	71.7
Single	21	22.8
Divorced	5	5.4
Widowed	0	0.0
Homeownership status		
Parental home	45	48.9
Own home	30	32.6
Rented home	17	18.5
Number of residents in the new home		
1-2	16	17.4
3-4	68	73.9
5-6	8	8.7
More than 6	0	0.0
Reasons for buying new home		
Preparation for marriage/newly-wed	19	20.7
Lack of space due to family extension	22	23.9
Change of job	5	5.4
Change for a better housing status	27	29.3
Good time to buy	16	17.4
Investment	16	17.4
Others	2	2.2

Table 2: Respondents' demographic features

5.2. Preference for various attributes

Respondents were asked to express their preferences for various attributes of condominium, building, local amenities services, and location. The relative importance of such attributes are expressed by corresponding indexes and illustrated in figures 2-5.

5.2.1. The condominium

Developers' price policy and Time of completion/Closing time seem to be the most significant attributes to the respondents, with 70% of mark these as "highly important".

Developers' price policy (including price, installment, and mortgage rate, etc.) is the biggest concern of the households. Of the respondents, 52 out of 92 said that they would not make the purchase if developers' price policy were not suitable. Due to very high-income housing price ratios and difficult access to bank loans, it is understandable that an appropriate price policy in terms of initial payment, numbers of installments, mortgage rates, etc. is vital to potential buyers. Developers' price policy is even more important when buyers make a purchase in the form of advance payment of housing to be formed in future. As described in section 2.4, payments from buyers are made multiple times and to be used as a source of financing the projects. In fact, initial deposit, time and amount of payments, and other conditions offered by local developers are greatly varied. Due to the incomplete regulations regarding advance payment purchase and sales, developers may impose conditions for their advance payment contract and homebuyers rarely have chance to negotiate.

Time of completion/Closing time is also an essential factor. About 68% of the respondents do not have their own home; and the biggest reasons for buying a new home is to improve their living conditions and to get more space for their families, so they have much concern about when they can move in the new home. For households who buy completed condominiums, the purchasing process may last several months but sometimes the paperwork may last several years. For households who buy condominiums with advance payment, time of completion is even of greater concern. Time of completion delayed for months because the developers have difficulties in financing the projects or conflicts occur in land clearance.

Developers' reputation and credibility is also important to homebuyers. In the local market, financial situation of developers and construction quality are not strictly supervised and verified by a third party. Therefore, homebuyers may have to rely on reputation and credibility of the developers as an indicator of housing quality.

Regarding physical attributes of the condominium, materials and construction quality is of high importance to majority. Ranked the second is the design which is well suited to daily activities. Attributes such as orientation, nice appearance and basic furniture are less concerned.

About the layout, people are likely to prefer large sitting room to large bedroom. This is somewhat different from typical apartments in Vietnam, which have rather large bedroom compared to living room. The large bedroom used to serve as "common space" for the family since children usually sleep in their parents' bedroom when they are small. However, the role of living rooms as common space for the whole family is likely to be better appreciated by young households.
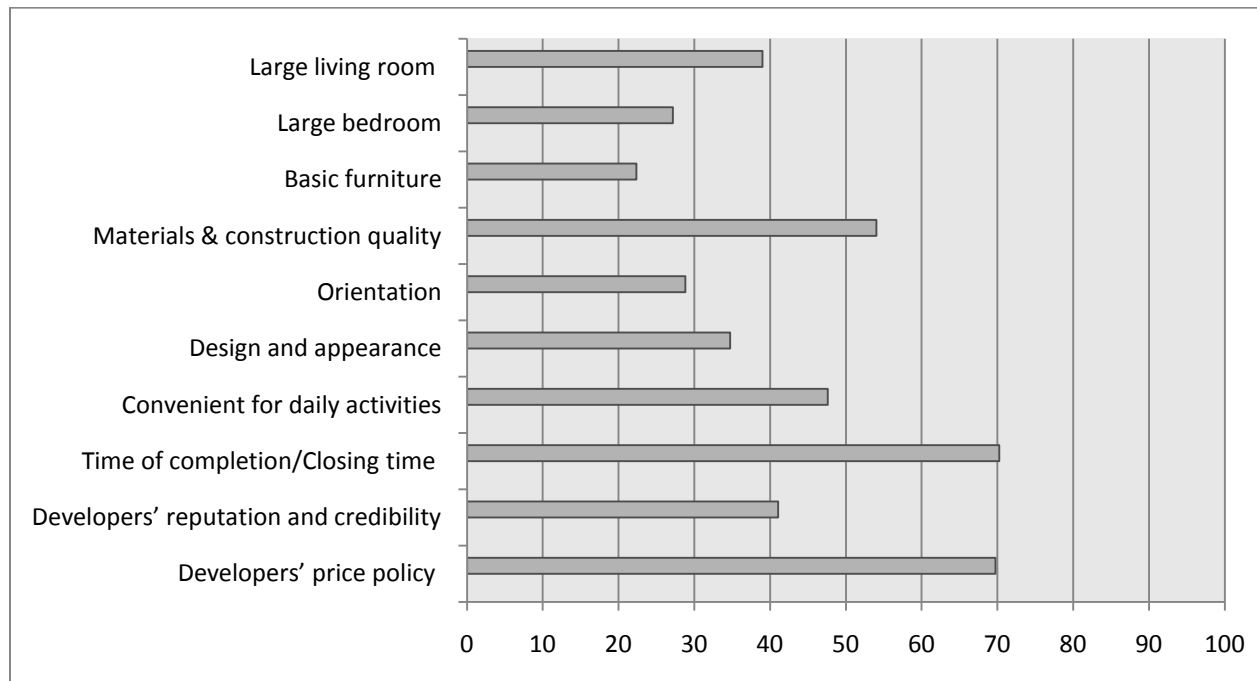

Figure 2: Relative importance of condominium attributes

5.2.2. Building

Management fees and supply of water & power are the most important attributes of the building, according to the respondents. Following are safety and security, clean environment, and view & access to green space. Car parking space and layout of the surroundings are somewhat less important, while not many are concerned about apartment level.

The importance of management fees to homebuyers' preference can be explained by the subtle and mixed regulations on the subject. Until the beginning of 2010, common space in high-rise buildings is not explicitly defined by law. Neither are the management fees of the buildings in new urban areas. Developers may take advantage of the situation and do not specify the fee in the contracts. There are cases where homebuyers are imposed very high management fees as well as parking/storage fees. Another reason is that local people traditionally are not familiar to paying management fees. People do not have to pay management fees when living in self-help housing or in old-style condominiums/building apartments.

The supply of water & power is also an important attribute (43% of the respondents take this as "highly important"). This may come to concern of the buyers because, the power and water supply system for areas that are far from city centers may not be fully completed or of stable quality. Blackouts in suburban districts are relatively common in peak season (summer) due to the long-term shortage of power that forces suppliers to give priority to central districts when needed.

Safety and security, clean environment, and view & access to green space are given more weight than the layout and infrastructure of the neighborhoods. Especially, safety and security is regarded as an absolute attribute by 36% of the respondents, and as an important attribute by 44% of the respondents. An unpolluted environment and view & access to green space are seen as "absolute attributes" by more than 20% of the respondents, while half of the total respondents thought that they were "important", though can be sacrificed if other favorable attributes can be achieved. That means the households are concerned about qualities of the living environment that are good for small children.

It comes to the surprise of the author that apartment level does not get much attention of the respondents, with 70% think that apartment level is "not important". Customarily, many homebuyers want to live in upper floors in big-size buildings because of better view and air, and quieter atmosphere. Upper floors are also preferred because they help avoiding common problems of tropical climate such as high humidity and mosquitoes. Meanwhile, fewer families with old people or families who plan to open a small home-based shop choose to live in the first floor or the first couple of floors. However, in this context, it can be seen that the floor/storey level is the attribute that can be sacrificed for other critical ones.

About car parking, barely 17% will not buy the condominiums if there is no parking space. The low figure might be attributed to extremely high price of cars and the traffic that are not very car-friendly. Nevertheless, it is worth noting that half of the respondents regard car parking space "important" to their purchasing decision. Many new urban areas are now in the expanded areas of the city. Since public transport is generally underdeveloped, many families may have plan to buy a car in near future, especially if there are changes in tax policy on private cars that make overly-priced cars cheaper.

Another reason for the buyers' concern is the fact that, there is no or little space for parking in new urban areas that were built in the last 10 years. Pricey land and lack of regulations on parking space are named as the main reasons. Developers get little benefit in investing in basement parking space. What's more, many of them were not fully aware of the need for parking in the residential areas after five or ten years, which caused a serious shortage of parking space and a series of conflicts between residents and developers/management companies.
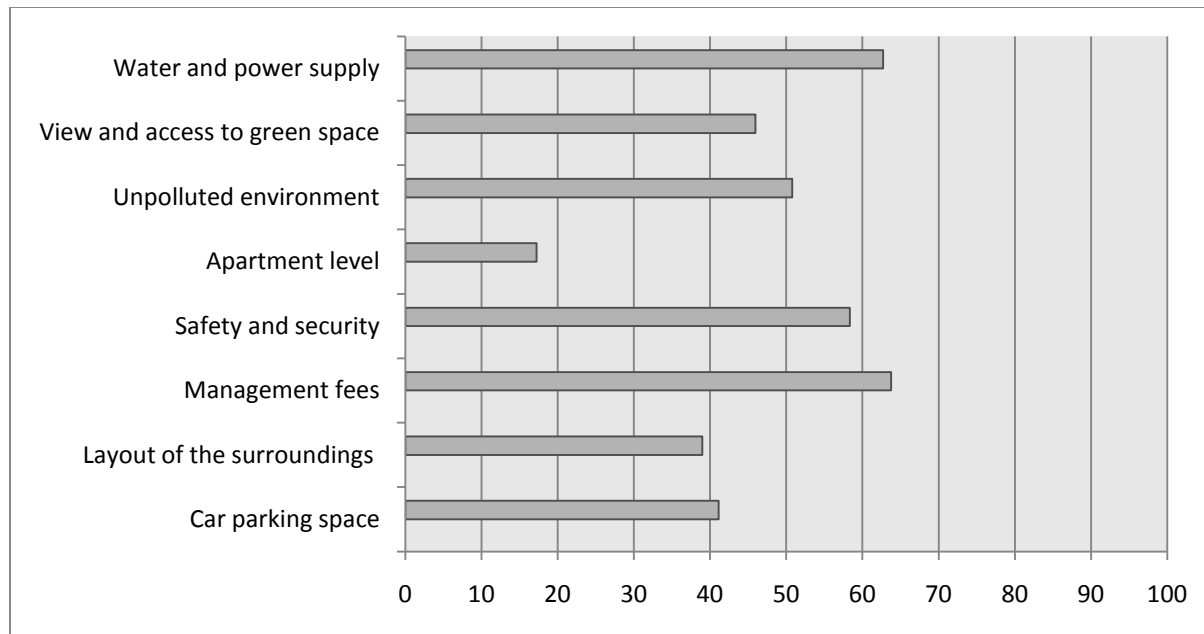
Figure 3: Relative importance of building attributes

5.2.3. Local amenities and services

Day-care services and playgrounds are very important to most of the respondents (84% take these facilities as "important" and "highly important"). Most of young households whose heads are younger than 35 typically have children at the age of nursery school or kindergartens. Considering short maternity leave (4 months) of the mothers and the popularity of dual-career families, day-care services are clearly of great demand. So are playgrounds, which are rather "luxury" in the inner city.

General infrastructure of the neighborhood ranks the second, with 30% considers it "highly important" and 40% "important". This seems rational providing that the infrastructure of the neighborhood (and the infrastructure of the new urban areas in general) make up a large part of condominiums' value.

Food and grocery stores rank the third, with half of the respondents state that it does not have big impact on their purchasing decision. Given the fact that these are facilities serving daily necessities, the preference for them are relatively low. This may be due to the tradition of shopping for groceries and necessities from open-air markets rather than small-size food and grocery stores nearby. Meanwhile, recreational facilities such as swimming pools, restaurants and café are given the least weight of importance when approximately 70% of the respondents say that these attributes do not cancel their purchases if missing.
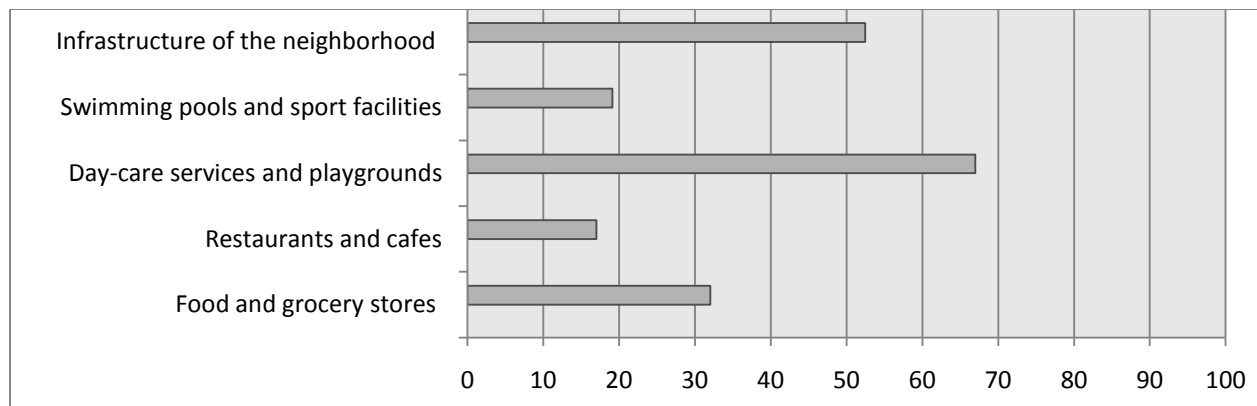
A bar chart titled with the following categories from top to bottom: Infrastructure of the neighborhood (~53), Swimming pools and sport facilities (~19), Day-care services and playgrounds (~67), Restaurants and cafes (~17), Food and grocery stores (~32). X-axis ranges from 0 to 100 in increments of 10.

Figure 4: Relative importance of local amenities and services

5.2.4. Location

Access to central districts is the most important to the respondents. Of the respondents, 63% will not make their purchase of condominiums without good access to central districts, and 27% state that it is important. Hanoi is a highly centralized city. Most public sectors and private companies have their offices in the inner city. So do high quality schools, universities, hospitals, large shopping and entertainment centers, etc. Therefore, proximity to major city centers provides good access to jobs, study, entertainment and variety of services.

The second is proximity to kindergartens and schools, which is vital to young households with children. The third is proximity to shopping centers and retail stores. Somehow, this reflects a growing trend that more and more families especially the young ones are gradually turning to shopping centers and large retail stores besides traditional open air markets. Proximity to recreational facilities and services also has relatively high preference. Facilities and services such as cinema, fitness centers, and restaurants serve the big demand for entertainment of young households.

It should be emphasized that, access to public transport and communal centers & public services get rather low preference. Of the respondents, 58% reveal that access to public transport is just somewhat important and does not have strong influence on their decision, 29% believe it is important, and barely 12% think access to public transport is vital to their new home. This is not surprising since personal vehicles (mostly scooters) are extremely popular, while public transports are generally underprovided and ineffective.
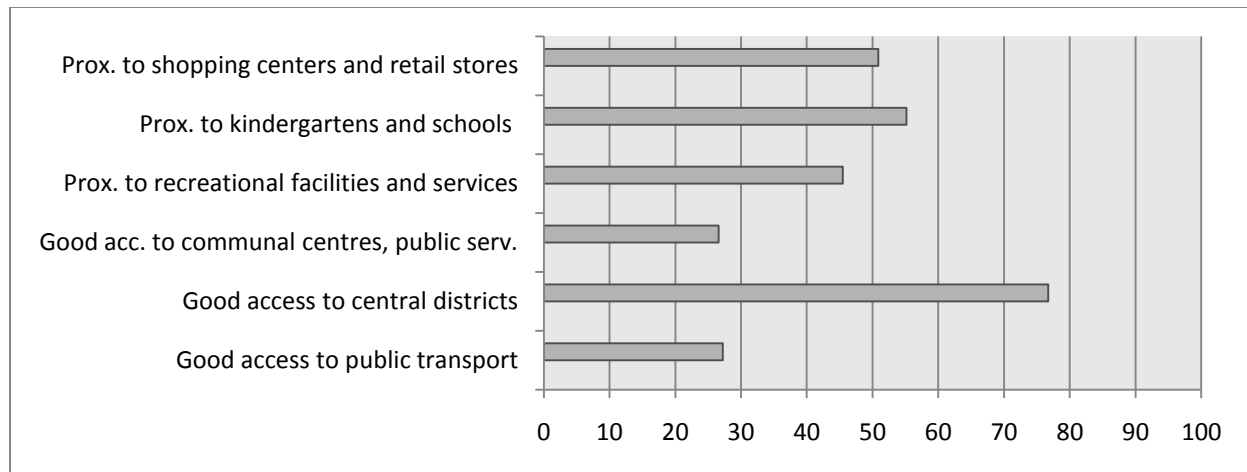
38

5.3. Conjoint analysis

Preference values given to the hypothetical profiles were analyzed with the conjoint procedures in SPSS software (Statistical Package for the Social Sciences) version 17. Outcome of the analysis including correlation coefficients, estimation of part-worth scores, and relative importance of attributes, is shown in the table below:

		Utility Estimate	Std. Error	Coefficients	Importance Values
Location	Within 15km	-0.816	0.333	-0.816	26.394
	Over 15km	-1.632	0.665		
Floor	Under 85sqm	0.621	0.333	0.621	20.074
	85-100sqm	1.241	0.665		
Price	Under USD1200	-0.828	0.204	-0.828	53.532
	USD1200-1500	-1.655	0.407		
	USD1500-2000	-2.483	0.611		
(Constant)		7.584	0.832		
	Value	**Sig.**			
Pearson's R	0.874	0.000			
Kendall's tau	0.697	0.001			

Table 3: Conjoint analysis's outcome

5.3.1. Correlation coefficients

The correlation between observed and estimated preferences Pearson's R = 0.874 and Kendall's tau =0.679, indicates that there is reasonably high agreement between the averaged profile ratings and the predicted utility from the conjoint analysis model. It can be concluded that the goodness-of-fit of the model is satisfactory.

5.3.2. Estimation of path-worth scores

The utility estimates (or path-worth scores), which are the coefficients of the linear regression; provide the measure of the preference for every attribute level. These part-worth scores allow comparison among utility levels of the same attribute with larger values indicating greater preference. The constant (7.584) can be regarded as base utility, and the attribute levels contrast with it in positive and negative direction. The sign (positive or negative) shows the direction for the linear relationship between value of the attribute level and preference for it.

Accordingly, it turned out that the respondents preferred living within 15km from city centre to living further than 15km from city centre (-8.016 compared to -1,632). Regarding size, standard-size floor area (85-100 square meters) were given higher preference than small floor area under 85 square meters (0.621 compared to 1.241). In other words, larger floor area gave higher utility, as expected. Similarly, there was an inverse relationship between price and utility, with lower price corresponding to higher utility, everything else equals. The price range under USD1200 was most preferred, followed by the USD1200-1500 range and USD1500-2000.

5.3.3. Importance values

The importance values are computed as the percentage ratio of utility range for each attribute and the sum of the utility ranges for all attributes. Attributes with larger utility ranges have more influence to overall preference than attributes with small utility ranges. These values, hence, allow the comparison of relative importance across attributes. As illustrated in figure 6, price was the biggest concern to the respondents, with overwhelming importance values of 53.5%. Meanwhile, the respondents gave more weight to the location than to the size of the condominiums (26.4% compared to 20.0%). This means, price was the most influential factor to the preference of respondents. To some extent, it can be inferred that an individual would likely be willing to move further or live in smaller place rather than paying higher price. Besides, location may get higher priority than floor area in buyers' purchase
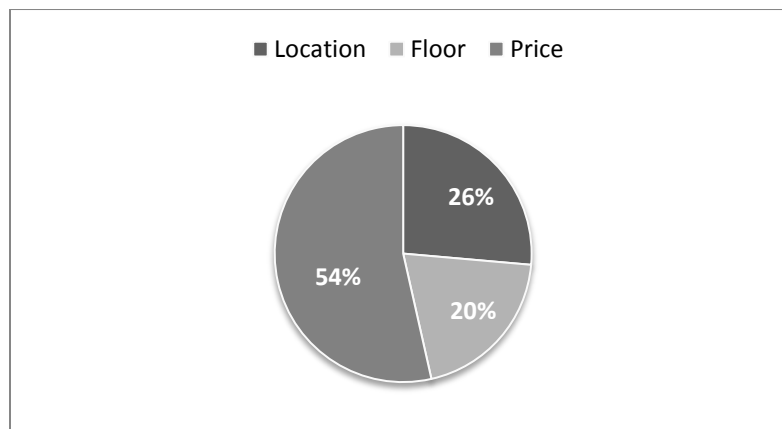

Figure 6: The influence of each attribute to overall preference

5.3.4. Total utility of experimental profiles

5.3.4.1. Total utility of 12 housing profiles

The total utility of the profiles are sum of the part-worth utility values. Ranking these total utility values shows the respondents' order of preference for the experimental profiles and gives an insight into overall preferences of the respondents. Total utility of 12 profiles and their rankings are presented in table 4.

Among twelve profiles, profile 3 was the most preferred. With the total utility of 7.18, its utility value was significantly higher than the rest. This was anticipated because the respondents picked the profile that was formed by the most favored attributes (a condominium located within 15km from city centre, floor area 85-100m^2, and cost less than USD1200 per m^2). However, this ideal profile is almost "too good to be true" and rarely exists, especially in the situation of local market. This brings the respondents down the ladder to other lower-utility choices.

The second highest utility profile was profile 11. This profile was "one step down" compared to profile 3, where the respondents trade-off the size of floor area to stay within 15km from city centre and still pay less than USD1200 per square meter. The third was profile 6, where the respondents exchanged location (by moving further from city centre) for larger floor area (85-100 square meters) and good price (under USD1200).

The next was profile 4, for which the respondents were willing to pay higher price (USD1200-1500) to achieve the relative utility as provided by profile 3 (close to city centre and large floor area). Profile 7 followed, indicating that the respondents opted for larger distance to city centre and smaller floor area to preserve the low price. Similar trade-off pattern was observed at lower ranked profiles.

Ranked lowest were two profiles 5 and 12, which were possibly predictable. Profile 5 was "one step up" from profile 12. It had small floor area and the price seemed to be unaffordable to many of the respondents, but contained a favored attribute level (close to city centre) thus provided slightly higher utility value. Profile 12 was the combination of the least preferred attribute levels (far from city centre, small floor area and high price), and as expected, ranked lowest by the respondents.

Generally, the order of preference for these profiles implies that, the respondents buy their home on utility-maximizing basis. That means they aim for the housing profile that yields highest utility at lowest price, and their preferences are formed by trading-off some attributes for others. The results support two assumptions of the conjoint analysis that, a housing unit is formed by the combination of different levels of a set of attributes, and when shaping their preference the buyers swap some attributes for others to achieve the combinations that yield highest utility.

Profile No.	Distance from city centre	Floor area	Price per square meter	Profile Utility	Rank
1	Within 15km	85-100sqm	USD1500-2000	5.53	8
2	Within 15km	Under 85sqm	USD1200-1500	5.73	6
3	Within 15km	85-100sqm	Under USD1200	7.18	1
4	Within 15km	85-100sqm	USD1200-1500	6.35	4
5	Within 15km	Under 85sqm	USD1500-2000	4.91	10
6	Over 15km	85-100sqm	Under USD1200	6.37	3
7	Over 15km	Under 85sqm	Under USD1200	5.75	5
8	Over 15km	85-100sqm	USD1200-1500	5.54	7
9	Over 15km	85-100sqm	USD1500-2000	4.71	11
10	Over 15km	Under 85sqm	USD1200-1500	4.92	9
11	Within 15km	Under 85sqm	Under USD1200	6.56	2
12	Over 15km	Under 85sqm	USD1500-2000	4.09	12

Table 4: Total utility of the hypothetical profiles

5.3.4.2. *Total utility of the most favorite profiles*

In table 5, the most favored profiles are sorted on utility values. It is noticeable that, some profiles have relatively identical utility. Profile 6 ranked the third with utility value of 6.37, while profile 4 ranked the forth with utility value of 6.35. Similarly, profile 7 ranked the fifth with utility value of 5.75 while profile 2 ranked the sixth with utility value of 5.73. This implied that respondents might have equivalent preference for different combinations of attribute levels. It can be predicted that buyers may switch to a different housing combination that yield the same utility value if their favorite one is not readily available.

It can also be seen that the location "within 15km from city centre" got high priority in respondents' preference. A group of buyers may ready to pay higher price, or sacrifice large floor area for small ones to live closer to city centre. Besides, the high utility of profile 6 also suggests that a group of respondents may want to move further from city centre to achieve larger size for the same price.

Profile No.	Distance from city centre	Floor area	Price per square meter	Profile Utility	Rank
3	Within 15km	85-100sqm	Under USD1200	7.18	1
11	Within 15km	Under 85sqm	Under USD1200	6.56	2
6	Over 15km	85-100sqm	Under USD1200	6.37	3
4	Within 15km	85-100sqm	USD1200-1500	6.35	4
7	Over 15km	Under 85sqm	Under USD1200	5.75	5
2	Within 15km	Under 85sqm	USD1200-1500	5.73	6

Table 5: The most favorite housing profiles

6. DISCUSSION

In this section, key points from the analysis are summarized and discussed with reference to previous studies on housing preference in literature. These points are also discussed in connection with current conditions of urban areas in Hanoi city in order to give a bigger picture of young households' preference in local context.

6.1. Insights from the analysis

Profile of potential condominium buyers

Based on the demographic features, young households as potential homebuyers can be portrayed as people at the age of 25 to 35; majority are married/about to get married; living in parental home or rented home; and looking for condominiums that will house a household of 3-4 members. Their motivations for buying a new home, such as marriage, family expansion, or change of jobs, are closely connected to changes in stages of a family's life cycle. It is likely that the lack of space plays the most important role in the young households' housing decisions, either in the form of housing needs arising after weddings, when a child is born, or the needs to improve housing conditions, etc. This conforms to the conclusion of previous studies that space deficit is one of their biggest concerns that come along with life cycle changes, especially during the expansion and child-rearing stages. It also supports the findings that young couples and married couples with preschool children, who are at the age of 20-35, are the most mobile groups who are most likely to act upon the availability of their favored housing attributes (Speare et al., 1974; McAuley and Nutty,1982; Clark and Onaka, 1983).

Housing characteristics

From the stated preference analysis, some features of the young households' housing preference are derived as follows (these main features are written in italics and numbered from 1 to 7):

(1) *Great concerns are expressed over developers and their commitments, ranging from reputation, price policy, time of completion, and management fees.*

(2) *The respondents were more concerned about basic quality of the housing units, such as materials and construction quality, electricity and water supply than attributes such as design and appearance, orientation, layout or furniture.*

These concerns may originate from the fact that, homebuyers are at a disadvantage compared with developers and sellers in the market. Activities of the developers are not strictly regulated, while legislation as a basis of transactions does not provide adequate protection to buyers' rights.

As discussed above, homebuyers must rely on commitments of developers on quality of the condominiums, because the construction quality is not supervised or verified by the authorities or a third party. Numerous conflicts have happened in reality, when the buyers suffer from low-

43

quality materials, the layout different from approved design, various facilities missing; ignored maintenance requests, unfinished basic infrastructure, or some construction criteria not conform to existing regulations. These conflicts may explain buyers' concern over basic construction quality to a certain extent.

Other common conflicts arise from deferred time of completion, unreasonable management fees, delays in transaction procedures, etc. Time of completion may be delayed from few months to few years for various reasons, e.g. the lack of funding of developers, fluctuations in price of construction materials, slow progress; but the buyers hardly get any compensation. Unclear regulations on ownership of common space are also a source of conflicts. Many developers retained the ownership to parking areas and basements and sublet these spaces to homebuyers at unreasonable price. Other charged regular fees for building management and irregular fees for using common facilities such as swimming pools or tennis courses. In practice, purchase contracts are drafted by the developers, while the sanctions for developers and sellers introduced in current housing law are limited and do not provide good basis for conflict settlement.

On the side of developers, delays in construction are largely caused by difficulties in land clearance and the lack of funding. As discussed in section 2.1, land clearance may be a lengthy process that last for years due to the consequences of the two-price scheme. Construction, thus, can be delayed for uncertain times. Construction may also stopped temporarily when developers rely on advance payments from homebuyers as a main source of funding but the payments are not made on schedule.

In the same way, developers sometimes cannot stick to their quality commitments due to time and financial pressures. Delays in land acquisition may force the developers to cut down on construction time, which may results in lower quality. Other commitments commonly violated are residential floor space ratio (the total floor area of a building in relation to the land area it is built on) or parking space ratio (the total parking space in relation to the land area). Because of very high land acquisition costs, developers usually build more condominium units while reduce the areas for parking and other common facilities to compensate high costs or achieve better profit per square meters.

As shown in the previous section, developers' price policy is a major concern of potential buyers. For the buyers, financing the housing purchase is a big challenge due to unpredictable and frequent fluctuations in house price, unstable private finance market, limited mortgage loans from banks, and very high mortgage rate. From developers' perspective, implementing a reasonable price policy is also a challenge, of which high-priced land is the main cause. Expenditures on land account for 80% price of a condominium, while construction costs account

for no more than 20%. High expenditures on land are made up of high costs for land acquisition, and a variety of over-the-counter fees, which tend to increase over time.

Living environment, facilities and services

(3) A portion of young households has high preference for safety and security, clean environment, view & access to green space; while half of them see the attributes as important, though can be sacrificed if other benefits can be achieved.

(4) Daycare services and playgrounds as well as infrastructure of the neighborhood are perceived more important than other services and recreational facilities.

(5) Accessibility to kindergartens and schools are highly appreciated.

These findings seem to support the conclusion of classic literature on housing preference that young households highly value child-friendly qualities of the living environments (McAuley and Nutty, 1982; Fuguitt & Zuiches, 1975). However, the preference for the qualities of living environment of the young households may conflict with the severe lack of urban space in the city.

As one of the most crowded cities in the world, with the population of 6.5 million and the density of 1 943 people per km^2, the demand of residents for public space and green areas in Hanoi are enormous but hardly met. Urban parks take up barely 3% of the total areas. Most of the parks are located in the core of the city; currently offer less than one square meter park space per capita in the central districts, and 0.05 square meters per capita in the periphery districts (Labbé, 2010). Green spaces are also scarce, with 0.9 square meters per capita in the nine central districts in 2011, substantially lower than the rate of 6-7 square meters per capital planned by the city. Besides, sidewalks and street spaces, which are informally used as replacement for recreational activities, are often dominated by street vendors and motor cycle parking. Access to safe and unpolluted space in the inner city is therefore very limited. This may explain the preference of homebuyers for space to "engage in social interactions, exercise, and escape from the traffic and pollution" (Labbé, 2010). In the inner city, space for children is almost absent. Children must take up small space of sidewalks and street corners as playgrounds, regardless of the busy traffic nearby.

In new urban areas, the situation is not much better since developers rarely obey the regulations on parks and green spaces. According to existing regulations, new residential projects should reach the ratio of $5m^2$ parks and green areas per capita in order to get construction permit. However, due to very high land expenditures, developers are tempted to reduce common space while authorities often fail to fine the violation.

Literature on mobility and housing preference, which was mostly conducted in developed countries, reflects that married couples and those who have young children tend to move to suburban areas in order to achieve a better environment for raising children. They may trade-off accessibility to job location, recreation and culture activities for lower cost of living, less crime, good air and water, and proximity to parks and clinics (AbuLughod and Foley, 1960; Pickvance, 1973; Lindberg, Terry, Garvill, & Garling, 1992). In this research, the respondents also expressed strong preference for qualities of living environment and some even have "absolute preference" for factors such as "unpolluted environment", or "view and access to green areas". However, at the same time they treasured accessibility to central districts and locations that were closer to city centre. It seems that they are not ready to move to the suburban areas, as suggested by literature.

Location, price and floor area

> (6) *Regarding location and accessibility, access to central districts is vital while access to public transport does not get much attention.*
> (7) *The conjoint analysis reveals that price is the leading factors to housing decisions of the households. Second to price, location seems to be more important than size of the housing units, with high priority given to locations within 15km from city centre. A portion of the respondents, however, prefers to live further in order to attain bigger living space.*

It appeared that, when taking consideration restriction on affordability, floor area and location, majority of young households are likely to retain in the city instead of moving further to achieve favorable housing and environmental attributes. This may be explained by the centralization of the city and the lack of flexible means of transportation.

Centralization of jobs, schools, health-care and other services

Before the economic reform in 1986, Hanoi had the "socialist patterns of urban structure", which encourage the close connection of employments and living in the form of self-reliant communities within the city that provide jobs, housing, as well as food, health care, education and other basic services. After the economic reform, the socialist pattern faded though still left its trace in the spatial structure of the city. Since then, Hanoi has been growing toward a mono-centric city with the central districts being the core of business, politic, education, entertainment and recreational activities. Headquarter and offices of most state ministries, embassies, joint ventures, state and private companies are located in central districts; so are schools, universities, hospitals and clinics. This results in the cluster of office buildings, apartment buildings, hotels, shopping centers and retail stores, cinema and stadiums (Nguyen & Kammeier, 2002). Consequently, job development concentrates in the densely populated central districts and decreases towards suburban areas, as illustrated in Figure7.

Due to the high level of concentration, proximity to central districts would provide households with not only job accessibility but also access to good schools for children; access to health care, as well as shopping centers and leisure activities. It is worth to mention the gap in quality between services in the inner city and in the suburb. Schools in the inner city are superior to "village schools", and hospitals in central districts are far better than poorly equipped hospitals in the suburb.
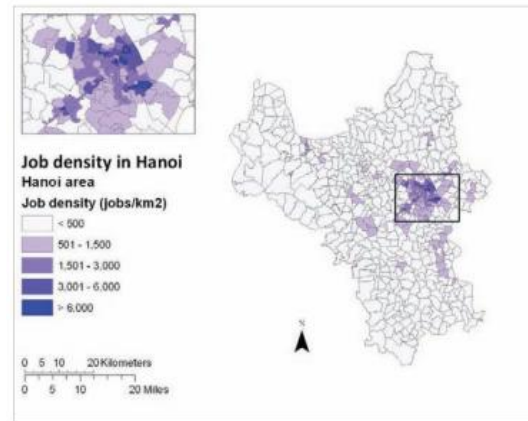

Figure 7: Job density in Hanoi (Pham, 2011)

The role of public transport and personal vehicles

Urban traffic in Hanoi is featured by "the lowest use of public transportation and the highest proportion of private transportation of all Asian capitals" (Labbé, 2010). Private vehicles, mostly motorbikes and scooters, account for 80-90% of total trips, with highest rate of motorbike ownership in the world (about 84% households owns a motorcycle, of these 40% owns more than two) (Schipper, Le, Orn, Cordeiro, Liska, & Wei-shiuen, 2008). Motorbikes are very popular thanks to the conveniences such as on-demand, door-to-door service, and the ability to make midway stops and carry extra passengers or packages. These characteristics make them very helpful for many urban residents who have more than one job and children to drop off and pick up at schools (Dapice, Gomez-Ibanez, & Nguyen, 2010). Car ownership, in contrary, remains pretty low (only 1,7% of households owns a car in 2005). Protective policy such as high import tariff and special consumption tax makes car price out of reach of most young households. Moreover, the use of cars in the inner city is limited due to small roads and traffic congestion. However, there is a potential growth in car ownership together with improving households' income. Public transportation meanwhile is not reliable, since it consists of only a bus network that can satisfy only 10% of the demand. There are no trams or commuter trains, while railway only serves long distances.

Currently, the huge demand for transportation of a mega city is outpacing the fragile traffic infrastructure. The city's road network represents only 7% of total land area, much lower than 15% in most European cities and 11% in China's large cities. Traffic infrastructure has already reached saturation point but expansion prospective is very limited, due to severely high cost of land acquirement and resettlement (Labbé, 2010). In addition, capacity of most streets is low. Barely 10-15% is wider than 12 meters, which is feasible for bus operations; 50-60% is 7-13 meters wide, which is suitable for car and minibus; and the remaining 30-40% is less than 7 meters wide, which is only suitable for motorbikes (ADB, 2010). Accordingly, household may

have poor accessibility to the inner city when living in the suburbs. Motorbikes do not support long distance, cars are too expensive and less flexible in small roads, while a public transport system connects the suburbs and inner city is still missing. The current bus network has low coverage and limited capacity and cannot compete with motorbikes or scooters by convenience and flexibility. Accessibility to public transport, therefore, is not necessary to most households.

6.2.   General discussion

In short-term, young households may want to retain in the inner city since they are not ready to trade-off accessibility to jobs, education, health care, entertainment and recreation for a better living environment. The rationale for this situation can be found in the practice of urban planning, land administration and traffic management.

The city's urban master plans for the period 2006-2010 has targeted at reducing population density in the central districts and encouraged the expansion of urban areas (Iwata, 2008). However, the first goal has been hardly reached due to the lack of a unified plan for urban spatial structure, infrastructure, and transportation. Urban centralization continues to intensify when construction approvals are given extensively without thorough assessment and monitoring. Corruption and bribery play a major role in the centralization reinforcement, when developers offer huge amounts of money to public officials to obtain the "golden lots" in the city for commercial projects. Another common practice is that the developers pay bribes to "change the purpose of using land" then construct office buildings in space intended for other purpose. Consequently, hundred projects of office buildings and commercial buildings in overly populated central districts are being implemented, which in turn attract more and more jobs, services and residents, which put additional pressure on the poor infrastructure and traffic network. Because of the intensified centralization, housing demand continues to rise. This facilitates widespread speculation and investment, which sequentially boost up house prices continuously. Since house prices are already out-of-reach of most households (see 2.2.1), the increase are mostly caused by speculation. Given the unbalanced supply, borrowing constraints, high expectations on house prices, and very high interest rates in relation to households' income (see 2.1.3, 2.2.1, 2.2.2), a housing bubble therefore is already underway.

Concerning traffic infrastructure, the city has invested in a set of ring roads and highways to connect the inner city and new commercial and residential areas. However these highway projects were relatively dispersed, and the linking between the highways are still under construction. Meanwhile, many of the urban and suburban roads are losing their capacity because of the encroachment of commercial and residential projects (Schipper, Le, Orn, Cordeiro, Liska, & Wei-shuen, 2008). The weak traffic infrastructure consecutively hinders the development of a public transport system, which leads to very poor connectivity among the inner city and newly developed areas. To improve the situation, the city's orientation master plan for

urban development to 2020 has planned for the development of light metro and express buses as part of an integrated transit network that links Hanoi with its satellite cities. However, the implementation of these projects has been delayed many times due to the lack of funding and difficulties in land clearance. It is estimated that the city needs USD16 billion annually to develop its infrastructure, but the state budget can only finance half of the sum.

Another major problem lays in the basic infrastructure provision such as water, electricity, drainage, sewerage, school and health care facilities. It is supposed that the infrastructure should go ahead of commercial and residential projects, or at least "just in time". In reality, infrastructure in the periphery is lagged far behind the development. Water and electricity, which are exclusively supplied by state companies, are of low quality and coverage. Real estate developers, on one hand, do not want to invest in facilities such as schools or markets; and on the other hand, do not have enough financial resources to do so. According to a survey by the Association of Cities of Viet Nam, eight out of nine new urban areas examined did not have a nearby market, seven of them did not have a public school – and none of them had a clinic (Minh, 2010).

In medium-term, young households may not want to move outward to the suburbs, regardless of low house price and good living environment. The high level of centralization of the city, the deficient infrastructure in the suburb and the lack of a public transit linkage between the inner city and the suburbs are likely not to be improved in near future. Therefore, households may retain in the inner city if they can afford a small-size condominium. Otherwise, the households may choose the periphery to save time for commuting to jobs and dropping off children. This is contrary to the dominant trend observed in literature, that households with young children tend to move to surburban areas because of their child-friendly features. From another angle, this result conform to some studies that support the preference of living "in commuting range" of metropolitan central city (Fuguitt & Zuiches, 1975). Study by Dökmeci & Berköz (2000) reveals that majority of young people want to live in the periphery due to job location; and study by Karten (2007) supposes that daily activity patterns and commuting time are one of the main reasons for middle-income households to stay in the city.

Apart from the majority, a portion of households has to move outward regardless of any inconveniences this may cause, since they cannot afford housing in the central districts. Another portion of households who can afford a car may also want to move to suburban in order to attain a better living environment and larger housing size, providing that they have good accessibility to central districts.

Overall, location and accessibility play a very important role in housing preference of young households. This result is somewhat close to the conclusion of the study by Wang & Li (2004),

which suggested that for Beijing residents, accessibility, public services, convenience, environmental quality are more important than dwelling attributes. Though Hanoi is much smaller in size compared to Beijing, the two cities may share some features of infrastructure and culture that affects households' preference. Conversely, the result is contrary to conclusion of most researches carried out in various Western cities, which susgest accessibility are less important than housing and neighborhood attributes (Whitbread, 1978; Louviere and Timmerman, 1990; Molin & Timmermans, 2002; as presented above). According to Molin & Timmermans (2002), the highest utility of majority of people would be a nice house in a good neighborhood, and they will keep searching until they find it, subject to their budget constraints. Accessibility thus does not have significant impact on housing choice behavior as long as people are able to afford flexible means of transport. In the case of young households in Hanoi, accessibility is of utter importance because they do not have the support of efficient and affordable means of transport, either cars or public transportation.

7. CONCLUSION

In summary, the investigation has given some interesting insights into young households' preference for condominiums in new urban areas.

Young households are concerned about developers' reputation, price policy, management fees, and basic quality of the housing units. They highly appreciate child-friendly qualities of the living environment, as well as facilities and services that serve the convenience of a family with young children. In contrary, the respondents did not pay much attention to entertainment/recreational facilities and services; as well as accessibility to public transport. Attributes such as design, appearance, and layout of the condominiums are also regarded as less important in homebuyers' preference.

Among the examined attributes, price is the most influential attribute to households' preference, followed by location and floor area. The price range USD1200 per square meter is the most sought after by the buyers, due to very high house prices on local market. Considering price, majority of the respondents choose small-size condominiums (under 85 square meters) that are close to city center, or at least in commuting ranges to central districts since such locations provide good accessibility to jobs, schools, health care and leisure services. Alternatively, a minority prefer to live further from city centre to achieve better living environment and larger-size dwelling.

These preferences imply a paradox on local market. Young households have lower disposable income and higher preference for space and good living environment (than other groups), but they strive for condominiums that are close to city center, regardless of sky-high price, limited

space and polluted environment in the inner city. The answer to this situation, as discussed above, should incorporate the strict implementation of city decentralization, basic infrastructure provision, and an efficient transit network linking central districts with the periphery and suburban areas.

7.1. Implication for policy makers, developers and marketers

As presented in 3.3, homebuyers' preferences are positively influenced by functional congruity and self-congruity. That is to say, the better match between perceived utilitarian features and homebuyer's desired features, the more probable that the homebuyer will have preference for and be motivated to buy that home (functional-congruity). The better match between the residential occupant image and the homebuyer's self-concept, the more probable that the homebuyer will have preference for and be motivated to buy that home (self-congruity).

Accordingly, policy makers may promote housing projects that have desired features of the young households in the periphery and suburban areas, in order to gradually "pull" them out of the central districts. This process should certainly be paired with policies that strictly regulate construction in the inner city; and at the same time direct the construction of office buidings, commercial and retail properties, schools and hospitals, as well as leisure facilities toward the suburbans. Urban planning policies should also aim at accelerating the provision of basic infrastructure and a public transit network connecting the inner city with newly developed areas.

For marketers, households' preferences such as good price policies, reasonable management fees, child-friendly living environment, proximity to central districts, etc may provide materials for marketers to form an occupant image of the condominiums that better fits lifestyles of young households.

For developers, they should consider buyers' preferences such as the quality of basic infrastructure, design and layout that are practical for families with young childrens, etc. when plan a condominium project. Developers should also invest in complementary facilities and services such as green space in the neighborhood, day-cares and playgrounds, for which young households have strong preference but normally underprovided.

The conjoint analysis in this research, though at small scale, has clearly reflected the relative importance of three attributes, location, floor area and price, the trade-off relationship among them, and preference of potential homebuyers for different housing profiles. Therefore, a well designed conjoint analysis with a larger set of attributes and carried out at larger scale can be very helpful for developers in the pre-construction stage. It may reveal the trade-off relationship between such attributes with cost, as well as perceived utility of potential homebuyers for various hypothetical condominium alternatives. As a result, the developers may get a good view

of the combination of attributes that make up the most favored condominium alternative. The developers can also select among various alternatives with similar utility values and choose the one that is most suitable to construct. Alternatively, developers may examine buyers' preference on intrinsic attributes alone, for example size, layout, wall color, etc., which may result in good input for the design of a condominium. Likewise, a research on buyers' preference for different combinations of price and payment terms would help developers devise their price policy, which is a matter of concern of most condominium buyers.

7.2.   Limitations and recommendations for further research

The analysis was based on data collected from 92 respondents. This rather small scale may lead to low population validity. However, the weakness is restricted to some extent, since the samples were collected from customers of two well-known real-estate agents who serve a wide-range of customers. The demographic profiles of the respondents also reflect the features of typical buyers of condominiums in Hanoi, which may somewhat improve the sample's representativeness.

For further research, many directions can be proposed for a better understanding of homebuyers' preference in Vietnamese urban areas. One direction can be the extension of conjoint analysis that takes in more attributes to measure the preference of different demographic groups of condominium buyers in urban areas. Another direction can involve the examination of group preference, i.e. the joint-preference for housing attributes of dual-earner households, which is the dominant family set-up in Vietnam. The author also see the possibilities to combine revealed and stated preference approaches to come up with a more realistic estimation of homebuyers' preference on condominium properties in local market.

REFERENCES

Abdun Hamid, M. I., Kamarudin, N., & Lay Hoon, S. (2008). Buyer's Conjoint Preference for the Attributes of Condominium Properties. *International Real Estate Research Symposium.* Kuala Lumpur.

Adamowicz, W., Louviere, J., & Williams, M. (1994). Combining Revealed and Stated Preference Methods for Valuing Environmental amenities. *Journal of Environmental Economics and Management , 26*, 271-292.

ADB . (2007). *Proposed Loan Socialist Republic of Viet Nam: Vietnam Technological and Commercial Joint-stock Bank.* Asian Development Bank .

ADB. (2010). *Ho Chi Minh City Urban Mass Rapid Transit Line 2 Investment Program.* Asian Development Bank.

Al-Momani, A. H. (2000). Structuring information on residential building: a model of preference. *Engineering Construction and Architectural Management* , 179–190.

Amaturo, E., Costagliola, S., & Ragone, G. (1987). Furnishing and Status Attributes A Sociological Study of the Living Room. *Environment and Behavior* , 228-249.

Andersen, H. S. (2009). Explanations for preferences in Denmark for surroundings and location of the home. *The European Network for Housing Research* . Prague.

Anh, N. N., Nhat, N. D., Thuy, T. T., Prickett, K., & Van, P. T. (2010). *The Survey Report on Information Disclosure of Land Management Regulations.* Hanoi: World Bank, Department for International of UK,.

Bond, S. (2001). Conjoint Analysis: Assessing Buyer Preferences for Property Attributes to Assist with the Estimation of Land Contamination Stigma. *Conference of Pacific Rim Real Estate Society.*

Brooke, N. (2008, 1 28). *Vietnam - A Real Estate Market in the Making.* Retrieved 02 28, 2011, from www.thanhniennews.com: http://www.glgroup.com/News/Vietnam---A-Real-Estate-Market-in-the-Making-21188.html?cb=1

Cheung, H., & Chung, T. (2008). A study on subjective preference to daylit residential indoor environment using conjoint analysis. *Building and environment , 43* (12), 2101-2111.

Chiam, M., Soutar, G., & Yeo, A. (2009). Online and Off-line Travel Packages Preferences: A Conjoint Analysis. *International journal of tourism research* , 31–40 .

Cupchik, G. C., Ritterfeld, U., & Levin, J. (2003). Incidental learning of features from interior living spaces. *Journal of Environmental Psychology* , 189-197.

Danish Embassy, World Bank, Swedish Embassy. (2011). *Recognising and reducing corruption risks in land management in Vietnam.* Hanoi: National Political - Su that Publishing House.

Dapice, D., Gomez-Ibanez, J. A., & Nguyen, T. X. (2010). Ho Chi Minh City: The Challenges of Growth. *Series on Vietnam's WTO Accession and International Competitiveness Research.* UNDP – Harvard Policy Dialogue Papers.

Dökmeci, V., & Berköz, L. (2000). *Residential-location preferences according to demographic characteristics in Istanbul.* 45-55: Landscape and Urban Planning.

Earnhart, D. (2001). Combining Revealed and Stated Preference Methods to Value Environmental Amenities at Residential Locations. *Land Economics , 77* (1), 12-29.

Floor, H., van Kempen, R., & de Vocht, A. (1996). Leaving randstad Holland: An analysis of housing preferences with decision plan nets. *Journal of Housing and the build enviroment* , 275-296.

Fuguitt, G. V., & Zuiches, J. J. (1975). Residential Preferences and Population Distribution. *Demography* , 491-504 .

Ghauri, P., & Gronhaug, K. (2010). *Research methods in business studies.* Pearson Education Limited.

Gough, K. V., & Tran, H. A. (2009). Changing housing policy in Vietnam: Emerging inequalities in a residential area of Hanoi. *Cities* , 175–186.

Hauser, J. R., & Rao, V. R. (2002). *Conjoint analysis, related modeling, and applications.* mit.edu.

Hurtado, R., & Manuel, J. (2010). Measuring Preferences: from Conjoint Analysis to Integrated Conjoint Experiments. *Journal of Quantitative Methods for Economics and Business Administration , 9* (1), 28-43.

Iwata, S. (2008). Achievements and Prospects of Land-use and Transportation Planning and Development in Vietnam's Urban Areas. Hanoi: ALMEC Corporation, Japan.

Karsten, L. (2007). Housing as a Way of Life: Towards an Understanding of Middle-Class Families' Preference for an Urban Residential Location. *Housing Studies , 22* (1), 83-98.

Kauko, T. (2006). What makes a location attractive for the housing consumer? Preliminary findings from metropolitan Helsinki and Randstad Holland using the analytical hierarchy process. *Journal of Housing and the Built Environment , 21* (2), 159-176.

Knight, R. L., & Menchik, M. D. (1974). *Conjoint Preference Estimation for Residential Land Use Policy Evaluation.* Santa Monica: RAND Corporation .

Kroes, E. P., & Sheldon, R. J. (1988). Stated Preference Methods: An Introduction. *Journal of Transport Economics and Policy , 22* (1), 11-25.

Labbé, D. (2010). *Facing the urban transition in Hanoi: recent urban planning issues and initiatives.* Montréal: Institut national de la recherche scientifique Centre - Urbanisation Culture Société .

Lawrence, R. J. (1987). What Makes a House a Home? *Environment and Behavior* , 154-168.

Lindberg, E., Gärling, T., & Montgomery, H. (1989). Belief-value structures as determinants of consumer behaviour: A study of housing preferences and choices. *Journal of consumer policy* , 119-137.

Lindberg, E., Terry, H., Garvill, J., & Garling, T. (1992). Residential-location preferences across the life span. *Journal of Environmental Psychology* , 187-198 .

Louviere, J. J. (1988). Conjoint analysis modelling of stated preferences: a review of theory, methods, recent developments and external validity. *Journal of Transport Economics and Policy* , 93-119.

Louviere, J. (1979). Modeling individual residential preferences: a totally disaggregate approach. *Transportation Research , 13* (6), 373-384.

McAuley, W. J., & Nutty, C. L. (1982). Residential Preferences and Moving Behavior: A Family Life-Cycle Analysis. *Journal of Marriage and Family , 44* (2), 301-30.

McKinsey&Company. (2008). *How young consumers could shape Vietnam's banks* .

Ming, Y. N. (2008). *Vietnam – Housing in An Emerging Tiger Economy.* Hong Kong: City University of Hong Kong.

Minh, B. (2010, 07 19). *New urban areas lack key services*. Retrieved 05 09, 2010, from Viet Nam News: http://vietnamnews.vnagency.com.vn/Social-Isssues/201638/New-urban-areas-lack-key-services.html

Molin, E. J. (1999). *Conjoint modeling approaches for residential group preferences.* Eindhoven : Technische Universiteit Eindhov.

Molin, E. J., Oppewal, H., & Timmerman, H. J. (2001). Analyzing heterogeneity in conjoint estimates of residential preferences. *Journal of Housing and the Built Environment* , 267–284.

Molin, E., & Timmermans, H. (2002). Accessibility Considerations in Residential Choice Decisions: Accumulated Evidence from the Benelux. *Annual Transportation Research Board Meeting.* Washington D.C.: Committee on Transportation and Development.

Molin, E., Oppewal, H., & Timmermans, H. (1997). Modeling group preferences using a decompositional preference approach. *Group Decision and Negotiation , 6* (4), 339-350.

Nguyen, N. T. (2010). Report on Housing and Real Estate Market Development in Vietnam. *Housing and Real Estate Market Development-Worldwide Experience and Options for Vietnam.* Hanoi.

Nguyen, Q., & Kammeier, H. D. (2002). Changes in the political economy of Vietnam and their impacts on the built environment of Hanoi. *Cities , 19* (6), 373-388.

Niedomysl, T. (2008). Residential preferences for interregional migration in Sweden: demographic, socioeconomic, and geographical determinants. *Environment and Planning* , 1109-1131.

Opoku, R. A., & Abdul-Muhmin, A. G. (2010). Housing preferences and attribute importance among low-income consumers in Saudi Arabia. *Habitat International , 34*, 219–227.

Orzechowski, M. A., Arentze, T. A., Borgers, A., & Timmermans, H. (2005). Alternate methods of conjoint analysis for estimating housing preference functions: Effects of presentation style. *Journal of Housing and the Built Environment , 20* (4), 349-362.

Pham, H. T. (2011). *Assessing accessibility for the Randstad metropolitan area in the Netherlands: learning lessons for Asian megacities.* University of Twente.

Sattler, H., & Hensel-Börner, S. (1999). A Comparison of Conjoint-Measurement with Self-Explicated Approaches.

Schipper, L., Le, T. A., Orn, H., Cordeiro, M., Liska, R., & Wei-shiuen, n. (2008). *Measuring The Invisible: Quantifying Emissions Reductions From Transport Solutions - Hanoi Case Study.* EMBARQ - World resouces institute.

Sirgy, J. M., Grzeskowiak, S., & Su, C. (2005). Explaining housing preference and choice: The role of self-congruity and functional congruity. *Journal of Housing and the Built Environment* , 329–347.

(2010). *The 2009 Vietnam population and housing census.* Hanoi: Vietnam General statistics office.

Thu, T. T., & Perera, R. (2011). Consequences of the two-price system for land in the land and housing market in Ho Chi Minh City, Vietnam. *Habitat International* , 30-39.

Timmermans, H., & van Noortwijk, L. (1995). Context dependencies in housing choice behavior. *Environment and Planning A , 27*, 181-192.

Timmermans, H., Molin, E., & Noortwijk, L. v. (1994). Housing choice processes: stated versus revealed modelling approaches. *Journal of Housing and the Built Environment , 9* (3), 215-227.

Veldhuisen, K., & Timmermans, H. (1984). Specification of individual residential utility functions: a comparative analysis of three measurement procedures. *Environment and planning , 16* (12), 1573-1582.

(2010). *Vietnam Housing Forecast to 2013.* RNCOS.

Wachs, M., Taylor, B. D., Levine, N., & Ong, P. (1993). The Changing Commute: A Case-study of the Jobs-Housing Relationship over Time. *Urban Studies* , 1711-1729.

Waibel, M., Eckert, R., Bose, M., & Martin, V. (2007). Housing for Low-income Groups in Ho Chi Minh City between Re-Integration and Fragmentation. *ASIEN - The German Journal on Contemporary Asia* , 59-78.

Wan, K. S., & Yik, F. H. (2004). Representative building design and internal load patterns for modelling energy use in residential buildings in Hong Kong. *Applied Energy* , 69-85.

Wang, D., & Li, S.-M. (2004). Housing preferences in a transitional housing system: the case of Beijing, China. *Environment and Planning A , 36*, 69 - 87.

Whitbread, M. (1978). The quality of the dwelling is found to be the principal determinant of subjects' preferences with environmental considerations relatively unimportant except for proximity to industry and dereliction. *Urban Studies* , 149-166.

World Bank, Embassy of Denmark, Embassy of Sweden. (2011). *Recognising and reducing corruption risks in land management in Vietnam.* Hanoi: Vietnam National Political Publishing House - Su That.

Wu, F. (2010). Housing environment preference of young consumers in Guangzhou, China: Using the analytic hierarchy process. *Property Management , 28* (3), 174-192.

APPENDIX

SURVEY OF YOUNG HOUSEHOLDS' HOUSING PREFERENCES
FOR CONDOMINIUMS IN NEW URBAN AREAS

This questionnaire is part of a research on preferences of young households for condominiums in Hanoi, Vietnam. The research aims for a better understanding of homebuyers' needs, which may contribute to better planning of condominium projects in new urban areas.

Please fill in the box to answer the following questions:

Age groups	Marital Status		Reasons for buying new homes
☐ Under 25	☐ Single	☐ Divorced	*(you can choose more than 1 option)*
☐ 25-30	☐ Married	☐ Widowed	☐ Preparation for marriage/Newly wed
☐ 30-35	☐ Divorced		☐ Family extension
Homeownership status	**Number of residents in the new home**		☐ Change of jobs
☐ Parental home	☐ 1-2		☐ Change for a better home
☐ Own home	☐ 3-4		☐ Good time to buy
☐ Rented home	☐ 5-6		☐ Investment
	☐ More than 6		☐ Other (please specify):

Please rate the importance of the following attributes to your purchasing decision:
A factor is HIGHLY IMPORTANT if it is significant to your purchasing decision and you will NOT buy the property if it is missing.
A factor is IMPORTANT if it is important to your purchasing decision but can be sacrificed if other benefits are satisfied.
A factor is NOT IMPORTANT if it is of some important but does not have large effect on your purchasing decision if missing.

	NOT IMPORTANT	IMPORTANT	HIGHLY IMPORTANT
Condominium			
Developers' price policy (price, installments, mortgage rate, etc)			
Time of completion			
Developers' reputation and credibility			
Convenient for daily activities			
Nice design and appearance			
Orientation			
Materials and construction quality			
Basic furniture			
Large bedroom (in comparison with sitting room)			
Large sitting room (in comparison with bed room)			
Building			
Management fees			
Safety and security			
Car parking lots			
View and access to green space			
Unpolluted environment			
Water and power supply			
Layout of the surroundings			
Apartment level			
Local amenities and services			
Food and groceries stores			
Restaurants and cafes			
Kindergarten, day-care services and playgrounds			
Swimming pools and sport facilities			
Infrastructure of the neighborhood (the NUA in general)			
Location and accessibility			
Good access to public transport			
Good access to central districts			
Good access to communal centers, public services and facilities			
Proximity to recreational facilities and services (cinema, restaurants and café, etc)			
Proximity to kindergartens and schools			
Proximity to shopping centers and large retail stores			

Imagine that you are going to buy a new condominium, given your affordability; please rank the following housing alternatives on the scale from 0-10, where 0 = definitely would not buy, and 10 = definitely would buy.

Definitely wouldn't buy	0	1	2	3	4	5	6	7	8	9	10	Definitely would buy

Profile 1	Profile 2	Profile 3
Location: Within 15km from city centre Floor area: From 85-100m2 Price: From USD1500-2000 per sqm **Score:**	Location: Within 15km from city centre Floor area: Under 85m2 Price: From USD1200 to USD 1500 per sqm **Score:**	Location: Within 15km from city centre Floor area: From 85-100m2 Price: Less than USD1200 per sqm **Score:**
Profile 4	**Profile 5**	**Profile 6**
Location: Within 15km from city centre Floor area: From 85-100m2 Price: From USD1200 to USD 1500 per sqm **Score:**	Location: Within 15km from city centre Floor area: Under 85m2 Price: From USD1500 to USD 2000 per sqm **Score:**	Location: Over 15km from city centre Floor area: 85-100m2 Price: Less than USD1200 per sqm **Score:**
Profile 7	**Profile 8**	**Profile 9**
Location: Over 15km from city centre Floor area: Under 85m2 Price: Less than USD1200 per sqm **Score:**	Location: Over 15km from city centre Floor area: From 85-100m2 Price: From USD1200 to USD 1500 per sqm **Score:**	Location: Over 15km from city centre Floor area: From 85-100m2 Price: From USD1500 to USD 2000 per sqm **Score:**
Profile 10	**Profile 11**	**Profile 12**
Location: Over 15km from city centre Floor area: Under 85m2 Price: From USD1200 to USD 1500 per sqm **Score:**	Location: Within 15km from city centre Floor area: Under 85m2 Price: Less than USD1200 per sqm **Score:**	Location: Over 15km from city centre Floor area: Under 85m2 Price: From USD1500 to USD 2000 per sqm **Score:**