TECHNISCHE UNIVERSITÄT DARMSTADT

An investigation on socio-economic characteristics of young tenant groups in Vietnam – a case study in Ho Chi Minh City.

at the Department of Civil and Environmental Engineering
of the Technische Universität Darmstadt

submitted in fulfillment of the requirements for the
degree of Doctor Ingenieur
(Dr.-Ing)

Doctoral thesis
by Tran Minh Tri Hua

First assessor: Prof. Dr.-Ing. Hans-Joachim Linke
Second assessor: Dr. Thai Son Pham

Darmstadt 2023

Abstract

Housing is an essential aspect of every individual's life and is often considered a valuable asset to accumulate over time. However, many young people in Ho Chi Minh City opt to rent instead of buying a house for various reasons, including the city's high population growth and concentration of job opportunities, difficulties in affording homeownership due to high prices and low average income, and the desire for a suitable living environment that enhances their quality of life. The city has an average population growth rate of 2.28% per year, and 47% comprises young people aged between 15 and 39. Unsurprisingly, young people in Ho Chi Minh City face tremendous pressure to find a suitable place that meets their living standards.

This study was conducted to understand better the needs of young people in the rental housing market and determine the factors influencing their decision to rent an accommodation. The study synthesized and analyzed previous relevant research papers to find out more about young people's rental needs. The synthesized data obtained by applying a questionnaire was classified using the cross-tabulation classification method to classify tenants. The collected data was encoded in two forms: categorical and continuous. For data collected from single-response questions, the Chi-square test was used to compare the difference in the frequency distribution of each group. The Bonferroni approach was used to test for the significance of questions with multiple answers. To classify tenants based on continuous data, T-test or Wilcoxon-Mann-Whitney-Test (also known as Mann-Whitney-U-Test) was used to compare the mean values of the two groups. ANOVA and related post-hoc tests were chosen to compare the values of more than two groups. During the fourth quarter of 2021, 595 responses were collected through online surveys; however, only 333 survey samples met the conditions for data analysis.

Four key characteristics were found to group tenants, including gender, migration status, household structure, and income. The study also analyzed other factors such as accommodation type, rental purpose, and sharing type to gain a deeper insight into young people's rental needs. Proposed future studies could be based on the limitations of this study, such as the low number of respondent samples, the lack of expert interviews in the field of house rental, the shortage of feedback in suburban areas of Ho Chi Minh City, and the focus on only one group of young people.

In conclusion, the study highlights young people's challenges when finding suitable rental housing in Ho Chi Minh City. One of the most significant concerns for young people when choosing a rental property was rent and legal issues related to the rental contract, such as the responsibilities of the parties involved in case of incidents. It is understandable, given the high cost of living in the city and the need for young people to have a secure and affordable place to live.

Keywords: *young tenants; influenced factor on tenants' decision; Ho Chi Minh City; rental housing market*.

Kurzfassung

Eine Wohnung ist ein wesentlicher Aspekt im Leben eines jeden Menschen und wird oft als wertvoller Vermögenswert angesehen, den man im Laufe der Zeit ansammelt. Viele junge Menschen in Ho-Chi-Minh-Stadt entscheiden sich jedoch aus verschiedenen Gründen dafür, ein Haus zu mieten, anstatt es zu kaufen. Dazu gehören das hohe Bevölkerungswachstum und die Konzentration von Arbeitsplätzen in der Stadt, die Schwierigkeiten, sich Wohneigentum aufgrund hoher Preise und eines niedrigen Durchschnittseinkommens zu leisten, sowie der Wunsch nach einem geeigneten Wohnumfeld, das ihre Lebensqualität erhöht. Die Stadt hat ein durchschnittliches Bevölkerungswachstum von 2,28 % pro Jahr, und 47 % der Bevölkerung sind junge Menschen im Alter zwischen 15 und 39 Jahren. Es überrascht daher nicht, dass junge Menschen in Ho-Chi-Minh-Stadt unter enormem Druck stehen, einen geeigneten Ort zu finden, der ihren Lebensstandards entspricht.

Diese Studie wurde durchgeführt, um die Bedürfnisse junger Menschen auf dem Mietwohnungsmarkt besser zu verstehen und die Faktoren zu ermitteln, die ihre Entscheidung, eine Wohnung zu mieten, beeinflussen. In der Studie wurden frühere einschlägige Forschungsarbeiten zusammengefasst und analysiert, um mehr über die Mietbedürfnisse junger Menschen herauszufinden. Die mit Hilfe eines Fragebogens erhobenen Daten wurden mit Hilfe der Kreuztabellen-Klassifizierungsmethode klassifiziert, um die Mieter einzuordnen. Die erhobenen Daten wurden in zwei Formen kodiert: kategorial und kontinuierlich. Für die Daten, die anhand von Einzelantworten erhoben wurden, wurde der Chi-Quadrat-Test verwendet, um die Unterschiede in der Häufigkeitsverteilung der einzelnen Gruppen zu vergleichen. Der Bonferroni-Ansatz wurde verwendet, um die Signifikanz von Fragen mit Mehrfachantworten zu prüfen. Zur Klassifizierung von Mietern auf der Grundlage kontinuierlicher Daten wurde der T-Test oder der Wilcoxon-Mann-Whitney-Test (auch bekannt als Mann-Whitney-U-Test) verwendet, um die Mittelwerte der beiden Gruppen zu vergleichen. Für den Vergleich der Werte von mehr als zwei Gruppen wurden ANOVA und entsprechende Post-hoc-Tests gewählt. Im vierten Quartal 2021 wurden 595 Antworten über Online-Umfragen gesammelt; allerdings erfüllten nur 333 Stichproben die Bedingungen für die Datenanalyse.

Es wurden vier Schlüsselmerkmale ermittelt, nach denen die Mieter gruppiert wurden, darunter Geschlecht, Migrationsstatus, Haushaltsstruktur und Einkommen. Die Studie analysierte auch andere Faktoren wie die Art der Unterkunft, den Zweck der Anmietung und die Art der gemeinsamen Nutzung, um einen tieferen Einblick in die Mietbedürfnisse junger Menschen zu erhalten. Vorgeschlagene zukünftige Studien könnten auf den Einschränkungen dieser Studie basieren, wie z. B. die geringe Anzahl der Befragten, das Fehlen von Experteninterviews im Bereich der Wohnungsmiete, der

Mangel an Rückmeldungen in den Vororten von Ho-Chi-Minh-Stadt und die Konzentration auf nur eine Gruppe junger Menschen.

Abschließend zeigt die Studie die Herausforderungen auf, denen sich junge Menschen bei der Suche nach einer geeigneten Mietwohnung in Ho-Chi-Minh-Stadt gegenübersehen. Eine der größten Sorgen der jungen Leute bei der Wahl einer Mietwohnung war die Miete und rechtliche Fragen im Zusammenhang mit dem Mietvertrag, wie z. B. die Verantwortung der beteiligten Parteien im Falle von Zwischenfällen. Angesichts der hohen Lebenshaltungskosten in der Stadt und des Bedürfnisses junger Menschen nach einem sicheren und erschwinglichen Wohnort ist dies verständlich.

Schlüsselwörter: *junge Mieter; Einflussfaktoren auf die Entscheidung der Mieter; Ho-Chi-Minh-Stadt; Mietwohnungsmarkt*.

Acknowledgment

"*Gratitude unlocks the fullness of life. It turns what we have into enough, and more. It turns denial into acceptance, chaos to order, confusion to clarity. It can turn a meal into a feast, a house into a home, a stranger into a friend.*"

- Melody Beattie

I extend my deepest gratitude to those who have supported me during my Ph.D. journey. I want to express my heartfelt appreciation to my academic advisors, colleagues, and family, who have all played crucial roles in my academic success.

I owe a debt of gratitude to Professor Dr.-Ing. Hans-Joachim Linke from the Technical University of Darmstadt, for his invaluable guidance, constructive criticism, and insightful comments, has helped shape my work and inspired me to push myself further. His mentorship and academic support have been a constant source of inspiration, and I am forever grateful for his contributions to my research.

I would also like to thank Dr. Pham Thai Son from the Vietnamese-German University for his constructive suggestions and encouragement. His expertise and knowledge have been invaluable to me, and our exchange of ideas has helped me broaden my understanding of the subject.

I am also profoundly grateful to the Geodesy Institute of the Technical University of Darmstadt staff and the Vietnamese-German University for their support, assistance, and encouragement throughout my academic journey. Their invaluable assistance has been instrumental in my success, and I will always appreciate their contributions.

My family has always supported and encouraged me, and I am forever grateful for their love and unwavering faith in me. Their support is invaluable, and I am thankful for their presence in my life.

Finally, I would like to thank the International Cooperation Department of the Ministry of Education and Training Vietnam and the German Academic Exchange Service - DAAD for their generous funding and support. Without their contributions, pursuing my education without financial burdens would not have been possible, and I am genuinely grateful for the opportunities they have provided me.

Table of contents

List of Abbreviations & Terms

In English:

ASEAN: Association of Southeast Asian Nations

CPI: Consumer Price Index

BLS: Bureau of Labor Statistics

CBD: Central Business District

PRS: Private-rented Sector

GDP: Gross Domestic Product

GSO: General Statistic Office of Vietnam

HCMC: Ho Chi Minh City

IP: Industrial Park

UN: United Nations

UN-Habitat: United Nations Human Settlements Program

VND: Vietnam dong

In Vietnamese:

TT liên bộ: Thông tư liên bộ (Inter-ministerial circular)

UBVGNN: Uỷ ban vật giá nhà nước (The State Pricing Committee)

BXD: Bộ xây dựng (Ministry of Construction)

CP: Chính phủ (The central government)

QD: Quyết định (Decision of the government)

TT: Thông tư (Circular)

TTg: Thủ tướng (Prime Minister)

List of Tables

List of Figures

1 Introduction

The first chapter briefly introduces the background and motivation of the dissertation, followed by research objectives, research questions, scopes of the research, research approach, and structure.

1.1 Background and motivation

The United Nations' Universal Declaration of Human Rights states that "adequate housing is commonly regarded as one of the most fundamental human requirements" (UN-Habitat, 2020). The Committee on Economic, Social, and Cultural Rights of the United Nations has emphasized that the right to sufficient housing should not be interpreted too narrowly. It should be regarded as the right to live in safety, peace, and dignity. The right to appropriate housing includes security of tenure entitlements, and the adequate dwelling must include more than four walls and a roof. Under the immense strain of economic growth and urbanization, the mentioned requirements have not been adequately handled and considered, particularly in developing nations.

Cities are increasingly expanding their administrative reach. They play a significant role in the global economy. According to the Centre for Liveable Cities (2019), they represent 20% to 50% of their respective national GDP and population. On the other hand, because they are diverse and complex, they often tend to fragment and grow unevenly, creating many inequalities and imbalances.

Housing is a significant driver among the many ongoing problems in the developing world's major cities (Turok & McGranahan, 2013). Said Gilderbloom (2009) in his book titled Invisible City: Poverty, Housing and New Urbanism, "A person's life is not determined solely by his or her relationship to the means of production, but by spatial location in the urban system." It is challenging for a person in a developing country or a big city to find a stable place to live, but it is even more difficult for someone with a poor or unpredictable income to find a place to reside. Finding acceptable lodging is much more challenging. "Inequalities are developed within and across cities," writes Gilderbloom. The objective of human settlements policy should extend beyond the construction of new dwelling units. A well-designed strategy helps generate possibilities for people to become more productive and can assist in lifting them out of poverty (Turok, 2016).

The fragmented development of housing areas does not comply with the provisions of the law, does not meet living standards, and house prices are increasingly outstripping the average income of young households, leading to environmental, public health, and social security consequences (Zhu, 2012). Moreover, it could lead to a waste of urban development plans. Once the plans cannot be implemented or no longer fit the needs, it will affect the fate of many people. To have sustainable urban development, the

housing market - in addition to the expansion plans and new construction of houses for sale- must have programs to develop rental houses, especially for young people (Acioly & French, 2012).

Since the progress of urbanization significantly influences housing tenure, land occupancy, and, most crucially, the nature of State policy, economic growth is not a very significant variable. The impact of rental housing in housing markets across various countries highlights that despite numerous states' endeavors to promote homeownership, there has been a rise in renting and shared housing in several regions. Diversification is also a feature of the rental housing supply. The type of rental housing prevalent in one country is frequently missing in another (World Bank, 2015).

Young people are the economy's engine, especially in developing countries. Most developing countries' populations are young (UN-Habitat, 2012), although it is aging when the natural birth rate declined in recent decades. Approximately 80% of the global young people live in Africa, Asia, and Latin America (UN-Habitat, 2012). In a comparative study of young people in three cities, Hanoi, Recife, and Lusaka, Hansen (2008) argued that the demographic transitions, adulthood, mobility, and livelihood strategies of many youths from developing nations are not usually comparable to those of young people in western countries. In the book Planet of Slums, Davis (2006) notes that more than a billion people in the developing world's cities live in slums even though doing so is difficult and unhealthy. He claims that the absence of employment opportunities and adequate housing is at the root of the urbanization crisis, with dire consequences for women, children, and young people who are forced to resort to precarious means of subsistence.

In some countries, particularly in Northern Europe and former communist states, the public sector still plays a crucial role in supplying rental housing. However, there is a trend of decreasing involvement by the public sector. In some European countries, social housing organizations are stepping in to fill the gap left by the government, while most rental housing is supplied by the private sector (Gilbert, 2016). In developing countries, the trend of self-help landlords has emerged as the primary provider of rental housing. As a result, many rental housing units are located in low-income neighborhoods on the outskirts of cities in developing countries (UN-Habitat, 2003). It leads to a situation where a significant portion of rental housing operates outside of government regulations and standards, with few landlord-tenant agreements being formalized.

As a result, much rental housing is exempt from government norms and regulations, and few landlord-tenant contracts are official. Due to the complexity of the rental housing stock, compiling a concise list of policy recommendations is particularly challenging. As so much of the process is informal, policy intervention is likewise limited.

This study was conducted to approach the rental housing market from the choice of rental accommodation of young urban residents in a developing country - Vietnam. The

choice of rental accommodation for young people will be analyzed from different influencing factors, based on their socio-economic characteristics, to find common characteristics and deeply understand tenants' groups.

1.2 Research objectives

The study's main objective is to develop a methodology to discover the different characteristics of young people living in urban areas of Vietnam - of which the case study is Ho Chi Minh City as a fundamental proper housing strategy for relevant stakeholders in the future. The specific research purposes are:

- Systematize studies on tenant subgroups and related rental housing market studies.
- Understand the characteristics of the rental housing market.
- Determine how to structure the rental housing market to meet the needs of young households and urban young people.
- Understand the housing needs of young urban residents based on the reasons for choosing to rent, socio-economic factors, and characteristics of the rented property.
- Develop strategies to develop adequate rental housing for young urban residents.

1.3 Research questions

This research aims to develop an approach accessible to tenants of residential real estate, including tenants of available rental types in Vietnam. From there, find out why they rent, based on what criteria they rent, socio-economic factors, and characteristics of the property they want to rent, and classify tenant groups from survey results. In addition, another purpose of the study is to determine a suitable method that can be applied to rapid-growth cities to develop a sustainable rental housing market to meet development needs.

The following research question was posed to achieve the objectives above.

- How to group young tenants in urban areas in Vietnam based on their rental characteristics?

The following research questions are proposed consequently.

1. What are the reasons, criteria, socio-economic factors, and characteristics of rented property to classify tenant groups?
2. Which factors can be considered to identify differences between groups?
3. What steps and methodologies should be employed to effectively achieve the features mentioned regarding the reasons, criteria, socio-economic factors, and characteristics of rented property for classifying tenant groups?
4. Which method is suitable for finding tenant groups from the collected data?
5. To what extent do the identified tenant groups align with the assumptions made? If there are discrepancies, what are the differences between the identified

tenant groups and the initially assumed groups based on reasons, criteria, socio-economic factors, and characteristics of rented property?

1.4 Scopes of the research

The study identifies factors that can influence the rental housing choice of urban residents in Vietnam. This research selected young people for survey and analysis to clarify and group tenants. Different factors can affect young people's decision to rent accommodation; they are classified into two main groups: factors related to the demand for use (or need), factors related to human demographics, included income.

The types of rental housing are chosen and grouped into three categories due to the common characteristics, which are described in more detail in chapter 3, section 3.4.2.

The term “young” is adapted after reviewing some references worldwide regarding the young people in this survey. According to the UN Secretariat's classification, young people are those between the age of 15 and 24. However, the age of those considered "young people" might vary greatly depending on the member country or organization because various societies perceive youth as a life phase differently. Following Table 1.1, the age considered "young" by The African Youth Charter can be up to 35 years old, whereas the age considered "young" by UN-Habitat can be up to 32 years old.

In Vietnam, according to the Youth Law 2020 (No. 57/2020/QH14), youth are people between the ages of 16 and 30. However, according to the labor law 2019 (45/2019/QH14), people under 18 cannot work full-time and are called underage. The age, called adulthood, is 18 years old, equivalent to students' average age after high school. In Malaysia, the Malaysia Youth Council defines young people as those between the ages of 15 and 40.

In some other studies on the housing sector, researchers have used several different age ranges. For example, in the study on sharing housing among young adults (Clark et al., 2017), the age group is limited to 20 – 35 for the research. In research on housing pathways of young people (Clapham et al., 2014), the age in the study is 16-30.

Table 1.1 Youth, or referred to as young people in different organization definitions (UN-Habitat, 2012)

Entity/Instrument/ Organization	Age
UN Secretariat/UNESCO/ILO	Youth: 15-24
UN Habitat (Youth Fund)	Youth 15-32
UNICEF/WHO/UNFPA	Adolescent: 10-19, Young People: 10-24, Youth: 15-24
UNICEF /The Convention on Rights of the Child	Child until 18
The African Youth Charter	Youth: 15-35

For this study, young people between 18 and 39 are the main target and the survey respondents. Selecting an age range of 18 to 39 captures not only those who fall under the traditional definition of youth but also those considered young adults. An age range of 18 to 39 is more appropriate for the research because it includes individuals legally able to enter into contracts and rent properties while capturing a broader range of experiences and perspectives among young tenants. Overall, selecting an age range of 18 to 39 provides a comprehensive and inclusive representation of young tenants in HCMC while aligning with international definitions and Vietnamese laws.

Most research on the real estate market is done on houses and apartments being bought and sold. The limited number of studies in developing countries can be attributed to various objective reasons; however, more problems may be found in these countries if explicitly studied. Ho Chi Minh City was selected to investigate in detail and survey young people's decision to rent an accommodation, thereby distinguishing their needs.

The study's purpose is to propose appropriate-oriented recommendations to develop a suitable rental housing market to meet the demand for standard housing, ensure the health and safety of people, and facilitate the implementation of urban planning and urban planning management.

1.5 Research approach and structure

The structure of the study is diagrammed in Figure 1.1.

Chapter 1- introductory section - presents the background of the research's topic, the main reasons for undertaking the study, and the objectives and scopes of the research. It ends with an introduction to the approach and structure of the whole dissertation.

Chapter 2 determine the potential impact factors of tenants' decision by literature review. The two primary factor group are chosen to determine the correlation with tenants' decisions: need and demographic. They are listed in the hypotheses, which will be statistically tested after the survey analysis results are obtained. In the need-related factor, the way tenants share their accommodation – named sharing type, rental purpose, and accommodation type are sub-groups. The demographic-related factor includes gender, migration status, household structure, and income as sub-groups.

Chapter 3 describes the situation of Ho Chi Minh City as a case study. The outstanding features of the city that attract many young people to live and work are introduced, such as industrial, business, and educational activities. In addition, common types of rental housing are introduced as a basis for selecting options to include in the questionnaire. At the end of Chapter 3, two scenarios are given for reference on young people's decisions to buy or rent a home in different contexts.

The next chapter – **Chapter 4** - introduce the method of identifying tenant groups, presenting the different grouping methods and the most appropriate assessment method to identify tenant groups for this study.

Chapter 5 starts with the tools to collect the necessary data, and a questionnaire is introduced in the latter part. The advantages and disadvantages of data collection

capabilities are presented here, such as personal interviews, telephone interviews, online questionnaires, and paper questionnaires.

The questionnaire was prepared to identify the tenant's reasons for renting, criteria for renting, and the household socioeconomic status of the property tenant. It includes analyzing what information is needed to verify the hypotheses made in chapter two and how to best arrive at these hypotheses. In order to substantiate the hypotheses, preparation is needed, such as examining the answered questionnaires, categorizing reasons for renting, assessing the property's location, and identifying possible causes that can cause rent differences.

Chapter 6 reveals the results of the work presented in the previous chapter. It verifies the hypotheses in Chapter 2 regarding tenant groups.

In **Chapter 7**, the statistical results that come out from Chapter 6 are discussed. This part compares the findings with mentioned studies in the literature review to give an insight into the specific context of the case study.

The thesis ends with a conclusion summarizing the results and outlining the need for further research in **Chapter 8**.

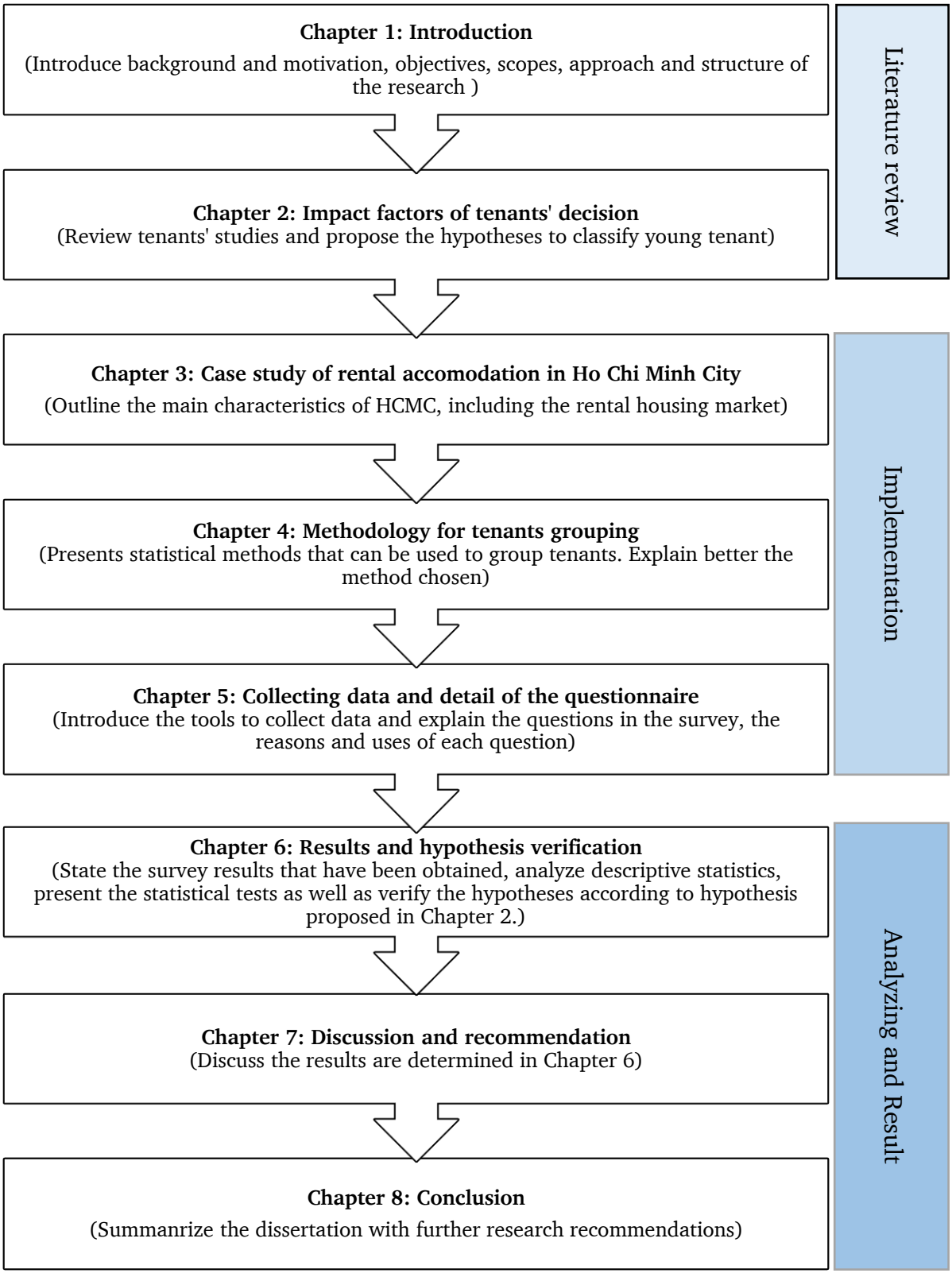


Figure 1.1: Research structure (Author, 2021)

Summary of Chapter 1

The world's major cities often face various problems, including those in Vietnam. These cities are expanding their administrative control, possessing a large population, and contributing significantly to the nation's economy. However, they are often characterized by diversity and complexity, which leads to uneven growth and high levels of inequality. Housing is one of the main issues faced by these cities.

Young people, who form the backbone of society and drive its growth, face numerous challenges when starting an independent life. Finding a job, establishing social relationships, and securing a place to live are some of the fundamental difficulties they face. The government and other stakeholders must provide support and solutions to address these challenges.

This chapter's beginning sets the study's stage by providing background information, research purpose, scope, research questions, and objectives.

In Chapter 3, the case study of Ho Chi Minh City will be introduced. Chapter 2 outlines the study hypotheses, which will be tested in Chapter 6 using scientific tools and procedures presented in Chapters 4 and 5.

Chapter 5 provides an in-depth look at the questionnaire, allowing readers to understand the study better. In Chapter 7, the results will be analyzed from a broader perspective.

Finally, Chapter 8 discusses the study's limitations, recommendations, and suggestions for future research.

2 Impact factors of tenants' decision

This chapter reviews the relevant studies on tenants in different cities and countries. Previous studies on tenants, the rental housing market, and tenant subgroups are included. This chapter aims to provide insight into the tenants' decisions and opinions and construct research hypotheses. The second chapter begins by synthesizing theories discovered in previous research, and the comparisons will be cited to explain the necessity of this research survey and why a survey must be carried on.

2.1 Tenants' studies

The literature review on tenant studies is divided into three subgroups. It allows a comprehensive analysis of tenants' perspectives, collective actions, and the underlying factors that shape their housing decisions and conditions.

The tenant surveys subgroup focuses on studies that use surveys to gather information directly from tenants. These surveys cover various topics such as housing preferences, satisfaction levels, rental affordability, amenities, and the overall rental experience. The aim is to understand tenants' perspectives, needs, and opinions through their responses to survey questions.

The tenant groups examine researches that investigate tenant groups' pattern and characteristics. It discusses studies conducted in countries like the US, Belgium, Australia, Japan, and the UK. The findings highlight the importance of understanding tenant needs and characteristics to tailor marketing approaches and develop suitable housing solutions. Overall, the review provides valuable insights into the diverse nature of tenant groups and their impact on the rental market.

Tenant's rationale, conditions, and socioeconomic factors delve into the factors influencing tenants' decision-making processes and their choices regarding housing. It explores the rationale behind renting, including motivations, preferences, and considerations such as proximity to educational institutions, employment opportunities, affordability, and neighborhood characteristics. Additionally, this subgroup investigates the impact of socioeconomic factors on tenants, such as income levels, employment stability, education, and demographic characteristics, which can shape their housing decisions and living conditions.

2.1.1 Tenant surveys

Generation rent is becoming an entity in the urbanization process in Vietnam as renting becomes an alternative to other housing options. Young people increasingly tend to choose a quality life with high demands for study, research, exchange, and entertainment (World Bank, 2015). Not only in Vietnam, but young people moving to rented houses has also become very popular in developed countries worldwide, such as the UK, Australia, and Germany. However, tenants feel insecure because they have

to rely heavily on the landlord, and they also have to depend on the roommate when one of the occupants decides to move out. The rent will increase and burden them at that time (Chisholm et al., 2017).

According to Kemp (2011), the private rental sector in the UK does not play a significant role in supporting low-income families. It uses a secondary analysis of the 2007 English House Condition Survey. The paper assesses how well accommodated low-income households are in the private rental sector (PRS) compared with non-poor private tenants and low-income households in social housing and owner-occupation. The proportion of households renting from private landlords increased from 9% to 16% in 2009/10, while the number of private tenants surged by more than 80%. During the same time frame, the proportion of renting households residing in the private rented sector climbed from 29% to 48%, while the proportion residing in social housing decreased from 71% to 52%.

Hulse, Morris, and Pawson (2018) researched two Australian cities considered to have traditionally owned homes. The study included in-depth interviews and a survey of 100 people. Research results show that poor security and financial pressure become concerns for tenants in suburban areas. Simultaneously, another group chooses to "adapt" to the housing market by renting a house in the central area or nearby. In addition, a small minority deviates from traditional norms while selecting rental homes for a free, unrestricted way of life. Finally, location and lifestyle were determined to be the two most influential variables for private tenants, as opposed to home ownership.

In the study by McKee, Mihaela Soaita, and Hoolachan (2019), UK tenants tend to rent longer, and their age is getting younger. Qualitative research was conducted based on the following 16 interviews with young tenants. The results of the study indicate that weakness, feelings of insecurity, social isolation, and financial pressure when house prices are no longer appropriate are negative experiences they are facing.

Maalsen (2019) argues that rental housing has changed and will change over time when tenant demographics differ from generation to generation. Using survey results conducted online in Australia, the author used eight closed-ended and one open-ended questions to gather different opinions of tenants over 18. Tenant responses are analyzed thematically and qualitatively. Five main reasons were discovered: economic, social, location, adulthood (or independence), and sustainability.

Researching the satisfaction of tenants resettled in Wuhan - China, Li and colleagues (2019) have pointed out the factors affecting tenant satisfaction, including the neighborhood characteristics, gender, age, education, occupation, income, household size of the tenant. Tenant satisfaction is closely related to their quality of life. Their decision to rent is influenced, in part, by the various requirements for quality of life, among which is the choice of the sort of rental house they will occupy.

Besides, according to a study based on China's 2017 housing finance survey, Huang Yi and Clark (2020) pointed out that the fact that a person owns and rents a home in China results from a spatial, temporal, and functional mismatch between housing

needs. Intrinsic investment strategies and home ownership-related services have made homeownership mandatory, regardless of a household's housing needs. Young, single, well-off, and fragmented households and those in large, expensive cities are more likely to be landlords. Additionally, institutional housing market restrictions like immigration status, housing purchase cap policies, and subsidized housing encourage one person to be both a homeowner and a tenant.

Jullien (2021), in a study on "rental rooms" in Ho Chi Minh City, the author observed and interviewed in two peri-urban areas of the city, in 2020 and 2021, about the views of tenants, who are rural migrants, about their perception intention to rent an accommodation. The city's relative job stability and trust-based interpersonal ties may improve, enticing migrants to stay.

The studies conducted by previous authors provided multi-dimensional perspectives on the rental housing market in many different parts of the world. It can be stated that no study provides the overall view or the characteristics of young renters in Vietnam. Most studies were surveyed through open-ended questionnaires, and the responses were qualitatively, or quantitatively analyzed. The factors drawn from the above studies are used to hypothesize and summarized in Table 2.3. Survey methods and data collection will be presented in more detail in Chapter 5.

The following table summarizes the studies in section 2.1.1.

Table 2.1 Summary of studies on tenants using different kinds of surveying.

Authors	**Studied country**	**Data**
Kemp (2011)	The UK	Census data
Chisholm et al. (2017)	New Zealand	Semi-structured interview
Hulse, Morris, and Pawson (2018)	Australia	In-depth interviews
McKee, Mihaela Soaita, and Hoolachan (2019)	The UK	In-depth interviews
Maalsen (2019)	Australia	Online survey
Li et al. (2019)	China	Structured questionnaire
Huang Yi and Clark (2020)	China	Census data
Jullien (2021)	Vietnam	Observation and interview

2.1.2 Tenant groups

It can be said that the rental housing market in a city is very diverse in quantity and quality (World Bank, 2015). Segmenting the rental real estate market will help the government and real estate businesses choose the suitable development method to

meet the needs of tenants. In order to segment the rental property market, it is necessary to segment tenants together with segment rental properties.

UN-Habitat (2003): This is a precise analysis of tenants' characteristics in different economies, including developed and developing countries. The local housing market conditions primarily determine the composition of the tenant population. Specifically, households with similar characteristics will have varying options for housing depending on their location. The cost comparison between renting and owning and the availability of rental housing influences a household's housing choice.

Islam and Asami (2009) provide an overview of the possible segments of the housing market. Diversifying studies in different areas, such as Helsinki, Los Angeles, Sydney, Glasgow, Singapore, is considered. The methods of housing market segmentation listed included hedonic price models, economic equilibrium models, discrete choice models, and spatial statistics.

According to Kotler, Armstrong, and Opresnik (2018), market segmentation involves dividing a market into smaller groups with common needs, characteristics, or behaviors to implement tailored marketing approaches. Residential products, whether owned or rented, have the characteristics of commodities. Worldwide, there are many studies on the housing market segmentation have been done.

In a study by Varady and Lipman (1994) in the US, the data from the national housing survey was used to group tenants. Six specific tenant groups were recognized: families looking to move up in housing, tenants focused on lifestyle, newly graduated college students, Black tenants, elderly individuals with a specific lifestyle, and blue-collar workers facing difficulties. Finally, three of the six proposed groups of tenants become subject to the homeownership assistance program.

Goodman (1999) studied the differences between groups of apartment tenants. Based on housing survey data conducted in the US, the study identified three sub-markets of rental apartments, the affordable segment that mainly meets the needs of low-income families. Furthermore, medium or families receive government housing subsidies; the second segment is the "lifestyle" apartment segment for families with higher incomes, and the last segment is the middle-class segment.

Meanwhile, in Belgium, Decker (2001) based on the housing census to classify private tenants into three categories: those who rent due to a desire for mobility or as a deliberate choice, individuals who are new to the housing market and aspire to own a home, and those who are unable to own due to low or unstable income, or an inability to access social housing.

Beer (2001) used multivariate analysis to look for clusters or market segments within the non-metropolitan private rental market from 1990 to 2000 in South Australia. Some ten clusters or rental housing market segments were identified by applying Ward's Method. Each cluster corresponds to residential areas with the same characteristics in terms of population growth, labor force change, unemployment rate,

average rent as well as the extent of rent appreciation. Discriminant analysis was then applied to the results of the cluster analysis.

Based on the collected results related to the use of rental housing, as well as the payment of rent by tenants in France and Switzerland, Bonnet and Pollard (2020) analyzed and classified the tenants, helping form the concept of "good tenant". Research results are drawn from interviews with rental agents.

Except for studies by UN-Habitat (2003), Islam and Asami (2009), Kotler, Armstrong, and Opresnik (2018), which provide knowledge regarding the basis of the analysis of tenant groups, studies on specific tenant groups are summarized in the following table.

Table 2.2 Summary of studies on tenant classification

Authors and country	**Groups**	**Tenant classification criteria**				
		Life stages	Housing product	Ownership desire	Geographic	Behavior
Varady and Lipman (1994), The US	6	**	-	*	-	-
Goodman (1999), The US	3	-	**	*	-	-
Decker (2001), Belgium	3	-	*	**	-	-
Beer (2001), Australia	10	*	-	-	**	-
Bonnet and Pollard (2020), France and Switzerland	2	-	-	-	-	**

Note:

*** high relevance*

** low relevance*

- not mentioned

In the next sections, studies related to tenants' rationale, conditions, and socioeconomic factors will be introduced, and possible characteristics of the tenant group will be drawn.

2.1.3 Tenant's rationale, conditions, and socioeconomic factors

Housing occupancy is a consumption decision, whereas housing tenure is a portfolio decision (Mills, 1990). External conditions always influence the performance of a consumption decision.

(Birks & Southan, 1992): The consumer satisfaction concept is central to marketing thought and practice. Before beginning to measure any phenomenon, it is essential to analyze the measurement objective and the utility of measurements, excluding the nature of the thing being measured. This study looks at these concerns about tenant satisfaction. In order to draw comparisons with the non-profit leased housing sector, the fundamental idea of customer happiness, which serves as the cornerstone of the marketing discipline, is analyzed in a business setting. It calls into question the need for satisfaction surveys.

According to the theory of (Kotler, 2000), several factors enter a customer's thought, including marketing mix and other stimuli. Instead of ignoring the human dimension in decision-making or lumping all non-financial variables into a category labeled 'taste and preference,' the author stated that researchers could profit from merging consumer behavior research with an economical approach to real estate.

Attitudes, lifestyles, and tastes affect consumer preferences for space (Gibler & Nelson, 2003). Perception, family, neighborhood, and lifestyle could determine customers' behavior (Raya & Garcia, 2012).

Deng, Gabriel, and Nothaft (2003) researched the BLS-CPI housing sample dataset and the US housing survey, showing that the length of time that tenants stay in rental housing varies greatly between units and specific market segments. This variation is affected by factors such as the characteristics of the tenants, the location, and market conditions. In particular, the housing factor has shown that the type of rental house, a high-rise apartment building with an elevator, positively affects the rental time. Additionally, the percentage of the community's population influences the time a tenant resides.

From a different perspective, Read and Tsvetkova (2012) summarize research conducted in North America over the past three decades that explores the multidimensional nature of housing affordability and the negative social consequences of the inability to find appropriate accommodation options for low- and moderate-income families. The social impacts of housing quality are directly related to the quality of children's education, public health, and security and order issues. Children exposed to a positive, well-managed society often succeed in the classroom and are less likely to misbehave. Furthermore, children's and adults' health status seem to improve when families are exposed to fewer neighborhood-level stressors that can negatively affect physical health and their mentality. Additionally, affordable housing by conventional standards can still produce adverse social outcomes if residents are exposed to excessive noise and overcrowding. Research shows that such conditions contribute to

delayed cognitive development, loss of confidence in children, and depression and anxiety in adults.

Research by La, Tran, and Nguyen (2019) based on the data sets VRUMS[1] 2013 and VHLSS[2] 2012 has identified that only 12% of rural-to-urban migrants own a home, in other words, about 88% of them choose to rent when living in Ho Chi Minh City. When going deeper into the data set, based on the difference in the type of residence document (KT1 and rural *ho khau*), the proportion of tenants has decreased but is still much higher than that of urban residents (La, Tran, and Nguyen, 2019, p. 226).

Although no tenants were interviewed or classified, the information gathered in the above studies provides a better understanding of tenants' circumstances and decisions. That is why they are considered and used for determining influencing factors, which will be summarized in Table 2.3.

2.2 Hypotheses regarding need

This research aims to classify different groups by surveying young tenants in HCMC. The information is collected based on the review of the tenant's studies. The first group of hypotheses is raised. It is about the need of tenants. The need group has three subgroups***: sharing type, rental purpose*** *and* ***accommodation type***.

Hypotheses within **"*Sharing type*"** subgroup focus on the need for private or shared spaces among tenants. These hypotheses explore whether tenants prioritize having private space or are open to sharing specific amenities or living areas.

Hypotheses within **"Rental purpose"** examine tenants' two different property renting purposes. It investigates the different needs and motivations behind renting for living or renting for living with running a business.

Hypotheses within **"Accommodation type"** focus on the specific accommodations tenants prefer or require. It explores whether tenants prefer rooms, apartments, houses, or other housing options.

2.2.1 Sharing type

Hypotheses are developed based on Maalsen's (2019) results about why young tenants share their accommodation in Australia. Five general motivations emerged. The three most important factors are picked up due to their major responses: economic, social, and location. In another research, McKee, Mihaela Soaita, and Hoolachan (2019) found tenants' feelings about sharing rented accommodation, in which tenants feel insecure about finances when their flat mates leave the house. The general hypotheses regarding the choice of living separately or with strangers will depend on their characteristics,

[1] Vietnam Rural Urban Migration Survey

[2] Vietnam Household Living Standard Survey

but most prominently income and characteristics related to the rental property, such as rent, living area, and location.

Income: the hypothesis is that young people with higher incomes are more likely to prefer living alone than those with lower incomes. Living with strangers or acquaintances or possibly sharing a dwelling with relatives will assist young adults in reducing their financial load. To quickly find tenants, some landlords in HCMC still let many occupants per room or house.

Rent: the assumption is that tenants of private, independent use will pay higher rents than tenants who choose shared rental housing. The rationale for this assumption is that independent tenants are willing to pay for the privacy and convenience they desire.

Living area: the inferred hypothesis is that people who rent an accommodation to live with their family or live alone will rent a place with a larger area than those who accept to rent with strangers will rent a place with a smaller area.

Location: to balance the benefits between the economy and quality of life, tenants must consider many different issues. While the type of room sharing is not convenient in terms of usage, there is one feature that young people in HCMC accept as a trade-off: location. Most shared rooms offer a more convenient location than other rentals with high privacy. Shared tenants are believed to be more often located in inner-city districts than tenants for families or alone.

2.2.2 Rental purpose

The Covid-19 epidemic appeared in addition to the terrible consequences it caused to humanity. It also contributed to changing many ways of thinking and habits of people, including working and doing business. More and more individuals and businesses are becoming aware of the advantages of working from home, such as zero travel time, being eco-friendly, and using high-speed internet platforms and modern audio-visual devices (Patanjali & Bhatta, 2022). Young individuals who rent a home to manage or start a business do so to engage in self-employment activities outside the family home. Thus, housing provides financial and geographical security on the one hand while also forming the freedom required for entrepreneurship on the other (Reuschke, 2016). Then, using accommodation to work and do business becomes a definite trend. Young people will recognize these changes and do everything they can to adapt. The hypotheses are that business tenants will be grouped to see if they have any characteristics that differ from those of young tenants. The factors will be compared with groups of tenants for living and tenants for living and working or doing business to see if there is a statistically significant difference.

Rent: it is assumed that a tenant who only uses the accommodation to stay will accept a cheaper rent than a tenant who works from home and a tenant does business**.**

Living area: working from home may not necessitate much space, but the living environment is too small, reducing job productivity. Furthermore, the living area is vital because of a separate function, business. Different corresponding areas will be required

depending on the job's qualities. The assumption is that tenants who merely live will rent a smaller house than renters who work and do business.

Rental duration: the theory is that commercial tenants will rent longer than residential tenants. Because it may take some time for the business to stabilize, and long-term hire will assist them in doing so.

2.2.3 Accommodation type

In addition to deciding whether to share or not share housing, young people (in some cases with their families) must also determine which housing style best meets their needs. The private-rented sector in HCMC is dynamic and diverse, much like the housing markets in other nations worldwide. According to what is stated in section 3.4.2 of chapter 2, different residences will be able to satisfy the various living requirements of renters. It is especially true for younger people, who have a greater need for hobbies, jobs, and living space than individuals of other ages.

The rental standards consider the needs of various types of residences. Each house style has distinct characteristics. Based on the findings of the studies by Jullien (2021) regarding “nhà trọ” - rental rooms in HCMC on the factors that lead people in HCMC to select a particular type of housing; and Goodman (1999) on the tenant segmentation that corresponds to various types of housing accommodations in apartment buildings. Hypotheses relating to the following factors have been proposed:

Income: it has been hypothesized that young individuals who rent row houses, apartments, or mini-apartments will have a higher income than those who rent or share rooms.

House condition: the condition of the homes handed over to tenants is another significant component contributing to the overall quality of the rental market. Regarding appearance, not all of HCMC's rental homes are in the most fabulous possible shape when delivered to tenants. In certain instances, the house has to have the interior and exterior painted and some of the appliances replaced, but the landlord does not perform these tasks in advance. It is hypothesized that the quality of the delivered row rooms is worse than that of the apartment and row houses.

Rental duration and total rental duration: the expectation is that the time spent living in a row room or dormitory will be greater than that spent in a row house or apartment.

According to this hypothesis, young people renting row houses or apartments rather than dorms or rooms in rows will be closer to the city's center. On the other hand, those who rent dorms or rooms in rows will be located further away.

Rental purpose: it has been proposed that the individuals who rent rooms or dormitories do so solely to occupy them. In contrast, those renting flats or private homes are more likely to use them simultaneously for personal and professional reasons.

Distance to work: even though the workplace could not be located in the central business district or urban core, a hypothesis is still required to investigate the potential relationship between the workplace and the types of rental homes that young people prefer. This study will test the hypothesis that a statistically significant relationship exists between the distance to one's place of employment and the housing options one chooses.

Renting reasons: in addition to the statistical tests described above, descriptive statistics will be used to investigate the factors influencing young people's decision to rent an accommodation of a particular type. This research aims to determine which categories of considerations are most influential in the decision to rent an accommodation.

2.3 Hypotheses regarding demographic

According to the reviewed research, it is evident that socioeconomic factors play a crucial role in tenants' housing decisions. The most mentioned factors in the literature include gender, in-migration status, household structure, and income (as summarized at the end of Chapter 2). Therefore, to examine the influence of these factors on tenants' housing preferences, four subgroups—gender, in-migration, household structure, and income—are utilized.

2.3.1 Gender

Based on the actual situation of Vietnamese society, and study result of Li and colleagues (2019), it is hypothesized that female tenants will prefer to rent a shared accommodation over a non-shared one.

2.3.2 In-migration

Of the total number of migrated citizens, more than 70% are between 15 and 30. Their homeownership is pretty low compared to local groups. (World Bank, 2015). Immigrants to the city can do different jobs. They could be white collars or blue collars. Their common concern is that apart from the cost of living in HCMC, they must also take care of their family life at home. Therefore, the burden of rent costs forces them to consider carefully. The hypothesis is that people who immigrate to HCMC for a short time will rent houses with lower rent than long-term immigrants and locals.

Jullien (2021)'s research on the housing type preferences of migrants in HCMC represents the decision-making perspective of households when selecting the appropriate type of housing. The study also identified commonalities in dwelling selection. Furthermore, according to the World Bank's 2015 study on housing in Vietnam, newcomers have challenges establishing down. They frequently pick rental accommodation as their first option to begin their studies or careers. As the country's economic and financial capital, HCMC attracts many individuals from neighboring provinces to work and study. Making a clear distinction between an immigrant and a local urban dweller is likely outside the scope of this study. However, according to La

and her colleagues (2019), despite accounting for differences in household composition, the data show that migrants are much less likely to be homeowners than local urban residents and that their living conditions are worse than locals. The Ho Khau (household registration) is a document to distinguish “local” and “migrant,” which has a minimum of 5 years in HCMC living. The following hypotheses are put forward:

Sharing type: it is hypothesized that “migrant” tenants tend to share their accommodation with friends or strangers while “local” tenants prefer to rent alone.

Accommodation type: it is predicted that the time young people have been in HCMC will influence their decision to rent a home. "Immigrants" are more likely to rent rooms than residents.

Rent: people who have been in HCMC for less than five years may spend their earnings on various things, including savings for the future. The assumption is that "migrants" will rent homes less than local ones.

Living area: the area and rental cost will be proportionate to one another; in the exact location, the rent for a larger home will be greater than that for a smaller home. The hypothesis is that "migrants" are more likely to rent residences with a smaller area than those who have resided in HCMC for more than five years.

2.3.3 Household structure

Tenants worldwide tend to be very similar (UN-Habitat, 2003). They tend to get younger and younger and have fewer children when they do not own a home. Tenancy tends to take place at an early stage in their life. In Asian cultures, young people tend to live with their parents before getting married. After marriage, young couples often move out. The difference is that giving birth in Asia, especially in Vietnam today, often takes place after they get married. In the past 20 years, the average household size in Vietnam has decreased by approximately 20%, dropping from 4.5 individuals per household in 1999 to 3.5 per household in 2019. (Vietnam General Statistics Office, 2019). Young people are usually attracted to urban areas, away from their parents and extended family. If the trend seen in other Asian markets also occurs in Vietnam, the reduced household size could generate new demands, such as smaller homes, increased pet ownership, and new forms of entertainment (Francois & Mai, 2021). Varady and Lipman (1994) identified two groups of tenants, young and old, who are not interested in owning a home at this point in their lives. The reality of the real estate market in China is that many families have chosen to rent and rent out the house they own (Huang, Yi, and Clark, 2020). It is pretty similar to Vietnam. Assuming that families seek rental accommodation for all family members as an alternative accommodation option, they will look for places with living conditions as good or better than the one they currently own. The relationship between most significant focus is on adults and children so that children have a suitable living environment and achieve more success in the classroom. Adults can reduce stress and anxiety (Read & Tsvetkova, 2012).

Because of the above reasons, the author has put forth the following hypotheses to test in the following chapters:

Living area and Rent: it is hypothesized that young people who have children or live with parents or grandparents will choose a rental house with a larger area. A large living area will provide more possibilities for entertainment and other activities, helping to improve the quality of life. As a result, young tenants will pay a higher rent than those responsible for children or who live with seniors.

Rental duration: families with many members, with more children, or with more grandparents or parents living with them will rent longer than young people living alone.

Rental purpose: the assumption is that tenants with children or seniors are more motivated to rent a home for personal reasons rather than commercial purposes.

Accommodation Type: in sharing with minors or seniors, tenants may have to consider issues that affect their living environment, the size of the home, and the rent. It is expected that tenants with children or elderly family members will prefer to rent private houses or flats due to their superior living conditions compared to row houses.

House condition: Tenants with children or elderly relatives or families with more than one generation are likelier to choose a better-looking home than young singles or one-generation households.

Factors that affect renting decision:

The main idea is that various factors impact tenants' decisions with different household structures.

Those groups of factors are:

- group of factors about rent and legal issues
- group of factors on quality of accommodation
- group of factors about the surrounding environment
- group of factors in terms of accessibility to essential utilities

2.3.4 Income

Although income should be a factor in the group of demographic assumptions, the author has isolated it into a separate section in this study to underline its role in building a housing market. In particular, variables relating to marginalized people in society - students and low-income workers - can be seen in sustainable hiring.

According to a report by UN-Habitat (2003), tenants' income affects their decision to rent an accommodation in many countries worldwide, including developing nations.

In a study of low-income individuals and the private rental housing market in the United Kingdom, Kemp (2011) emphasized the significance of private rental market supply compared to social housing. As social housing continues to fall, more pressure will likely be put on the private rental market to house low-income families. Research

shows poor tenants have diverse vocations, including part-time workers, young people under 25, single parents, and minorities.

From a contrary point of view, research conducted by Bonnet and Pollard (2020) demonstrates that real estate brokers highlight tenant selection characteristics. A "good tenant" offers more than financial stability in the landlord-tenant relationship. A good renter pays rent on time, stays in the rented apartment, maintains the unit reasonably, and does not cause any issues (Bonnet & Pollard, 2020). It can be inferred that the above factors also need to be taken care of by the tenant to be a good tenant.

By the World Bank's (2015) assessment of housing in Vietnam, workers, especially industrial workers, account for a significant portion of the housing demand. Specifically, housing location, living space, and housing circumstances impact the quality of rental homes.

As a result, income is linked to various factors like rent, location, living area; property's status at rent; distance to the workplace; and factors that affect renting decisions.

Rent: the hypothesis is that tenants will rent low-priced housing when their income is low, and tenants will rent high-priced housing if they have a high income. Because in addition to the cost of paying a fixed monthly rent, young people also have to cover other fixed expenses. Other costs can be mentioned, such as studying to improve qualifications, social relations, pleasures, and entertainment.

Location: location significantly impacts the price of accommodation; compared to the same type of rental house, the closer the location is to the center or the districts near the city center, the higher rent will be in the districts far away from the center. As a large city, HCMC's centripetal nature or tendency will affect rents. Young people with high incomes will choose more rental houses close to central districts than those with low incomes.

Living area: how large or small a dwelling place determines the tenant's quality of life. The analysis results may lead to a different conclusion about the correlation between the living area and income. However, the initial hypothesis is that high-income tenants will choose a rental with a larger area than low-income tenants.

House condition: rent prices can be determined by the condition when the tenant moves in. Newly built homes or properties will cost more than refurbished rental properties. Also, if it is an old property and not renovated, its price will be low, and it may be suitable only for low-income people. The hypothesis is that high-income tenants will rent newer homes.

Distance to the workplace: The hypothesis is that high-income people will rent houses in locations closer to work. Because workplaces tend to be in places that are well located, easily accessible and have many amenities, it means higher land and rent prices in the area. Therefore, the author has assumed that tenants will be near the workplace when they have good income conditions and far away from the workplace when their income does not allow it.

Factors that affect renting decision:

The general hypothesis is that factors impact tenants' decisions with different income levels.

Those groups of factors are:

- group of factors about rent and legal issues
- group of factors on quality of accommodation
- group of factors about the surrounding environment
- group of factors in terms of accessibility to essential utilities

2.4 Summary of hypotheses

Based on the results of the studies that have been done, two main groups of hypotheses related to the "need" and "demographic" of the tenants will be analyzed in correlation with the independent variables.

Hypothesis group 1: the hypothetical group associated with the **need** for rental housing.

Hypothesis group 2: is the **demographic** hypothesis group.

More specifically, the hypotheses can be condensed using the following table.

Table 2.3 Impact factors on individuals' rental decisions and their groups

Hypothesis	**Definition Sub-group**	**Impact factor**	**Reference**
Need			
Sharing type	The number of people living with tenant	Income Rent Living area Location	Maalsen (2019) McKee, Mihaela Soaita, and Hoolachan (2019) Jullien (2021)
Rental purpose	The usage of rental place	Rent Living area Rental duration	(Patanjali & Bhatta, 2022) (Reuschke, 2016)
Accommodation type	Rental property according to category in section 3.4.2	Income House condition Location Rental purpose Distance to work Renting reason	Jullien (2021) Goodman (1999) Li *et al*. (2019)
Demographic			
Gender	Tenant's gender	Sharing type	Li *et al*. (2019)
In-migration status	Length of time tenant living in HCMC	Sharing type Accommodation type Rent Living area	World Bank (2015) Jullien (2021) La *et al.* (2019)
Household structure	Marital status, number of generations in rental house	Living area Rent Rental duration Rental purpose Accommodation type House condition	Varady and Lipman (1994) UN-Habitat (2003) (Read & Tsvetkova, 2012) Huang, Yi, and Clark (2020)

Hypothesis	Definition Sub-group	Impact factor	Reference
		Factors that affect renting decision	(Francois & Mai, 2021).
Income	The wage tenant earns monthly	Rent Location Living area House condition Distance to work-place Factors that affect renting decision	UNHabitat (2003) Kemp (2011) Bonnet and Pollard (2020) World Bank (2015)

Summary of Chapter 2

This section aims to determine whether young people rent types of accommodation can be divided into different tenant groups and what the differences are. From establishing the constraints of the study topics conducted, such as the limitations of the tenants' survey, tenants grouping, reasoning, conditions, and economic elements of tenants' issues, areas are highlighted where the rental market in developing nations might be enhanced.

It is necessary to establish hypotheses to allow empirical testing. This chapter presents hypotheses about tenant groups and their possible socioeconomic characteristics, reasons for renting rental criteria, and possible properties' characteristics.

The hypotheses will help clarify the answers in Chapter 1, precisely questions 1 and 2. They are “What are the reasons, criteria, socio-economic factors, and characteristics of rented property to classify tenant groups?” and “What aspects of the content of the above question can be considered to identify differences between groups?”.

Since there are no studies on tenant subgroups in HCMC, the study used knowledge from tenant subgroup studies in other countries worldwide as a foundation. Such studies were carried out in developed and developing countries.

The tenants can be grouped based on their characteristics and properties. The characteristics and properties used for grouping are **income; rent; living area; house condition; rental duration; location of the property; distance to work; renting reason**. Two groups of Hypotheses are formed, named **Need** and **Demographic.**

The features proposed for correlation analysis are explained in more detail in Chapter 6, are illustrated as follows.

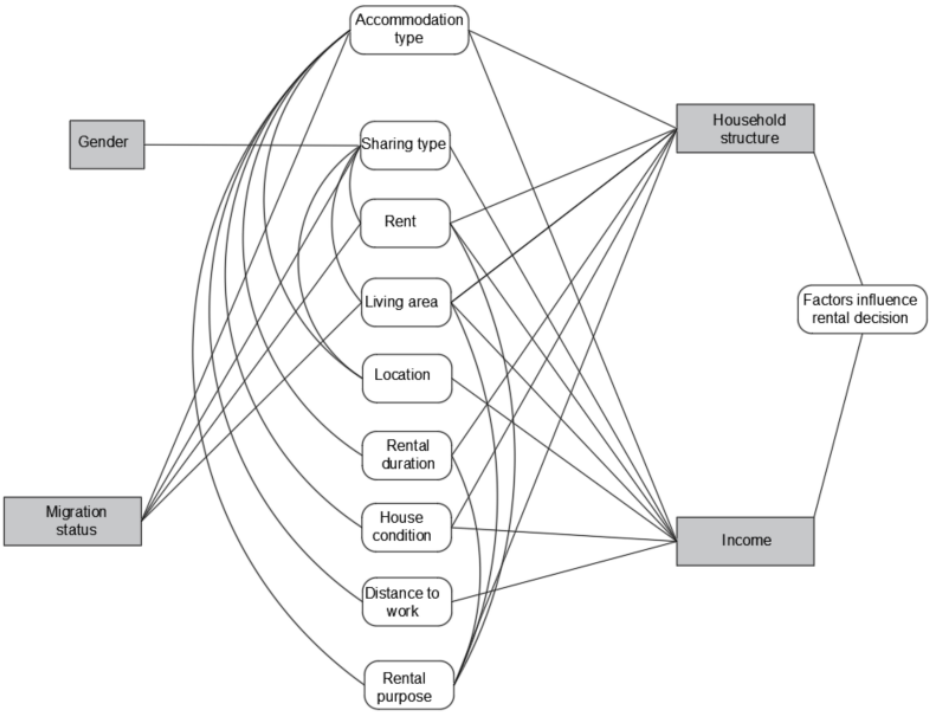


Figure 2.1 The correlations will be tested drawn from the research hypothesis.

3 The case study - Ho Chi Minh City

The introduction chapter presented the purpose of this study, which is to subgroup young people renting in HCMC, the biggest city in Vietnam. To conclude, surveying all young people renting in all main cities would be the best solution suitable for research purposes. However, it is not easy, and it will be a massive effort in terms of organizational and financial factors. Therefore, limiting the survey to a particular city is more reasonable.

It is anticipated that by 2025, approximately 2.5 billion people, which constitutes more than half of the world's urban population, will call an Asian city home. Jakarta, Manila, and Hanoi are examples of large cities in developing countries that have witnessed uneven middle-class growth in recent years. These countries are located in Southeast Asia. Meanwhile, urban populations that do not have access to adequate infrastructure or housing that is long-lasting are growing at a rate that is faster than at any other time (Jensen, 2021). According to a report published by the ASEAN(2015), Kuala Lumpur, Manila, Bangkok, and Ho Chi Minh City are among the most unequal in the world.

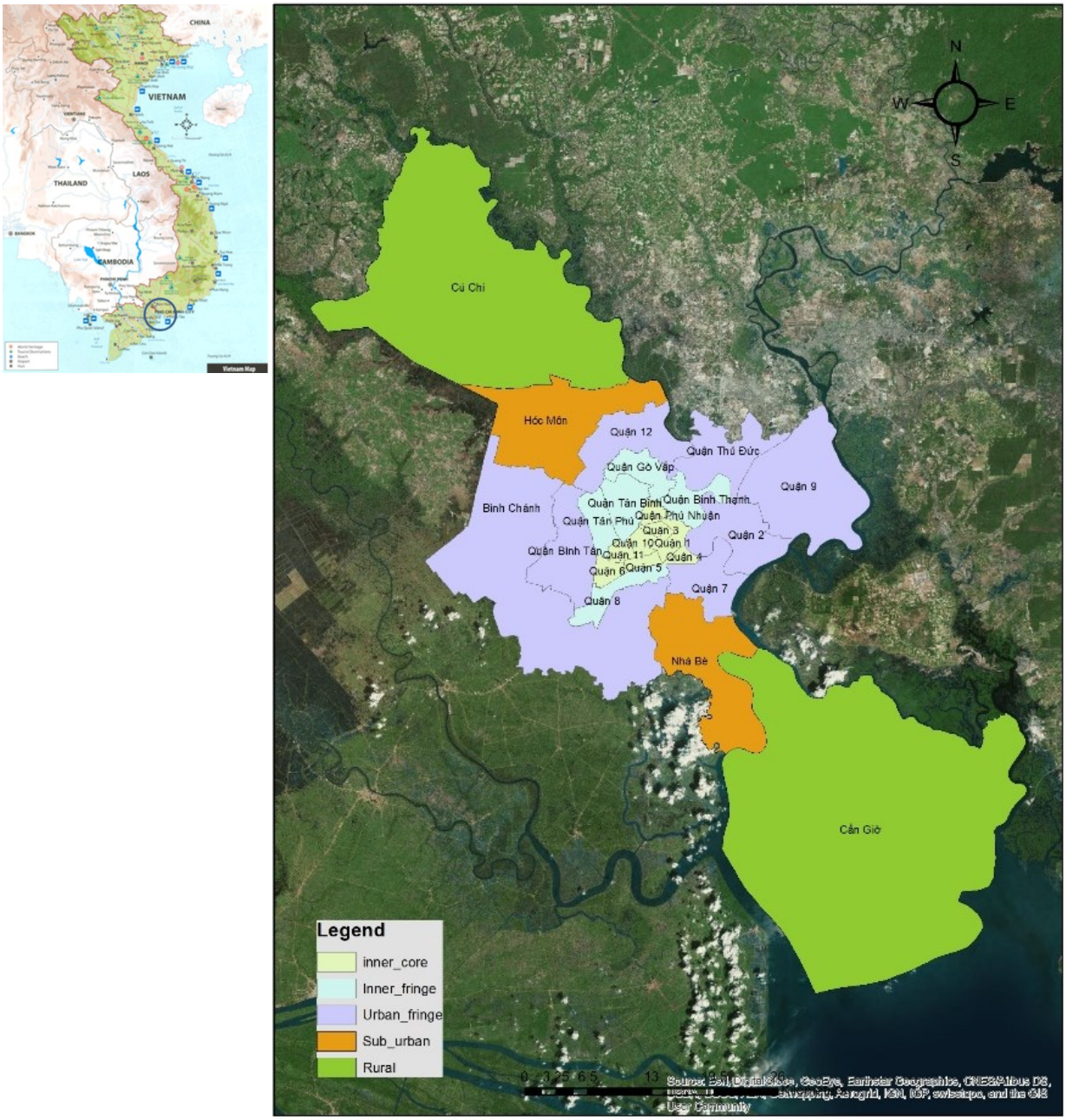
Ho Chi Minh City, with its characteristics as the economic and financial center of Vietnam and the ASEAN region, attracts every year numerous migrants from other provinces and cities to live and look for job opportunities, employment, education, and better living conditions, which is evidenced by the increasing rate of mechanical population growth over the years (see section 3.1). By the end of 2020, Vietnam had 684 thousand enterprises operating in production and business, creating nearly 13 million jobs, 21% of which came from businesses operating in Ho Chi Minh City (see section 3.2). From 2015 to 2020, the number of students studying in Ho Chi Minh City increased from 455 thousand students to 600 thousand students, consistently accounting for a large proportion of the students in the country. In addition, the number of students at other educational levels (such as vocational training and college systems) also accounts for a high proportion compared to the whole country and the Southeast region (see section 3.3).

3.1 Population growth and urban expansion

HCMC is Vietnam and Southeast Asia's big economic, financial, and cultural center. With an area of 2,095 km^2, HCMC is in the center of the South, which is 1,738 km from Hanoi. As the largest port city in Vietnam, converging all favorable conditions for road, waterway, railway, and air traffic. It is a primary economic traffic hub connecting with localities in the country (General Statistics Office of Vietnam, 2021). The city is situated in the heart of Southeast Asia and serves as the gateway to international trade via the East Sea.

It provides significant benefits for economic and cultural contact by water and air with neighboring nations. It generates opportunities and becomes a desirable location for

all classes of citizens from around the nation. The city could be considered five smaller regions (see Figure 3.1).



** Note: blue circle is the mark for HCMC*

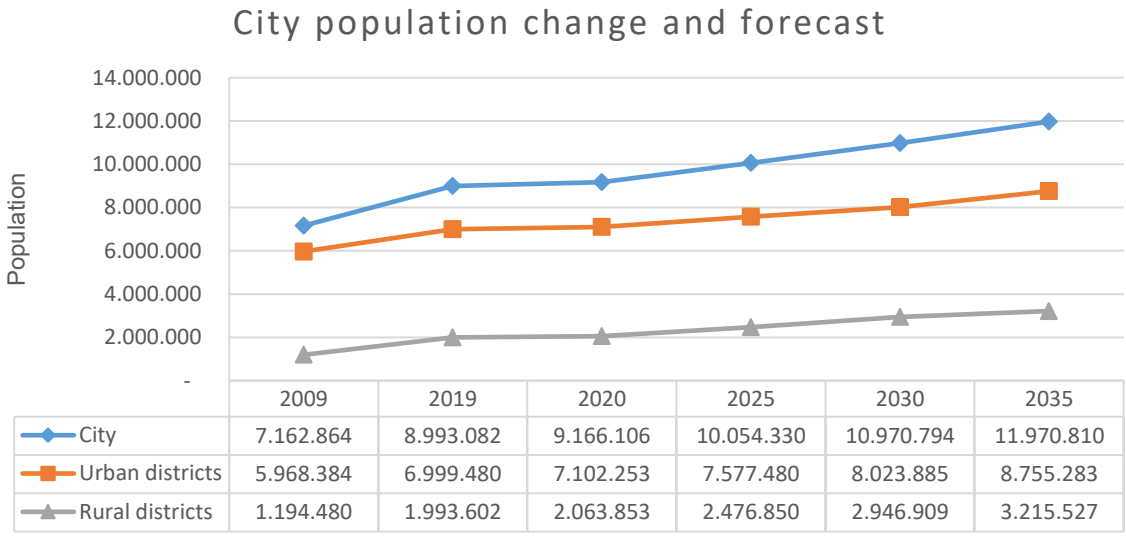
Figure 3.1 The location of HCMC in the Southern region of Vietnam and its sub-districts. (Author compiled with ArcMap)

The inner core includes CBDs. The inner fringe was, before 1975, the sub-urban area is now urbanized with a high population density rate. The urban fringe consists of newly developed districts. The suburban and rural regions include districts with lower population density and urbanization rates.

In 10 years (as of the census on April 1, 2019, by HCMC Statistics Department), the city's population has increased by 1.8 million compared to 2009 (see Figure 3.2). The

average population growth rate for 2009-2019 is 2.28% / year, twice as much as the country's 1.14%.

Before 2009, the population was not evenly distributed; the urban population was nearly 80%, the rest was rural, and the population growth rate in urban areas was always higher than in rural areas (Pham et al., 2017). However, since 2009, the average population growth rate in rural areas is 4.47% per year compared to urban areas of 1.7%, showing that urbanization is taking place firmly. The city faces both opportunities and challenges in promoting economic growth and improving the quality of life for its residents through effective urban development. Based on current population growth rates, the HCMC Institute for Development Studies (HIDS) predicts that the city's population could reach 11 million people by 2030, of which about 8 million will live in urban districts (Pham et al., 2017).



	2009	2019	2020	2025	2030	2035
City	7.162.864	8.993.082	9.166.106	10.054.330	10.970.794	11.970.810
Urban districts	5.968.384	6.999.480	7.102.253	7.577.480	8.023.885	8.755.283
Rural districts	1.194.480	1.993.602	2.063.853	2.476.850	2.946.909	3.215.527

Figure 3.2 HCMC population change and forecast based on growth rate.

(HCMC Statistic Department, and HIDS)

Vietnam is currently experiencing a "golden age" demographic structure, with 70% of its population in the working age group (Vietnam General Statistics Office, 2019). This favorable demographic structure is a valuable opportunity to enhance labor productivity and drive economic growth in the country. According to graph 2.3, it can be seen that the population of working age accounts for the highest proportion of the total population of the city. The middle part of the population pyramid swells, showing signs of population aging but also indicating that this is when the labor force is at its best. More specifically, the population aged 15 to 39 is 47% of the city's population.

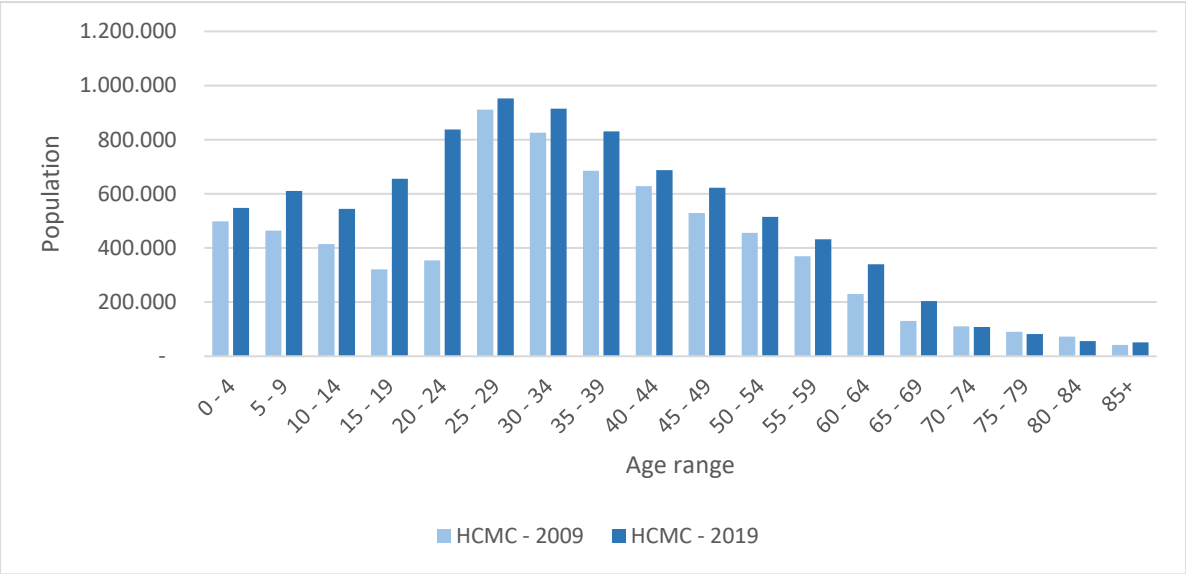


Figure 3.3 Age structure of HCMC Population in 2009 and 2019.
(Author compiles from Vietnam Population Census 2009, 2019)

The city has undergone extensive urbanization in the suburban districts, leading to rapid peri-urbanization, converting agricultural land to residential land. With fast, simple construction and not paying attention to technical requirements, many townhouses were built in a short time, even one night[3]. Of course, this is not a positive signal. It shows housing overload in the country's largest city and the inability of urban authorities. The corollary of the hot and out-of-control development is that many people become "lawbreakers" when they violate the regulations on urban construction planning and put them at extreme risk: homeownership is illegal and can be forcibly dismantled at any time (see Figure 3.4).

** Note: (left) The illegally built houses were completely sold out in Binh Chanh rural district.*
(right) A demolition of illegally built houses.

Figure 3.4 Illegally built houses in HCMC.
(Source: phunuonline.com.vn; sggp.org.vn)

[3] https://vov.vn/xa-hoi/moi-dem-xuat-hien-1-can-nha-xay-trai-phep-tai-tp-hcm-931327.vov
(Translated by Author: Illegal house appears every night in HCMC, Voice of Vietnam)

From 1990 to 2012, agriculture was turned into urban uses on 660.2 km^2; approximately five times the amount of urban land was added, and 3.5 million people relocated to the city. Nearly 50% of population growth occurs in communes considered peri-urban, with about a third of new urban expansion occurring in locations more than 40 kilometers from the center (Kontgis et al., 2014) - Figure 3.5

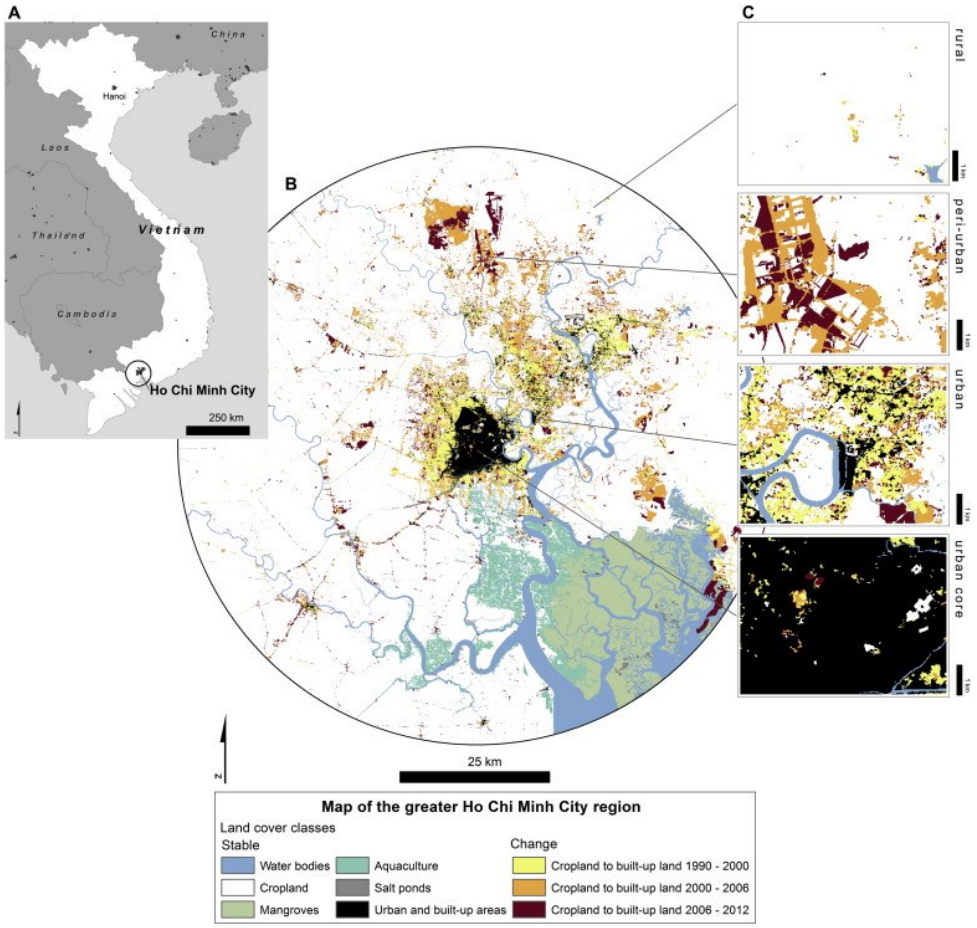


Figure 3.5 Location of greater HCMC in South Vietnam and its regions' land conversion over periods. (Source: Kontgis et al., 2014).

While early urban expansion dominates inner zones, land conversion increases in the larger radial zones during the later periods. In the outer zones, the newly built-up area between 2000 and 2006 comprises the most incredible total urban land area. In peri-urban areas, built-up areas expanded from just 2% of land cover in 1990 to more than 15% by 2012, an increase of more than 500%. The urban core increases from 44 to 79% of built-up land over the same period. The findings emphasize the rapid and unorganized nature of peri-urban growth: about one-third of new urban expansion occurs more than 40 km from the city center, and almost 50% of the population growth occurs in peri-urban areas. While early growth around HCMC is contiguous with the original urban core, later periods are characterized by piecemeal, fragmented development often associated with investment-driven growth (Leaf, 2002). Most freshly established built-up areas were discovered on higher ground and not flooded. However, more built-up areas in natural wetland areas put more pressure on the

existence, resulting in increased flooding in lower land when it rains or even flood tide (see Figure 3.6, Figure 3.7). While drainage systems in core metropolitan areas barely keep up with the increase in development, capping soil here limits the natural process of dealing with extra water when it rains heavily. Other research and ground observation evidence of land subsidence and sea level rise raises severe environmental concerns about the development of HCMC's south and southeast districts (Vu, Thy, and Nguyen, 2018).

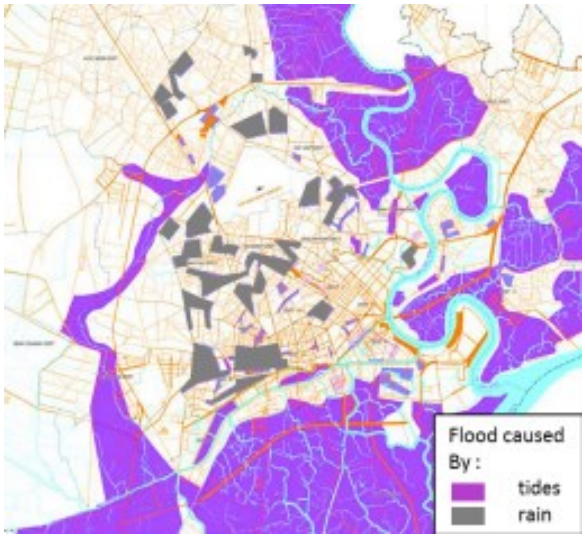


Figure 3.6 Map of flooding areas caused by high tide wave set-up or by rain

Source: Vachaud (2019)

Figure 3.7 Flooding in HCMC even without rain. (Source: baogiaothong.vn; vov.vn)

3.2 Industrial production and other business activities

According to the results from the General Statistics Office, despite being heavily affected by the Covid-19 epidemic, by the end of 2020, HCMC had 216,293 enterprises operating in various fields, such as trade, services, and manufacturing, which includes 463 enterprises with a size of 300 to 499 employees, 344 enterprises with a size of 500 to 999 employees, 241 enterprises with a size of 1000 to 4999 employees and 35 enterprises with over 5000 employees. The total number of enterprises in HCMC accounts for 32% of the country's total, and 77% of that of the Southeast region - the region with the most enormous production scale (see Table 3.1).

Table 3.1 Number of enterprises of Vietnam, Southeast region of Vietnam, and HCMC (Source: GSO, 2021)

	Number of enterprises	**Enterprise size**			
		300 - 499	500 - 999	1000 - 4999	> 5000
Vietnam	684,260	2,625	2,018	1,521	229
The southeast region of Vietnam	281,096	1,001	771	595	90
HCMC	216,293	463	344	241	35

From 2015 to 2020, HCMC is the workplace of nearly 2.8 million people. Specifically, in 2015, HCMC employed 2,728,603 people, and by 2020, 2,813,212 people were working there. The proportion of employment in Ho Chi Minh City in 5 years (2015 - 2020) compared to the whole country is an average of 20% (see Figure 3.8).

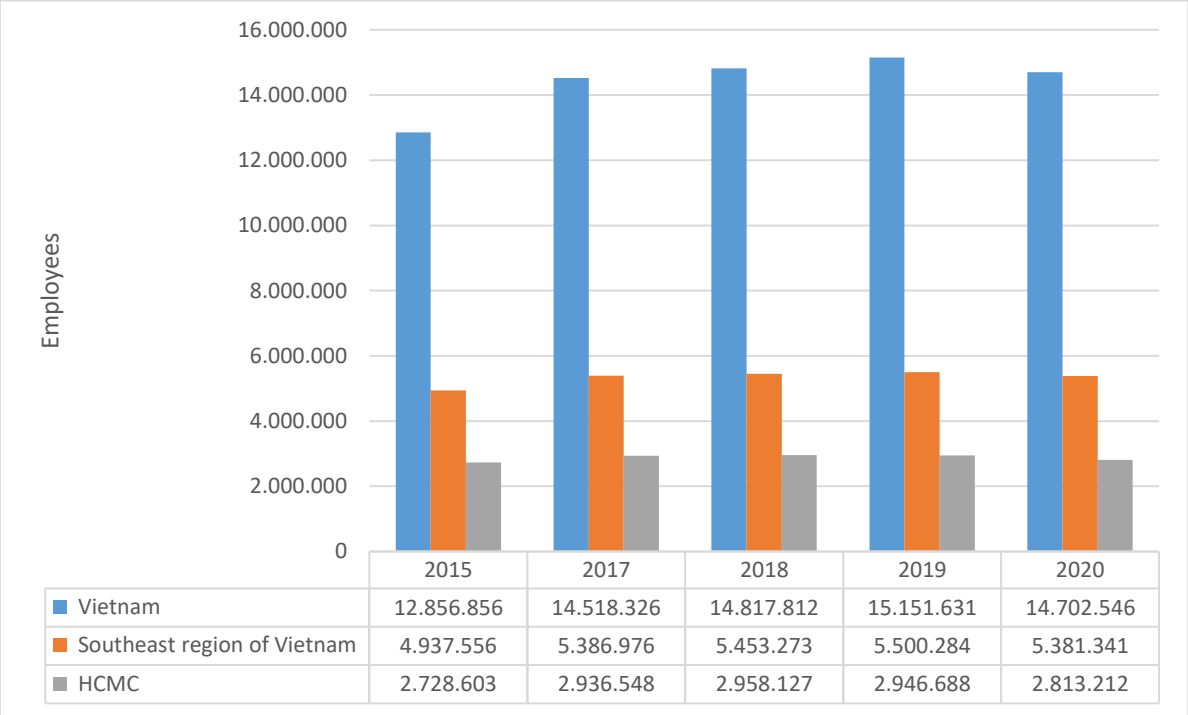


Figure 3.8 Total number of employees in active enterprises in Vietnam, Southeast region, and HCMC. (by the end of 2020) (Source: GSO, 2021)

According to the development plan for 2020, HCMC will have 23 export processing zones and industrial parks (EPZs-IPs) with a total area of about 6,038.8 ha. However, according to data from HEPZA, the agency currently manages 16 EPZs and IPs[4].

[4] http://www.hepza.hochiminhcity.gov.vn/web/guest/quy-hoach-va-du-kien-phat-trien

Besides that, 27 industrial clusters (ICs) are located at the gateway districts (such as Districts 2, 9, and Thu Duc – now belong to Thu Duc City, districts 7, 12, Binh Tan, Hoc Mon, Cu Chi, Nha Be, Binh Chanh). These projects are spread out in almost all the different areas of the city. In suburban districts, IP projects are large-scale, attracting many factories (see Figure 3.9).

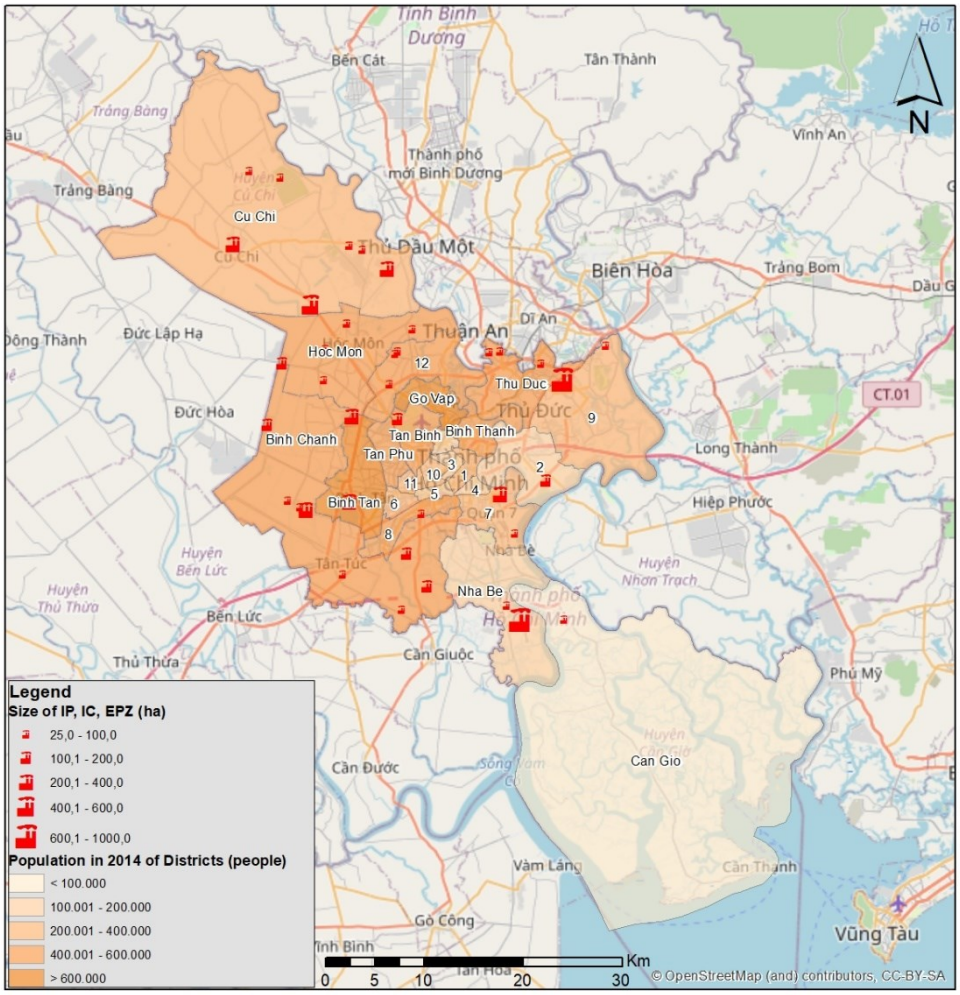


Figure 3.9 The map of Industry Parks, Industry Clusters, Export Processing Zones of HCMC. (Author,2021)

Beyond the city limits, many industrial zones are concentrated in HCMC's east and northeast areas. About 53 IPs are built in Dong Nai and Binh Duong along national highways - the main link connecting HCMC and the Northern region (such as National Highway 1A and National Highway 13). Not surprisingly, these areas have the highest rates and amounts of land and population change, indicating that these incentives have played an essential role in the overall rates and forms of urbanization and peri-urbanization (Meyer & Nguyen, 2005).

Housing and traffic are among the most significant problems the city has to deal with. Consequences of unmanaged housing development have led to inadequate transport infrastructure and made proper planning more difficult. Issued urban plans often fail to keep pace with actual urban development, resulting in waste of handling violations and a significant impact on people's lives. The waste is caused when construction

demolition works not following urban planning, which most are caused by two main reasons coming from the state management system. Firstly, it is caused by individuals in the management and implementation of the provisions of the law. Secondly, due to the failure to keep up with the land use plan, people cannot change land use purposes. However, one common point between the two reasons outlined above can be seen, which is the difference between planning and reality, urban planning becomes obsolete too quickly when the needs of the people are not satisfied. The rest of the illegal construction comes from the high demand of residents to find a place to live and work.

Numerous studies have demonstrated the harmful impacts of dust on human health and increased mortality in metropolitan areas with the highest number of motorcycles in the country, which primarily serve the citizens' transport, work, and study demands. In particular, people with low income and social positions will be more vulnerable due to exposure to these pollution sources (Le & Leung, 2018).

Figure 3.10 The pressure on current traffic infrastructure.

(Source: tuoitre.vn; vov.vn)

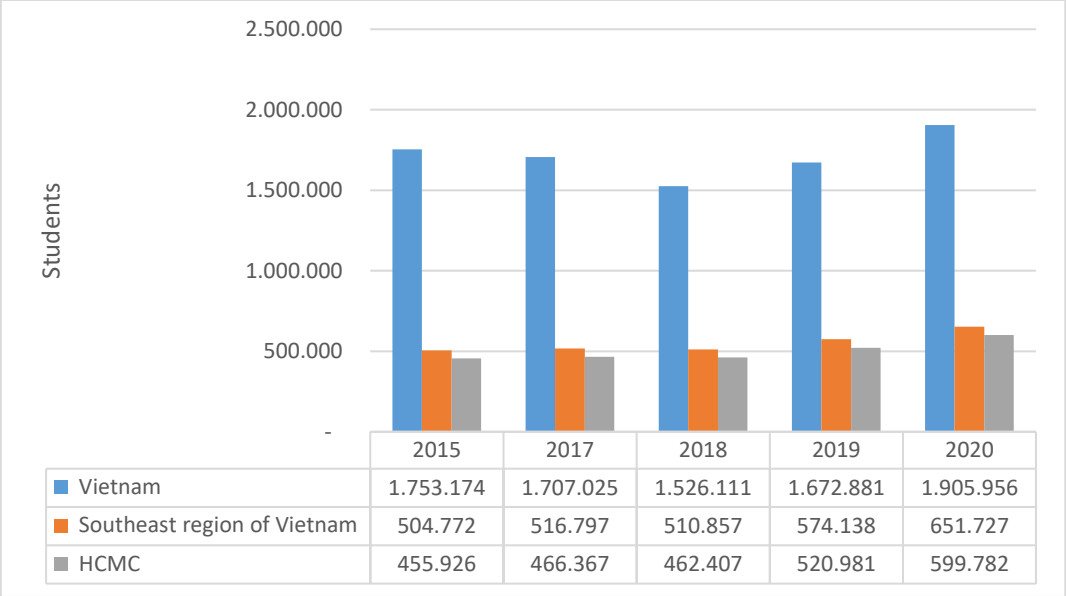
The young population, as well as the primary labor force, demand highly for housing with a suitable quality of life. The official development of the rental housing market has not been seriously set and implemented by the city. In order to solve the housing demand, the spontaneous rental market has revealed weaknesses, affecting the psychology of tenants in particular and young people's tendency to rent in general. If a formal rental market is formed, it will solve problems caused by the construction not following the planning, thereby limiting radial traffic flows or moving trips and offloading the transport infrastructure.

3.3 Education and training activities

According to a World Bank assessment, Vietnam has significantly reformed its higher education and vocational training programs during the last two decades. Conversely, Vietnam needs to improve access to postsecondary education (World Bank, 2020). HCMC remains the country's and the Southeast region's training hub.

After finishing secondary school, students in Vietnam can enroll in a vocational school. Students who have completed high school can continue their education at a university or a vocational training institute.

According to the results from the statistical yearbook 2021, from 2015 to 2020, the number of students at universities across the country has increased from 1.75 million students to 1.9 million students. The proportion of students studying at universities in HCMC increased from 455 thousand students in 2015 to nearly 600 thousand students in 2020, accounting for 31% of the national average, and continually tended to increase gradually over the years (see Figure 3.11)



	2015	2017	2018	2019	2020
Vietnam	1.753.174	1.707.025	1.526.111	1.672.881	1.905.956
Southeast region of Vietnam	504.772	516.797	510.857	574.138	651.727
HCMC	455.926	466.367	462.407	520.981	599.782

Figure 3.11 Students of Universities in Vietnam, Southeast region, and HCMC.

(Source: GSO, 2021)

In addition, the number of students enrolled in vocational training institutions newly recruited in 2020 throughout Vietnam is 583 thousand. Up to 93,000 students attend schools in HCMC, accounting for 16% of the country.

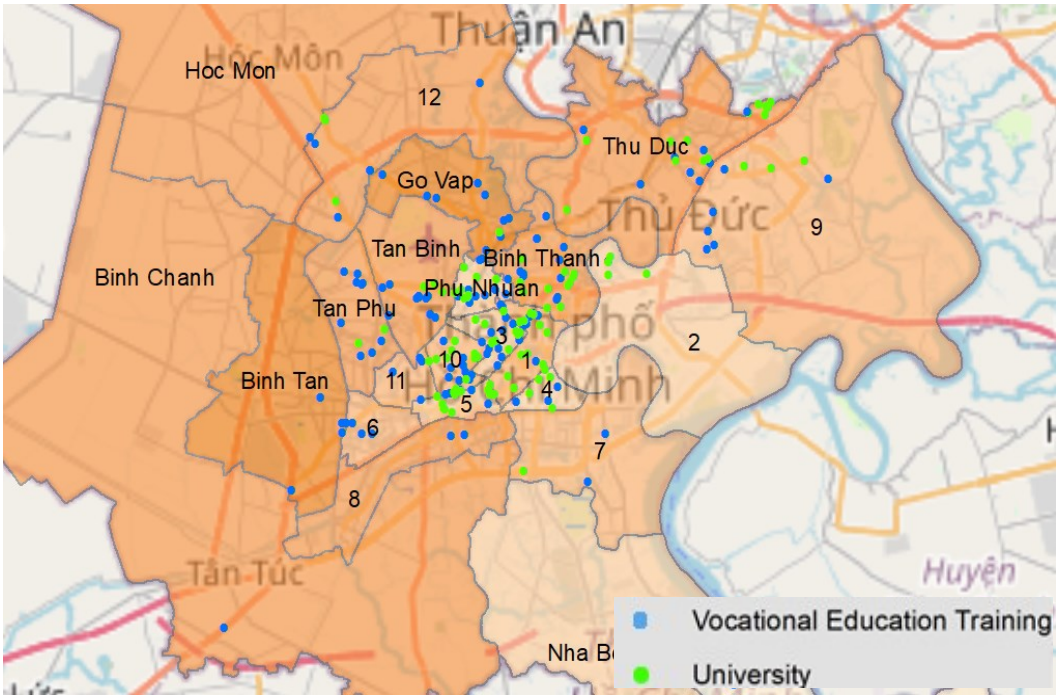


Figure 3.12 The distribution of universities and vocational training institutions in HCMC (Source: Author,2021)

Universities (green dot) and vocational training institutions (blue dot) are distributed mainly in the inner core and inner fringe districts. To meet the needs of expanding facilities, the universities and vocational training institutions mainly settle their new campuses in the eastern part, which has developed infrastructure and good connections to other Southeast region's provinces (see Figure 3.12).

3.4 Rental housing market

Concerning the development of the real estate market in Vietnam, Labbe and Musil have pointed out several relationships between the development stages and the policy changes since the start of reform in Vietnam. Moreover, changes in the infrastructure system are often accompanied by the land exchange policy for the investor (Labbé & Musil, 2014). With policy changes and a wave of immigration into major cities, the government encourages self-help housing and public-private partnerships in housing development. Housing has significantly increased the number of housing units in HCMC. Henderson and Ioannides's (1983) and Raya and Garcia (2012) studies mention factors influencing people's housing choices. The factors influencing housing choices and movements are income, home ownership, housing type, and the surrounding commute environment. It suggests the government should strategically create affordable housing options in multiple locations.

According to a report by World bank named *Vietnam Affordable Housing: A Way Forward,* the households in Q1 and Q2 segments without existing plots or homes face an enormous affordability gap.

This group includes migrant workers and newly formed families. A home purchase for these segments would be complicated, considering both the supply and demand sides.

On the demand side, their limited ability to save for a down payment and their low and volatile income are critical obstacles to accessing adequate credit to purchase a starter home or self-build. In addition, the supply of low-priced incrementally expandable starter homes for this segment is also limited. Self-built solutions would depend on the ability to access low-cost land, which is not in ready supply. Identifying, designing, and producing a suitable, formal housing solution for this market is considered critical to preventing the need for informal urbanization (World Bank, 2015).

When renting a house, the tenant's financial wishes and conditions still play a decisive role. The tenant and the lessor influence the tenancy decision, which is confined to the tenant's rental price. On the other hand, tenants will decide which features are essential and how much they will pay to rent them.

According to Varady and Lipman (1994), young people comprise more than 40% of the six identified tenant groups: young families and recent graduates, at 17% and 26%, respectively. In Vietnam, the residents of Quintile 1 and Quintile 2 income segments with no housing, such as migrants and newly formed families, have the most urgent housing need, given their limited savings, income, and credit capacity to fully self-provide. These groups will need support for various solutions, including rental, rent-to-own, and core starter homes, particularly in urban areas.

3.4.1 The development periods of HCMC's housing market

According to the report on HCMC real-estate development (Pham et al., 2017), the housing market's growth in HCMC is closely related to the stages of the urban development process. Those periods are adjusted at different times (see Figure 3.13). Accordingly, the 10-year period from 1976 to 1986 is when the city began its economic development according to the centrally planned model of the socialist regime. During this period, the State managed the economy mainly by administrative orders based on a system of normative ordinances imposed from top to bottom. At this time, the housing market is almost unchanged. Instead, there are empty and abandoned houses because people migrate to developed countries for job opportunities and a better life.

After 1986, along with "Doi Moi," the Vietnamese economy and HCMC had certain developments. The influx of immigrants from the Mekong Delta and central coastal provinces has helped the city strengthen its workforce as a premise for further development activities. The most influential legal document on the housing market at that time was the 1987 land law. However, when enacted, it showed shortcomings such as not recognizing the value of land use rights and not permitting the change of land use purpose (Pham et al., 2017).

From 1986–1991, the first attempts were to transfer land use rights to households and the private sector. In 1987, the State began to allocate land and allowed the transfer of allocated land and property on the land. The real estate market has begun to form but on a small scale. In 1991, the central government officially allowed the existence of a

market mechanism in the country, and the first "land fever" appeared almost immediately in the period 1991-1993, especially in the period 1991-1993 in large urban areas such as HCMC (Pham et al., 2017).

Since 1993, along with introducing the revised and supplemented Land Law, HCMC has had a master plan, industrial parks, and export processing zones established, which has led to the development of self-built housing. New residential areas were built that changed the city's face, but it also helped push up housing prices quickly while people's incomes were still low (Pham et al., 2017).

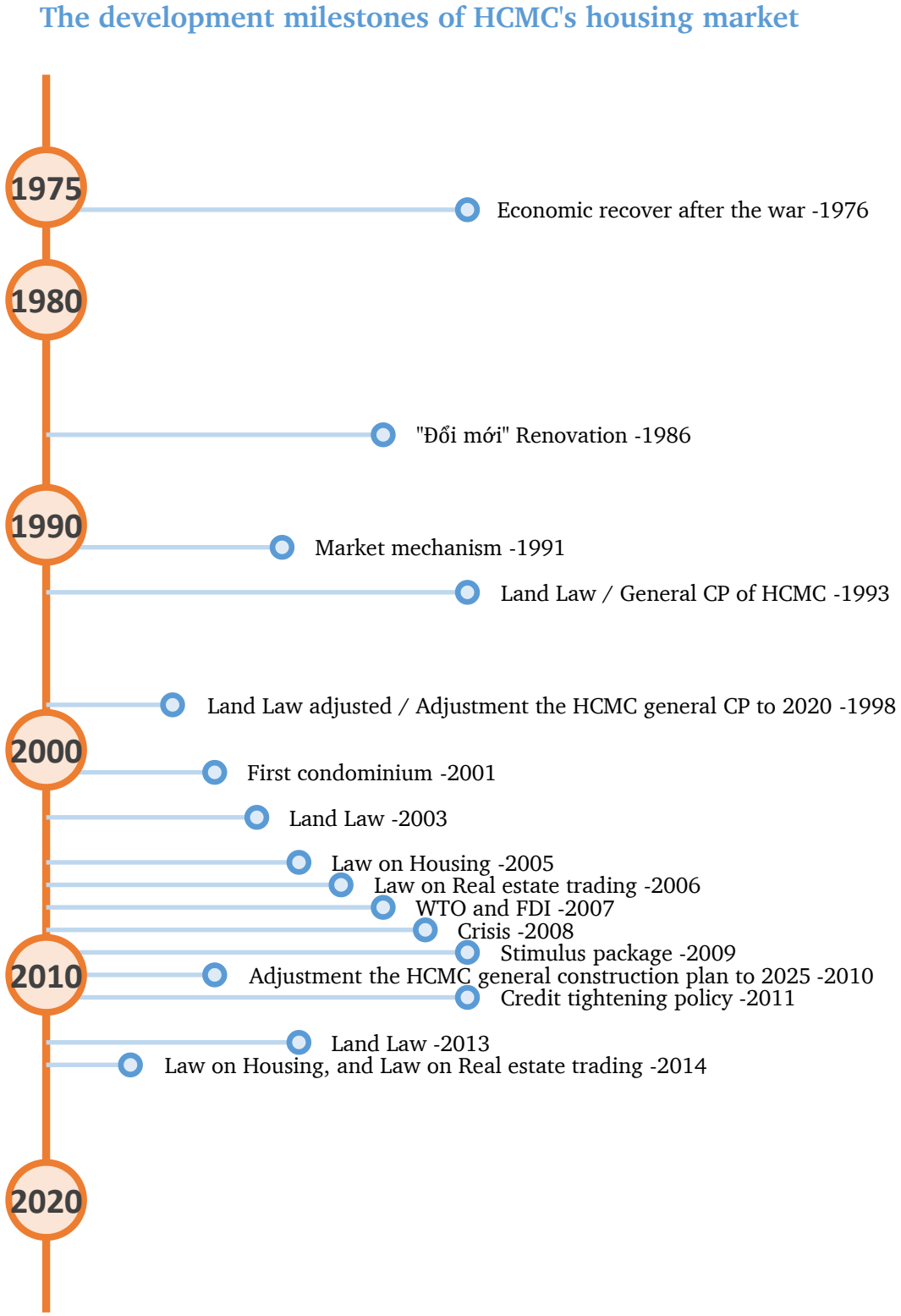


Figure 3.13 The development milestones of HCMC's housing market

(Source: Author, 2021)

In 1998, housing projects were allowed to proceed and were legalized in the revised Land Law. Then, in 2001, the Government issued Decree No. 71 on investment incentives for housing construction to sale and lease to create investment conditions and incentives for enterprises participating in investment projects to build houses for sale and rent. With this policy, some housing projects, especially apartment projects, were planned, allowing construction and completion in a few years. In 2001, the first apartment projects were completed in HCMC, and apartments entered the real estate market.

In the next period, from 2001 to 2003, it became common to divide a large plot of land into smaller lots to resell to people in need. People find an investment solution that gives a quick return. Families already working in agriculture in the city's suburban districts quickly adapted to the new situation. Small, odd lots are gradually traded and transferred through different owners before setting a new price peak. In 2003, the new land law was passed, followed by the 2005 housing law and the 2006 real estate business law, which contributed to regulating real estate transaction behavior in a more positive direction.

By 2008, the global financial crisis and high domestic inflation had affected the real estate market in HCMC. In 2009, house and land prices sharply declined (see). The average price of all apartments has decreased markedly, especially for mid-range and high-end apartments.

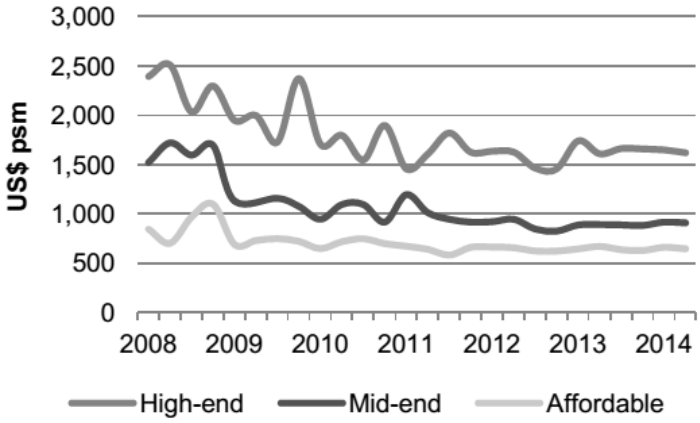


Figure 3.14 Condominiums average price in the period 2008 - 2014 (Source: CBRE Vietnam, 2014)

The rapid development of the real estate market in HCMC and Vietnam, in general, has not yet been strictly managed. As of 2021, Vietnam has not yet issued regulations to limit real estate speculation; real estate transactions may declare inaccurate prices and tax rates for owning and buying. The second home sale has not yet explicitly been issued, causing house prices to rise uncontrollably.

People with real housing needs cannot own a house that meets their necessary conditions, they are afraid of not having a stable place to live and an uncertain future, so they have tried everything to own a house, even if it is not legally built. It can face

many risks in the long term, including being demolished without receiving any compensation.

3.4.2 Rental house types

3.4.2.1 Types of accommodation

Houses for rent in HCMC are diverse.

According to Inter-ministerial Circular No. 7-LB/TT Construction – Finance – State Pricing Committee and General Department of Land Management dated 30 September 1991, there are seven kinds of houses, including villas, class-1 through class-5 houses, and temporary houses. However, the classification is insufficient, and a different source is employed as additional support.

The most popular real estate brokerage website in Vietnam is *batdongsan.com.vn* (*source: www.semrush.com*[5]) and other popular websites such as *homedy.com, mogi.vn, nha.chotot.vn*, based on architectural design characteristics, it was popularly recognized that the accommodation could be classified into the following categories:

1. Dormitory, room-in-row: these rooms are the cheapest rental accommodation type, with tenants sharing a common WC/Bathroom (see Figure 3.15). In some cases, the landlord can upgrade their products by adding a separate WC and a small cooking area on the side of the room, even a mezzanine (Figure 2.13) which will cost tenants extra payment for those facilities. From now on, this type of dwelling is referred to *room*.
2. The apartment includes a small-size apartment (Figure 3.19) and a condominium. The small-size apartment type, sometimes known as a "mini-apartment," consists of apartments with separate amenities for daily use, where tenants can prepare their meals and have a bathroom and toilet on-site. The small apartment is typically designed like a typical condominium. A condominium is a standard size of more than 45 square meters (Figure 3.17). The small-size apartment and the condominium always have a shared entrance and lobby (or floor). In buildings higher than five levels, it is mandatory by law to have elevators, which also belong to the common area.
3. Row house: (Figure 3.18): These housing types are separated in terms of use. The residents in this housing will not share an entrance or elevator with others. A row house can be a house that is adjacent to the main road (Vietnamese name: "nhà phố" in North Vietnam, "nhà mặt tiền" in South Vietnam) or a row house in a housing project (Vietnamese name: nhà liền kề, nhà phố dự án), or row house in a small alley (Vietnamese name: nhà ngõ – North, nhà hẻm - South). The main characteristic of a row house is that the length of the house is far greater than its breadth, and it will be constructed near other homes.

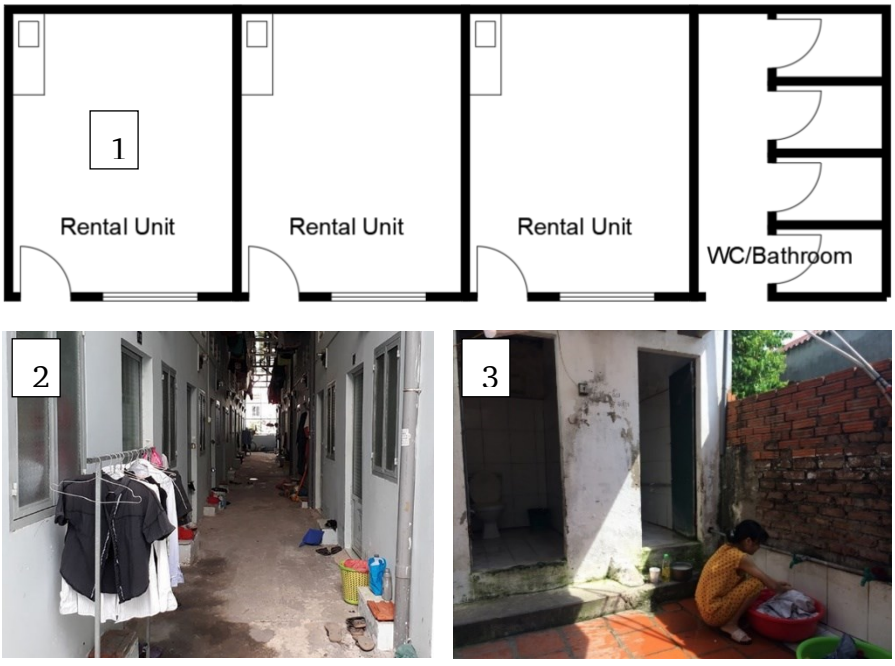
[5] https://www.semrush.com/analytics/overview/?q=batdongsan.com.vn&searchType=domain

4. Villa, not mentioned in this research, is a house constructed separately on a piece of land with a garden or other open area nearby.

Regarding the actual situation in HCMC, since there are no specific regulations to manage the number of people living in a rental place, renting accommodation can be shared in all housing types. It only needs the consent of the landlord there. The accommodation types of rental accommodation can be classified **based on the sharing ways** into the following forms:

1. Sharing: These are accommodations where tenants share restrooms, kitchen areas, and entrances to the unit. This use form is usually the least expensive but has a correspondingly low quality of life. It depends a lot on the consciousness of the people living in it and the original design of the homeowner. In the other forms of rental housing, tenants can also share the unit, and those houses become the sharing form.
2. Non-sharing: This type includes housing forms that do not share kitchens and toilets. This form includes townhouses, single-family villas, duplex villas, condominiums, and studios. In this study, only townhouses, condominiums, and studios are mentioned because the popularity and cost of this type of housing are still within the acceptable threshold for young households.

The following illustrates the various types of rental accommodation that may be found in HCMC.



** Note: 1. A floorplan of rental unit 2. View from the entrance 3. Bad and WC area*

Figure 3.15 Room for rent in a row with shared toilet and bathroom

(Source: Author, Mogi.vn)

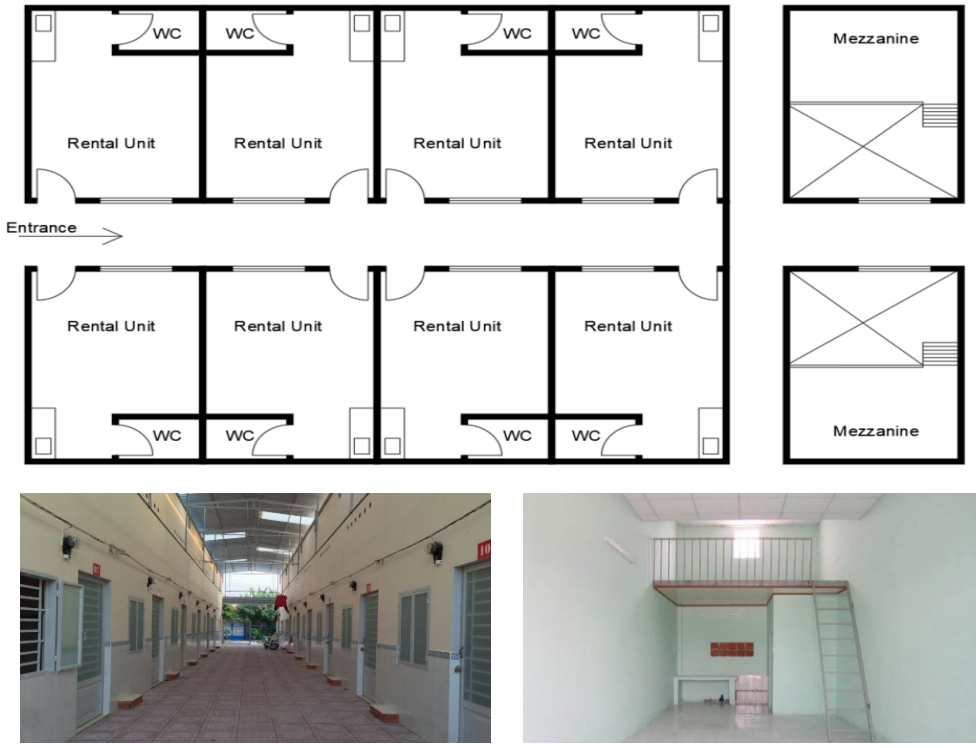
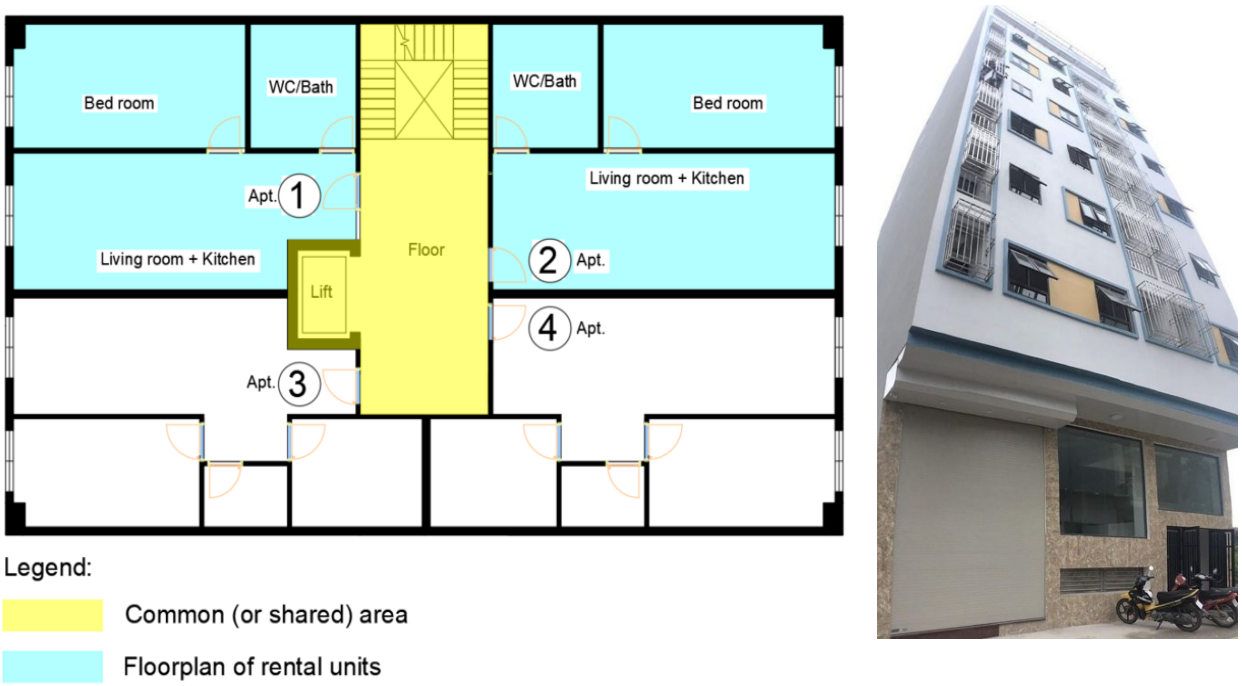
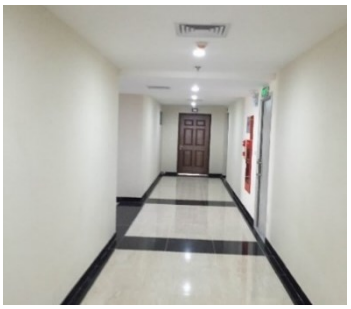


Figure 3.16 Rooms in row with private bathroom – floor plan and perspective view. (Source: Author, mogi.vn)



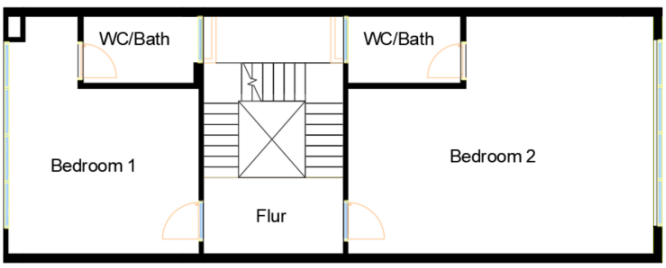
** Note: (there are 4 apartments in this layout)*

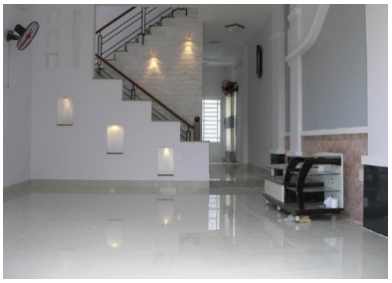
Figure 3.17 Small-sized apartment in multi-levels building - floorplan. (Source: Author, 2021)

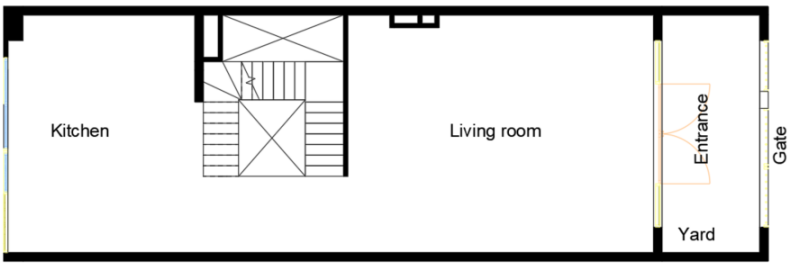


** Note: (there are 4 condominiums in this layout)*

Figure 3.18 Condominium – floorplan and perspective views. (Source: Author, 2021)







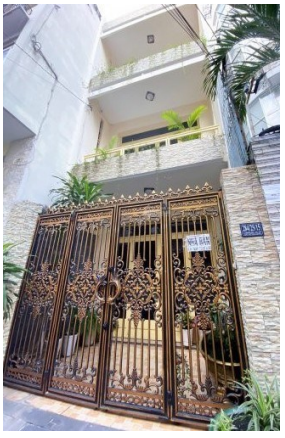


Figure 3.19 Row house- floor plan and perspective views

(Source: Author, 2021)

3.4.2.2 Accommodation rent price and its distribution

To comprehensively understand the rental market, one must be familiar with the characteristics that identify each form of residence, the distribution of housing types, and their associated prices. If there is a price difference in the exact location and for the same type of residence, there must be a difference in the property's characteristics.

There are 520 advertisements collected by the author from websites specializing in real estate (see Appendix IV); the data collection is finalized in the first quarter of 2022. In this section, 270 rental records of three different types of accommodation are collected and descriptively evaluated to achieve a deeper understanding of the housing market in HCMC.

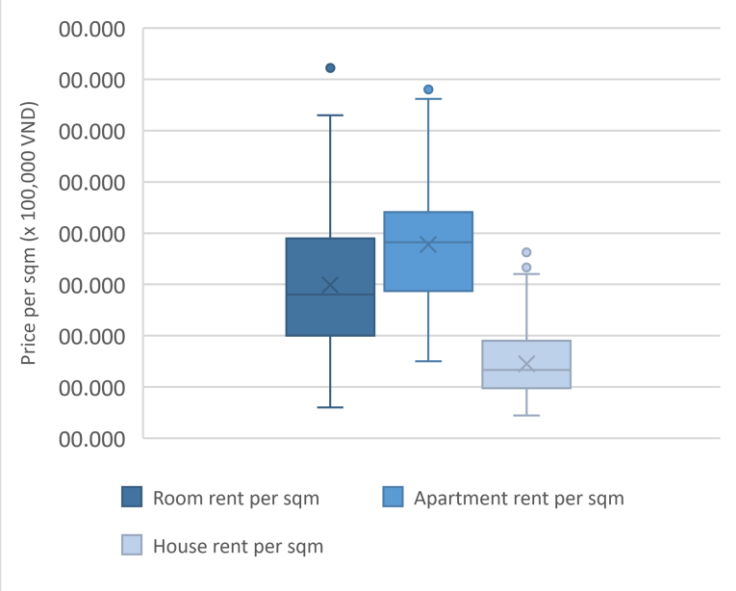


Figure 3.20 Samples' rent price per square meter in HCMC, including room, apartment, and house

(Source: Author compiles from scraped data, 2022)

From among 520 rental postings, only the advertisements that have photographs are chosen. Since not all records contain complete and reliable information, inappropriate messages will be disqualified. News is considered inappropriate without photographs, addresses, or accurate information.

Some examples of content of false information include: the title of the message does not correspond to the content of the message; the content of the message is an advertisement for another real estate project; the content of the message includes too many headlines inside; the title of the message and the content of the message does not match. In the appendix of this research project, readers will discover a compiled list of items and links.

The box plot (see Figure 3.20) displays the average price per square meter, indicating that the price range for *row houses* is the most negligible compared to the other two housing categories. In addition, the median rent for row houses is significantly less than that of rooms and apartments (0.067 versus 0.14 and 0.191). The rental price of a row house will be far less than that of a room or condominium. However, the row house

renters here only want to rent the entire property to a specific number of people (often a family), and they do not permit subletting. It can be understood as a form of property accumulation, not a commercial accommodation. Landlords do not want their property to deteriorate too quickly owing to excessive inhabitants; instead, they want tenants who will live in and maintain the home. In comparison, landlords of rooms or apartments are typically more professional tenants.

The interquartile range (IQR) for three categories of dwellings, private houses, rooms, and apartments, is 0.046, 0.077, and 0.095, respectively. Each of the three price datasets contains outliers.

Row houses have the lowest price variation. Concerning the gap between the minimum and maximum prices, each dwelling type's location and features can be examined. The maximum value is a house for rent in District 10 (in the inner core area) located in an established residential area, fully furnished and fitted for immediate occupancy. The cheapest rental row house is in District 9, far from the city center and on the urban outskirts. The outlier in the graph is a property that is part of new urban development and is located in the heart of the city, with a garage for automobiles and other amenities within walking distance.

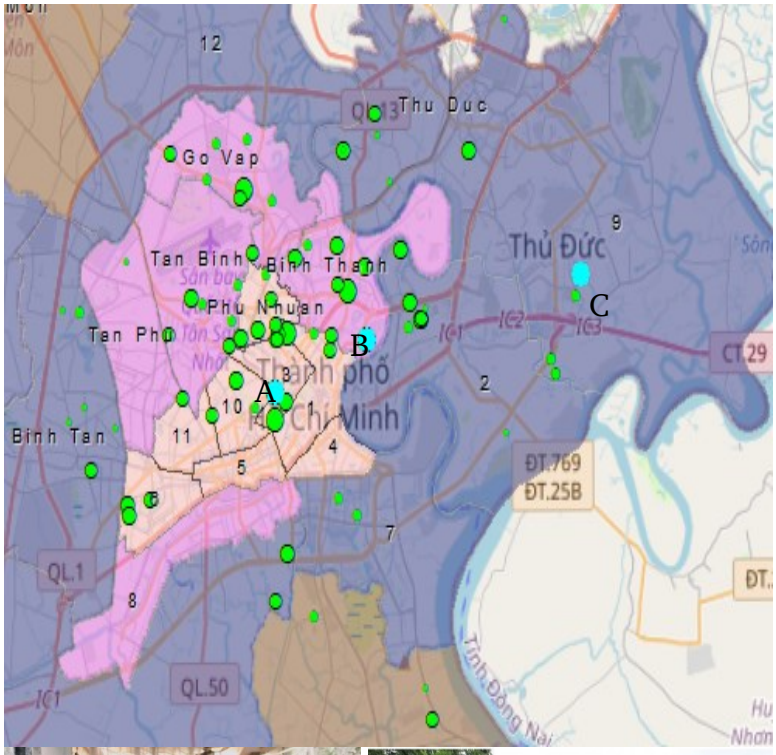


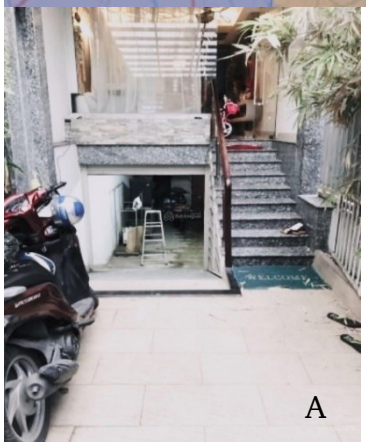
Figure 3.21 Location and photos of rental row houses. Three samples are highlighted in Cyan (A: max, B: outlier, and C: min)

This map displays the locations of three single-family rental properties selected from the total of ninety samples collected (they are in cyan highlighted relative to the rest)

***A**: a private house in District 10 (max value*

***B**: a private house associated with the Saigon Pearl project - Binh Thanh District (outlier)*

***C**: a private house in District 9 (min value)*



Row houses and *room* rental listings are distributed across the inner core, inner fringe, and urban fringe sectors (see Figure 3.21, Figure 3.22). However, they are mainly concentrated in the central business district and the inner fringe. Generally, pricing in these districts will be higher than in the most remote districts.

The range of prices for *rooms* is far broader than that of *condominiums* (or apartments), but the difference between the two is not significant (0.285 versus 0.255). The most affordable room is located in a region far from the heart of the city, and the level of convenience is not as great as that of the maximum value or outlier accommodation. As can be seen from the photographs (see Figure 3.22), the rental room has a maximum value, and an outlier is fitted with interior equipment for private cooking and has its bathroom. This outlier also has its own unique identity. The wide variety of prices indicates that tenants will have more options appropriate for their financial situation.

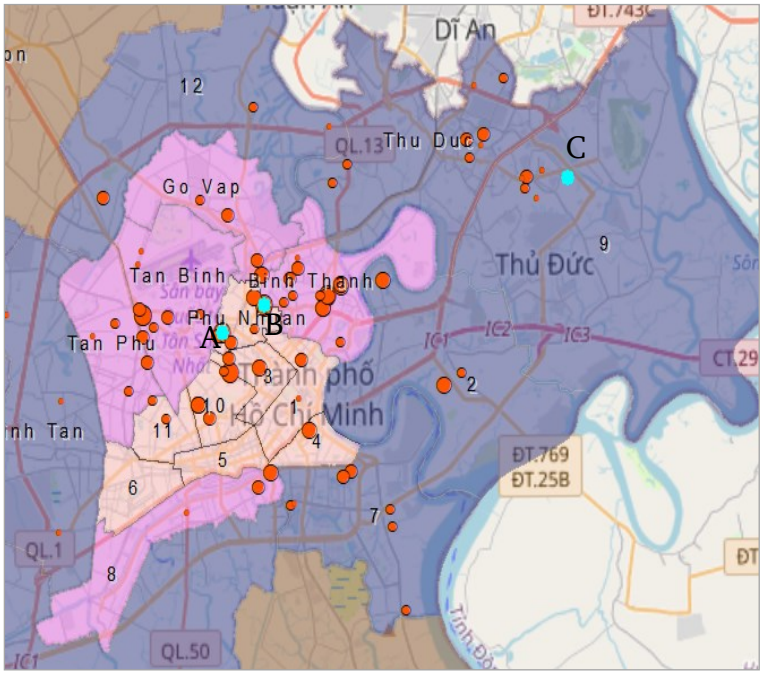


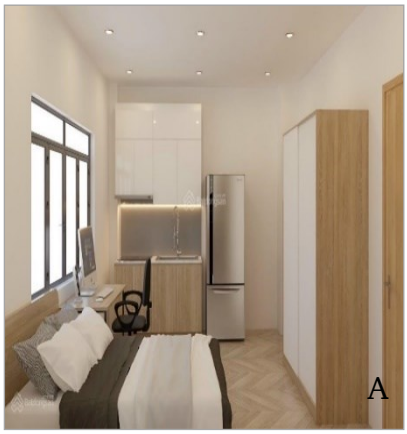
Figure 3.22 Location and photos of rental rooms. Three samples are highlighted in Cyan (A: outlier, B: max, and C: min)

This map displays the locations of three rental rooms selected from the total of ninety samples collected (they are in cyan highlighted relative to the rest)

***A**: a room in Phu Nhuan District (outlier)*

***B**: a room in Phu Nhuan District (max value)*

***C**: a room in District. 9 (min value).*



It can be observed from the chart (see Figure 3.20) 25% of the sample rooms are priced at 100,000 dongs per square meter or less and are primarily located in urban outskirts. The remaining 75% is priced at over 100,000 VND per square meter. At least half of the rooms cost at least 140 thousand per square meter to rent.

It is not always cheaper to stay in a *room* further away from downtown since students and workers comprise a substantial component of this type of lodging. Many industrial parks and manufacturing plants are required on the city's outskirts. In addition to it, there are academic institutions (see section 3.3). All the causes mentioned above contribute to a rise in the demand for lodging. Figure 3.23 shows a photo of the room adjacent to the min-value room shown in Figure 3.22. However, unlike the min

value room, this room is private and furnished. It has a rent of 0.195, which places it between Q2 and Q3 and above the median.

*Figure 3.23 Location and images of a room in District 9 (**X**), its rent is above median value, is highlighted in Cyan*

**Photos: batdongsan.com.vn;chotot.vn*

**Map: Author compiled by ArcMap*

The common thing in the sample of rental apartments is that all are furnished. Partially because landlords do not want their flats to be altered excessively and because the expense of interior décor may be readily included in the depreciation price, bringing the rental property closer to the rental market's quality standards. The noteworthy thing about apartments for rent is that the maximum and outlier are located in the contiguous area between the Inner core districts and Inner fringe districts rather than in the CBD. It is also the site of numerous housing developments in HCMC. The supply of apartments for rent is predominantly concentrated in the city's east and south, as depicted on a map of advertisement distribution. It also depicts the dispersion of HCMC's high-rise housing complexes (see Figure 3.24). Apartment buildings are being developed in the city's east and south and have benefited from upgraded infrastructure. The shorter commute to the city center has encouraged investors and developers of high-rise housing developments in this area.

According to the data, the apartment rent and the min-value are also in District 9. There is a newly developed project with much supply, more than 44,000 condominiums[6]. The location of this project is in the area bordering Dong Nai province, formerly agricultural land that has been converted to residential use.

[6] https://vinhomes.vn/vi/tong-quan-ve-du-an-vinhomes-grand-park-quan-9

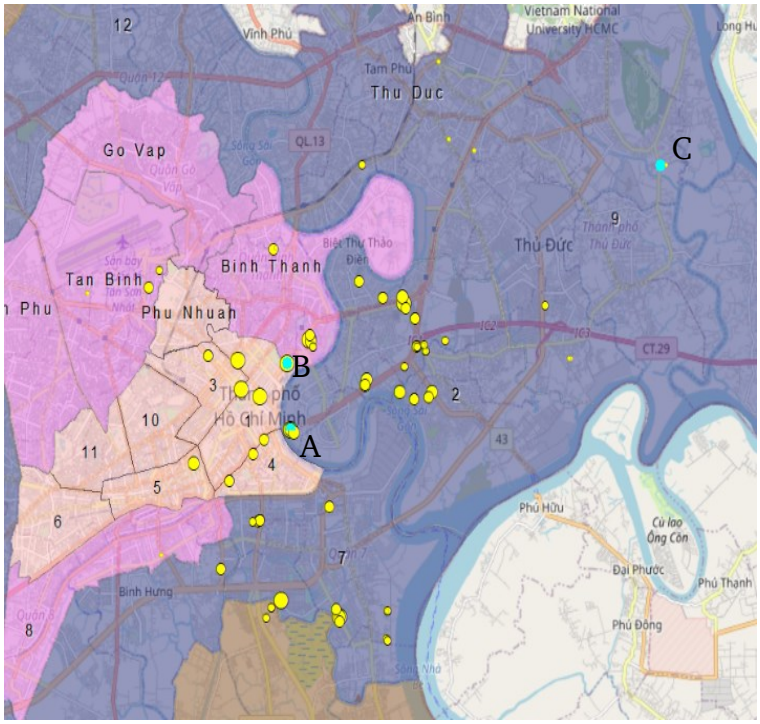


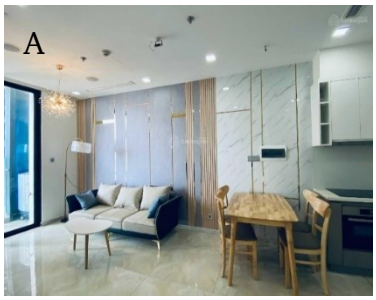
Figure 3.24 Location and photos of rental condominiums. Three samples are highlighted in Cyan (A: outlier, B: max, and C: min)

This map displays the locations of three rental apartments selected from the total of ninety samples collected (they are in cyan highlighted relative to the rest)

***A**: an apartment in District 2 (outlier)*

***B**: an apartment in Binh Thanh District (max value)*

***C**: an apartment in District 9 (min value)*



In a nutshell, the rapidly expanding and diverse rental real estate market in HCMC has given young people numerous possibilities to settle down and seek prospects for personal development. On the other hand, the idea that one must always own a home is deeply rooted in the culture and mentality of every single person. These presumptions will be laid out in the next part so that the reader can evaluate the financial implications of buying versus renting a home in HCMC.

3.5 The housing financial sensitivity analysis

There is a big difference in the structure and nature of rental assistance in developing and developed countries. In 1990, Malpezzi studied the issues and constraints of renting in developing countries. He argued that financial assistance (loans) was directed only to homeowners in developing countries. Very few developing countries have had the popularity and success of the housing finance system. Planners often view housing as a commodity rather than an investment. They fail to recognize the potential or incentive to save or be a macro link between financial support for housing and other areas of the economy. In the context of high inflation in the developing world, it is not conducive to developing housing finance subsidies. However, some countries with lending policies are weakening after several decades of operation. Also, in the context of high inflation, some governments have sought to reduce interest rates to make

housing more accessible, which could undermine the viability of housing finance institutions. In particular, during the 1970s, some housing finance subsidies were lent at low-interest rates, resulting in imbalances in the early 1980s (Malpezzi, 1990).

Many young people wonder about choosing between renting and purchasing a home, especially when they can afford it. Based on the survey results on young people's opinions on using their capital, this section calculates the scenarios related to the financial topic to provide a clearer view of the possible scenarios.

The assumption is that after a young person has accumulated the necessary capital of 30% of the real estate value to buy an apartment with a market price of 2 billion 500 million VND because all the banks in Vietnam ask the home buyer to have at least 25% to 30% minimum own capital. They want to compare investing in a business project and renting a house to putting all their capital into buying a house.

3.5.1 Social housing

In Vietnam, with efforts to develop the economy, the government has made efforts to help vulnerable groups in society have better access to housing. Decree No. 100/2015 / ND-CP, dated October 20, 2015, by the Government on the development and management of social housing in 2018 has stipulated the interest rate of 4.8% / year (0.4% per month) to facilitate certain groups of people in need of buying or renting social housing with better access conditions.

As per Decree No. 100/2015 / ND-CP, individuals are eligible for loans with favorable terms for the purchase, rental, or lease-to-own of colonial-style homes; or for the construction of new homes, renovation, or repair of residential properties, as specified in clauses 1, 4, 5, 6, and 7 of Article 49 of the Housing Law. The individuals and groups mentioned above, and groups such as those who have made notable contributions to the revolution, those with low incomes, those considered poor or near-poor, workers employed by both in-park and out-of-park enterprises, military officers and soldiers, government employees, and those in public service, are also included in the eligible recipients of these preferential loans. However, to be eligible and able to buy or rent social housing, the persons listed in Article 49 must satisfy the conditions for permanent residency. In addition, the amount of government allocated to social housing buyers in 2018 is 500 billion VND, and the social policy bank will mobilize 500 billion VND. The total loan for the year 2018 is 1000 billion. It is a small number compared with the real needs of people (Pham et al., 2017). In addition, to be able to borrow money to buy social houses, the homebuyers must have 20% of their capital, and the remaining 80% is limited to 500 million VND. Thus, the conditions for access to social housing initially appear open to everybody. However, there are numerous problems regarding the source of the loan and its viability. Therefore, the scope of this study will not cover the scheme for social housing loans but only the limited analysis of the government's real estate market support mechanism.

3.5.2 Commercial housing

Under the Housing Law 2014, commercial housing is a dwelling built for sale, rent, or leased under a market mechanism.

To compare the benefits and costs buyers must pay for renting and buying commercial houses, some assumptions will be suggested based on the Vietnam's conditions.

The critical factors that must be considered are the well-known commercial banks' lending rates and the home loan program.

Table 3.2 Home loan program from popular commercial banks in Vietnam

(The Author compiles from Banks' Homepage, 12-2021)

Bank	**Preferential interest rate first 12 months (%)**	**The next interest rate (for 20 years)**	**Maximum loan term (year)**	**Interest rates for 12-month term savings for amounts under 500 million VND sent (%)**
Techcombank	7.99	12.09	25	6.9
MB (Military Bank)	8.9	11.6	20	7.2
VPBank	9.09	11. 4	25	7.1

In addition, other factors need to be considered:

Original capital: the amount of money a homebuyer has saved or has prepared from various sources of financial support. It is not a capital source from a bank loan and is not subject to interest rate pressure and repayment deadlines. Suppose a person decides to buy a house with original capital combined with a bank loan; he will use this money to pay a part of the house's value, a “downpayment.” In Vietnam, the downpayment is 30% of the value of the house buyer wants to buy.

Home Mortgage Rates: People can access two home loan products based on the monthly interest payment feature: home loan products with floating interest rates, yields, and fixed-rate loans. Both have advantages and disadvantages, but the type of home loan with floating interest rate debt (floating rate) is risky when the socio-economic factors change and cannot measure Before the fluctuation when interest rates are floating. In contrast, for products with a fixed loan, the monthly repayment is fixed and not affected by other economic factors. In addition, homebuyers often have limited financial know-how and experience. They often have fixed incomes and an estimate of their financial ability, so most will choose the form of repayment. The inflation factor does not affect fixed interest rates much (they tend to increase). Therefore, this assumption will use the form of fixed-interest loans.

Opportunity cost: The opportunity cost of doing something could be defined as its expense compared to a substitute action or thing (Riera-Prunera, 2014). In the situation of young people in HCMC, the opportunity costs considered the most when deciding between renting and buying a house are the opportunity costs of investment or home ownership.

- The opportunity cost of investment: is the cost considered when homebuyers use their original capital to buy a home at the expense of a loss of return on the investment.
- The opportunity cost of real estate gain is the cost that is considered when tenants use their original capital to invest at the expense of rising house prices' benefits.

3.5.3 Scenarios

The scenarios related to the decision to use own capital to buy a house or invest in production and business activities are analyzed. HCMC is one of the cities with the highest housing prices in the world (see Figure 3.25). While the income of young people, or workers in general, is many times lower than house prices, reflected in the house price/income ratio (30.58 – end 2021).

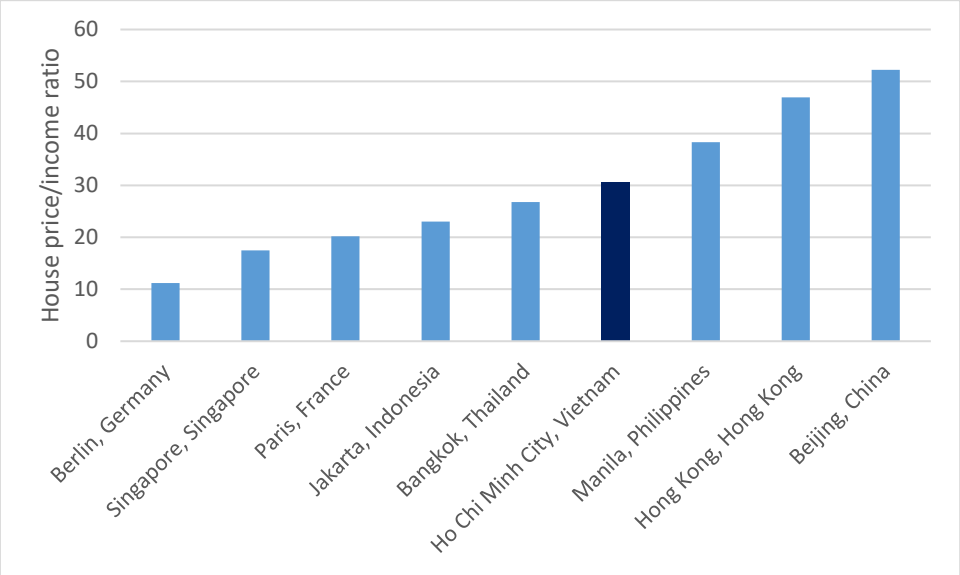


Figure 3.25 Property price to Income ratio of HCMC and other Cities

(Source: Author compiled from Numbeo's data acquired end 2021)

The overall situation of young people is that they do not have enough money to buy a house, and most have to use loan packages to pay the rest (70% of the house's value). Most banks in Vietnam have a loan program with floating interest rates after a few years of fixed interest rates. As a result, they take financial risks when they decide to borrow to put all their income to repay bank loans. Scenarios will help young people have a more holistic view of their decision-making. Both scenarios have advantages and disadvantages, which will be commented on in section 3.5.4.

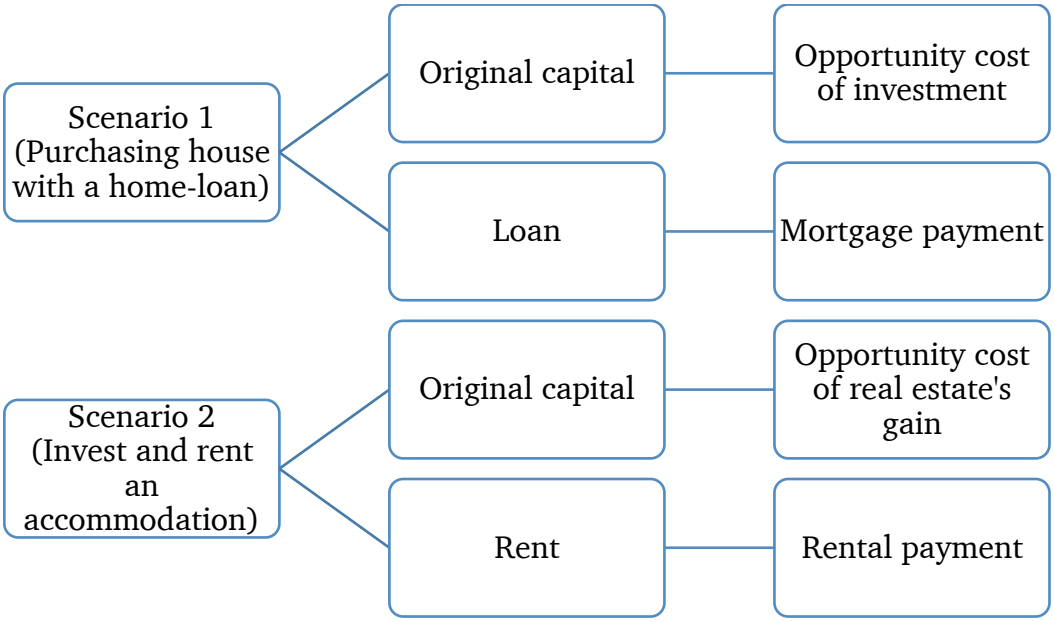


Figure 3.26 Scenarios are used according to young renters in HCMC.

In the first scenario, an adult has original capital saved up and plans to buy a house with a market value of VND 2.5 billion [7] (22,935 VND = 1 USD[8]). That person will use the bank's support to pay the remaining amount, in addition to the amount he has available, which is 30% of the house's price (750 million VND). By selecting the original capital, the home buyer spends an opportunity cost of investment activities.

The original capital will be split up and invested in possible business activities in the second possible scenario. Investments in bonds, securities, business services, and production operations are activities that fall under this category. These endeavours carry a certain degree of risk and the potential for a certain level of return. In addition, under these circumstances, young people are required to pay the cost of rent and are forced to accept the opportunity cost of an increase in the price of real estate.

3.5.3.1 Break-even-point (BEP)

First of all, the Break-even-point (BEP) and the Opportunity cost must be taken into account.

Break-even-point (BEP): The Break-Even-Point is when the total income generated equals the sum of all variable and fixed costs (Garrison et al., 2003).

The break-even point corresponds to two specific cases as follows.

a. Home-buying: The break-even point happens when the revenue from the home purchase (in this case, the growth in the home's price) equals the home's cost. The House price increase is the fraction of the property's increase in value from the time of completion of the purchase. The cost of home ownership is the

[7] The average market price of a 62 sqm apartment, two bedrooms (source: batdongsan.com.vn, Q3/2021)

[8] Exchange rate on 30/09/2021 (source: State bank of Vietnam)

expense buyers must subtract to maintain their home ownership. These expenses could be the bank loan interest, and opportunity cost for the investment.

Real estate gain = Mortgage payment (in a year) + Opportunity cost of investment

In a shorter expression:

Vr . Rp = M + OCi (1)

b. Rent and invest: tenants renting a home might invest their capital in production and economic operations. The gains derived from utilizing this capital are also referred to as revenue. Tenants must pay fixed costs such as recurring rent and opportunity costs resulting from property appreciation. The break-even point is reached when the return on investment equals the cost of rent and the opportunity cost of real estate appreciation.

Investment profit = Rental cost per year + Opportunity cost of real estate's gain

In a shorter expression:

OCi = Cr + O. Rp (2)

In which,

OC*i*: the opportunity cost of investment, essentially Return on investment(ROI)

R*p*: property growth rate per year to meet BEP

V*r*: real estate value

M: Mortgage payment per year

C*r*: Rental cost per year

O: Original capital

By solving (1) and (2), the property growth rate (R*p*) could be determined:

$$Rp = \frac{2.OCi - Cr + M}{(Vr + O)} \quad (3)$$

The information is summarized in the following table to calculate the break-even point:

Table 3.3 The calculation of the break-even point assumptions

Items	**Value**	**Rate**	**Unit**
Real Estate Value (V*r*)	2,500,000,000		VND
Original Capital (O)	750,000,000	30.0 %	VND
Return on investment and business (ROI) Or Opportunity cost of investment (OC*i*)	75,000,000	10.0 %	VND/ Year
Loan	1,750,000,000	70.0 %	VND
Mortgage payment/year (M)	175,000,000	10.0 %	VND/ Year
Monthly Rent	10,000,000		VND/Month
Rental cost per year (C*r*)	120,000,000	5%	VND/ Year
The property's price growth meets the BEP (R*p*)	6.31%		

3.5.3.2 Investing generates greater returns

In the first assumption, the amount of money young people invest has brought a higher return than the added value of the real estate they intended to buy. Specifically, the investment has brought a profit of 15% per year. The growth rate of real estate intended to buy only stops at 6.31% per year.

Table 3.4 The first assumption

Items	Value	Rate	Unit
Real Estate Value (V*r*)	2,500,000,000		VND
Original Capital (O)	750,000,000	30.0%	VND
Return on investment and business (ROI) Or Opportunity cost of investment (OC*i*)	112,500,000	15%	VND/ Year
Loan	1,750,000,000	70.0%	VND
Mortgage payment/year (M)	175,000,000	10.0%	VND/ Year
Monthly Rent	10,000,000		VND/Month
Rental cost per year (C*r*)	120,000,000	5%	VND/ Year
The property's price growth meets the BEP (R*p*)	8.62%		
Property's price in reality	6.31%		

3.5.3.3 Real estate values grow well

The increase in house prices is more than the return on investment, which can come from various reasons, such as the start of the main road, the move of a large-scale manufacturing business that will create jobs or the state of real estate speculation. From 2019 to 2021, the housing market in HCMC notably, and Vietnam in general, witnessed many price increases, mainly because of speculative factors. Idle money that did not go into production and business activities due to the impact of the covid epidemic helped push the price of the real estate market to a new high.

Under such circumstances, the increase in the property's value will likely outweigh the return on the investment. The figures are assumed to be as follows:

Table 3.5 The second assumption

Items	Value	Rate	Unit
Real Estate Value (V*r*)	2,500,000,000		VND
Original Capital (O)	750,000,000	30.0%	VND
Return on investment and business (ROI) Or Opportunity cost of investment (OC*i*)	75,000,000	10.0%	VND/ Year
Loan	1,750,000,000	70.0%	VND
Mortgage payment/year (M)	175,000,000	10.0%	VND/ Year
Monthly Rent	10,000,000		VND/Month
Rental cost per year (C*r*)	120,000,000	5%	VND/ Year
The property's price growth meets the BEP (R*p*)	6.31%		
Property's price in reality	15%		

3.5.4 Remark

It is difficult to determine which option is superior within the two scenarios. The macroeconomy and the aptitude of young people cause all plans' outcomes.

Choosing between a rental and a purchase is always a question that requires careful consideration. In the two assumptions above, the buyer will borrow 70% of the house's price intended to buy, and their capital accounted for 30% accrued before. With the same amount of capital, tenants will use to invest with different investment options.

The findings show that, with monthly rent accounting for only a tiny portion of total equity, tenants receive more benefits than buyers after a fixed period. Other intangible benefits include the comfort of not having to worry about repayment and concern with the real estate market and the flexibility to change housing. On the contrary, in addition to owning the apartment, the buyer must spend much money on maintaining the apartment's condition. In addition to financial pressures, house prices increase yearly, but homebuyers still do not have as many economic benefits as tenants. In addition, homebuyers also face financial risks because life requires many expenses for other activities.

In the second scenario, homebuyer benefits are visible when property values rise above the break-even point, expected in the individual townhouse segment. The main reason is limited land funds and anxiety when buying an apartment. Condominiums are usually fixed in terms of usable area. However, with the same price range as an

apartment, row house buyers must accept to choose a location far from the city center and trade off the remaining living facilities.

3.6 Summary of case study characteristics

The current understanding of the rental housing market and the needs of young people to rent is minimal. There is very little research focusing on these issues. Most studies often look at the development of the real estate market and the need to buy houses in different housing projects.

A survey was conducted to better understand young tenants' needs and propose the right policies and products for this market. The survey respondents are young people in the working age range from 18 to 39. In this study, groups of young people were classified based on specific criteria to find the differences between groups in deciding to rent. From there, housing projects will be able to be created to meet this need, as an essential factor for a sustainable housing project is the ability to meet current and future needs. When other groups of young people replace groups of young people in society, the city can still meet their housing needs. Conversely, young people starting a career will have more options to continue developing themselves or reinforce other conditions before moving into home ownership decisions.

HCMC was chosen from the main issues outlined above because it has the typical characteristics of a fast-growing city in a developing country, facing many problems from urban planning, natural response, and economic development.

The population is overgrowing, and the leading cause comes from the migration factor. The number of people from surrounding provinces and other provinces in the country that add up to HCMC's population each year makes the city a megacity, with an average population growth rate of 2.28% per year during 2009 – 2019. The main reasons for migrating to the town are work possibilities, access to better education and health infrastructure, and the opportunity to improve one's quality of life.

Job opportunities are offered from many industrial zones spread across the city. By 2020, HCMC will be the workplace of about 2.8 million people, with more than 210,000 businesses in operation.

One-third of students in the whole country of Vietnam are studying in HCMC, which is a considerable percentage considering that Vietnam has 64 provinces and cities. In addition to higher education, HCMC's vocational training school system is also the destination of 16% of vocational students across Vietnam.

Creating a well-functioning and total rental market will help the city create:

- Standard living environment for young people
- Make good use of urban planning and limit the waste of opportunity costs
- Minimizing the impact of nature and climate change

Summary of Chapter 3

The third chapter summarizes the rental housing market in HCMC. HCMC is considered a megacity, with most people residing in the core districts. The inability of the city's infrastructure to keep up with the population growth rate, which consists primarily of mechanical growth, has resulted in numerous issues affecting the lives of its citizens. Traffic congestion, flooding, medical care, and education are insufficient to fulfill demand. Additionally, housing is one of the issues facing the city.

There are four types of dwelling defined according to architectural morphology, and three of them will be discussed in the following sections: room, apartment (or condominium), and row house. Furthermore, because of the nature of sharing, the forms mentioned above of rental residences may be grouped into two primary types: shared and private.

Based on more than 500 rental adverts, 270 listings were chosen to provide a more detailed analysis of the distribution of rental homes. Additionally, exceptional situations are shown so readers can better comprehend the quality of HCMC's rental housing. The report will then outline the growth of HCMC's rental housing sector.

Additionally, two situations were compared: owning a property to live in versus investing and renting. The first is when young people use their existing funds to purchase homes and obtain additional bank loans. Second, young people invest in businesses and rent their homes with their own money.

The questionnaire is based on all the information acquired in Chapter 3 and assumptions regarding buying or renting a home, which will be introduced in Chapter 5.

4 Methodology for tenants grouping

Based on the main objective of rental market segmentation, which is to divide the market into small groups of customers with different characteristics and renting behavior, various statistical methods have been developed and applied to analyze data of these customer groups. In this chapter, section 4.1 describes the process of collecting and processing the necessary data on customer groups in the rental market. Section 4.2 will present the statistical methods applied to market segmentation and analyze each model's advantages and disadvantages. Finally, section 4.3 will focus on determining the appropriate method the research will apply to test the hypotheses proposed in chapter 2.

4.1 Data processing

"Market segmentation is to divide a market into smaller groups of buyers with distinct needs, characteristics, or behaviors who might require separate products or marketing mixes." (Charles W. Lamb 2003). Before applying statistical models to segment tenant groups, collecting all necessary statistical data on tenants' needs, demographic groups, behavior, and decision-making are necessary. This information can be collected by many different methods, ways of posing the problem, and means of asking questions. However, the final data needs to be processed and stored into relevant variables for application to the model or analytical method chosen for data analysis (Rowley, 2014).

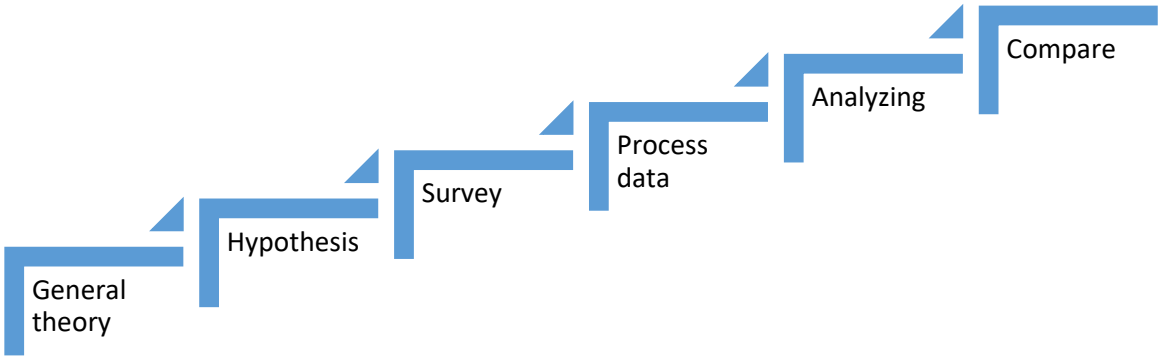


Figure 4.1 The stages of a deductive procedure

In order to form a suitable data set for segmenting tenants, the variables will first be aggregated from the pertinent questions in Chapter 6. The set of variables used in the research and the corresponding data will be aggregated into a common data set and presented in matrix form before being included in the analysis.

The data matrix will consist of each column representing each variable, and the column name is the name of the encoded variable. Each row will represent each observation. The answer to each observation with a corresponding variable is the intersection of the column and row in that data matrix (Field, Miles, and Field, 2012).

The set of the dataset will start by identifying each question related to each variable. Each variable will be assigned a variable name code. The next step in presenting the responses to the data matrix requires a classification.

Each quantitative value will be tested for the unity of the measurement unit and fill in the corresponding field for each observation in the corresponding variable column. For example, the variable representing age will be rounded to the number of years and filled in the column of the age variable.

In the case of qualitative variables, it is necessary to define a method to generate code for the variables to present responses of this type of variable to a dataset. Thus, it is necessary to identify possible answer options for each qualitative question and attach a descriptive description to each answer. For example, for a question about marital status, one would be assigned to married subjects, and 0 would be assigned to single subjects. Since not all respondents answered every question, a unique code must be used for missing values. This code should be consistent for all questions (Schnell, 2012, pp. 413–418). The required field tool in the online questionnaire design also limits the case that survey participants skip essential questions.

In order to further analyze insights from tenant groups, hybrid questions were also applied in the questionnaire design. Although the variety of answers is an advantage of this type of question, this characteristic presents a challenge when encoding the values into the data matrix. In order to serve the analysis results more effectively, this group of questions will first be analyzed and classified based on the representative characteristics of the answers. In the next step, these possible answers are compared, and similar answers are combined into a group.

4.2 Grouping method

Market segmentation divides the entire market into smaller groups of consumers with similar needs, known as segments. This customer group will significantly different behavior from other segments (Kotler, Armstrong, and Opresnik, 2018). The progress of identifying a homogenous group of customers is generally included in four main phrases. The first step in the process is to use primary factor and cluster analyses to identify the bases for segmentation. These bases are used as categorical variables to create a multidimensional contingency table. Multiple categorical data analysis tests are then performed on the table to determine the relationships between its dimensions. Finally, one of the bases is identified as the key factor, and a model is created to predict this factor from other variables, which may be external (Wedel and Kamakura, 2000; Kotler, Armstrong, and Opresnik, 2018). Choosing suitable segmentation bases and segmentation method plays a critical role (Wedel & Kamakura, 2000, p. 5). The results of data analysis will form classes (often called clusters or groups). These clusters are characterized by homogeneity within the clusters and heterogeneity between the clusters (Wedel & Kamakura, 2000).

The methods employed in segmentation research can be classified as a-priori and post-hoc approaches (Green, 1977; Wind, 1978). When the researcher determines the type and number of segments in advance, it is a priori approach. When the type and the number of segments are determined based on the results of data analyses, it is a post-hoc approach.

There are other ways to classify segmentation approaches. It depends on the statistical methods used. Therefore, it could be a descriptive or a predictive method. (Wedel & Kamakura, 2000).

Table 4.1 Classification of methods used for segmentation (Wedel & Kamakura, 2000, p. 17)

	A priori	**Post hoc**
Descriptive	Contingency tables Log-linear models	Clustering methods Non-overlapping/Overlapping Fuzzy techniques ANN Mixture models
Predictive	Cross-tabulation Regression Logit and discriminant analysis	AID CART Cluster wise regression ANN Mixture models

In order to determine the appropriate segmentation method for this study, the next section will clearly describe the requirements and assumptions of each method, as well as analyze its application's advantages, disadvantages and outstanding characteristics.

4.2.1 Descriptive Methods

Descriptive Methods will focus on describing the association within a group of segmentation bases. The dependent and independent variables are not clearly defined or performed statistical tests to find the correlation between the key variables. Descriptive statistics methods play a valuable role in helping data analysts quickly grasp market data sets' general trends (insights and associations). This method is often used in market analysis reports (Wedel & Kamakura, 2000).

The group of descriptive statistical methods is also divided into two more specific groups: Priori Descriptive Methods and Post-Hoc Descriptive Methods (Wedel & Kamakura, 2000).

In the Priori Descriptive Methods group, the contingency table method (also known as a cross-tabulation or crosstab) is often used to present the frequency distribution of variables in matrix form in the format table. However, using this method to analyze associations between segmentation bases does not exploit or clarify higher levels of correlation between variables (Wedel & Kamakura, 2000, p. 18).

Similarly, another method of this group, Log-linear analysis, focuses only on segments formed based on alternative bases and compares only one segmentation base with other bases (Wedel & Kamakura, 2000, p. 18).

In the group of Post-Hoc Descriptive Methods, the segmentation method will be based on forming a homogeneous group of customers according to their characteristics. The clustering methods are the most prominent tools in this approach based on how clusters are divided. There are three forms: non-overlapping, overlapping, and fuzzy clustering.

Specifically, if one object can be classified into only one group, this refers to a non-overlapping cluster. If one object can be assigned to several groups, it refers to overlapping procedures (Wedel & Kamakura, 2000, p. 18).

For example, if a customer is only considered in 1 of 3 segment groups, A, B, and C, this is a non-overlapping way of grouping. Otherwise, a customer can be in both A and C groups among three groups A, B, and C. It is called an overlapping grouping (Wedel & Kamakura, 2000).

This method does not classify an object into a specific group regarding fuzzy clustering approaches. However, it considers the group membership level, measured by the probability that an object belongs to a group (Everitt et al., 2011, pp. 242–249). This group of methods is also divided into hierarchical and nonhierarchical clustering approaches. Nevertheless, hierarchical approaches assume a hierarchical relational structure among consumers. These methods are expected to contribute more to market structure analysis than market segmentation research (Wedel and Kamakura, 2000, p. 20). In addition, this group also has the ANN (Artificial Neural Network) method and the Mix Method.

However, descriptive statistical methods will not allow clarification of the correlation or help predict the behavior, attitudes, or preferences of tenant groups based on dependent variables, nor is it suitable for testing hypotheses, so this method will not be discussed further (Wedel & Kamakura, 2000).

4.2.2 Predictive Methods

The outstanding feature of Predictive Methods is the ability to explain/predict the correlation between two groups of independent and dependent variables, which is confirmed through statistical techniques. Predictive Methods are also classified into two main groups of methods:

- Priori Predictive Methods include Tabular Representation, Regression, Logit and Discriminant analysis methods.
- Post-hoc Predictive Methods include AID, CART, Cluster wise regression, ANN and Mixture Models.

4.2.2.1 Tabular Representation (Cross-tabulation)

The tabular representation is a segmentation method that associates the estimated mean values of at least one variable scaled by interval to one or more independent variables. The method is prominent as it can examine both nonlinear and interaction effects. A limitation of this method is the challenge of using this approach to examine more than two variables (Wedel & Kamakura, 2000, p. 22)

Interaction effects are characterized by the fact that the two factors examined do not add up but interact differently (Döring, Nicola; Bortz, 2016; Röder-Sorge, 2018).

Another possibility of the tabular representation is the description of the dependent variables' frequency variations in connection with the independent variables' different characteristics.

A check whether the differences in the frequency distributions between different groups are signed is carried out using a Chi-square independence test (χ^2 tests).

However, this only indicates that there are significant differences between groups. Post-hoc tests are used to determine which values are the trigger for a significant difference in the χ^2 test. Section 4.4 describes the requirements for the χ^2 and various post-hoc tests.

4.2.2.2 Regression Analysis

When investigating how a vector of independent variables explains a dependent, the form of a regression model is proposed. Let denoted Y_i as a dependent variable and the $X_1, X_2, X_3, \ldots, X_k$ as the set of explanatory variables, the simplest form of regression analysis, multiple linear regression, is represented as follows:

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_k X_{ik} + \varepsilon_i$$

For total n observations, $i = 1, \ldots, n$ represents each observation's values. The formula evaluates the interactions between one dependent variable Y, and k independent variables for n observation. Y_i is the value of the dependent variable of the i^{th} observation, and X_{ik} is the value of the j^{th} independent variable, j = 1, 2, ..., k of i^{th} observation. The estimated result β_j represents the parameters, and ε_i is the i^{th} independent identically distributed standard error (Freedman, 2009). Four assumptions underlie the linear regression model included:

- Linearity tests whether there is a linear relationship between the independent variables and the average of the dependent variables;
- Homoscedasticity refers to the assumption that the variance of the residuals is constant across all values of the independent variables;
- Independence requires each observation are independent of the other;
- Normality ensures that the distribution of both dependent and independent variables is normal (Field, Miles, and Field, 2012, pp. 302–308)

The dependent variable must be interval-scaled and continuous, and the independent variables must have a moderate level of multicollinearity.

Logistic regression is an alternative form of linear regression used for models with categorical dependent variables. This method is necessary because when the dependent variable is a dichotomous categorical variable, it does not satisfy the requirement that the data follows a linear relationship, which is a basic assumption of linear regression (Berry, 1993, p. 49), logistic regression cannot be solved the same way as linear regression. The data are therefore transformed using a logarithmic transformation to solve the logistic regression (Berry & Feldman, 1985, pp. 60–63). Consider a model with a set of k predictors $x_1, x_2, x_3, \ldots, x_k$ for a dependent binary variable Y and p=P(Y=1), where p represents the probability of the event Y=1. In contrast to linear regression, logistic regression assumes a linear relationship between the continuous independent variables and the logit of the categorical dependent variable. The logit is the logarithm of the odds ratio, which measures the relationship between the probability of a positive outcome and the probability of a negative outcome. The logarithmic form of the equation is taken as follows:

$$log\ log\ \frac{p}{1-p} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k$$

And then the equation for the logistic function is described as follows:

$$p = \frac{1}{1 + b^{-(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k)}}$$

The base is usually $b=e$, and the vector of β_j, j=1,…,k is the estimated parameter for the predictors. The logit regression model also requires the data to be homoscedastic, and there is little or no multicollinearity. (Homer et al., 2000, p. 6).

While linear and logistic regression analysis can identify statistically significant relationships between dependent and independent variables, they cannot group customers based on these relationships. Therefore, the prediction of the dependent variable is made based on specific conditions.

4.2.2.3 Discriminant Analysis

Discriminant Analysis is a statistical technique that uses multiple variables to differentiate between groups of observations. This technique is used to determine the contribution of each variable to the group separation based on ***k*** variables on each individual. The discriminant analysis finds one or more linear combinations of the ***k*** variables (Alkarkhi & Alqaraghuli, 2019). According to A. Field, Miles, and Z. Field (2012), when a researcher wants to determine which linear combination of dependent variables best divides the groups, it is best to perform a discriminant analysis. This method also generates an equation that may be used to categorize new cases.

Multivariate Analysis of Variance (MANOVA), is used to evaluate the significance level in a model with defined dependent variables. Like in Discriminant Analysis, the model can have one or multiple independent and several dependent variables.

Dependencies between dependent variables, which must be ignored when performing multiple ANOVAs, are considered in the MANOVA check (Field, Miles, and Field, 2012, pp. 697–699).

Following MANOVA, several ANOVAs should be performed since MANOVA only indicates that significant differences can be detected for at least one dependent variable but not necessarily for all of them (Field, Miles, and Field, 2012, p. 719)

In discriminant analysis, no new groups are formed; instead, how well the data sets examined fit the existing groups (Röder-Sorge, 2018).

4.2.2.4 Post-hoc Predictive Methods

The remaining Predictive methods are grouped Post-hoc, including AID, CART, Cluster wise Regression, and Mixtures Models. The post-hoc predictive method segments customers by examining the correlation between a dependent variable and a set of predictor variables.

For instance, the Automatic Interaction Detection (AID) technique focuses on discovering the interactive relationship between a categorical dependent variable, such as a rental decision, and a set of independent predictors. This model type requires a sample with a large number of observations, which is also one of the limitations of

choosing this method (Doyle & Fenwick, 1975); or Classification and Regression Tree (CART) is a model that predicts an outcome variable as product preference based on a set of inputs (such as age and values...). Although its output is frequently unsteady, CART performs effectively with many independent variables. Minor modifications in the data can result in drastically different trees. (Dolnicar et al., 2011).

Another problem is the constraint of binary splitting: when dividing groups, only two subgroups may be produced, even if splitting into more than two groups will result in other, likely better results in some situations. Furthermore, the groupings are divided into the shape of a tree. It means that, by starting with the second stage, the results of the subdivisions are determined by the previous subdivisions (Doyle & Hutchinson, 1976).

The Cluster Wise regression method is a powerful statistical tool that analyzes the market structure and classifies customer groups. In particular, this method can be applied to markets with partial membership. Customers will have a membership level with many segments (Steenkamp & Wedel, 1991). A noticeable limitation of this approach is that the subjective weighting of customers influences the clustering procedures. The standard limitation of these methods is similar to that of the whole group of post-hoc predictive methods, which explains the relationship between one dependent variable and the set of independent variables.

Artificial Neural Networks (ANN) try to use and artificially reproduce organizational principles of the human brain. They consist of artificial neurons and connections between these neurons. In gray, the neurons are displayed as nodes and their connections to each other as arrows. ANNs can be divided into two classes. There are no loops in feed-forward networks but feedback networks (Jain, Mao, and Mohiuddin, 1996).

Mixture multidimensional scaling (MMDS) models, on the other hand, use a graphical representation of the similarities and differences between the segments to identify relationships between variables.

Both mixture regression and MMDS models are a type of mixture model, a statistical technique that models the presence of multiple subpopulations within a single data set. While mixture regression focuses on identifying the relationships between variables using regression analysis, MMDS models use visual representations to understand the relationships between segments.

The main difference between mixture regression and MMDS models is their approach to examining the relationships between variables in segmented data sets. Mixture regression uses regression analysis, while MMDS uses graphical representation (Kamakura, Wedel, and Agrawal, 1994). The Mixture multidimensional scaling models (MDS) are extended versions of Mixture Regression Models, which simultaneously classify market segments and analyze customer preference structure. The applications of these methods are often exploited in branding analysis (Wedel & Kamakura, 2000, p. 26).

4.3 Selecting appropriate approach

As the hypotheses proposed that the tenant decisions are influenced by resolving characteristics or settings, the chosen method must be able to test the relationship between the set of variables. Therefore, a predictive method is preferred.

A vital drawback of the AID or CART model is that splitting a group into only two subgroups might result in suboptimal outcomes. Furthermore, big survey data is an unmet limitation, which is the primary reason for selecting a more appropriate segmentation technique.

An application of regression analysis to form tenant groups is not suitable. In addition, hypotheses assume that demographic characteristics (included income), and the needs for rental accommodations influence the reason for renting, the factors necessary for renting decisions, and the characteristics of accommodations, which consider the associations between more than one independent variable to several dependent variables. The conventional regression models examine the connection between a group of independent variables and a single dependent variable. Consequently, the proposed hypotheses are not entirely tested with regression models and are required for a more general approach.

The data may be analyzed in tabular form. However, theses regarding potential tenant groups and their attributes must be developed to do this. It was previously done for this study since it was required to deal with the tenant groups and their possible attributes when the questionnaire was produced.

The use of a MANOVA for tenant group formation is theoretically conceivable. The issue is that MANOVA examines whether the entire model is significant. It would result in an iterative process in which numerous ANOVAs are done after a significant MANOVA, the significant parameters are established, and a new model for a MANOVA is constructed if necessary. It would only include the parameters shown in the ANOVAs to be significant. A more appropriate method would be to use ANOVAs to validate the theses linked with the tabular display.

The neural networks are not used because the origin of the tenant groups cannot be traced, which leads to a lack of verifiability of the results.

Thus, **a tabular representation** is chosen for the formation of tenant groups. In the following section, the concrete implementation of this approach is described in more detail.

4.4 Statistical tests of the chosen method

When applying the tabular representation analysis method, the frequency distribution table only helps to describe the collected data but cannot determine the correlation between the variables. It is vital to evaluate whether the differences between tenant groups (correlation predictive) or relationships between variables and test the hypothesis (group difference, cause or effect power) are statistically significant. The significant tests for difference are reported in the section that follows.

4.4.1 Significance tests for one-answer questions

In order to proceed with selecting the appropriate method to determine the statistically significant difference, it is necessary first to consider whether the data of the variables are categorical or continuous. Data is presented on a table as frequency distribution and grouped by categorical strain. To test the difference in the frequency distribution of each group, the χ^2 test (**Chi-square test**) can be used (Field, Miles, and Field, 2012, p. 816). In specific, to examine the relationship between two categorical variables, characteristic A and characteristic B, on a table, we can perform the Pearson Chi-square test by measuring the χ^2 value as the following equation:

$$\chi^2 = \frac{(f_{ij} - f'_{ij})^2}{f'_{ij}}$$

there f_{ij} represents the frequency distribution of the cell in row ith and column jth of the contingency table, and f'_{ij} represents the measured expected frequencies for the same cell. The estimated χ^2 value is checked with a critical value. The critical value of a Chi-square distribution is checked with the degree of freedom *df = (total of rows -1)(total of column-1)* at the chosen significance level. If the checked result is statistically significant, characteristic A impacts characteristic B. However, more precise statements about the frequency differences are impossible (Field et al., 2012).

The performance of Chi-square test requires major assumptions. Each observation with the data set is initially independent, and an object is listed in only one contingency table cell. Furthermore, the proportion of expected frequencies that is less than five does not exceed 20 %. When the samples are small and the expected frequencies is less than 5, the results of significance tests of the Chi-square distribution can be inaccurate. (Field et al., 2012, p. 816).

If the contingency tables is present in the two rows versus two columns form, the Pearson Chi-square test tends to generate an insufficient significant value, however, the Yates's continuity correction has been proposed to adjust the inaccuracy (Field et al., 2012, p. 816).

4.4.2 Significance tests for multi-answers questions

One of the key assumptions about the data set to apply the Chi-square test is that each observation is assigned to only one cell in the contingency table. In other words, an observation with each corresponding question giving only one choice and classified into a group.

But, to be able to analyze more deeply about the choice of each respondent for several questions, the respondent has the right to choose from many options. The $\chi 2$ test cannot be applied to these cases. Various methods have been proposed to test the difference between the frequency distribution of these questions.

Bilder et al., (2000), reviewed the various methods proposed to test a multiple choice question. One of the most widely used approaches is the **Bonferroni approach**.

Consider there are *c* options that one can choose as their answers for a given question. The observations are also classified by another characteristic X, for example, their highest level of education. A contingency table is set up, X is presented as the row variable with r rows, each row is a level of X ranging from i= 1,….,r. As there are *c* items for the question presented as column variables, *c* Pearson Chi-square test statistics are performed to examine the relationship between the variables. Therefore, a Bonferroni correction is suggested on the p-value for each of these *c* Chi-square values α/c (example: 0.05/c). If one of the estimated p-values of the *c* Chi-square test is less than or equal to α/c, then the test is significant and there is a correlation between the two variables. In this way, it can also be derived directly which of the sources is responsible for rejecting the null hypothesis (Agresti and Liu, 1999).

4.4.3 Significance test for mean comparisons in two groups

Besides the case of tabular data of categorical variables considered in section 4.4.1, the data of **variables** can also be presented in **continuous form**, for example group mean. **The t-test** is a commonly used method to test the difference between the **mean values** of two groups and analyze their relationship.

As the t-test is a parametric test, the application of the t-test is based on several assumptions similar to the regression model. First, the testing sample is **normally distributed** and the variables are continuous. Additionally, the model ensures the homogeneity of variances. For example, the variance homogeneity can be checked with a Levene test (Field et al., 2012, p. 185 187). If the homogeneity assumption of the data set is violated, the adjustments determined by Welsh (1947) for these cases should be applied when calculating the variances and degrees of freedom.

As long as the two sample sizes are about equal, the test is bilateral, and the sample is large enough, violating the normal distribution condition is not crucial for the t-test (Sawilowsky and Blair, 1992). According to Boneau (1960), a sample size of 25 to 30 is enough. Because of this, if the requirements above are met, the evaluation portion does not verify the requirement for a normal distribution.

One can switch to the non-parametric **Man-Whitney U-test**, which uses the assignment of ranking places, if the conditions for the performance of a t-test are broken (Rasch et al., 2014b, p. 94).

Let's consider two sample groups of customers renting houses in urban and rural areas. The urban group has N_1 observations and the rural group has N_2 observations. $\underline{X_1}$ and $\underline{X_2}$ are denoted as the average rented price of the urban and rural group, respectively, then $s_1$and s_2 are denoted as the standard deviation of each sample. The standard error of each sampling distribution is calculated as follow:

$$SE_1 = \frac{s_1}{\sqrt{N_1}} \; and \; SE_2 = \frac{s_2}{\sqrt{N_2}}$$

And the t-value for the test statistic compared the mean differences is measured as:

$$t = \frac{\underline{X_1} - \underline{X_2}}{\sqrt{{SE_1}^2 + {SE_2}^2}}$$

The t-value is considered in the t-distribution with a certain degree of freedom to estimate the probabilities associated with that t-value. The sum of the probability of the t-value is known as the p-value. If the test results are statistically significant, the null hypothesis is rejected, reflecting an effect between the observed variables (Field et al., 2012).

The size of the α and β error are important for the significance of significance tests, and accordingly for t-tests. The α error is a decision favoring the alternative hypothesis H1, although the null hypothesis H_0 is true. The β error indicates the probability of accepting the null hypothesis H_0, although the correct decision is to accept the alternative hypothesis H_1. From the knowledge of the β error the test strength of a significance test can be derived. This is derived from 1- β and thus indicates the probability that the alternative hypothesis H_1 will be accepted, provided that it also applies (Rasch et al., 2014a, p. 54 56).

4.4.4 Significance test for mean comparisons in more than two groups

In order to test significant differences amongst the average values of more than two samples one can conduct the t-tests between each pair of mean values. However, these result in an α error accumulation and decrease the robustness of the test. A α error accumulation means that the α errors accumulate and the α level for all the tests performed will no longer be at the previously defined level but will be higher. Instead, the **Analysis of variance** (ANOVA) approach has been suggested to determine whether the means of three or more groups differ (Field et al., 2012).

The ANOVA applies F-tests to statistically test the equality across group means. The result of ANOVA is called F-statistic or F-ratio, a ratio of variation between sample means and variation within the samples.

The requirement to conduct an ANOVA test is the variables are continuous and normally distributed. In addition, the model bases on the assumption of homogeneity of variance. However, the test is mainly resistant to deviations from the criteria for the normal distribution and variance homogeneity (Field et al., 2012). Therefore, even if these requirements are not met, the analysis of variance can still be used.

Nevertheless, the Levene test should be applied to detect heterogeneous variance problems, and if the assumption is violated, the Welsh adjustment can also be applied here (Field et al., 2012).

Since the F-ratio test of ANOVA focuses on testing the hypothesis of equality of sample mean, the test results can lead to the conclusion that one or more groups have a significantly different mean value, or in other words can receive know whether the correlation is present in the groups, however, it is not clear which group has the difference. To solve this problem, two approaches are available to produce planned

comparisons (also known as planned contrasts) and post hoc comparisons (post hoc test). When there is a specific hypothesis to test for difference among groups, planned comparisons are advisory, and when there are no specific hypotheses, **post hoc tests** should be applied.

4.4.5 Effect size

Different tests can determine whether the mean or the mean distribution have different probabilities. However, if such a difference is to be expected, the magnitude of the difference is still unknown.

In the case of a very large sample, a tiny difference can theoretically be significant, but in terms of content it can be completely insignificant. Effect sizes can be calculated to objectify effects and to compare effects with each other (Field et al., 2012).

There are different masses for the effect strength. Cohen's d can be used to calculate the effect size for differences in two mean values.

$$d = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\hat{\sigma}^2_{x1} + \hat{\sigma}^2_{x2}}{2}}}$$

with $\bar{x}1$ and $\bar{x}2$: empirical mean values of the samples

$\sigma\hat{}x1$ and $\sigma\hat{}x2$ estimated variance of sample 1 or 2 (Cohen, 1988).

The effect is divided into three levels: small, medium and large. According to Cohen, small effects between mean values have a *d* of 0.20, medium effects have a value of 0.50 and large effects have a d of 0.80 (Cohen, 1988).

The Pearson correlation coefficient can also be used as an alternative method to calculate the effect size, using a formula in which s_x represents the standard deviation of the first variable and s_y represents the standard deviation of the second variable (Field et al., 2012). Standardizing the covariance will come with a value between -1 and 1.

$$r = \frac{\text{cov}_{xy}}{s_x s_y} = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{(N-1)s_x s_y}$$

When two variables have a coefficient of +1, they are positively linked, meaning that if one variable rises, the other rises proportionately. A complete negative link exists with a coefficient of -1: when one variable rises, the other falls by an equivalent amount.

Summary of Chapter 4

Chapter 4 answers, "Which method is appropriate for identifying tenant groups from acquired data?" The first section offers the methods for processing data, including qualitative and quantitative data.

The data is structured in tabular form, with each column representing an observation variable and each row representing an observation. All data is encrypted correctly and consistently. The qualitative data collected is categorized and coded. The survey will include a variety of question formats, including closed-ended, open-ended, and hybrid questions (as mentioned in Chapter 5). The questions' content will be addressed fully in Chapter 5.

The author introduces two approaches of grouping methods: descriptive and predictive. As assumptions showed that tenant decisions are produced by resolving aspects or situations, the predictive method was adopted to study the relationship between the elements. In particular, a tabular representation is used to construct tenant groupings (see Section 4.2)

Following the introduction of the tenant clustering approach, related statistical tests to examine the difference between the tenancy choice and related factors are introduced. (see Section 4.4).

5 Collecting data and the detail of questionnaire

Chapter 5 introduces important components related to data collection tools and questionnaire preparation within the framework of the thesis. These are essential steps required to effectively collect appropriate data. From carefully choosing the right platform to meticulously structuring questionnaires for optimal clarity and engagement, this chapter provides indispensable tools and strategies for collecting required data, data was collected from young people in HCM City so the questionnaire was conducted in Vietnamese. Given that the target demographic consisted of young individuals in HCM City, the questionnaire was conducted in Vietnamese, aligning with the linguistic preferences of the participants.

5.1 Tools for determining the required data

Data is a prerequisite to achieving the study results and validating the hypotheses outlined in chapter three. This study will gather data using a survey of tenants in HCMC. Collecting personal opinions to evaluate rental housing in HCMC requires surveying with enough response samples to perform the analysis. There are four possible methods for collecting information through surveys: personal interviews, written surveys, telephone interviews, and internet-based surveys (Schnell, 2012, p. 315).

5.1.1 Personal interview

The research interview is a technique for gathering data in which participants respond to inquiries from the interviewer by sharing details about their actions, feelings, or thoughts. (William D. Crano, Marilynn B. Brewer, Andrew Lac, William D. Crano, 2001, p. 223). Interviews can be subdivided according to their degree of structuring. As a social research tool, the interview's participatory aspect and reliance on verbal or linguistic responses are its biggest asset and weakness.

The interview could be exploratory, depth, free-style, group, or standardized (including group interviews); or standardized interviews (A.N. Oppenheim, 1992, p. 65).

Personal interviews have certain advantages. Many questions will be answered when the interviewer understands the content and issues to be asked, and the respondents are interested in answering the interview. The interviewer can also observe further. However, if the interviewer cannot convey the content of the question to the interviewer for some reason, it will lead to results that do not meet the needs. In addition, the cost of conducting personal interviews is also a barrier (Gray, 2004).

5.1.2 Telephone interview

Today, phone interviews are viral and regular, and for a good reason. (William D. Crano, Marilynn B. Brewer, Andrew Lac, William D. Crano, 2001, p. 224). The

telephone interview method is much more cost-effective than the personal interview method. However, there are some comments that the interviewee will not be willing to answer questions like face-to-face interviews the telephone interview. The research on this concern indicates that it is much less problematic than initially thought (William D. Crano, Marilynn B. Brewer, Andrew Lac, William D. Crano, 2001). Groves and Kahn (1979) found that participation rates in telephone interviews were only 5% less than those involving face-to-face encounters.

In summary, there is much to recommend using the telephone as a primary form of interview research. Telephone interviews are almost always less expensive than personal interviews; they can be done at a higher speed and with more control by the researcher over the interviewer's behavior if the research is done from a central location containing multiple phones (Groves & Kahn, 1979). Previously held beliefs about the potential limitations of this approach have proven largely unfounded. Phone interviews are less susceptible to response rates or early exit issues than face-to-face interviews. As a result, telephone interviews are becoming increasingly popular, and it is reasonable that this method will continue to be the primary method by which interviews are conducted (Gray, 2004).

Despite the telephone approach's many benefits, it is necessary to be aware of certain possible drawbacks. Face-to-face interviews give the researcher a better chance of spotting uncertainty on the respondent's behalf. (Bartholomew, Henderson, and Marcia, 2000).

Visual assistance was also prohibited during the telephone interview; this can prove critical if interviewees provide complex questions or lengthy response options. Finally, telephone interviewers did not provide the researcher visual contact with respondents. It can be problematic in situations where visual cues are used to replace some lengthy or overly personal questions. For example, visually checking respondents in health surveys is often helpful. Similarly, the telephone approach would appear less than optimal when a respondent's socioeconomic status is estimated by visually examining their neighborhood or whereabouts. In these cases, phone interviews are not necessarily less expensive than a personal face-to-face approach (Gray, 2004; Rowley, 2014).

5.1.3 Writing form survey

Using written questionnaires that respondents complete rather than investing the time and effort required for an interview is nearly always more straightforward and affordable (Bartholomew, Henderson, and Marcia, 2000). The most significant advantage of the written survey is the cost saving in case of large samples. In these cases, personal interviews are labor- and administration-intensive and expensive. Another advantage of the right written survey is that the answers are more honest in sharing their ideas since no interviewer is present, and the assurance of anonymity thus

appears more credible (Schnell, 2012, p. 351). Respondents can read through the question and have ample time to think about the answer.

However, some difficulties of a written survey can be noticed as other individuals' opinions may influence respondents. In addition, the content of the question is fixed in the printed sentence, which requires accuracy in arranging the meaning of words to ensure that the respondents fully understand the meaning of the question. However, the questionnaire may not be completed according to the subjective intention of the researcher (Gray, 2004; Rowley, 2014).

5.1.4 Internet-based survey

Surveys over the internet can be considered a newly born survey method. The questionnaire can be submitted as a form for respondents to provide information via a link. This procedure also has a disadvantage compared to the interviews, analogous to using questionnaires in that information is lost because it is impossible to ask for specific information. Just as with traditional writing, the survey situation cannot be controlled, premature termination of the survey cannot be prevented, and it is also possible to give thoughtful answers. Furthermore, there is a hurdle between reading the paper-form questionnaire and answering the online survey since a computer, smartphone, or tablet is required. Such a device is not certainly within reach when reading paper one (Alessi & Martin, 2010; William D. Crano, Marilynn B. Brewer, Andrew Lac, William D. Crano, 2001; Wright, 2005).

However, this method offers some undeniable benefits. Online survey research benefits from the Internet's ability to connect with people and groups that would be challenging, if not impossible, to connect with through other means (Jones, 1999).

Online survey research is a new and developing field of technology. Now, some platforms provide more and more available survey features, making online surveys easier. Other significant advantages include the ability to reach individuals in remote locations, the ability to reach hard-to-reach participants, and the convenience of automated data collection, reducing time and researchers' efforts (Wright, 2005).

Another benefit is the potential time savings for researchers using Internet-based survey research. Online surveys, as previously said, enable researchers to quickly connect with thousands of people who share similar traits, even when they may be spread across vast geographic distances.(Bachmann et al., 1996; Taylor, 2000; Yun & Trumbo, 2000). By sending out invites to engage in newsgroups, chat rooms, and message board communities, a researcher interested in conducting surveys of difficult-to-reach demographics can quickly reach a significant number of these people. In the face-to-face research environment, it would take considerably longer to locate an equal number of persons with a given set of characteristics, interests, and attitudes (Wright, 2005). Cost is the last but not least noticed the point. Online surveys avoid this issue by eliminating the need for paper and other costs such as mailing, printing, and data entry. Costs for recording devices, travel and telephone conversations can be reduced

(Wright, 2005). In addition, transcription costs can be since online responses are automatically documented (Wright, 2005).

5.1.5 Identify the most effective survey method

The most effective method can reconcile the benefits of data collection and the researcher's condition. In 2020, approximately 63% of Vietnamese internet users frequent social networking sites to investigate brands, while 56% utilize these sites for professional purposes. Vietnam ranked sixth globally with 68 million Facebook users, an increase of 4.6% from the previous year. With 11 million Facebook users, HCMC was listed among the top 10 cities worldwide. (S. Kemp, 2020).

During the Covid-19 epidemic, limited close contact also made face-to-face interviews in a megacity like HCMC difficult. Based on the readiness of the internet infrastructure and the number of young users in Vietnam who are also the subjects of the survey, the author has chosen to use the online questionnaire interview form to reach many people in a problematic situations (Alessi & Martin, 2010). It is also a method that is increasingly being used in Vietnam.

In this research, the Kobo toolbox (www.kobotoolbox.org) platform was first used. However, the Google form (docs.google.com) was finally chosen because of its popularity in achieving the essential data.

5.2 Prepare the online-questionnaire

The questionnaire is essential to getting the correct data for the study. The survey on the internet, without direct contact between the interviewer and the respondent, required the questions to be carefully adjusted word for word so that the vast majority of readers understood the meaning of the survey questions (Gray, 2004). The specific requirements from drafting to implementing the questionnaire to survey the internet platform will be presented in detail in the following sections.

5.2.1 The requirement of a questionnaire

A good questionnaire design needs to meet different requirements to become a "tool" to "measure" the research results. The precise and logical linking of the measurement objectives to the overall research plan and goals is a crucial aspect of the measurement specifications (A.N. Oppenheim, 1992). According to Gray (2004), all surveys will have their problems. However, before drafting the questions, it is necessary to clarify the requirements according to the five groups. They are:

1) the tools used to collect the data (such as interviews, paper questionnaires, internet-based surveys, observation techniques, etc.). This heading has been covered in the previous sections;
2) respondents approach, confidentiality and anonymity;
3) order of modules in a questionnaire and the scales of the questions;
4) order of questions in each module;
5) the types of questions to be used are closed and open-ended.

Regarding how to approach respondents, the primary purpose is to gain the most significant cooperation from respondents. When respondents cooperate in answering the questionnaire, the results are of better quality (Saris & Gallhofer, 2014). The following factors have been found to increase respondents' level of cooperation and have been selected to fit the internet survey format: an introduction that summarizes the project in progress; confidentiality and commitment to data privacy of survey participants; reminder so that respondents do not forget to answer the questionnaire; anonymity of survey participation; the form of the questionnaire should be clear and comfortable to look at; and the length of the questions as well as the duration of the entire questionnaire (Gray, 2004).

According to Oppenheim (1992), asking for personal information such as name, age, address, etc. should be avoided in the first part of the questionnaire. Instead, detailed questions about personal information can be placed at the end after the respondent has provided the necessary information. Since asking questions about too detailed personal information often causes respondents to lose focus on the main parts of the questionnaire, they are looking forward to introducing more relevant questions.

A typical sequence for suitable filtering respondents, the “funnel approach,” is also used to find suitable tenants for the survey. The filter questions excluded people currently owning homes and those who finished renting more than three years ago.

Most of the questions are in the form of “open,” “closed,” or “hybrid.” Regardless of the type of question, they must meet the following linguistic requirements (A.N. Oppenheim, 1992; Gray, 2004):

- Avoiding lengthy and complex questions, a length of twenty words is recommended.
- Avoiding hypothetical questions
- Avoid double-barreled questions
- Avoid proverbs
- Avoid double negatives
- Avoid questions about the information that most respondents are unlikely to be aware of
- Avoiding insinuations and suggestive questions
- Use easy understandable words, stay away from short forms, short cuts, unfamiliar words, and professional words
- Use of questions with an apparent time reference, Do not over-tax the respondents’ memories
- Use precise terms that are understood in the same way by all respondents
- Use answer categories that are exhaustive and free of overlap
- Ensure that the context of a question does not affect the answer
- Beware of the dangers of alternative usage
- Beware “leading” questions
- Beware loaded words

Finally, the validity and reliability of the questionnaire must be maintained.

Validity: even if the questions are valid, putting them together can compromise the validity of the entire questionnaire. The questionnaire must address the research topics in substance and detail (Gray, 2004).

Reliability: A high-reliability questionnaire has the same results for different asking-time, assuming that the measure objects do not change. “Reliability is a measure of consistency and can include measures of stability (over time); equivalence; and inter-judge reliability” (Gray, 2004).

5.2.2 Questionnaire preparation steps and questionnaire implementation

The preparation of a questionnaire to conduct a survey requires careful preparation. The first is that hypotheses must be clearly defined to raise appropriate questions against them. Next is the drafting of the question. As described above, the questionnaire needs to meet the scientific requirements. For the questionnaire to reach many respondents, everyone needs to understand it uniformly. Therefore, the implementation steps will be divided into specific stages, from drafting a preliminary questionnaire, interviewing experts to find out the errors of the questionnaire, and conducting a sample survey to receive feedback from respondents to improve the sentences and words in the questionnaire. The questionnaires are sent out, and reminders are followed a few weeks later to increase response rates (A.N. Oppenheim, 1992; Beatty et al., 2019; Rowley, 2014).

5.2.3 Drafting the questionnaire

There are various kinds of inquiries. That can be used in the questionnaire. This section will present the characteristics of each type of question selected and used in the research. The funnel approach by Oppenheim (1992) was utilized in this study to begin with a broad set of questions and gradually focus on more specific topics by narrowing down the questions.

5.2.3.1 Open questions

An open-ended question is a question type that provides respondents with the freedom to give any answer they desire. Thus, it is suitable for testing hypotheses about ideas or awareness.

However, open-ended questions will be time-consuming, leading to increased survey costs. In addition, coding for data entry into statistical software will be slower than closed questions because the answers have not been classified before, which can sometimes cause errors when not correctly classifying the answers. Open-ended questions also require the respondent to think more to give an answer that matches the question (A.N. Oppenheim, 1992; Gray, 2004).

5.2.3.2 Closed questions

Closed questions include list, category questions, ranking, and scale questions (Gray, 2004).

The advantage of closed questions is that it takes less time than others. The respondents only need to look at the answers and choose the answer that best suits them. In addition, the respondents do not need to write additional information, which saves money in terms of costs when conducting the interview. On the data side, closed questions make data processing easier because the data is pre-encoded, so comparisons between groups are not complicated. This question helps test hypotheses, and the interviewer does not need to be well trained, so closed-ended questions are suitable for internet-based surveys because the interviewers do not interpret the questionnaire (A.N. Oppenheim, 1992; Beatty et al., 2019; Rowley, 2014).

However, closed questions also have disadvantages, such as the answer being constrained within the questioner's framework and not natural. It can lead to biases in the classification of answers. Sometimes the answers will be too crude and make the respondent uncomfortable (A.N. Oppenheim, 1992; Gray, 2004).

Therefore, closed questions need to be reviewed and sent to a small group of respondents to find the linguistic errors, thereby minimizing the adverse problems it can cause (A.N. Oppenheim, 1992; Beatty et al., 2019; Rowley, 2014).

5.2.3.3 Hybrid questions

In addition to specified answer specifications, open and closed questions can be used in a combination in which alternative answer options can be named. The hybrid question is another name for this combo (Schnell, 2012, p. 326).

5.2.4 Final questionnaire and survey

The questions are arranged in a particular order before being sent to experts in the research field for feedback. The comments help improve the content of the questionnaire. The questionnaire was then sent to 25 young tenants to check if the respondents understood the question well and if there were any unanswered questions. The pilot survey will help filter out questions likely to lead to bias or misunderstanding because each individual will likely tend to understand and interpret the meaning of a question differently. After receiving feedback from the pilot survey, the questionnaire will be sent to the broader set to collect sufficient data for the study.

Other factors to consider when drafting the questionnaire are the questionnaire layout, color, font, font size, and illustrations, if necessary. An explanation of why the survey is being conducted will clearly state the reason, purpose, and requirements, as well as background information about the person conducting the survey.

According to Gray (Gray, 2004), Web-based questionnaires provide more convenience than traditional surveys, but some notes need to be ensured, such as:

- An introduction with content that excites respondents, emphasizing essential instructions
- The first question should be easy and stimulating to answer
- Present the questions in the usual, familiar way
- The colors used are suitable
- Check the visibility of the questionnaire, as the configuration of web browsers may be different for different respondents
- Limit the use of drop-down responses and must include a “click here” instruction.

5.3 Questionnaire structure

In order to evaluate groups of tenants based on group classification criteria, in addition to studying available literature to find the most relevant criteria and identifying methods to analyze results based on statistical operations, the questionnaire is the essential part of collecting data from tenants.

In addition, the questionnaire is also a tool to bring survey results, contributing to clarifying the research results. The quality of the data depends on how the questions were ordered.

The questions are edited and conducted on the Google Form platform. Questions are marked “required” so that respondents do not miss any questions.

This chapter will analyze the questions' content, explain why they appeared in the survey, and how the questions will contribute to the evaluation of the hypotheses in Chapter 2.

The questionnaire can be divided into 3 main parts, the first part of questions to filter respondents, the second part of questions about information of tenants and rented property, and the last part is a questionnaire with a Likert scale to assess important factors for tenants' rental choice.

In conjunction to Chapter 4, Chapter 6 will contribute to answering the research question “How to achieve the features to classify tenants group?”.

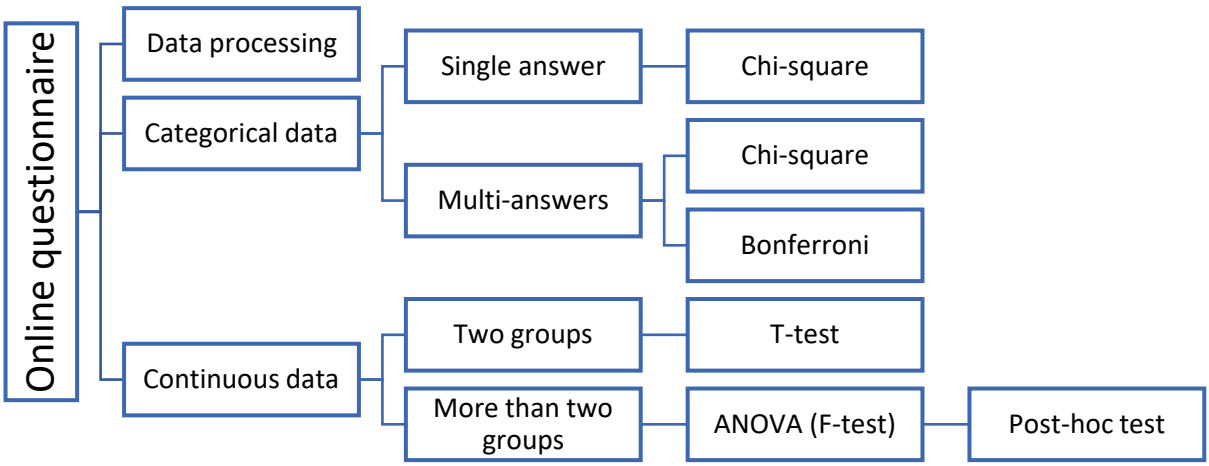


Figure 5.1 Procedure to compare differences between groups of tenant

5.3.1 Filter questions

Part one consists of three questions to select respondents who are suitable for the survey. Because the survey was conducted on the Internet, the subjects were selected to send the questionnaire from the list of friends, forums and groups of young people,

however, it is inevitable that the respondents are not in the target group of the survey. Therefore, it is necessary to have questions to filter the respondents.

In the first question, the selected respondents are those who are renting or have just finished renting a house in HCMC less than two years ago at the time of the survey. Since house prices in HCMC often fluctuate a lot after two years, the two-year timeline was chosen for a more accurate analysis of rents and rent-related factors. Those who are not renting or have finished renting for more than three years will be forwarded to the end of the questionnaire with a thank note for taking the survey.

Are you currently renting an accommodation OR have you ever rented an accommodation in HCMC? *

- □ Renting a house
- □ End of tenancy less than 3 years ago
- □ End of tenancy more than 3 years ago

(Go to the "Thank you for taking part in the survey!" section.)

- □ Never rented a house

(Go to the "Thank you for taking part in the survey!" section.)

Figure 5.2 Questions for selecting appropriate respondents

To further select the right survey sample, a follow-up question on rental use was asked to find tenants who either lived in or a combination of living and working. Those who chose the answer "not for staying, but for differential purposes" will be directed to a closing section with an acknowledgement for taking the time to participate in the survey. At the end only rental properties can be used solely for living, or in combination with working from home or business will be taken into account.

What are you renting the house for? *

- □ For stay only
- □ For stay and often work from home
- □ For stay and run business
- □ Not for staying, but for different purposes. (Go to the "Thank you for taking part in the survey!" section.)

Finally, the age of the survey participants, because the study focuses on young people living and working in HCMC, the age group from 18 to 39 will be selected. This is also the age group that accounts for the majority in Vietnamese society today, and is the main labor force of the society (Vietnam General Statistics Office, 2019).

Could you please input your age? * *(Please input integer, e.g: 25)*

_____

5.3.2 Questions about tenants and rental property

5.3.2.1 Personal information

To better understand survey respondents, follow-up questions were asked about marital status and gender. The marital status question is also a backup question to contrast the answers to question number six, which is a question about the number of people living with the respondent in the rental property.

Could you please indicate your marital status? *

(You can check the box "Other" and add the information that best suits your situation.)

- □ Living alone/ Living with partner
- □ Other:

_____

Could you please choose your gender? *

□ Male □ Female

5.3.2.2 Tenants in rented property

In order to choose a suitable accommodation, in addition to the needs of the tenants themselves, the opinions and influences of the co-tenants play a very important role, especially the elderly and children. Therefore, the questionnaire mentioned the factor of people living with tenants.

Could you please select the type of rented accommodation?: *

(You can check the box "Other" and add the information that best suits your situation.)

- □ Rent to stay alone *(To question 7a)*
- □ Rent with family (spouse/lover/children, father/mother, brother/sister, relative)
  (To question 7b)
- □ Rent with friends/strangers (without family relationship) *(To question 7c)*
- □ Other:

_____

Are you renting to live with your children? *

□ Yes □ No

Are you renting to live with your parents or grandparents? *

□ Yes □ No

Types of rental properties covered in the survey include:

- Room
- Small-size apartment
- Condominium
- Private house

In order for respondents to choose the most appropriate type of house they are living in, the questions are adjusted in terms of words so that respondents do not get confused when choosing, which is why there are questions 7a, 7b, and 7c (see appendix).

Followed by questions to further clarify whether the tenant is a child or a senior, or both.

5.3.2.3 The length of rent

Tenancy period is used to categorize young people who rent only temporarily and young people who identify renting as part of their living plan. Questions asked include current tenancy and total tenancy since entry into the rental market.

How long have you rented/did you rent the above-mentioned accommodation? *

(If you have ended your lease, please select the total length of the last rental. If you are still renting, please calculate from the time you sign the lease to the time you end the tenancy)

- □ Under 1 year
- □ From 1 year to 3 years
- □ Above 3 years to 5 years
- □ Above 5 years

Up to now, how long have you lived in a rented accommodation? (Year)

The time you stay in the rented accommodation is calculated as the sum of the duration you rent

(e.g., you live in one place for 2 years, then rent another place for 1 year, the total time will be 3 years)

- □ Under 1 year
- □ From 1 year to 3 years
- □ Above 3 years to 5 years
- □ Above 5 years to 10 years
- □ Above 10 years

5.3.2.4 The location of rent

Position in any decision regarding accommodation is very important. An important attribute of a rental house is the convenience of work, transportation, schools, health care, markets, and places of worship as well as the development of surrounding social

infrastructure. All of the above public services and utilities are often more abundant and easily accessible in inner-city areas (UN-Habitat, 2003).

In which district do you rent an accommodation? * *(choose from a list of 24 districts)*

How far is the distance from your place of residence to the place of work? (Kilometer)* E.g., if it is less than 1km, like 800m, you will enter 0.8 _____

5.3.2.5 Incomes

As mentioned in Chapter 2, HCMC is the largest city and also the economic center of Vietnam; therefore, the average income of workers here ranks first in comparison to that of Vietnam compared to all other provinces and cities in the country (General Statistics Office of Vietnam, 2021). In addition, in 2022, Decree 38 was issued, which adjusted the regional minimum wage by 6% compared to the provisions of Decree 90 issued in 2019 [9], according to which the minimum wage in HCMC is 4.68 million VND a month [10]. Around 72% of new graduates earn between $251 and $500 per month (VND 5.7-11.4 million). However, employment with monthly wages ranging from US$ 701 to US$ 1,000 (VND 15.9-22.6 million) drew the most applicants, highlighting new graduates' high expectations [11]. From the above data, the author has used the income levels below to survey the income of the young tenant.

Which of the following groups does your total monthly income fall into? (Vnd) * □ Under 5 million □ 5 to 10 million □ Above 10 to 20 million □ Above 20 million

5.3.2.6 Rent price

In order to determine the extent and percentage of tenants' payments for rented property, the question of rent is asked. The rent does not include additional costs such as electricity, water and telecommunications services.

[9] https://thuvienphapluat.vn/van-ban/Lao-dong-Tien-luong/Nghi-dinh-38-2022-ND-CP-muc-luong-toi-thieu-nguoi-lao-dong-lam-viec-theo-hop-dong-515984.aspx

[10] https://infonet.vietnamnet.vn/luong-toi-thieu-vung-2022-tphcm-ap-dung-tu-ngay-17-la-bao-nhieu-413398.html

[11] https://www.vietnam-briefing.com/news/vietnam-hcm-city-leads-the-average-salary-rankings.html

How much rent do you OR you AND your family pay? (Million Vnd) *

(The rent is the price you pay to the landlord, excluding additional fees such as electricity, water, management costs, etc.) Please enter the rental amount in a million dong, E.g., the rent is 7 million: you enter 7; rent is 7 million 600 thousand, you enter 7.6.

_____

5.3.2.7 Living area

For young tenants, the opportunity to access public service centers will not be so important to them, which often drives up house prices or limited usable space. Instead, choosing a living area that meets the needs of working, and the quality of life is given priority (Hua, 2014). The question about living area will help clarify the respondent's decision to rent an accommodation

How much space are you paying rent for? (Square meters) *

(If not clear, you can refer to the area according to the rental contract, you can enter odd numbers)

_____

5.3.2.8 The condition of rent property when moved in

The quality of rental housing will decrease if it is not regularly and properly maintained. The maintenance of rental housing in Vietnam is currently not stated in the contract and the responsibility is often passed on to the tenant. Therefore, the initial condition of the rental property is very important. The question about the initial condition of rental housing helps to better assess the rental housing market of young people.

When you moved in, what was the condition of the rented place? (Including walls, floors, ceilings, doors, windows, sanitary ware, lighting equipment) *

- □ 100% new or just refreshed
- □ Old but no need to spend extra money to renovate
- □ Old and must be renovated to live

5.3.2.9 Questions to ask for clarification on the tenancy decision

In the current Vietnamese society, the view of buying a house as a means of accumulating assets is still popular. The fact that young people rent houses to live separately and independently from their families has only become a trend in recent times. Therefore, to clarify young people's decision in choosing their rental accommodation, questions 19, 20 were asked.

How many years have you lived in HCMC? *

_____

Could you state the reasons of your renting decision? (you can choose as many answers as you feel like, or check the box "other" to fill in more information) *

- Saving to buy a house
- Looking for the good and most suitable house
- Because they plan to reside in another place in the future (settling abroad, going to another province/city, etc.)
- Waiting for a reasonable interest rate to buy a house
- Buying a house is no longer essential; I can rent an accommodation and enjoy life.
- Due to the nature of the job, the workplace must be changed frequently
- I have a house in HCMC, but my house doesn't meet the quality of life I want
- Other:_____

5.3.3 Factors affecting the decision to rent an accommodation

A rating scale based on the Likert scale was supplied in order to answer the assumptions that were presented in Chapter 3 concerning the influence of groups of elements on young people's decision to rent a property. The scale ranged from 1 to 5, with 1 corresponding to “not important” and 5 to “very important”. To be more specific, the question of whether or not factors such as rent, legal factors, environmental factors, as well as social amenities surrounding their accommodation, play a role in the decision of two-generation renters to rent, as well as the question of how income groups are affected by the decision of individuals to rent. The considerations can be broken down into four categories: "Rent and legal issues," "Accommodation quality," "Surrounding environment," and "Accessibility to utilities." Each of these categories has its own elements.

The factors that were observed were derived from the research that Hua (2014) conducted on the "determinants of middle-income condominium market in HCMC," and they were modified to account for tenants.

The contents of the observed variables are broken down into their component parts and reported in Table 6.1.

Table 5.1 List of variables in the last questionnaire's question

Group of variables	Variable
Rent and legal issues	Rent price
	The stability of rent prices
	The reputation of the real estate owner
	Term of the rental contract
	How to determine the responsibility of the parties when there is a problem related to the house (such as related to broken electricity, water, equipment in the house)
Accommodation quality	House condition when renting (new, relatively new, or not renovated or repaired)
	Usable area
	Number of bathrooms and toilets
	Parking
	The place is well soundproofed
	The place is well insulated
	The place is well ventilated
	The place is designed with lots of natural light
Surrounding environment	Quiet living environment
	Neighbors and surrounding residents are friendly
	Security camera system
	Public lighting system
Accessibility to utilities	Markets and supermarkets are close by, easy to access
	Convenient for work and study (near workplace, densely populated area, easy to do business)
	Bus stop, public transport station within walking distance
	Kindergarten or daycare for children under five within walking distance
	Park, surrounding green space within walking distance
	Distance to relatives, relatives
	Keep away from sources of pollution (water, air)

Group of variables	Variable
	The place of medical examination and treatment is near, easy to reach
	Entertainment centers close by, easy to reach
	Other:

Summary of Chapter 5

The procedures that were followed to get the necessary information for the study are outlined in Chapter 4. The following four methods of conducting interviews are covered in this section: personal interviews, interviews carried out over the phone, interviews utilizing paper questionnaires, and interviews carried out online. Each tactic has perks and drawbacks to consider. An internet-based survey collects data from young individuals renting residences in HCMC.

In addition, the production of the questionnaire for distribution is addressed in this chapter. Various question formats were investigated to create a simple questionnaire that is simple to comprehend and contains all pertinent information. Lastly, the questionnaire's individual questions need to be arranged in the most logical and scientifically sound fashion practicable.

In conjunction with the various approaches to data analysis discussed in Chapter 4, it will serve as the basis for executing the questionnaire.

The questionnaire collects respondents' opinions on information related to young people's renting in HCMC.

In evaluating groups of tenants based on group classification criteria, the essential component of the collecting data process from tenants is the questionnaire.

This study uses the Google Form platform to edit the questions and conduct the survey. As a way to ensure that respondents provide information, all questions are designated as "mandatory."

The sequence of questions directly affects the accuracy of the results. This chapter includes the questionnaire description and explains why those questions are included in the survey. It discusses how those questions will help evaluate the hypotheses in the following chapter.

The questionnaire can be broken down into three primary sections. The first section consists of questions designed to narrow down the pool of respondents. The second section asks tenants and landlords about themselves and their properties. The third section is a questionnaire that uses a Likert scale to evaluate the significance of various aspects regarding tenants' selection of a rental unit.

It contributes to answering the research question "How to obtain the features to classify tenants group?".

The questionnaires provided sufficient information to help test the initial hypothesis based on the methods discussed in Chapter 4.

The Appendices contain a complete content and format questionnaire prepared online for collecting data.

6 Results and hypothesis verification

In Chapter 2, hypotheses were developed based on prior research findings. These hypotheses include those relating to tenant demand (or need), those classified by demographic characteristics, and those relating to tenant income. The hypotheses will be examined using the techniques described in Chapter 4 together with explanations.

6.1 General insight of survey results

6.1.1 Selecting appropriate answer sheets

The responses to the questionnaire were submitted using the Google Forms platform, which is accessible online. The questionnaire is available to respondents between September and December, 2021. The poll started with some screening questions in the hopes of weeding out any responders who were inappropriate for the study. In conclusion, specific surveys are not addressed in sufficient detail. The study included responses from 595 young individuals between the ages of 18 and 39. A total of 345 ballots can be analyzed due to their answers. Answer sheets that do not fulfill the standards that have been established will be discovered in the initial questions.

Twelve of the 345 replies that passed the screening questions could not be evaluated. The following are the specific causes:

- The answer data does not match the reality of the location of the house, the rental area, and the rental price
- The answer data does not correspond to the reality of the house's location, rental area, or rental pricing.
- There are four instances in which the respondent is in a private room, yet the size is only 50 m^2.
- Cases of renting properties in core districts with larger-than-average areas and inexpensive rent were not considered. Answer sheets for the rental area that are too low (much lower than the standard number) are also invalidated, for example, 2 square meters, 5 square meters.
- The responses did not exhibit any discernible trends, meaning that they lacked coherence or consistency in the data provided.
- The respondents did not understand the question's content.

Including functions that filter responses from when respondents enter data into their device are a significant advantage of using online questionnaires using the confirm function.

In the end, 333 responses met all criteria for participation in the subsequent analysis phases.

6.1.2 Basic information of the respondents

6.1.2.1 Age, gender, and years living in HCMC

According to the results after screening unqualified data, the number of selected respondents provided some demographic information as follows:

Up to 65% of survey participants are female. Men account for almost half of the women in the survey. Most of them are from another province or city. Only 8% of young people in the survey were born in HCMC. In other words, their hometown is HCMC. Due to living in the city enough to meet the conditions to be "Household registration" (Household registration), which is more than five years, the number of so-called "local" people has increased to 29%. The remaining 71% (corresponding to 237 people) will be temporarily called "migrants" - a concept that is only relative in this study.

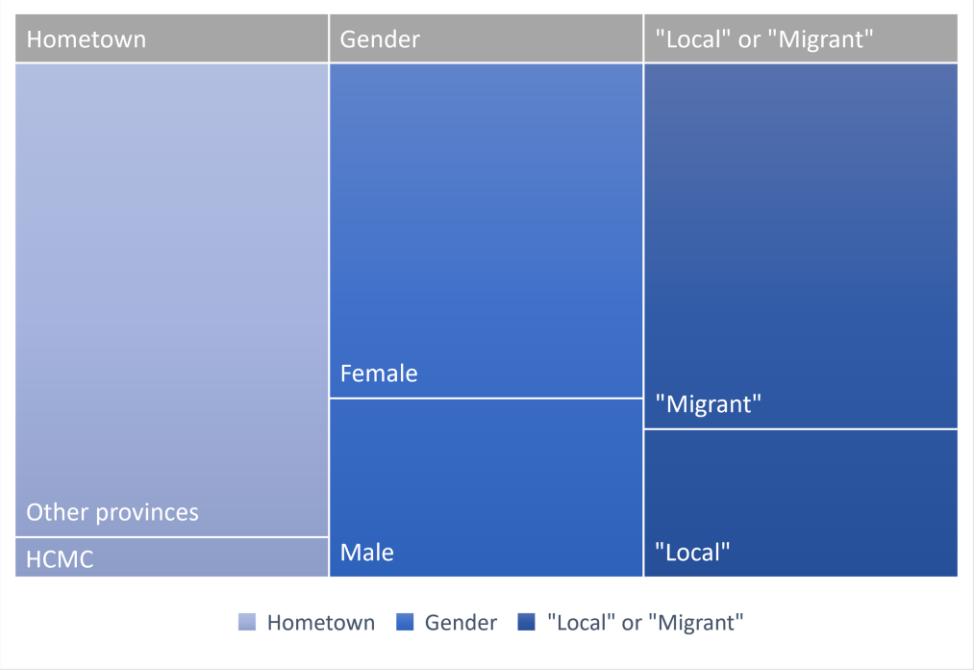


Figure 6.1 The proportion of tenants according to Hometown, Gender, and In-migration status

Regarding respondents' age, the youngest participant in the poll is 18 years old, the oldest is 39 years old, the average age is 26.3 years old, and the median age is 26.

Twenty-five percent of the respondents are younger than 23 years old. Seventy-five percent of poll respondents were younger than 29 years old.

Of them, up to 50% moved to HCMC at the age of 18, which is the age when they both graduate and graduate from high school in Vietnam, which is when they can start university or work. Three-quarters of them were just over 19 when they moved into the city (see Table A.0.1).

6.1.2.2 Income

Young persons participating in the poll with an income of less than 5 million VND per month accounted for 23% of the total 333 acceptable replies. The income group with the highest percentage in the poll is those earning between 10 million and 20 million VND, accounting for 35%. The remaining individuals have monthly salaries ranging

from 5 to 10 million VND. This group makes up 27% of the total. The income group of over 20 million has the lowest share, with 52 answer sheets, or 16% in the survey.

Table 6.1 Income of the respondents in the survey

Income	N	Proportion
Less than 5 Mil VND	76	23%
5-10 Mil VND	90	27%
10-20 Mil VND	115	35%
More than 20 Mil VND	52	16%

6.1.2.3 Household structure

Forty-seven respondents say they rent an accommodation for two generations (either with children or with parents/grandparents), accounting for 14% of the 333 observations. The remaining 86% is made up of 286 single-generation renters.

79% of the young individuals who participated in the study identified as unmarried or single, while the remaining 21% said they were renting a residence with a partner or spouse.

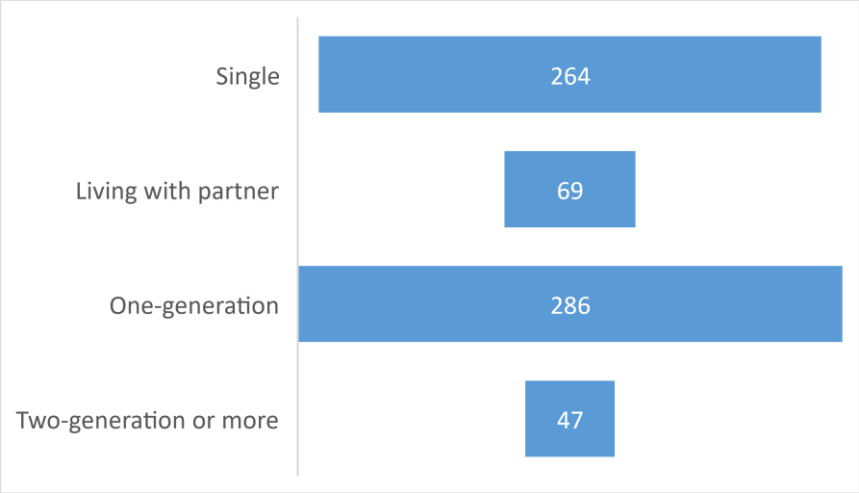


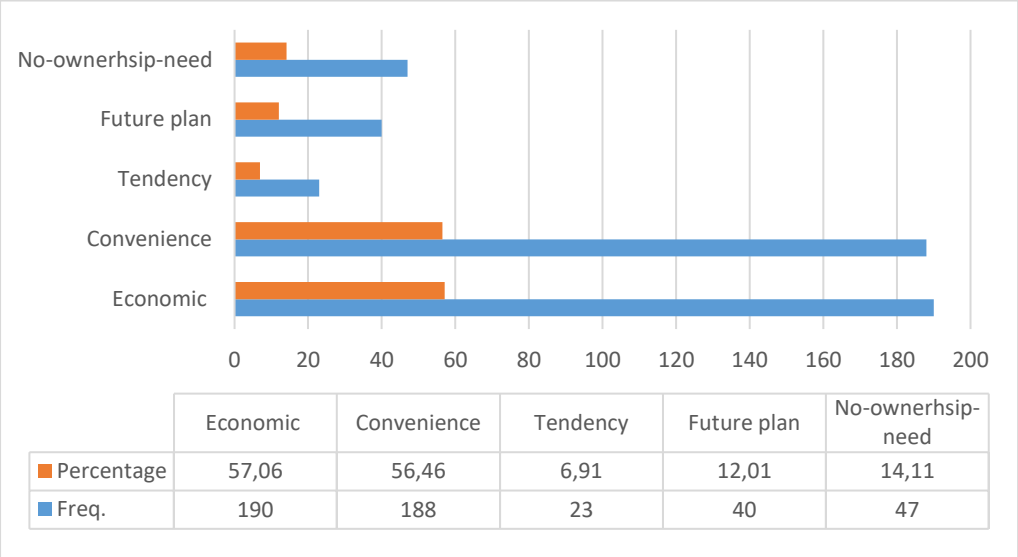
Figure 6.2 Household structure of respondents in the survey

6.1.2.4 Renting reason

The choice between renting and buying a home was further clarified by young respondents in the question of why they rent. The results revealed some of the underlying reasons behind their decision to rent. The reason for renting was identified in the questionnaire as a combination of closed and open (hybrid) questions.

Figure 6.3 shows that the group of young people choosing economic reasons is 190, accounting for 57.06% of the total sample. The convenience factor has 188 people choosing it as one of their rental decisions. The number of people who think buying a home is not necessary for the No-ownership-need group is 47, equivalent to 14.11%. Forty people think they will not live in HCMC in the future, so they decide to rent. The group that decided to hire because it was a trend had only 6.91%, which corresponds

to 23 choices. The total number of choices is more significant than 333; in other words, the total proportion is more than 100% because a person can choose many different related answers.



	Economic	Convenience	Tendency	Future plan	No-ownerhsip-need
Percentage	57,06	56,46	6,91	12,01	14,11
Freq.	190	188	23	40	47

Figure 6.3 The proportion of tenants giving rental reasons

Respondents can choose from the available options and add their answers to the open text. Out of a total of 333 satisfactory answers, there are many different interpretations of the reasons for their decision. The respondents' answers are listed as follows:

"Saving to buy a house,"

"Because waiting for a good interest rate to buy a house,"

"Looking for the most suitable house,"

"Convenient to work and study,"

"Due to the nature of the job, I have to change my workplace frequently," "I have a house in HCMC, but my house does not meet the quality of life I want,"

"Many of my friends rent houses, so I want to experience it,"

"My family has a house in HCMC. I want to live independently for the first period of my life,"

"Because of planning to reside in another place in the future (settling abroad, going to another province/city, ...),"

"I invest my capital in another business,"

"I do not have to spend money on furniture and reparation,"

"The house price is too high. I do not want to loan for more than half of my life,"

"House is just a place to serve human beings."

The answers are listed in

Table 6.2 according to groups of factors related to each topic: *economic, convenience, tendency, plan, and no-ownership-need*.

Table 6.2 Answer of respondents behind the renting reasons.

Economic	**Convenience**
waiting for enough capital	For work/study
waiting for a reasonable interest rate	Flexible in moving to the new place
waiting to find a suitable house	Fulfill living quality
saving investment cost	
saving maintenance cost	
Tendency	**Plan**
Social trend	Settlement in a different destination
No-ownership-need	
Finding owner-occupancy is not needed	

The first is a group of reasons related to economic factors. Economic reasons include opinions that are interpreted in many different ways. They are summarized into the following three main ideas: waiting for enough capital, waiting for a reasonable interest rate, and waiting to find a suitable house.

In this group, the responses were all about buying a home in the future and renting is a decision that meets current needs. Opinions revolve around three main conditions when an individual wants to own a home: available capital, interest rate, and home price.

Tenants may see the possibility of getting a loan from a bank to buy a house, but the house price or own capital is not enough to borrow (in Vietnam, the minimum downpayment needs 25% to 30%). Tenants may also have enough capital but have not found the house they want to buy, and the bank interest rate may be too high for their financial security. Of the above factors, house price is probably the most efficiently met. It is easier to find a home that fits the needs than to wait for interest rates to fall in the context of rising inflation, and saving enough money to buy a house depends mainly on tenants' efforts.

In addition to ideas about purchasing a home in the future, renting a home allows young individuals to skip the payment of the furnishings or the first investment cost that may be too high for them. Additionally, tenants are not required to pay for repairs if they are not responsible for the damage.

The second group of reasons is called Convenience. The convenience of renting a house can be thought of first is the ease of choosing a location and changing the location when necessary. Young tenants may have to change jobs sometimes (MOHA; UNFPA, 2019). As a result, they were obliged to relocate to adjust to new living conditions. The ease with which they can relocate also helps them to pursue new chances (for career or personal development) and gain expertise in more attractive, relevant regions.

Renting also keeps tenants financially free from a specific region, allowing them to go wherever they want (as opposed to landlords being bound by obligations and mortgage loans).

Ranked 3rd in the group of reasons related to housing needs, 47 opinions renting is enough. They do not need to buy a house. It can be said that if young people feel they are financially self-sufficient. When they compare purchasing a home and their job benefits, they find it is not worth it (see section). They may not have thought of owning a home yet; instead, they will use the benefits of renting; at this point, elements in the Convenience group can become the reasons for staying behind.

Young individuals choose to rent a home in HCMC for various reasons, some of which relate to their relocation plans. There are opinions that their hometown (in another province) will improve in the future and that they would study and work in HCMC before returning to their hometown opportunely. Some clarifications on living in a foreign country. The fourth group's primary endpoint is, in a nutshell, tied to plans.

The last group is “tendency,” which shows how other community members influence tenants when choosing to rent an accommodation. The percentage of tenants choosing this answer is at least only 23 people; it can be said that economic factors and convenience when renting are the two primary reasons for their decision.

These factors will be repeated in the analysis of Household structure and Income.

6.2 Statistical results to test hypotheses

6.2.1 Hypotheses regarding need

In the hypothetical group concerned with the need for rental housing, the parameters to be compared include income, rent, living area, house condition, rental duration, location of the property, distance to work, and renting reason.

6.2.1.1 Sharing type

- Income

The three different sharing types are compared with five income groups, as seen from the provided evidence (see Table 6.3). The minimum expected count is 13.742, more than 5, indicating that the test's underlying presumption has been validated, according to this very significant finding ($\chi 2(6) = 24.704$, p-value <0.001). There is a correlation between the sharing choices and one's income level; more specifically, there is a distinction between the types of sharing choices available to individuals at different income levels.

Table 6.3 Statistical analysis results between Sharing types and different income groups

Rent sharing		**Less than 5 Mil VND**	**5 - 10 Mil VND**	**10 - 20 Mil VND**	**More than 20 VND**	**Row Total**
No share	Count	23	33	49	28	133
	Expt Value	30.354	35.946	45.931	20.769	
	Chisq	1.782	0.241	0.205	2.518	
	% Row	17.29%	24.81%	36.84%	21.05%	39.94%
	% Column	30.26%	36.67%	42.61%	53.85%	
	% Total	6.91%	9.91%	14.72%	8.41%	
	Std Residual	-1.335	-0.491	0.453	1.587	
Share with friends/strangers	Count	41	32	30	9	112
	Expt Value	25.562	30.27	38.679	17.489	
	Chisq	9.324	0.099	1.947	4.121	
	% Row	36.61%	28.57%	26.79%	8.04%	33.63%
	% Column	53.95%	35.56%	26.09%	17.31%	
	% Total	12.31%	9.61%	9.01%	2.70%	
	Std Residual	3.054	0.314	-1.395	-2.03	
	Count	12	25	36	15	88

Rent sharing		Less than 5 Mil VND	5 - 10 Mil VND	10 - 20 Mil VND	More than 20 VND	Row Total
Share with family	Expt Value	20.084	23.784	30.39	13.742	
	Chisq	3.254	0.062	1.035	0.115	
	% Row	13.64%	28.41%	40.91%	17.05%	26.43%
	% Column	15.79%	27.78%	31.30%	28.85%	
	% Total	3.60%	7.51%	10.81%	4.51%	
	Std Residual	-1.804	0.249	1.018	0.339	
Column Total		76	90	115	52	333
		22.82%	27.03%	34.54%	15.62%	

According to Table 6.3 and Figure 6.4, the choice of living alone - not sharing rented accommodation with others (accounting for 39.94% of total data), the smallest proportion is the income group below 5 million VND, with 17.29%. The two groups with earnings above 5 million VND and over 20 million VND have proportions of 24.81% and 21.05%, respectively; the group with income over 10 million VND had the most significant proportion of 36.84%. In the group “sharing the accommodation with friends or strangers,” it can be seen that the most significant proportion (36.61%) belongs to the lowest income group; the group with the highest income takes only 8.04%, at the smallest ratio. Staying with family accounted for 26.43% of the total. The income group of 10 million to 20 million VND accounted for the most considerable proportion (40.91%), while the income group of less than 5 million accounted for the lowest proportion (13.64%).

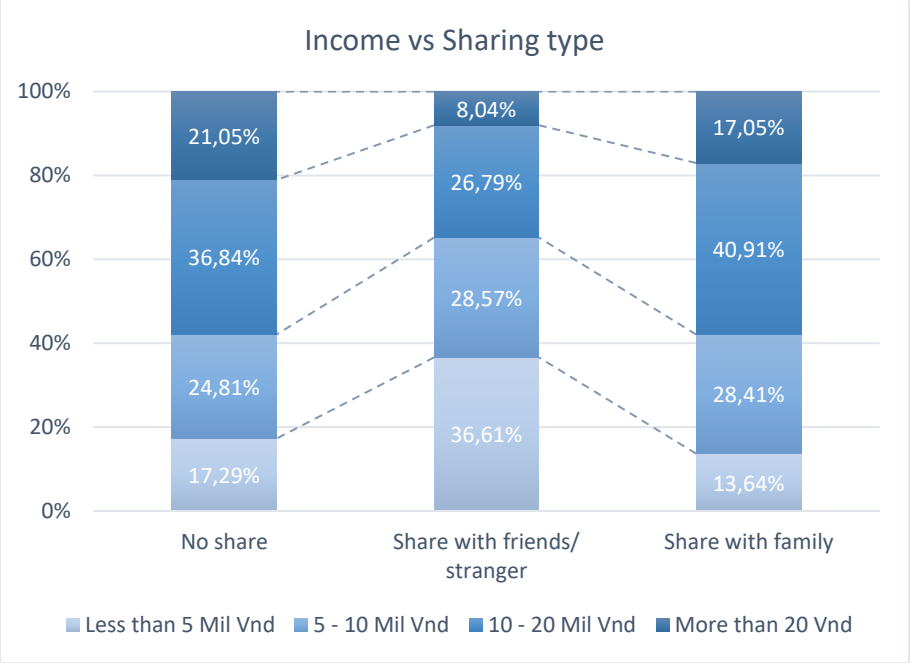


Figure 6.4 The relationship between different sharing types and income groups

** Note: the quantity of each group accordingly: no share: n=133, share with friends n=112 and share with family n=88.*

Observing the proportion by column value (Table 6.3), the proportion of no sharing choice increases noticeably from the lowest income group to the highest income group. It differs from the option to share with a friend or stranger, which reduces sharply.

The data shows that 76 tenants fall into the income group of fewer than five mils VND (22.82% of all respondents). Of these, 23 chose a non-sharing accommodation (30.26 % of the total in the lowest income group), 41 chose to share with a stranger or friend as a living option (53.95% of the group), and 12 tenants chose to share with family (15.79%). For the group of people with incomes from 5 to 10 million VND (accounting for 27.03% of the total survey votes), the percentage of people who choose not to share, share with friends or strangers, or share with relatives, is 36.67%, 35.56%, and 27.78%, respectively. The two groups with the highest income in the survey are those with income over 10 million VND and those with income over 20 million VND, accounting for 34.54% and 15.62%, respectively. 42.61% and 53.85% prefer to live alone, 26.09% and 17.31% prefer to live with friends or strangers, and 31.30% and 28.85% prefer to live with family or relatives.

In the remaining data, we can observe that the association between the income groups of less than 5 million VND, more than 20 million VND, and the option of sharing accommodation with strangers or friends is considerable, with z-scores of (3.054) and (-2.03), respectively (see Table 8.1). They are all above 1.96 in absolute value with a p-value <0.05. It may be stated that much more people than predicted chose to share rental housing with friends or strangers in the lowest income group. In comparison, significantly fewer people than expected did not share rental accommodation with

friends or strangers in the highest income group. The hypothesis in section 2.2.1 regarding sharing type and income can be confirmed.

- Rent

The nature of the data must first be determined before performing tests on differences between groups. The Shapiro-Wilk test is used to test the distribution; the results show that the data is not normal (the test is significant, norm.p:.05). Levene's Test for Homogeneity of Variance (center = median) is not significant Pr(>F): 0.06. As a result, the Kruskal-Wallis test will be employed (more than two groups). The rent price between the different choice of sharing groups is significantly different (the result of Kruskal-Wallis rank sum test $H(2) = 11.455$, p-value = $0.003 < 0.01$).

Focused comparisons of the mean ranks between sharing groups (see Table 6.4, Table 6.5) showed that the rental price was not significantly different when the tenants who do not share and the tenants who share with friends/strangers (difference = 21.44) or the tenants who share with their family (difference = 24.87). However, the price was significantly lower for the share-with-friends/strangers group than the group that shares with their family (difference = 49.31). In all cases, the critical difference (α = .05 corrected for the number of tests) was around 30. The group who shares with friends pays significantly lower than those who share with family. As a result, the hypothesis that tenants who select a non-sharing house type will pay higher rents than those who select shared rental accommodation cannot be confirmed.

Table 6.4 Average rent between different sharing groups

Rent sharing	**Average rent (arithmetic mean)**	**Median**	**Standard error of the mean value**
No share	4.553	3.500	0.279
Share with friends/strangers	3.928	3.000	0.272
Share with family	5.547	5.000	0.454

Table 6.5 Multiple comparison test between sharing groups with rent

	Obs difference	**Critical difference**	**Difference**
No Share/Share with friends (strangers)	21.443	29.558	FALSE
No Share/Share with family	24.873	31.670	FALSE
Share with a friend (strangers)/Share with family	46.315	32.831	TRUE

It is clear that when people rent a home with their families, they have a greater desire to live in and use all of the space and are more likely to make common use of all the living areas. When renting with friends or strangers, the common spaces will be

considered at least owing to various variables, such as privacy or the co-tenants' requirements, so that they will look for a cheaper property. It can be a good thing for everyone involved.

- Living area

The living area is compared with sharing types. It is seen that the rent area between the different choice of sharing groups are different significantly (Shapiro-Wilk - Normality test is significant (norm.p <0.05) and Levene's Test for Homogeneity of Variance (center = median) is not significant F(2)= 5.404, p <0.05 the result of Kruskal-Wallis rank sum test H (2) =8.8029, p-value = 0.012 < 0.05)

Table 6.6 Average living area between different sharing groups

Rent Sharing	**Average rent area (arithmetic mean)**	**Median**	**Standard error of the mean value**
No share	31.152	25.000	1.783
Share with friends/strangers	33.046	25.000	2.264
Share with family	44.133	30.000	3.884

Table 6.7 Multiple comparison test between sharing groups with living area

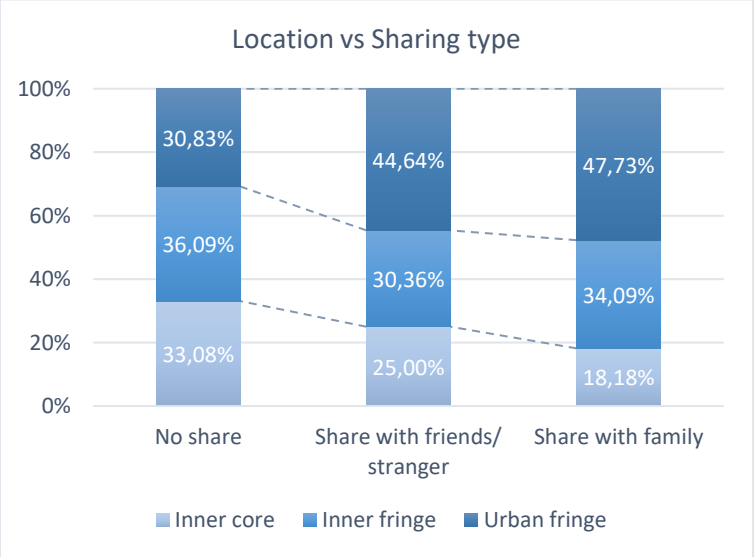
	Obs difference	**Critical difference**	**Difference**
No Share/Share with friends (strangers)	2.168	29.456	FALSE
No Share/Share with family	35.826	31.243	TRUE
Share with a friend (strangers)/Share with family	33.657	32.602	TRUE

The rental area was not significantly different between no-share tenants and tenants who share with friends/strangers (difference = 2.168), according to focused comparisons of the mean ranks between sharing groups. The space was much greater for tenants who live with their families than those who do not share (difference = 35.826) and share with friends/strangers (different = 33.657). When comparing average living areas, it is clear that tenants prefer larger houses when renting with family. It corresponds to the rent they pay, as described in the preceding paragraph. As a result, housing goods for family rental should be considered independently to maximize facilities and usable area. The hypothesis that tenants who rent the house to live with family or rent alone will have a larger accommodation than tenants who rent with strangers is partly confirmed**.** The precise relationship between non-sharing tenants and persons who share housing with family necessitates further surveys with more relevant samples.

- Location

Three regions in HCMC are compared to the three types of sharing. According to the evidence presented (Table A.0.4), the minimum expected count is 23. It is more than 5, showing that the test's underlying assumption has been confirmed; following this statistically significant result ($2(4) = 9.9$, p-value < 0.05), there is a significant difference between the sharing decisions and their housing position.

Although the standardized residuals are not high enough in absolute value (>1.96) to deduce a direction in their choice of sharing type per location of homes, Figure 6.5 demonstrates that fewer tenants pick inner core districts when renting a residence with their family (18.18%). When sharing a home with strangers, friends, or family, the most chosen locations are still the outlying districts or urban fringe, with a ratio between 44.64% and 47.73%. The proportion of tenants who prefer no sharing type is highest in the whole sample (39.9%). They choose districts closer to the downtown are, with 33.08% of them in the inner core and 36.09% living in CBD's surrounding districts.



** Note: the quantity of each group accordingly No share: n=133, share with friends n=112 and share with family n=88*

Figure 6.5 The relationship between different sharing types and location of rental property.

The original hypothesis in Chapter 3 could not be confirmed because it is believed that tenants who share with friends are more often located in the inner-city districts than tenants with families or alone, but in fact, non-sharing tenants are the one at highest rate in both inner core and inner fringe districts.

6.2.1.2 Rental purpose

This section investigates the relationships between renters who rent just for a livelihood, work from home and live, and rent for business and living. Specific test findings in conjunction with other factors, as stated below.

-

- Rent

Since the Shapiro-Wilk - Normality test is significant (norm.p <0.05) and Levene's Test for Homogeneity of Variance (center = median) is significant F(2) = 11.778, Pr(>F)= 1.146e-05, therefore a Kruskal-Wallis test can be then employed. The result of Kruskal-Wallis rank sum test H (2) =27.187, p-value < 0.05, the rent price between different renting purposes are different significantly.

Table 6.8 Average rent between different rental purpose groups

	Average rent price (arithmetic mean)	**Median**	**Standard error of the mean value**
Just stay	4.182	3.500	0.171
Stay and business	11.567	9.000	1.764
Stay and work	4.621	3.500	0.404

Table 6.9 Multiple comparison test between rent with three purpose groups

	Obs difference	**Critical difference**	**Difference**
Just stay/Stay and business	133.221	61.274	TRUE
Just stay/Stay and work	7.176	31.355	FALSE
Stay and work/Stay and business	126.044	65.659	TRUE

Of the next Post hoc test, it can be stated that there area significant difference between group just stay and group stay and doing business (observed difference = 133.2), and group stay and work with group stay and doing business (observed difference = 126.04). The hypothesis that tenants just to live in will pay less than renters to live and use for other purposes can be confirmed. The group that do business at home pay an averagely higher price for the accommodation, compare to the other groups. In other words, the group that simply rents to stay will pay the least for the house. It is clear that the rent-only housing group will spend the majority of their time outside, whether working, studying, or engaging in other recreational activities. Another thing to consider is that, people such as young freelancers, rent properties to live and work from home. Their employment may be different, but their housing needs are just somewhat greater than those only rent to stay.

- Living area

In addition to the rent, the usable space must be able to accommodate the various requirements of the renters. According to the findings of a Kruskal-Wallis rank sum test, there is a statistically significant difference that exists between the groups of tenants who have differential purposes and areas of use (the p-value for this test is less than 0.01). The Shapiro-Wilk - Normality test is significant (norm.p 0.05), and Levene's

Test for Homogeneity of Variance (center = median) is significant with a F(2) value of 10.002 and a Pr(>F) value of 6.091e-05 before running the Kruskal-Wallis test.

Table 6.10 Average living area between different rental purpose groups

	Average area (arithmetic mean)	**Median**	**Standard error of the mean value**
Just stay	32.112	25.000	1.456
Stay and business	84.400	70.000	13.653
Stay and work	35.864	25.000	2.762

Table 6.11 Multiple comparison test between living area with three purpose groups

	Obs difference	**Critical difference**	**Difference**
Just stay/Stay and business	115.114	60.370	TRUE
Just stay/Stay and work	18.967	31.457	FALSE
Stay and work/Stay and business	96.147	64.937	TRUE

As a result, young people who took part in the poll had different opinions regarding renting a house. They will select a larger housing area to accommodate their business needs. In HCMC, typical young people's activities may be seen, such as food service, beauty service, or selling goods online and using rental space as a place to stay, store goods, and pack products... This also poses a number of challenges that must be addressed by state administration and investors in terms of product development, which will be discussed in further detail in the following chapter. The hypothesis that tenants just to live in will have a smaller accommodation than renters to live and use for other purposes can be confirmed.

- Rental duration and total rental duration

In terms of rental duration and total rental duration, the tests reveal that the purposes of the tenancy and the length of the tenure are not correlated (corresponding Pearson's Chi-squared test $\chi2(6) = 8.567 \quad p = 0.199>0.05$; $\chi2(6) = 3.56 \quad p = 0.199>0.05$) (see Table A.0.5, Table A.0.6). The majority of the survey samples have rent terms of less than three years. The hypothesis proposed in section 2.2.2 is therefore rejected.

6.2.1.3 Accommodation type

The dwelling types described in Chapter 3, section 3.4.2. To examine the results, three major groupings are processed. The first group includes dormitories, room-in-row; the second group includes a private room in an apartment, a private room in a row house; and the third group includes mini apartments, condominiums, and row houses. The above housing type are here referred as Type I, Type II, and Type III accordingly.

From this section on, statistical crosstabs will be summarized in a shorter way to narrow the interpretation, as well the categorical factors will be aggregated to eliminate uninteresting results, however a complete breakdown can be seen in the appendix III.

Observing Table 6.12 reveals that all assumption tests are satisfied, except for the expected frequency of rental purpose by accommodation type, which is somewhat less than 5. Nevertheless, according to the discussion in Section 4.4.1, statistical hypothesis testing are allowed.

There are 3 factors when tested with different types of housing that give highly significant correlation results (p-value < 0.001), indicating that we may reject the null hypothesis. Those factors are income, location, and rental purpose (the corresponding Pearson's Chi-squared results are $\chi 2(6) = 33.889$, $\chi 2(4) = 23.328$, and $\chi 2(4) = 31.745$). The remaining factors are house condition, rental duration, total rent time also have a statistically significant correlation with 3 different groups of rental houses (p-value < .05; corresponding test results are $\chi 2(4) = 16.273$, $\chi 2\ (6) = 16{,}779$, $2(6) = 12.783$).

Table 6.12 Correlation between accommodation types and factors

Factors	**Chi-squared test result**	**P-value**	**Correlation**	**Minimum expected count**
Income	$\chi 2(6) = 33.889$	< .001	Highly significant	15.61
Location	$\chi 2(4) = 23.328$	< .001	Highly significant	26.42
Rent purpose	$\chi 2(4) = 31.745$	< .001	Highly significant	4.505
House condition	$\chi 2(4) = 16.273$	< .05	Statistically significant	5.705
Rental duration	$\chi 2(6) = 16.779$	< .05	Statistically significant	8.709
Total rent time	$\chi 2(6) = 12.783$	< .05	Statistically significant	19.52

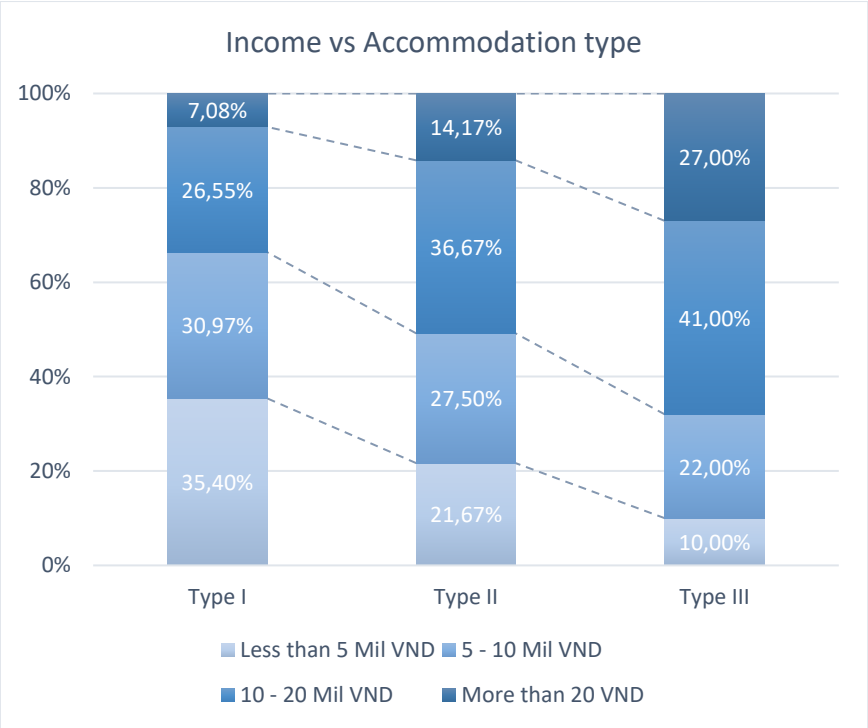
- Income

According to the distribution chart of rental housing selection for different income groups (

Figure 6.6), it is obvious that the group with an income of more than 20 million VND is less likely to choose a tiny house with little privacy, such as a group of houses in type I (only 7.08%). Instead, with 27%, they will prefer a group of houses with more privacy and utilities, type III houses. In contrast, more than three times of individuals with less than 5 million VND chose the type I house group instead of type III accommodation.

The significant standard residuals (> 1.96) confirmed a difference, that the lowest income group (less than 5 mils) prefers to rent Type I rather than Type III, whereas the highest income group prefers to rent Type III (see Table A.0.7).

The hypothesis made in Chapter 2, section 2.2.3, is that young tenants choose type III houses with a higher income than the others can be partially confirmed. It can be said that tenants of type III have a significantly higher salary than tenants of type I dwellings.

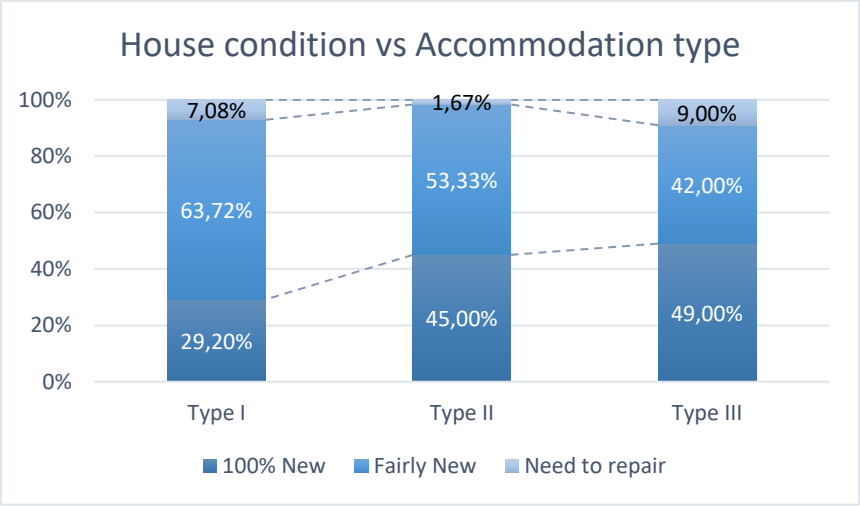


**Note: The quantity of each group accordingly, type I: n=113, type II: n=120 and type III: n=100.*

Figure 6.6 The relationship between different accommodation types and income groups.

- House condition

By looking at Figure 6.7, it is possible to make the observation that the proportion of type II houses that are in need of maintenance is not high (1.67%).



** Note: the quantity of each group accordingly, type I: n=113, type II: n=120 and type III: n=100*

Figure 6.7 The relationship between different accommodation types and house condition.

When renting a private room in an apartment, a private room in a row house, or a portion of a mini-condo, tenants have a tendency to select accommodations that are in good condition in order to avoid any conflicts that may arise during the renovation of the house in the future. This assumption may be based on the fact that tenants want to avoid having to deal with any issues during the renovation of the house. When it comes to the landlord, they will not allow these rental rooms to become too run-down because this could have an effect on the entire property in the future, which could have a negative impact on the quality of life of the tenants who lived there before. Last but not least, the standard residuals absolute value and their direction show that condition of type I accommodation is poorer while the condition of type II house can be less need to be repaired (see Table A.0.8 in the Appendix). Therefore, the hypothesis that type I accommodation is delivered in worse condition than others can be confirmed.

- Rental duration and total rental duration

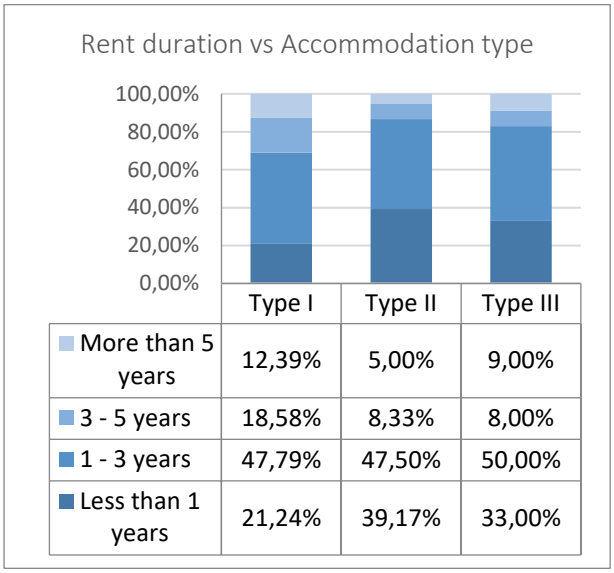
The stacked * Note: the quantity of **each** group accordingly, type I: n=113, type II: n=120 and type III: n=100

Figure 6.8 reveals the cheapest housing type is rented longer than the others. Considering the total rental period, people who choose type I houses with a total period of more than three years account for a higher proportion than the other two housing groups (53.09% compares with 47.5%, and 40%).

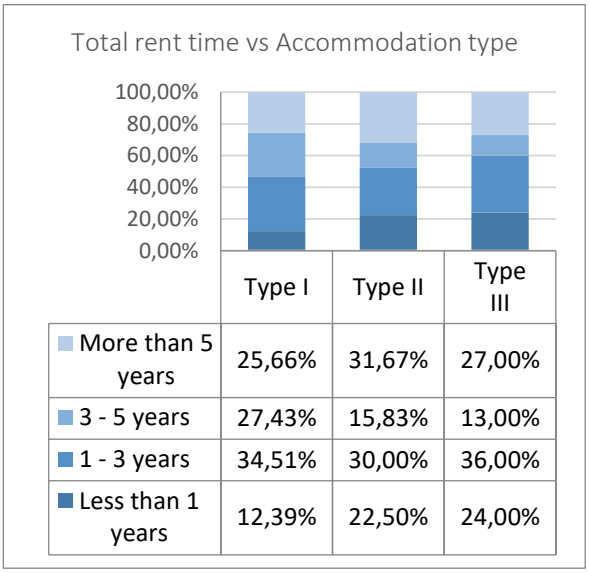
Similarly, during the overall renting term up to the time of the survey, including relocations, type I housing continues to predominate throughout the 3 to 5 year period.

The standard residuals (>1.96) from two crosstab data (see Table A.0.9, Table A.0.10) also show that condition of type I accommodation tend to rent for longer time (3 to 5

years). When combined with data on income, it is possible to draw the conclusion that the group with the lowest income (less than 5 million VND) will use rental accommodation with a low cost for the longest amount of time. As a result, the hypothesis was mentioned in section 2.2.3 can be verified within this survey result.



	Type I	Type II	Type III
More than 5 years	12,39%	5,00%	9,00%
3 - 5 years	18,58%	8,33%	8,00%
1 - 3 years	47,79%	47,50%	50,00%
Less than 1 years	21,24%	39,17%	33,00%



	Type I	Type II	Type III
More than 5 years	25,66%	31,67%	27,00%
3 - 5 years	27,43%	15,83%	13,00%
1 - 3 years	34,51%	30,00%	36,00%
Less than 1 years	12,39%	22,50%	24,00%

** Note: the quantity of **each** group accordingly, type I: n=113, type II: n=120 and type III: n=100*

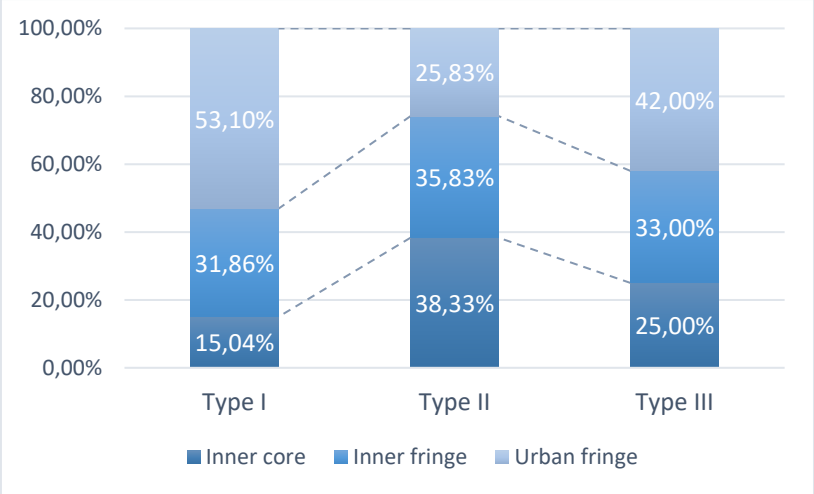
Figure 6.8 The relationship between different accommodation types and rental duration/total rental duration.

- Location

The data can be seen from Table A.0.11 reveals that the standard residual of tenants choose type II and type I accommodation is higher than 1.96. With its direction, we can state young tenants of type II tend to live in urban core area districts, which are earlier developed, while tenants of type I tend to live in the urban fringe areas. Those are recently developed districts, with rapid urbanization rate, such as Binh Tan, Binh Chanh, Thu Duc districts.

In terms of tenant proportions, the proportion of tenants in type I housing (dorm, room in row) is the least in the central region, mainly due to the high price and partly because investors dislike this form of property as they build rental properties in central districts. The * Note: the quantity of each group accordingly, type I: n=113, type II: n=120 and type III: n=100

Figure 6.9 also shows that renters of private houses, or apartments, also choose to be located far from the central area, in urban fringe districts. The findings of the statistical test support the hypothesis presented in section 2.2.3.

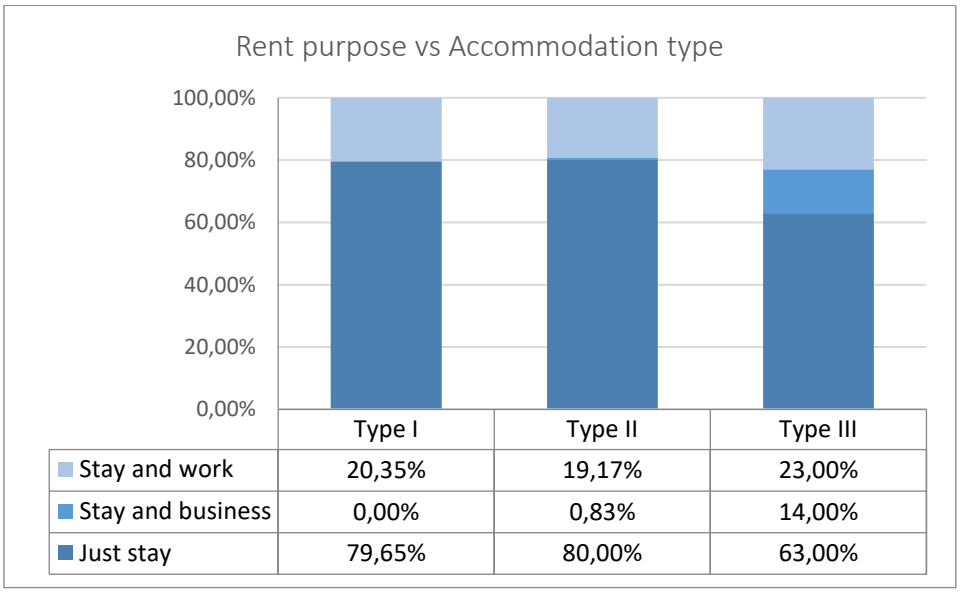


** Note: the quantity of each group accordingly, type I: n=113, type II: n=120 and type III: n=100*

Figure 6.9 The relationship between different accommodation types and location of rental houses.

- Rental purpose

It is the fact that, rental housing is firstly used for staying. As can be observed, the type of property with private use rights and a big space accounts for the majority of housing and business leasing alternatives (37% in type III dwellings). Almost zero tenants use the row room, dorm, or rooms in houses or rooms in apartment to do business. Around 20% of tenants in type I, and type II utilize their accommodation to work.



	Type I	Type II	Type III
Stay and work	20,35%	19,17%	23,00%
Stay and business	0,00%	0,83%	14,00%
Just stay	79,65%	80,00%	63,00%

** Note: the quantity of each group accordingly, type I: n=113, type II: n=120 and type III: n=100*

Figure 6.10 The relationship between different accommodation types and rental purposes.

Throughout the data collected, we are able to see that the association between type III tenants and the group that rents to stay and run a business has a high significant z-score. This indicates that the correlation is statistically significant (4.474) (see Table A.0.12). It may be claimed that far more people than expected chose to rent a type III property when establishing or running a business there. The significant minus z-score reflects the opposite way as well. If they intend to run a business, almost no tenants

will choose category I property. **The statistical test returns the same trend as the hypothesis presented in section 2.2.3**.

- Distance to work

The Kruskal-Wallis test is used after satisfying the requirements in the relevant tests. It can be seen that the distance to work between different choice of renting type groups are not different significantly due to the result of Kruskal-Wallis rank sum test H (2) =3.3258, p-value = 0.1896> 0.05. However, the average distance to work of rents who choose type III (7.242) is longer than type II (5.873). **Consequently, it is impossible to clarify the section 2.2.3 hypothesis.**

Table 6.13 Average distance to workplace between different rent accommodation types

Rent Type	Median	Average distance to work (arithmetic mean)	Standard error of the mean value
Type I	5.000	6.119	0.450
Type II	5.000	5.873	0.455
Type III	5.200	7.242	0.624

- Rent reason

Out of a total of 333 young individuals renting, 113 stated their reasons for renting a type I house, 120 stated their reasons for renting a type II house, and 100 stated their reasons for renting a class III house. It can be stated that economic factors and living conditions play the most important part in all three groups' decision to rent. Because respondents have the option of selecting several answers, the total number could be as high as 100% (see Table A.0.13).

The Figure 6.11 shows that 69.03% of the reasons provided in Group I were related to economic considerations, while 66.37% were related to quality of life. Social notions play a minor role in decision-making (5.31%). For house type I, up to 18.58% said it is not required to buy a house, the highest of the three groups.

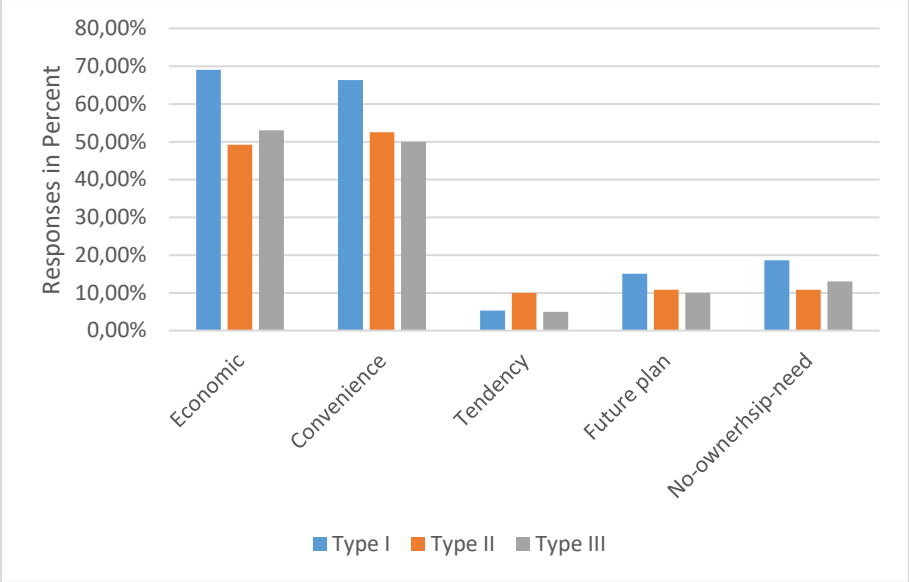


Figure 6.11 Rent reasons according to Accommodation type.

Group 2 consisted of 120 young people who shared their reasons for renting. The element of convenience accounted for the biggest proportion (52.5%) in this group, followed by the category of economic reasons (52.5%). 49.17%. The weights of the remaining three kinds of causes are roughly equal (10% and 10.83%).

Finally, the two sets of reasons for choosing type III, economy and convenience, showed a relatively minor difference in proportion (53% and 50%, respectively).

Notably, the "no need to buy a house" attitude appeared in all three groups (with 18.58% in group 1, 13% in group III, and 10.83% in group II). When young people have an open mind and do not place as much stress on the concept of "settlement and happiness" as the previous generation, this suggests a change in the concept of life in Vietnamese society in general.

6.2.2 Hypotheses regarding demographic

6.2.2.1 Gender of tenants

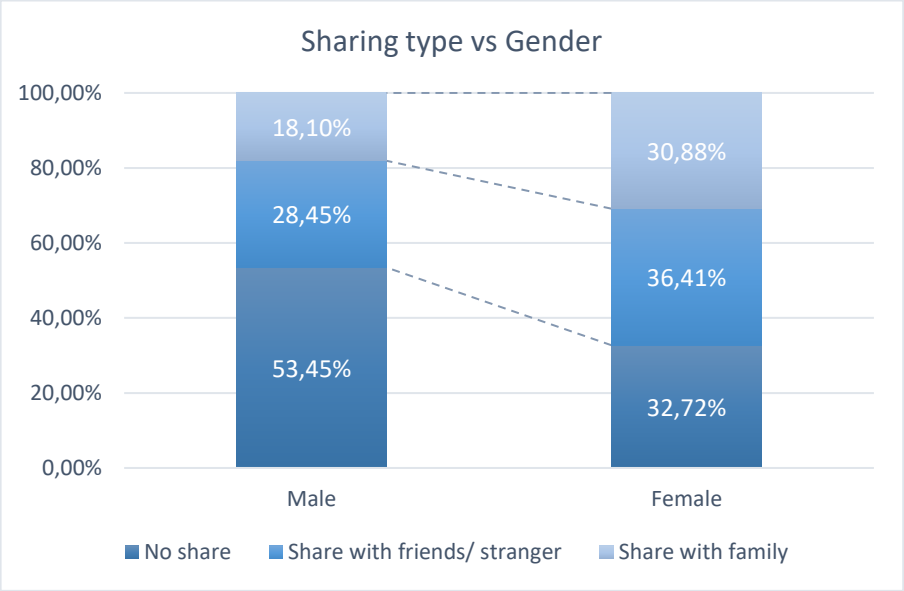
- Sharing type

The smallest expected count is 30.654>5. The Pearson's Chi-squared test, the results is $\chi 2(2) = 14.22$, p-value <0.001), the test is statistically significant between gender and sharing (see Table A.0.14).

Figure 6.12 depicts the distribution of rental alternatives for two groups of men and women, with over fifty-three percent of male tenants opting to live separately. There are 36% of the 217 female tenants selected to share with friends, representing the highest proportion of their selections.

Using typical residuals, we see that male tenants are more likely to choose solo occupancy, with z-scores of (2.302). When the p-value is less than 0.05, the absolute value is greater than 1.96. It's fair to say that men are more likely than women to rent single-occupancy apartments. It's true that women require personal space on a regular

basis, but they also value having a watchful household in case of emergency. This includes safety concerns, health problems, and more. Accordingly, test findings support the idea presented in section 2.3.1.



** Note: the quantity of each group accordingly, male: n=116, and female n=217*

Figure 6.12 The relationship between gender of tenants and the way they share their accommodation.

6.2.2.2 In-migration status

To test the difference between immigration and other factors, young renters were divided into two subgroups. That is the group with less than 5 years in HCMC and the group in HCMC from 5 years or more. Groups staying less than 5 years will be named Migrants, and groups staying 5 years or more will be temporarily called Local. The tested hypotheses have been presented in Chapter 3.

Table 6.14 Correlation between In-migration status and factors

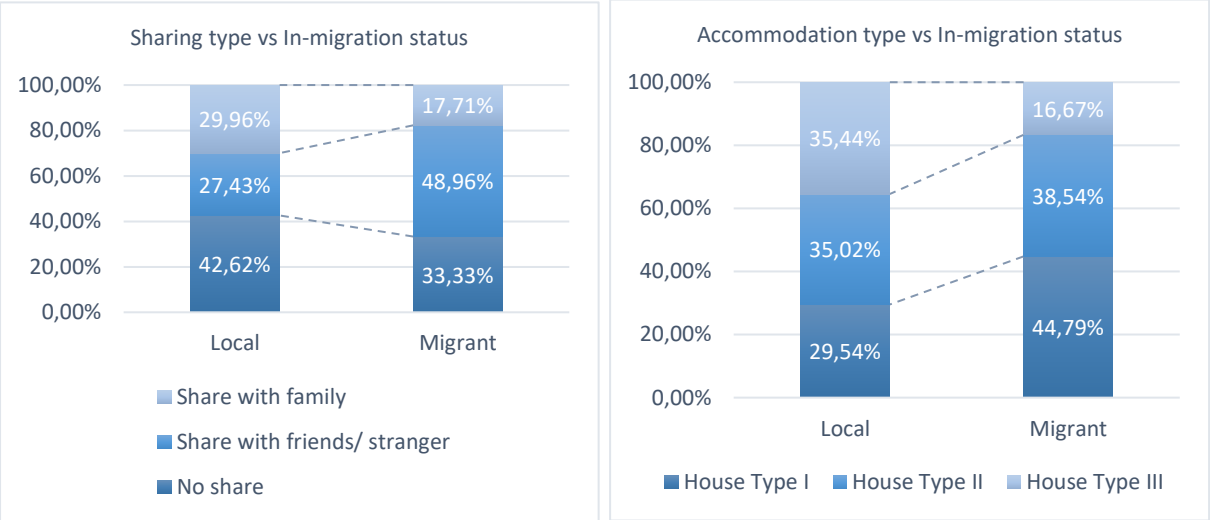
Factors	Chi-squared test result	P-value	Correlation	Minimum expected count
Sharing type	$\chi 2(2)=14.771$	<0.001	Highly statistical significant	25.36937
Accommodation type	$\chi 2(2)=12.942$	<0.01	Statistically significant	28.82883

According to the information that is presented in Table 8.12, the manner in which tenants share their housing is very different from how they did so when they lived in HCMC (p-value less than 0.001). All minimum expected count from are greater than 5. In the following clarification, more detail will be illustrated on the factors and the in-migration situation.

- Sharing type and Accommodation type

The first thing that stands out is the significant disparity in the proportion of young tenants in HCMC; the number of persons staying more than 5 years outnumbers those staying less than 5 years. As shown in the stacked charts below (Figure 6.13), young people who are new to HCMC prefer to share a house with strangers (who may later become their friends) or share with friends while renting. It is understandable because there are inherent difficulties in settling down in HCMC, a megacity. Living with friends or people with similar circumstances will help young people better adjust to their new life.

There were 48.96% "migrants" who chose the "shared with friends/strangers" home type. Meanwhile, "locals" account for only 27.43%. At the 0.05 significance level, the z-value coefficient (2.589) > 1.96 indicates that migrant tenants tend to share their housing (see Table A.0.15).



** Note: the quantity of each group accordingly, "Local": n=237, and "Migrant" n=96*

Figure 6.13 The relationship between In-migration status of tenants and the way they share their accommodation, the tye of house they live in.

Another part is the type of accommodation and the status of in-migration. Among the 96 people who lived in HCMC for less than 5 years, almost a half of them choose type I housing. That proportion are nearly double of tenants who chose housing type I in "local" group. The direction of the standardized residuals of house type III and migrants is more than 1.96 (z = -2.389), indicating that migrants do not prefer to rent house type III. The preceding data have supported the research hypothesis stated in section 2.3.2.

- Rent and Area

To test for differences across groups, it is necessary to first define the nature of the data. The Shapiro-Wilk test is used to test the distribution, the results show that the data is not normality (test is significant, norm.p: <.05). Levene's Test for Homogeneity of Variance (center = median) is not significant Pr(>F): 0.27. As a result, the Wilcoxon's rank sum test will be employed. The result of Wilcoxon test H(1) =

W=13.986, p-value = < 0.01, r = -0.17. It can be stated that the rent price between the different choice of “migrant” and “local” is significantly different.

In this domain, which is strongly tied to price, statistical tests also produce comparable results. Since the data are not normally distributed (Shapiro-Wilk - Normality test is significant (norm.p 0.05) and heterogeneous (Levene's Test for Homogeneity of Variance is not significant F(1) = 4.3705, Pr(>F)= 0.03734). We utilized the Kruskal-Wallis test (Chi-squared = 6.948, df = 1, p-value 0.01). According to reports, the rent area between the two groups is distinct. The local population lives in on average larger dwellings. It can be said that the section 2.3.2 assumption is validated by statistical test results.

6.2.2.3 Household structure

The data in Table 6.15 reveals the correlation between household structure and factors mentioned in hypotheses. Accommodation type and rental purpose stands out of other factors with a high significant difference ($p < 0.001$). Rental duration and house condition differ from household structure significantly ($p < 0.05$). The tests for the correlation of the pairs of factors rental purpose, rental duration, and house condition with the household structure are statistically acceptable despite the fact that the minimum expected count is less than five, but the occurrence of expected values less than five is still less than twenty percent.

Table 6.15 Correlation between household structure and factors

Factors	Chi-squared test result	P-value	Correlation	Minimum expected count
Accommodation type	$\chi2(2)= 43.51$	<0.001	Highly statistical significant	14.114
Rent purpose	$\chi2(2) = 27.29$	<0.001	Statistical significant	2.117
Rental duration	$\chi2(3)=12.847$	< 0.01	Statistically significant	4.093
House condition	$\chi2(2)= 8.010$	< 0.05	Statistically significant	2.681

- Accommodation type, Rent purpose, Rental duration and House condition

The z-score of the interrelationships between factors like Accommodation type, Rent purpose, Rental duration, and House condition and families with elderly people or children living in them is a common feature that can be remarked upon when performing tests related to the Household structure hypothesis.

According to the standardized residuals, which can be seen in Table A.0.20, a group of younger tenants who also have children or older family members is more likely to select a row house, condominium, or mini-apartment as their dwelling of choice (type III

accommodation). Each of the aforementioned categories of homes offers a significant amount of privacy.

In addition (see Table A.0.22), the length of the tenancy periods is typically rather lengthy (over five years), and they frequently include both residential and commercial space (see Table A.0.24). The residences that they rent typically require maintenance in order to meet the standards that they have set (see Table A.0.21). This claim can be considered as reasonable, despite the fact that one's impression of housing conditions is a matter of personal opinion.

However, because of the low predicted value of the number of respondents who live with children or the elderly (less than 5), it is possible that more surveys will be required in the near future.

The recent test results show that the survey data support the hypothesis in section 2.3.3 about the housing choice of families who rent houses with two or more generations.

There is still not enough basis to confirm other hypotheses related to renting purpose, rental duration, and house condition. They require further studies in the future.

- Rent

Levene's Test for Homogeneity of Variance (center = median) is significant F(1) = 5.809, Pr(>F)= 0.016, and the Shapiro-Wilk - Normality test is also significant (norm.p 0.05), therefore a Kruskal-Wallis test can be used. As indicated by a Kruskal-Wallis rank sum test with a significance level of 0.001, H (1) =14.907. It's possible to say that there's a big difference in rent from tenants with elder or children to the other group.

Table 6.16 Average rent between different tenants with/out elderly, children

	Median	**Average rent price (arithmetic mean)**	**Standard error of the mean value**
Not with children or elders	3.450	4.295	0.193
With children or elders	6.000	6.497	0.591

- Area

The Shapiro-Wilk test is utilized in order to examine the distribution, and the findings reveal that the data does not exhibit normality (the test is significant, norm.p: less than.05). There is no evidence of homogeneity of variance, as shown by Levene's test (center = median). F(1) = 6.508, Pr(>F)= 0.011. As a direct consequence of this, the Kruskal-Wallis test will be carried out. The standard of living is significantly different between the several choices of one-generation households and the other (the result of the Kruskal-Wallis rank sum test was H (1) =13.409, and the p-value was significantly less than 0.001). To put it another way, those who rent homes large enough to accommodate their families typically have children and/or elderly relatives living with them. The preceding data have supported the research hypothesis stated in section 2.3.3.

Table 6.17 Average living area between different tenants with/out elderly, children

	Median	Average rent area (arithmetic mean)	Standard error of the mean value
Not with children or elders	25.000	32.864	1.482
With children or elders	50.000	49.574	5.061

- Rent reasons

According to the survey results, the majority of young renters are from one-generation families (286 people do not live with the elderly or children). The reason they rent is to improve their present living conditions (56.64%). The opinion "it is not required to buy a house" accounted for 14.34% of the total, which was greater than the other group (12.77%).

This proportion is not large in the whole sample of young adults who rent a residence with the elderly or children (only 47 people). However, economic considerations outnumber all other reasons for renting (almost 66%).

It can be assumed that young people who rent an accommodation with grandparents, parents, or children have greater housing needs, and hence the rental cost will be higher. With that expense, they will have to choose between buying a property and renting a house when selecting a rental solution. When economic conditions do not permit, they will prefer the renting option; but, when qualified, their level of decision to purchase a home is higher than the other group.

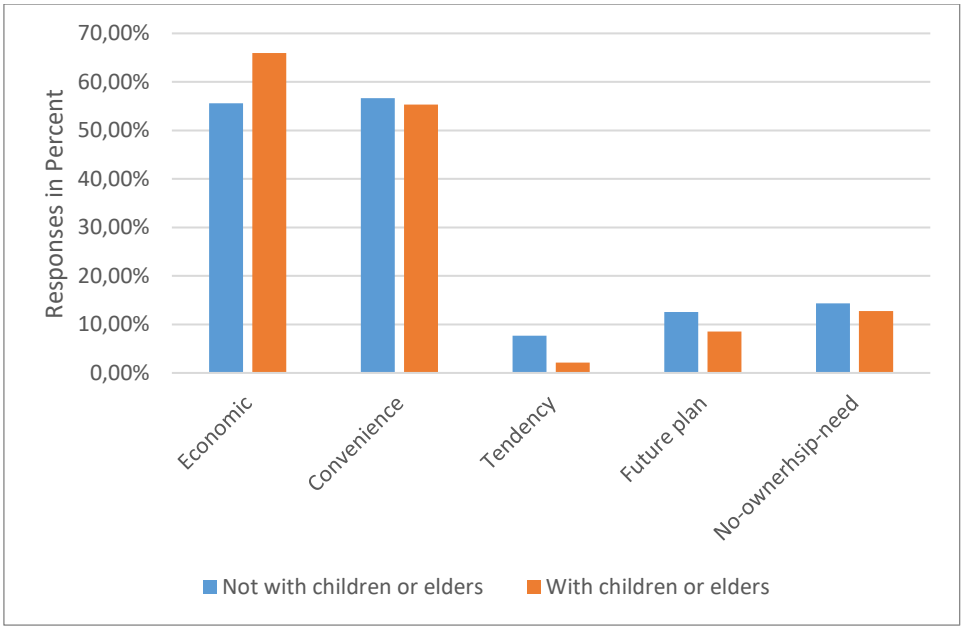


Figure 6.14 Rent reasons according to Household structure

- Group of Factors

Each individual criterion will be gathered together in order to facilitate the testing of the association between the composition of a household and the many sets of elements that influence the choice of whether or not to rent a dwelling. After being organized, the criteria have been broken down into four distinct groups that will be put to use in conducting the tests on the hypotheses (see section 2.3.3).

The first set of criteria is the group on rent and legal issues. This group has a total of 5 sub-criteria, which are as follows: the rent price, the landlord's reputation, the rent stability, the lease period, and how to address disputes.

The second group of criteria is the group on the quality of the accommodation, and this group includes eight sub-criteria, which are the following: the house's condition when it is rented; the usable area; the number of toilets; the parking space; the ability to ventilate; the ability to insulate against sound and heat; and the availability of natural light.

The third set of criteria is the group concerning the surrounding environment. Within this group are four sub-criteria, which are the following: the level of security, the public lighting system, a calm living environment, and a friendly neighborhood.

The final set of criteria is concerned with the extent to which renters have access to various social services and utilities. This last collection of criteria is referred to as Accessibility to utilities for short. This group has a total of nine supplementary criteria. That is, accessibility within walking distance of kindergartens, public transport stations, green spaces, easy access to work, relatives, medical facilities, markets, and distance from sources of pollution.

Figure 6.15 presents an overview of tenant evaluations in a household structure study context. Most respondents indicated that the variables in the questionnaire were significant or influenced their decision to rent an accommodation, 20.15% of tenants who do not live with children or the elderly *(temporarily referred to as group 1)* regard the mentioned criteria as “very important,” which is a higher percentage than the group with children and the elderly (17.27%) *(temporarily referred to as group 2)*. Young adults living with a parent or their children had a more significant proportion of "non-important" choices than those living alone or with a partner (10.88% versus 6.05%).

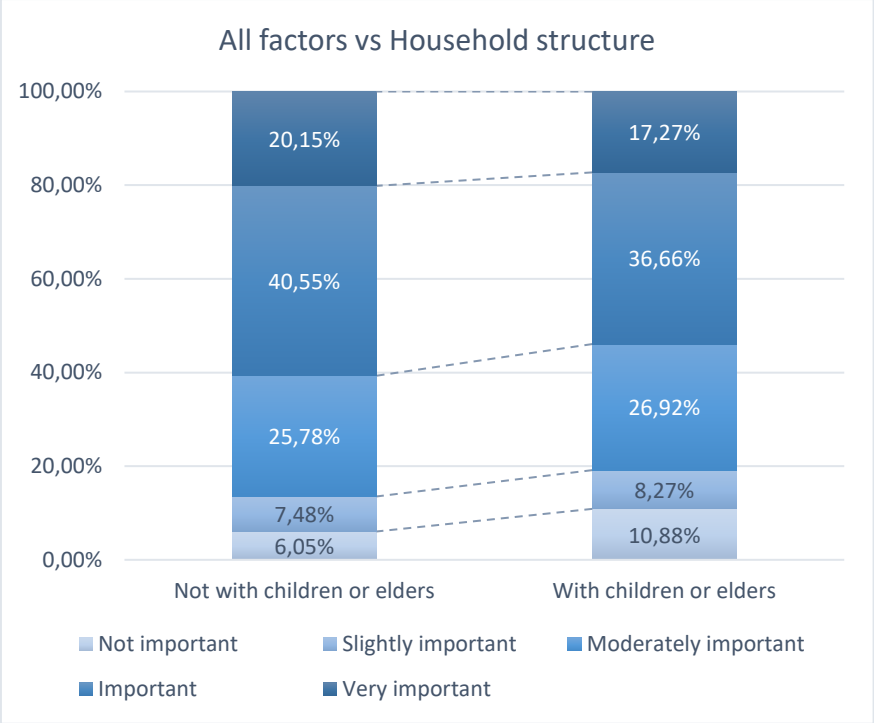
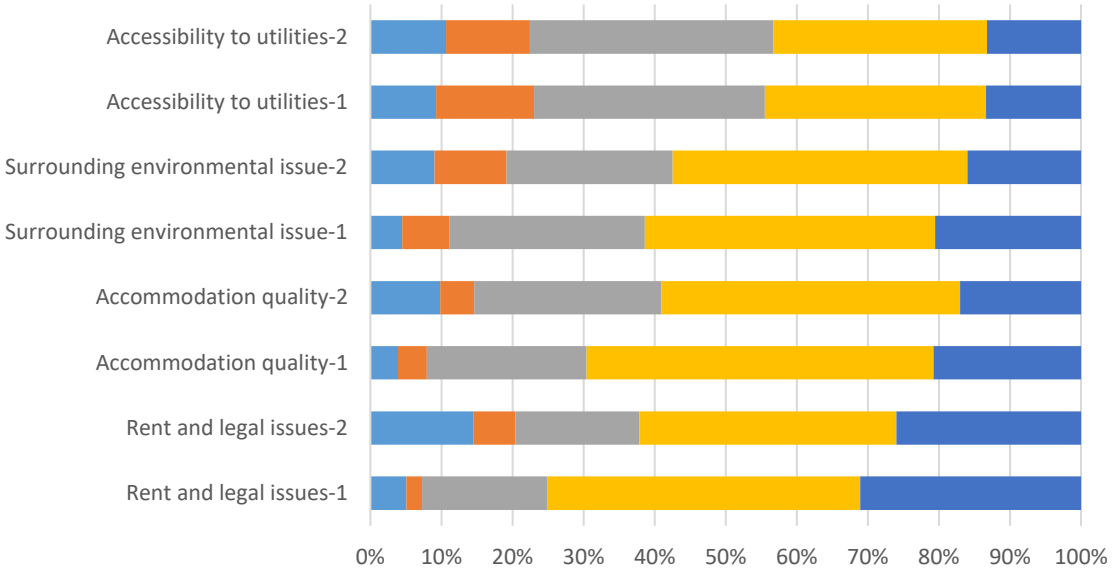


Figure 6.15 The evaluation of one-generation household and two-generation household on four groups of factors

** Note: the quantity of each group relatively (n=296, n=47)*

Observing Figure 6.16, the set of elements on "Rent and legal concerns" is regarded as "very important," the highest by both subject groups (31.05 percent in group 1 and 25.96 percent in group 2). It indicates that rent and legal considerations significantly impact whether or not young people choose to rent, regardless of whom they live.

The “surrounding environment” element and the “accommodation quality” were similarly evaluated as "very important"; however, group 1 had a higher number of individuals who selected "very important" than group 2 (about 20% against around 16%). The factor category "Accessibility to utilities" has the highest percentage of "not important" responses (about 10%) among all factors.



	Rent and legal issues-1	Rent and legal issues-2	Accommodation quality-1	Accommodation quality-2	Surrounding environmental issue-1	Surrounding environmental issue-2	Accessibility to utilities-1	Accessibility to utilities-2
Not important	5,04%	14,47%	3,89%	9,84%	4,46%	9,04%	9,25%	10,64%
Slightly important	2,24%	5,96%	4,07%	4,79%	6,64%	10,11%	13,79%	11,82%
Moderately important	17,62%	17,45%	22,47%	26,33%	27,54%	23,40%	32,48%	34,28%
Important	44,06%	36,17%	48,82%	42,02%	40,82%	41,49%	31,12%	30,02%
Very important	31,05%	25,96%	20,76%	17,02%	20,54%	15,96%	13,36%	13,24%

** Note: (1: tenants without children/elders; 2 tenants with children/elders) in different group of impact factors; the quantity of group-1:n=296, group-2 n=47*

Figure 6.16 The evaluation of tenants in two groups of households structure

The statistical findings verified the relationship between variables and household structure. According to

Table 6.18, the category of factors titled "Accessibility to Utilities" is insignificant and has no bearing on the decision to rent a home. The other three elements strongly impact tenants' choices regardless they live with or without children and the elderly.

The hypotheses in Chapter 3 are thereby partially confirmed. It can be explained that tenants can choose their rental location based on proximity to the services they think are required. With the creation of a system of chain businesses providing vital goods and services (food, medications, fitness, ...), tenants' fundamental daily needs have been covered.

Table 6.18 Correlation between Household structure and group of factors

Factors	Chi-squared test result	P-value	Correlation	Minimum expected count
Rent and legal issues	$\chi2(4) = 42.96$	< 0.001	High statistically significant	> 5
Accommodation quality	$\chi2(4)=32.027$	<0.001	High statistically significant	> 5
Surrounding environment	$\chi2(4)=12.108$	< 0.05	Statistically significant	> 5
Accessibility to utilities	$\chi2(4) = 2.295$	> 0.05	Not statistical significant	> 5

The standardized residuals values shows a greater rate in assessing the groupings of variables at the "important" and "very important" levels of the group 1, which can be seen from the data in the statistical analysis table (see Table A.0.26).

6.2.2.4 Hypotheses regarding income

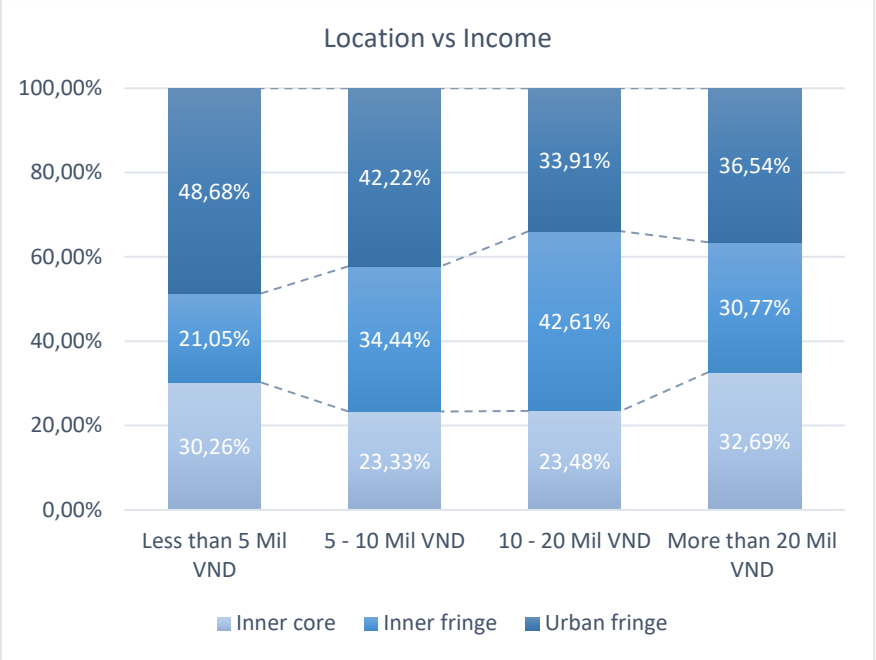
The link between the Income variable and other category variables such as rental duration, total rent length, location, and dwelling condition is depicted in Table 6.19. Each pair of factors will be evaluated to determine their correlation under the next subheading.

Table 6.19 Correlation between income and factors

Factors	Chi-squared test result	P-value	Correlation	Minimum expected count
Location	$\chi2(6)=11.144$	>0.05	not statistically significant	13.742
House condition	$\chi2(6)=14.477$	>0.05	not statistically significant	2.967

- Location

Although there is no statistically significant correlation between the factors Location and Income, the chart below demonstrates that those with incomes over 20 million VND are relatively evenly distributed among different areas in the city. This can be seen by looking at the ratio 32.69% in the CBD, 30.77% in inner fringe districts, and 36.54% in surrounding areas. The majority of young individuals with incomes of less than 10 million VND chose to rent in urban fringe (42.22% and 48.68% respectively). The group of young people with earnings of from 10 million VND to 20 million VND prefer to stay not too close from the CBD. There are 42.61% of them choose to rent in inner fringe of HCMC.



** Note the quantity of each group accordingly from "less than 5 mil VND" to "more than 20 mil VND: n=76, n=90, n=115, n =52*

Figure 6.17 The relationship between Income of tenants and their dwellings location.

- House condition

Because there was no statistically significant difference observed, the association between rent term and house condition and income is something that can be investigated further in other studies.

- Distance to work

As the Shapiro-Wilk - Normality test is significant (norm.p <0.05) and Levene's Test for Homogeneity of Variance (center = median) is significant F(3) = 0.279, Pr(>F)=0.84. The Kruskal-Wallis test can be used. The result of Kruskal-Wallis rank sum test H (3) =8.587, p-value < 0.05. It can be stated that the distance to work-place between different income groups are different significantly.

Table 6.20 Average distance to work between different income groups.

	Average distance to work (arithmetic mean)	**Standard error of the mean value**
Less than 5 Mil VND	5.605	0.686
5 - 10 Mil VND	6.990	0.494
10 - 20 Mil VND	6.350	0.444
More than 20 VND	6.446	0.906

According to the results of the following Post hoc test, there is a significant difference between the groups with incomes less than 5 million VND and those with incomes between 5 and 10 million VND (observed difference = 41.933, see Table A.0.35).

Although, the hypothesis cannot be clarified. It is possible to make the observation that young people whose monthly income is less than 5 million VND will include those who work in the urban fringe districts, in which the place of employment is close to their place of residence, or they will accept a share accommodation in order to stay close to the workplace, if it is a job in the central districts or near the CBD. Both of these scenarios are possible.

- Rent and Area

Both correlations between rent and area with income groups are different significantly. As observed in the Shapiro-Wilk normality test and Levene's Test for Homogeneity of Variance, the results are all significant (norm.p <0.05). As a result, the Kruskal-Wallis test is applied. (Rent and Income: H (2) =54.604, p-value < 0.001; Area and Income: H (3) =23.707, p-value < 0.001).

According to the findings presented in Table 6.21, the degree of income that an individual attains is correlated with a subsequent rise in the average monthly rent paid by that individual. However, for those with a salary of 5 million VND or less, the rent is 3.1 million VND each month, which accounts for more than half of their whole income. Renters with earnings of less than 5 million can either choose to share an apartment or accept further assistance from their families in order to meet their other financial obligations in life.

Concerning the relationship between Rent and Income, the comparisons of the mean ranks of the four different income groups showed that the rental price did not differ significantly between the group that has a monthly income of between 5 and 10 million VND and the tenants who earn either less than 5 million VND or between 10 and 20 million VND. This was determined by looking at the mean ranks of the four different income groups (see Table A.0.36). On the other hand, in comparison to groups with lesser incomes, those with incomes of 10 million to 20 million or more per month were required to pay a price that was noticeably more expensive. The evidence mentioned above supports the research hypothesis presented in section 2.3.4.

Table 6.21 Average rent between different income groups

	Median	**Average rent price (arithmetic mean)**	**Standard error of the mean value**
Less than 5 Mil VND	3.000	3.163	0.216
5 - 10 Mil VND	3.000	3.815	0.264
10 - 20 Mil VND	4.000	4.763	0.274
More than 20 VND	7.000	7.735	0.741

In terms of usable area and income, the two income categories with less than ten million dong have the same average dwelling area. More than 10 million VND earners have an average usable area of more than 36 square meters, while more than 20 million

VND earners have an average usable area of more than 51 square meters (see Table 6.22)

Table 6.22 Average living area between different income groups

	Median	Average area (arithmetic mean)	Standard error of the mean value
Less than 5 Mil VND	22.000	29.482	2.556
5 - 10 Mil VND	20.000	29.129	2.034
10 - 20 Mil VND	30.000	36.333	2.433
More than 20 VND	40.000	51.500	5.380

It can be seen from Table A.0.37 that when the mean ranks of the four income groups were compared, there was no big difference in the rental area between people who made less than 5 million VND per month, 5 to 10 million VND per month, or 10 to 20 million VND per month. But the area for the highest income groups (more than 20 million VND) was much bigger than for the lowest income groups (less than 10 million VND per month).

- Reasons

According to the findings of the survey, the most important factor that influences a young person's choice to rent a property is their financial situation. The group with incomes between 10 and 20 million VND has the highest number of respondents whose answers are connected to financial considerations; more than sixty percent of their responses fall into this category. The ratings for the various other income brackets fall anywhere between 52 and 55% of the total possible points for this criterion. Remarkably, the group with the lowest income has the highest choice for reasons connected to future plans (26.32%), which demonstrates that the income group with less than 5 million has the greatest desire to save money so that they will be able to buy a home in the future. The income group that is over 20 million VND has many members who have the opinion that it is not necessary to buy a house. Nearly 20% of those members believe that renting is sufficient, and there is no need to have a plan to buy a house. They believe that renting is sufficient because there is no need to have a plan to buy a house. home. It's possible that people in this wage bracket are already able to support themselves financially, in which case they'll be more proactive and likely know of alternative ways to produce money than purchasing a home.

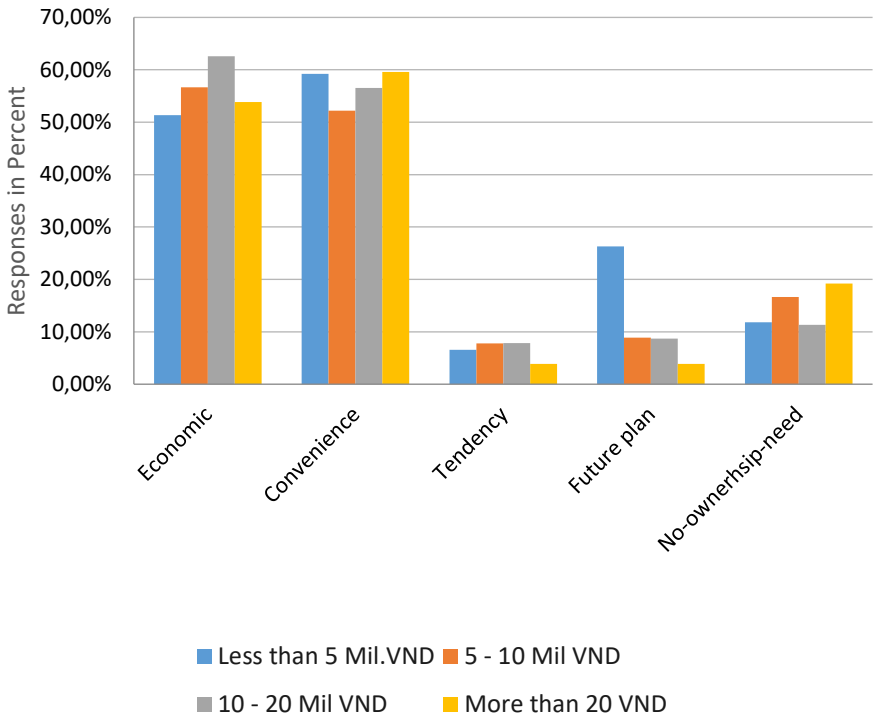


Figure 6.18 Rent reasons according to Income.

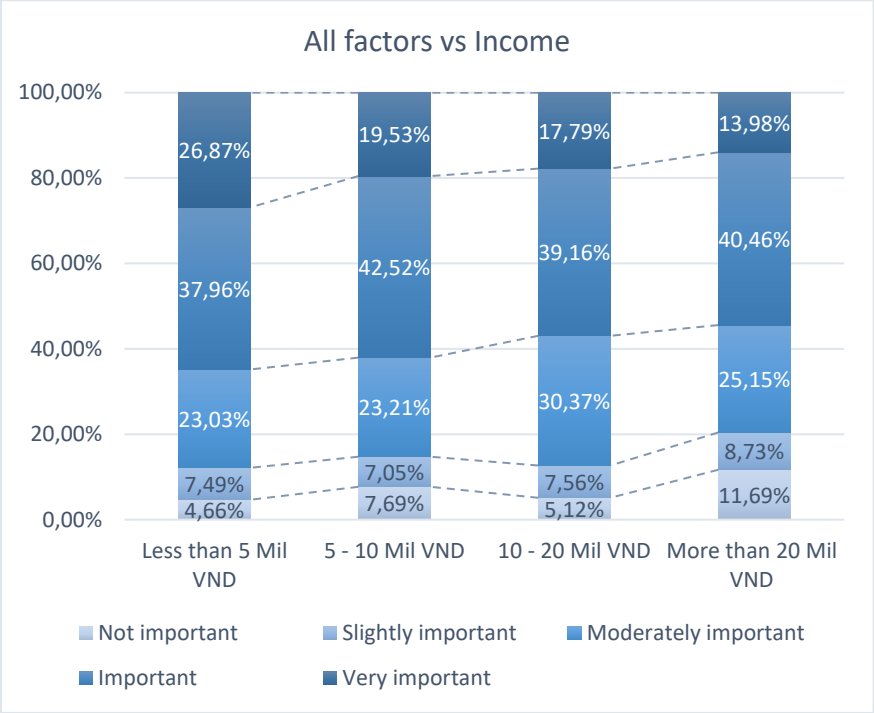
- Group of Factors

The results of testing the correlation between groups of factors are evaluated by the respondents on a 5-level Likert scale, including the groups of factors "Rent and legal issues," "Accommodation quality," "Surrounding environment," and "Accessibility to utilities" with factor Income. All have statistically significant differences (see Table 6.23). In another word, all factors have strongly impact to rental decision of all tenants.

Table 6.23 Correlation between Income and group of factors

Factors	**Chi-squared test result**	**P-value**	**Correlation**	**Minimum expected count**
Rent and legal issues	$\chi 2(12)=77.54$	<0.001	High statistically significant	> 5
Accommodation quality	$\chi 2(12)=42.852$	<0.001	High statistically significant	> 5
Surrounding environment	$\chi 2(12)=71.566$	<0.001	High statistically significant	> 5
Accessibility to utilities	$\chi 2(13)=63.689$	<0.001	High statistically significant	> 5

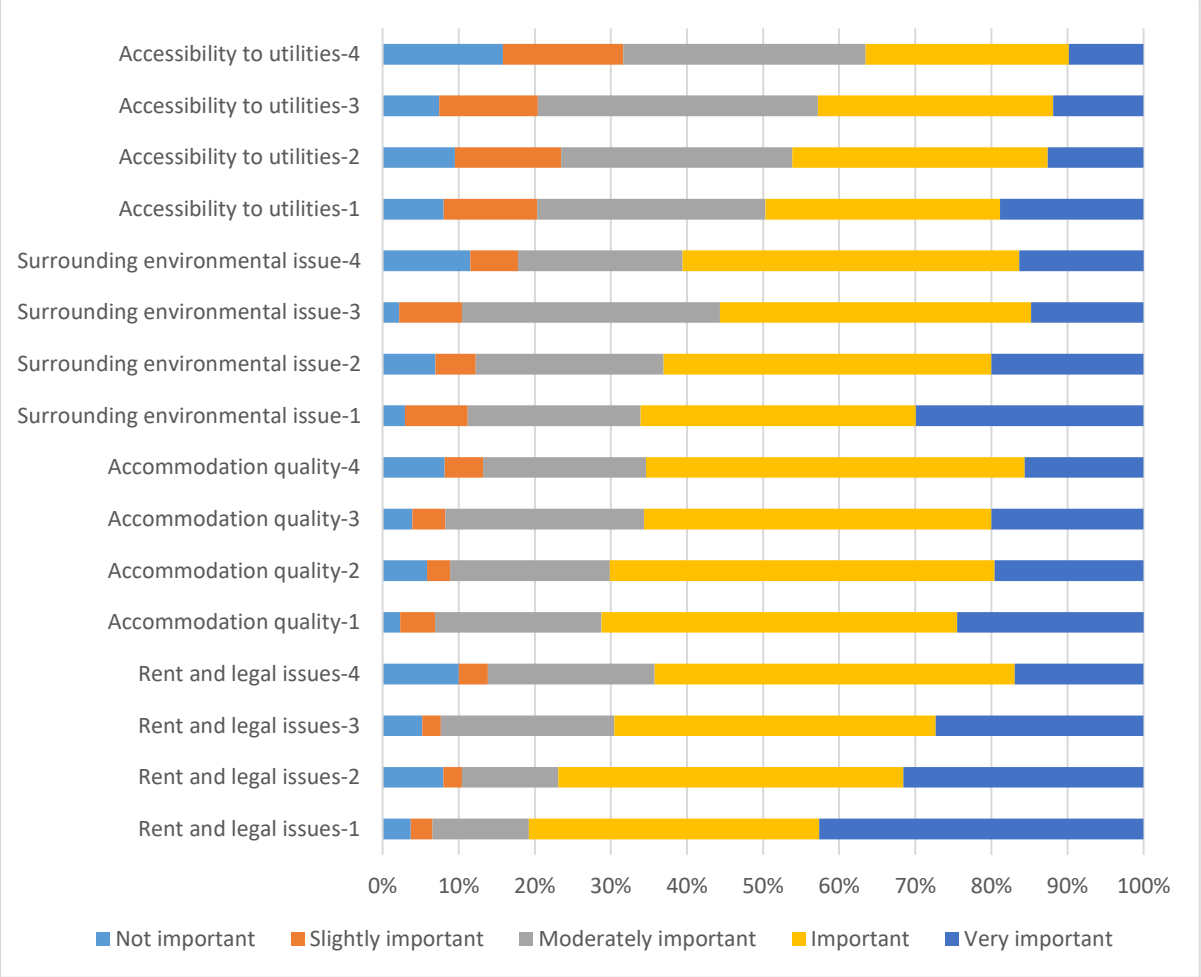
According to the standardized residuals coefficient, young people with income in the lowest group tend to rate all criteria as very important, and important ($z > 1.96$) (see Table A.0.39).



** Note: the quantity of each group relatively (n=76, n=90, n=115, n=52)*

Figure 6.19 The evaluation of four income groups on four groups of factors.

In addition, Figure 6.19 presents an overview of tenant evaluations in a in the relationship with their income. The majority of respondents felt that questionnaire variables were relevant or influenced their decision to rent a residence. Around 27% of tenants who are in the lowest income group *(temporarily referred to as group 1)* regard the mentioned criteria as “very important,” which is a higher percentage than other income groups *(5 to 10 mil VND – referred as group 2, 10 to 20 mil VND referred as group 3, more than 20 Mil VND referred as group 4)*. Young adults in the group with the highest income made a greater proportion of "non-important" decisions than those in other groups (11.69%).



** Note:(1: less than 5 mil VND, 2: 5 to 10 mil VND, 3: 10 to 20 Mil VND; 4: more than 20 Mil VND) in different group of impact factors; the quantity of groups accordingly n=76, n=90, n=115, n=52.*

Figure 6.20 The evaluation of tenants in four income groups.

Despite having different high and low incomes, all tenants agree that the group of criteria linked to "rent and legal issues" plays the most significant role. When combining the proportions of the "important" and "very important" evaluations in the "rent and legal issues" factor group, approximately 70% of young people across all income groups believe that *the rent price, the landlord's reputation, the rent stability, the lease period, and how to address disputes* are important when making a rental decision.

Distance to social facilities is a criterion group which was not often selected. Probably most rentals have basic amenities around. Landlords, as well as rental property developers, are always looking for a location that has basic amenities around to serve the customers.

6.3 Summary of all impact factors

The factors related to young adulthood's rental decisions are tested according to the hypotheses set out, but not all pairs of factors have a statistically significant correlation. Chart 6.21 shows the correlation between the tested factor pairs. Correlations connected by dashed lines need to be tested again with larger samples in the future.

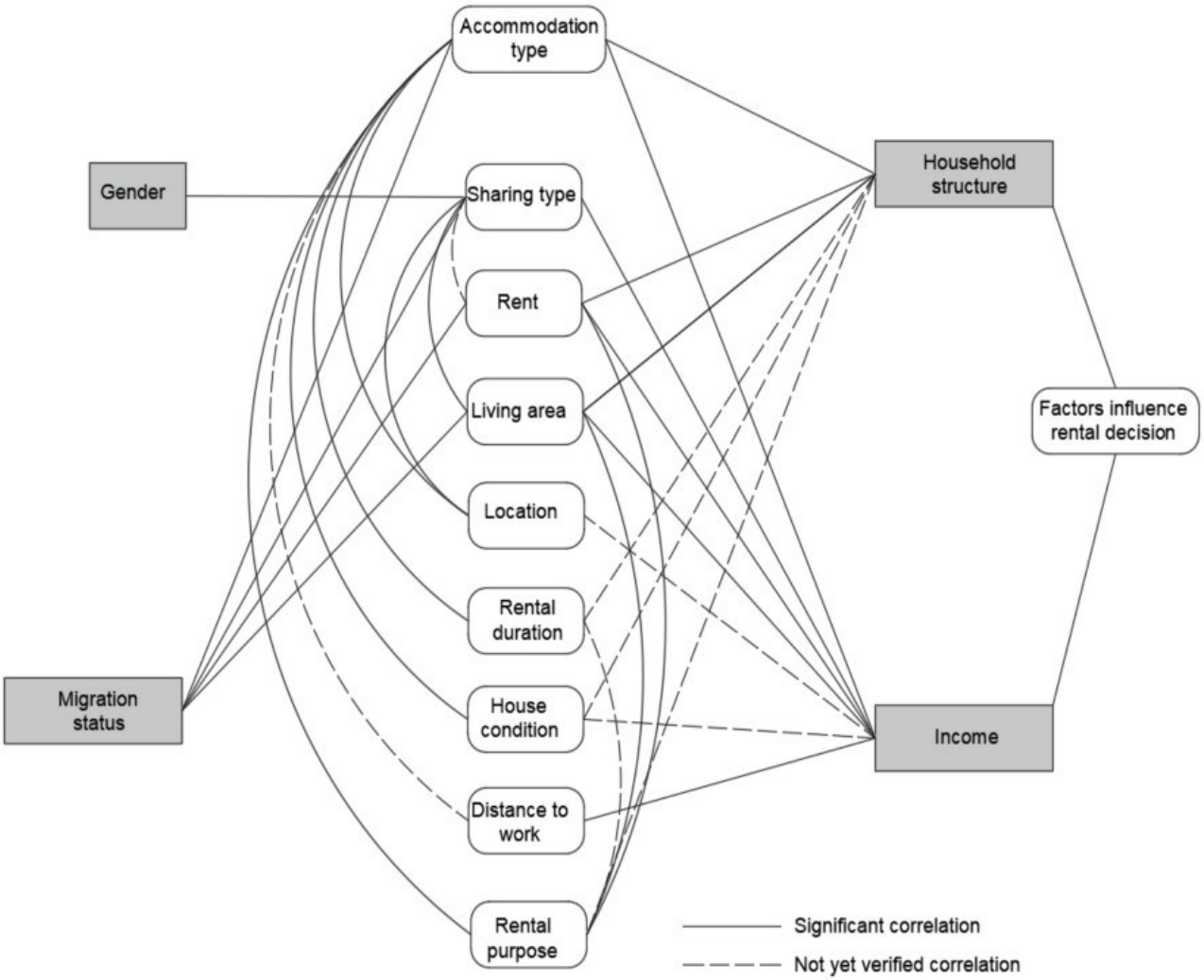


Figure 6.21 Factors pair were tested, the continuous line represents the statistical significant correlation.

The findings of the research presented in section 6.2 will be summarized in Table 6.24 before moving on to a more in-depth discussion of each problem.

Table 6.24 The correlation between tenants' characteristics and other impact factors

Description	Result
Sample	▪ A greater proportion of women than men participated in the survey. ▪ Seventy-five percent of the young people who provided information about their rental housing were between the ages of 18 and 29. ▪ The majority of them remain unmarried (79%) and reside in rented housing (86%) for only one generation.
Gender	▪ Men can choose to stay in private accommodation, but women want to share accommodation with others.
Migration status	▪ The young people who live less than 5 years in HCMC have a preference for room-in-row, or dormitory housing. ▪ New immigrants in HCMC share rental housing to mitigate financial strain. ▪ There is a distinction between living area a and in-migration status. The locals live in on average larger houses than migrants. ▪ Regarding rent, "Immigrants" pay less rent than people stay in HCMC more than 5 years.
Household structure	▪ Tenant families with 2 or more generations rent private houses or apartments, have a larger area, and have higher rental costs than renters with only one generation family. ▪ All factors "Rent and legal issues," "Accommodation quality," "Surrounding environment," and "Accessibility to utilities," influence the decision of tenants. ▪ The tenants in both household structure groups agree that the factor of "Rent and legal issues" are the most important. ▪ It is not possible to conclude the relationship between rental duration, rental purpose and house condition with household structure.
Income	▪ The group of young people with an income of less than 5 million VND a month often choose the type of row room, and those with income over 20 million often choose apartments or private houses to rent.

Description	Result
	▪ High-income tenants often choose rental housing to live alone. Low-income tenants tend to choose the home-sharing type. ▪ In general, young people with low incomes pay less in rent than young people with high incomes. ▪ On average, young people with low income also live in smaller rental housing than young people with higher incomes. ▪ There is no difference between the income and the rental position of young people. ▪ The difference between the house condition at handover and the income of young people is also not confirmed. ▪ The distance from the place of residence to the place of work is different between the income groups, specifically between the income group of less than 5 million VND and the income group from 5 to 10 million VND. The group with income from 5 to 10 million dong traveled farther to get to work than the group with less than 5 million dong a month. ▪ All factors influence the decision of renters, regardless of their income. ▪ It can be stated that the factor of Rent and legal issues is the most important according all different income groups

In addition, the relationships between independent variables, which are not the properties of tenants, are summarized to better clarify the tenant's decision when having to choose between the factors listed in the summary table.

Table 6.25 The correlation between accommodation type, sharing type, and rental purpose with impact factors.

Accommodation type	▪ Room in row, is located in urban fringe districts, which is further than row houses or condominiums. ▪ The most affordable (or cheapest) housing type – type I is rented longer than other types. ▪ The type of row room when handed over to tenants is often not properly adjusted and needs to be "made up". ▪ There is no difference between the distance to the workplace and different types of rental accommodation. More studies with larger samples are needed. ▪ A private house, or an apartment chosen by young people to rent for business or work. ▪ In general, all tenants explained their decision to rent for economic reasons, and the convenience of renting. Those who choose the type of row room are most affected by economic reasons compared to the rest of the accommodation types.
Sharing type	▪ It cannot be concluded that non-sharing tenants will have to pay more rent than sharing tenants. However, there is a difference between using shared or private rental housing and the rental price. ▪ Those who rent to live with their families rent houses that are larger in size than those who live with friends, or those who live alone. ▪ Non-sharing tenants account for a large proportion in inner core districts, tenants living with families are often in urban fringe districts.
Rent purpose	▪ Tenants for business or work pay more rent than tenants just for living. ▪ Tenants who just use the dwelling to stay also use a smaller area. ▪ There is not enough basis to say, tenants for business or work rent longer than tenants just for living.

Summary of Chapter 6

The research's most important findings are described in Chapter 6, which contains both qualitative and quantitative data. The section on qualitative outcomes provides an overview of the sample size and demographic characteristics: gender, income, marital status, family structure, and age. Women account for around two-thirds of the 333 responses discovered in the sample. The income of the young individuals who participated in the poll ranged from less than 5 million dongs to more than 20 million dongs, with a highly even distribution. The income category with the highest percentage is those earning between 10 and 20 million dongs per month. In contrast, those earning more than 20 million dongs per month account for a minor portion of the income distribution. The study's findings also demonstrate that the percentage of persons renting a home for only one generation is higher than the percentage of people renting a home for two or more generations of their family combined.

Following the completion of the qualitative research, the quantitative research was carried out, which resulted in the identification of connections between the individual aspects (see 6.2) and the criteria for categorizing young tenants (need, demographic, income).

Finally, the assumptions addressed in Chapter 3 are condensed into a table that summarizes the results (see

Table 6.24) to assist the reader in better understanding the correlations that were previously revealed.

In the next chapter, Chapter 7, the discussion of these finding in comparisons with prior researches are given.

Chapter 8 follows and provides a brief synthesis of the preceding chapters' material and some recommendations for where the research should go in the future.

7 Discussion

This study was conducted to contribute suggestions for developing different types of rental housing, to be more suitable for young people in big cities, such as Ho Chi Minh City - as a case study. Therefore, the proposed recommendations can also be applied in other cities with similar characteristics (as described in Chapter 3). Chapter 7 uses the analysis results in Chapter 6 to answer the research questions posed in Chapter 1 (see section 1.3). Findings related to tenant needs, demographic characteristics, and income of young people are the basis for creating suitable rental housing designs.

First, correlations with tenant properties will be gathered, remarked on, and comments will be provided. Then, comments will be made on the connections between the independent variables and accommodation types, house sharing, and rental purpose.

7.1 Gender

Understanding tenant preferences in the rental housing market necessitates a nuanced analysis of demographic factors, notably gender. This study substantiates the hypothesis that gender significantly influences rental housing choices, aligning with the empirical observations detailed in Chapter 6. The findings reveal a dichotomy in accommodation preferences: males exhibit a propensity for private accommodations, whereas females are more inclined towards shared housing arrangements. This distinction underscores the broader considerations of security, privacy, and community engagement in housing decisions.

Li (2019) and collaborators' research supports this study‘s findings, suggesting that males may prioritize flexibility and convenience in their housing choices, often displaying a relaxed attitude towards the selection of rental accommodation and its community context. This study analysis extends this narrative by highlighting that females' preference for shared accommodations is not merely a matter of financial pragmatism but also a strategic choice aimed at enhancing living conditions. Females tend to meticulously select co-tenants who are compatible for harmonious and secure long-term residency. This preference stems from a risk mitigation strategy where shared living spaces are chosen over solitary, less secure, and private accommodations like motel rooms. The trade-offs involved in this decision-making process emphasize the importance of safety and communal living, suggesting a nuanced understanding of housing as not just a physical space but a social construct that impacts tenants' well-being.

The differential preferences highlighted in this study resonate with the literature reviewed in Chapter 2, offering a comparative insight into how gender dynamics shape housing choices. The existing body of research predominantly focuses on economic factors and spatial considerations, overlooking the nuanced impact of gender on

housing decisions. Its findings contribute to filling this gap, underscoring the need for gender-sensitive approaches in developing rental housing solutions.

Furthermore, the correlation between income levels and rental preferences observed in Chapter 6 provides an essential context to the gender analysis. For instance, the financial constraints faced by lower-income females may compel them towards shared housing, which not only addresses economic challenges but also fulfills their security and social interaction needs. This complex interplay between gender, income, and housing preferences highlights the multifaceted nature of rental housing decisions and the importance of inclusive housing policies that accommodate diverse tenant needs.

In conclusion, this study emphasizes the significance of considering gender as a critical factor in the development of rental housing strategies. By acknowledging the distinct preferences and challenges faced by different genders, housing developers and policymakers can create more inclusive, secure, and socially conducive living environments. The findings advocate for a holistic approach to housing development, one that transcends mere architectural design to incorporate the social dimensions of tenancy, ultimately contributing to the well-being and satisfaction of diverse tenant groups.

7.2 Migration status

This section meticulously examines the housing preferences and decisions of young renters in Ho Chi Minh City, classifying them based on their duration of residence into two distinct categories: Migrants (less than 5 years in HCMC) and Locals (5 years or more). The divergent housing choices between these groups highlight the nuanced ways in which duration of city residency influences accommodation preferences. This analysis draws from a broad spectrum of literature on urban migration, including a key insight from Julien's (2021) study on migration and urban housing strategies. In Jullien's research (2021), immigrants to Ho Chi Minh City choose accommodation in group 1, because they have the view that they will accumulate financial resources to return their hometown.

Migrants, often navigating the initial challenges of settling in a megacity, demonstrate a pronounced preference for shared housing arrangements. Approximately 49% of migrants opt for shared accommodations with friends or strangers, a choice that not only facilitates social connections but also provides a supportive network crucial for acclimatizing to the city. This is in stark contrast to Locals, where only about 27% exhibit similar preferences. Such trends are not merely reflective of social inclinations but underscore the economic and adaptive strategies employed by newcomers to navigate urban living costs and complexities.

Moreover, the accommodation types chosen by Migrants underscore their transitional status. A significant portion, nearly half, favor Type I housing, indicating a strategic selection for more affordable, albeit temporary, living solutions. This contrasts with Locals, who exhibit a lower preference for the same housing type, suggesting a

transition to more permanent and perhaps higher-quality living conditions as their tenure in the city extends. This pattern not only validates the hypothesis proposed in section 2.3.2 but also provides empirical evidence of the adaptive strategies employed by young renters based on their migration status.

The financial implications of these choices are substantial. The analysis reveals a significant discrepancy in rent prices and living areas between Migrants and Locals, with Migrants typically occupying smaller spaces and incurring lower rental costs. This finding is critical for understanding the economic adjustments and compromises that newly arrived young individuals must make in response to the urban cost of living.

Furthermore, the investigation extends into the realm of household structure, highlighting how the presence of children or elderly family members influences housing decisions. The data illustrate that families with multiple generations are more likely to opt for accommodations that offer both space and privacy, such as row houses or condominiums. This preference aligns with the expectations set forth in section 2.3.3, emphasizing the role of family dynamics in shaping housing choices.

In conclusion, this comparative analysis sheds light on the intricate relationship between migration status and housing preferences among young renters in Ho Chi Minh City. The findings not only resonate with the literature reviewed in Chapter 2 but also offer nuanced insights into the socio-economic factors influencing housing decisions in urban settings. By linking these trends to broader societal shifts, this study contributes valuable perspectives to the discourse on urban migration and housing dynamics.

7.3 Household structure

The analysis has offered profound insights into how household structures influence rental choices among young renters in Ho Chi Minh City (HCMC), specifically contrasting the living preferences of single-generation renters with those accommodating multi-generational families. Notably, 14% of respondents indicated their rented accommodations housed two generations, predominantly with their children. This finding underscores a trend towards smaller, nuclear family units within the rental market, with a significant 80% of this demographic living with children, underscoring a societal shift towards prioritizing child-centric living spaces.

The preference for larger, more private housing types such as apartments or townhouses among families is indicative of the evolving urban family dynamic. This shift is reflective of broader socio-cultural changes, moving away from traditional multi-generational cohabitation towards a structure that favors independence and privacy, catering to the developmental needs of children and the modern family unit. This trend is corroborated by Read & Tsvetkova (2012), who argue that children thriving in conducive environments exhibit superior outcomes in educational and extracurricular activities, reinforcing the importance of adequate living spaces in child development.

Statistical analyses reveal that factors such as sharing type, rent, and area exhibit significant correlations with household structure, offering empirical support to the notion that families, particularly those with children, prioritize space and privacy in their housing choices. This prioritization of larger living spaces aligns with the literature reviewed in Chapter 2, which emphasizes the growing importance of housing quality and environment in urban settings.

Moreover, the consensus among tenants, regardless of household structure, that "Rent and legal issues" stand as the paramount concern reflects a universal demand for fairness, security, and predictability in the rental market. This concern highlights the critical role of transparent and equitable rental agreements, reinforcing findings from both this study and the broader literature on urban housing preferences.

In conclusion, the evolving household structure among young renters in HCMC significantly influences rental housing preferences, underscoring a shift towards accommodations that support the well-being and development of children within a secure and private environment. This shift not only reflects changing family dynamics and socio-cultural values but also signals a need for the rental market to adapt and cater to the diverse needs of modern urban families. The consensus on the importance of rent and legal issues further emphasizes the necessity for transparent, equitable, and flexible rental arrangements to accommodate the varying needs of HCMC's renters.

7.4 Income

Income emerges as a critical determinant in the housing decisions of young tenants in developing nations, notably within the context of Vietnam's urban areas, which lack substantial housing support policies. This section revisits the findings from Chapter 6 in relation to the broader literature discussed in Chapter 2, elucidating how income levels influence housing preferences and choices among the youth in Ho Chi Minh City (HCMC), thereby providing a nuanced understanding of the economic factors steering housing decisions in the absence of supportive policies.

The study categorizes respondents into four distinct income groups, allowing for a detailed examination of how income levels correlate with housing preferences, choices, and constraints. The delineation of these groups facilitates an understanding of the nuanced dynamics between income and housing decisions, revealing significant variations across different income brackets.

Lowest Income Group (Below 5 million VND/month): This group predominantly opts for shared housing and residences in less central locations, highlighting a strategic approach to minimize living expenses amidst financial constraints. Notably, this segment exhibits the shortest average commute distances, suggesting a compromise on location quality for affordability, echoing findings from Chapter 6 that illustrate a prioritization of economic necessity over residential desirability.

Moderate Income Group (5-10 million VND/month): Occupants in this bracket exhibit a preference for housing closer to urban centers, reflecting a desire to engage more

directly with the city's social and economic opportunities. This choice indicates a slightly elevated financial capability, allowing for a balance between cost and convenience, underscoring the income-dependent nature of housing accessibility in urban settings.

Higher Income Groups (10-20 million and above 20 million VND/month): These groups show a pronounced preference for privacy and family-centric living arrangements, choosing apartments or private houses. This trend highlights how increased income facilitates access to housing that better satisfies personal and familial needs, aligning with observations in Chapter 6 regarding the influence of income on housing quality and location preferences.

The findings resonate with the broader discourse on urban housing in developing countries, as discussed in Chapter 2. Similar to Kemp (2011) observations, this study underscores the precarious nature of housing choices among low-income earners, who often juggle between affordability and accessibility. The World Bank's (2015) insights into the challenges faced by urban dwellers in similar contexts further contextualize this research findings, illustrating the global parallels in housing affordability crises and the pivotal role of income in navigating these challenges.

Furthermore, the preference for shared housing among the lower-income brackets parallels discussions in the literature on housing strategies among economically constrained urban youth, highlighting a universal approach to mitigating housing costs (UN-Habitat, 2003), (Bonnet & Pollard, 2020).

Reflecting on the comprehensive analysis of income's impact on housing decisions among young tenants in HCMC, it becomes evident that financial stability significantly influences housing accessibility, preferences, and choices. This study not only corroborates existing literature on the subject but also provides specific insights into the Vietnamese context, emphasizing the need for targeted policies to support housing affordability and accessibility for young urban dwellers.

By directly linking our empirical findings to the theoretical discussions presented in Chapter 2, this revised section aims to fulfill the critique requesting a closer association between our conclusions and the research results. It highlights the intricate relationship between income levels and housing decisions, underscoring the critical role of economic factors in shaping urban living experiences in developing contexts like Vietnam.

7.5 Supporting information on rental properties

Based on tenant characteristics, i.e., gender, migration status, household structure, and income, groups with different tenant characteristics were described. This section will further elaborate on the correlations between factors that are not characteristic of tenants. However, they will contribute to clarifying the accommodation's characteristics and how young people use it. They are accommodation type, sharing type, and rental purpose.

For the accommodation type element, three types of accommodation were tested: house condition, rental duration, rental location, rental purpose, and distance to work. In which the statistically significant difference between the variable accommodation type and "distance to work" has not been confirmed.

Regarding the "accommodation type", the first thing to mention is the cheap "hostel" which is easy to find in Ho Chi Minh City. This type of accommodation has been researched by Julien, and pointed out its advantages and disadvantages, referred to in this study as type I housing. Type I here is not related to the quality of type I, normally seen as "first class". Next is the "high-end" and "comfortable" type of housing, which is an apartment or townhouse called a type III house. Particularly for this type, it also creates another by-product: a private room for rent. The landlord will rent row houses or apartments to different young people. This type of room is like a row room; while row rooms are often spread out on the ground, private rooms in row houses are arranged on multiple floors to make the most of the land use coefficient. Row-room is considered a "private accommodation"; the rooms in row houses or apartments are just accommodations divided from private houses. Because of the availability of data and to better understand each housing type, another housing category has been divided for statistical purposes, namely private rooms, and marked as type II.

Of the types of houses mentioned above, row rooms are most found in the urban fringe area, which is the newly established district of Ho Chi Minh City. The urbanization speed of these districts has increased rapidly. However, because the area of the districts is relatively large, and the land price is still lower than the districts in the central area, the row rooms are often developed by investors. This action is an investment channel and a form of waiting for the right time to develop into more valuable real estate. Notably, row-room houses are rented by young people for longer than other types of housing. Up to 53% of young people who rent this type of house said they have rented for more than three years, showing that affordable houses are still the choice of most young people when renting a house in Ho Chi Minh City. In other words, cheap houses meet the needs of the majority.

The most found in central districts are private rooms in row houses or apartments. Indeed, the central feature of the CBD is the high land price. To take advantage of the central area, tenants must optimize the land use coefficient. Townhouses are usually built with the highest floor possible, and subletting is a good business solution. Besides, with the development of the apartment market in Vietnam, it is common for individuals or groups to own apartments for rent. Breaking down rental units based on the number of rooms in the unit makes it easier for landlords to find customers, adjust prices, and optimize profits. On top of that, demand among young people, or tenants in general, in the CBD is very high.

The next category, apartments, or private houses, is chosen by young people to rent in different parts of the city but is most prevalent in urban fringe districts (42% of renters choose to rent apartments or private houses). Houses in urban fringe districts). The

whole house's rent is high, and young people who rent this type of housing must choose to stay far from the center to balance the cost of renting and other expenses in life.

For the use of rented houses for many different purposes, the survey results show that young people choose the type of private house or apartment to combine living and working or doing business. Townhouses, popular private houses in Vietnam in general and HCMC in particular, have a multi-story design so tenants can use the ground floor for business. On the other hand, the easy registration of operations and the not-so-strict management in setting up a business location have created favorable conditions for this accommodation use.

Each home type is tested with "House condition," which indicates the housing condition when the tenant receives the handover from the landlord. The quality of rental houses will seriously decrease compared to owner-owned houses if they are not maintained regularly. Routine care highly depends on the landlord's location and the landlord-tenant relationship. Landlords who live with and have a close relationship with tenants tend to take better care of their premises than landlords who are often absent. Meanwhile, landlords from the public sector tend to be less concerned with maintenance than private property managers. The results show that landlords often hand out private rooms in apartments or row houses to tenants in good condition, with only 1.67% saying that this type of accommodation needs to be renewed.

In contrast, there are more opinions for housing types I and III that the accommodation needs to be renovated or repainted (7% and 9%). Delivering a home in good condition that meets tenants' expectations creates a good impression, beautifies the rental housing market, and makes it easier for landlords to request a return on their property condition as "good" as the original.

For the “sharing type” factor, three types of housing sharing were examined. It is common for low-income hostels to be denser in population than owner-occupied homes. With high rental costs, the poor often have to choose the solution of living with many people and sharing the rent. Each culture has its definition of crowding. In some cultures, people tend to choose (or accept) living together with family members instead of living separately in small spaces. However, the density of residences is too thick and causes many complicated problems. Within the scope of this study, three forms of “sharing” include renting a place to live alone and not sharing with others. Next is the form of sharing with friends or strangers. Finally, the form of sharing with family members. The factors “living area” and “location” are two variables that statistically differ in how tenants share their accommodation. The post-hoc test shows the difference between the people who rent an accommodation to stay with their family, the young people who do not share a house, and the young people who rent to live with strangers. The results confirm that tenants use more space when renting a house with their family, or in other words, when living with family members and children, tenants are more willing to rent an accommodation with a larger area.

The sharing of accommodation by young people is also different for accommodation located in different parts of the city. For example, young people who rent an accommodation to stay with their family have once again proven that they will prefer to rent in non-CBD districts (48%), similar to those who rent a row room also choosing the area in urban fringe for rent. Meanwhile, the percentage of young people renting private houses accounts for the largest proportion in the central area. Thus, when renting in central districts, young people often rent a private room, and renting a private apartment will help them easily move to work, school, and other activities tailored to their individual needs.

Finally, there is the element of “rental purpose” – providing information about the use of housing for various purposes other than just living, such as living in combination with working from home or living in combination with business. The two factors, “living area” and “rent,” are two statistically significant variables with “rental purpose”. Combined with the confirmed results from the variable “accommodation type”, the relationship between house type, area, and rental purpose is linked, indicating that young people rent private houses with large areas that allow them to do business and stay with family. Housing products for rent to combine with business in the future need to be researched further so that they can both create products that meet the needs of tenants and bring benefits to investors, but At the same time, it also creates many added values for the development of society and the economy.

Summary of Chapter 7

Chapter 7 is a discussion of the results found in Chapter 6. Four characteristics of tenants are considered as criteria for grouping them. The first is the gender of the tenant. Next is the time of living in HCMC, or in other words, migration status. The third is the household structure of the tenants and, finally, their income. The results have strengthened and clarified the authors' arguments about rental housing in HCMC.

Regarding gender, research shows a link in sharing rental housing between men and women. Thereby, it is observed that men have a more honest opinion than women in choosing housing.

Regarding migration status, the difference in living time in HCMC is a factor that helps form different groups of tenants. The group of people living less than five years in HCMC tend to share accommodation, rent smaller houses, and live in areas farther from the city center.

Regarding household structure, the difference between having children with and without children leads to different housing choices. Young families with children living with them give priority to their children by renting large-sized houses. On the other hand, families with children also pay much attention to environmental factors around their rented accommodation.

Income is important in young people's decision to rent an accommodation. Four income groups were analyzed, which showed the lowest income group. The erratic income group chooses rental houses with a small area, can be shared with strangers, and rents motels far from the central area or inner-city districts. However, their distance to the workplace is, in absolute terms, smaller than the rest of the group, or in other words, their residence is closer to the workplace.

Findings have shown a link between the decision to rent and the characteristics of young tenants in HCMC, helping form recommendations for stakeholders in developing appropriate rental housing products and providing suggestions for policy-making for the authorities and relevant agencies.

8 Conclusion

The final chapter, chapter 8, summarizes the findings of the research presented in chapters 6 and 7. In this way, chapter 8 serves as a conclusion, providing closure while also opening up provide avenues for further exploration and discussion within the academic community.

8.1 Summary

In any city, rental housing is an important component of an efficient housing market. Rental housing meets many city residents' needs, including the upper and lower classes. In some municipalities, rental housing adds a significant percentage to the housing stock. Whether contributing a large or small percentage, the rental housing market is always there and needed. Not only because the poor need a place to live or the economically undeveloped cities need to provide accommodation. Even in some of the busiest cities, a thriving rental market reflects the complexity of urbanization patterns and government policies.

Housing is always a problem that all cities face; the bigger the city, the more people must find an appropriate place for themselves. This study uses a case study of HCMC to provide readers with information about urban development. The city faces excessive mechanical population growth problems, such as environmental pollution, flooding, and widespread congestion. In addition, the study has generalized the rental housing market's main characteristics, such as housing types, the distribution of each type of housing, and their rental prices. The study's main problem is identifying the criteria for renting housing to young people and the socio-economic factors related to them. In an online survey addressed to groups of young tenants, information about rental housing types and individual characteristics was collected to identify tenant groups. Knowing the rental need in living and working in the city of young people helps real estate developers, governments, and individuals with rental properties optimize their products.

The study used tools such as mapping and primary data from the rental housing market to provide the most comprehensive overview of the rental market in Ho Chi Minh City. Through the analysis of maps and market data, the general characteristics of rental housing types in the most populous city in Vietnam have been summarized.

A questionnaire was sent to young people renting houses in HCMC virtually. Questionnaires were sent to groups of young people on renting forums and through personal relationships. The number of responses accepted to conduct the correlation analysis was 333 votes.

For the derivation of the tenant groups, hypotheses were developed based on literature research. The theses were checked through tabular evaluations. This

approach has proven to be effective. However, some hypotheses could not be tested due to the small sample size in that field (see

Table 6.24).

The hypotheses put forward were significantly confirmed (see Section 6.2). Thus, the need, demographic, and income can be used as segmentation criteria for forming tenant groups.

The hypotheses related to rent, living area, income, rental purpose, location, house condition, rental duration, sharing type, and accommodation type are mostly confirmed by tests. Some correlations need to be tested with a larger sample - for example, the correlation between housing types and rental duration. Since the majority of the sample in the survey had a tenancy of fewer than three years, further studies are needed in the future for longer-term tenants. On the other hand, the expected rental period should also be included in the survey content to compare the difference between groups.

Thus, by surveying online, research can gather necessary data regarding reasons for renting and tenants' evaluations of the property they use. Differences between groups of tenants can be found based on their needs, demographics, and income characteristics.

8.2 Knowledge contributions

The study's original aim was to understand better the factors influencing young people's decision to rent an accommodation in an urban area in a developing country such as Ho Chi Minh City, Vietnam. **The tenant classification method** is selected from various methods based on theory and relevant previous researches. From the tenant segmentation process results, the research can convey to the stakeholders the necessary content to develop the rental market sustainably and in line with the needs of young people. It is also the most important contribution of this study.

In addition, the study also shows that by sending an online questionnaire to a suitable set of respondents, the necessary data can be collected and analyzed. The data can speak for itself after linking with the existing theoretical foundation. In addition, primary rental data collected from real estate brokerage websites can also be a useful source of data for analysis and a better understanding of the rental market.

The study also clarifies the notion believed to be true in Vietnamese society. Owning a house is the only solution to prove their position in society or a form of investment that always brings profits, so at all costs, young people must buy a house as the first important thing in life. By including very basic parameters in the model, the results show that, in the case of strong fluctuations in home loan interest rates and low real estate appreciation, rental and investment in other channels can bring more benefits.

Groups of factors related to price and legality when renting a house, quality of accommodation, surrounding environment, and accessibility to social infrastructure are considered by young people when deciding to rent an accommodation. In which rent and legal issues are the most noticeable factors.

The results drawn from this study can be applied in other cities of Vietnam or cities in developing countries with characteristics such as a high proportion of the young population, accounting for a large proportion of the labor force. For example, in the case of Ho Chi Minh City, 47% of the population is between 15 and 39 years old. Mechanical population growth is greater than natural population growth (results of immigration from other regions). The housing market needs to be more responsive regarding quality and quantity; demand for rent is high because house prices are many times higher than the affordability of low- and middle-income workers.

Last, understanding young tenants through grouping can help stakeholders, such as developers, policymakers, and housing developers, create suitable products.

8.3 Recommendations

When standing in the role of a policy maker or a real estate developer, the most frequently asked question is how to choose the right housing product and develop the one for the right needs of young people who want to rent an accommodation.

In HCMC, as well as Ha Noi and Da Nang - the major cities of Vietnam - The demand for rental housing is concentrated among students, newlyweds, migrant workers, and low-income families.

However, the government must play a key coordinating role to sustainably develop the rental housing market. Put rental housing at the center of the housing market, and identify rental housing as an integral and integral part of a city, especially an urban area with a high proportion of immigrants and many young people.

Some policy recommendations related to each group of factors will be proposed to apply to HCMC and cities with similar characteristics.

Table 26 Policies recommendation of each factor group

Relevant factor	Recommendations
Gender	- Improve security, especially for female customers. - Develop transparent housing-sharing models; regulate and manage the number of people in each housing unit. - Create housing products that can be shared but still ensure a private space for each individual when renting a house.
Migration status	- Develop a housing source for newcomers to the city, suitable for each target group, such as students and workers in industrial parks and factories. Ensure basic living conditions and reasonable costs. - Keeping the connection with the provinces and cities that are the "hometowns" of immigrants to be able to disseminate information related to them. - Create conditions for immigrants to the city to rent long-term housing with social welfare programs and support for

Relevant factor	Recommendations
	rent-purchase so that immigrants can live with peace of mind and contribute better to the city. economic development of the city. - Take advantage of space and high floors to use the land fund rationally. Ensure that there are suitable areas to arrange basic utilities for tenants, such as green areas, convenience stores, and kindergartens.
Household structure	- Ensure diversity in rental housing portfolio in all residential areas to accommodate different stages of tenants (such as single, married, and having children). - Create rental products for families with two generations, with a living area suitable for young children. Offer rental housing with a long-term commitment to families with young children, emphasizing the length of stay in rental housing and attainable prospects such as priority purchase or Stable price rental for a long time. - Ensure an appropriate distance to kindergartens and schools for rental areas developed specifically for families with young children. - Rent can be arranged for families with elderly close together so they can live together and keep quiet in their living environment. - Taking advantage of advances in material technology and applications of smart furniture to arrange many living spaces for many generations in a certain area, thus reducing the cost of the rent.
Income	- Develop rental housing types suitable for different income levels. In particular, pay attention to the rental housing segment for low-income people. Ensuring facilities for the low-rent segment, such as public services (schools, healthcare, markets, places of religious activities, and other social infrastructures) so that young people can still have good conditions. to develop themselves through social relationships, study, and entertainment. - Price support for low-income tenants through social welfare funds. - Create a community of tenants to support each other, and develop a rental culture, so that the community can develop sustainably and support each other in many

Relevant factor	Recommendations
	aspects of life. Avoid the formation of slums or neighborhoods where low-income tenants think they are being marginalized. - Forming the rented houses of low-income tenants alternately interspersed with the rented houses of high-income people. - Strictly manage the rental housing market, so there is no "black" rental phenomenon. Make the process of policymaking and market development in the right direction more feasible. - Create a legal corridor to help tenants and landlords work well together. The current tenants in Vietnam are in the disadvantaged group. When disputes are related to issues such as deterioration of the rental place or damage to equipment, the advantage always belongs to the landlord.

8.4 Limitations

Rentals are not only a product that meets the housing needs of young people; they can also be an option for older individuals or retirees. However, this study only focuses on classifying young tenants based on the factors influencing their decision-making. Another limitation of the study is the limited sample size. This is partly due to the reliance on online surveys, which some young people may not be familiar with or have easy access to. Although many samples were sent through social media groups for young renters (with more than 5,000 members), only 333 samples were retrieved and analyzed (less than 10%).

Furthermore, the uneven distribution of responses led to the exclusion of two rural areas of the city. Increasing the sample size and expanding its distribution could produce more reliable results.

External factors such as macroeconomic policies and conditions were not included in the scope of the study, as rental policies vary by region and country. The study could provide more reliable insights by conducting interviews with experts in rental market.

8.5 Further research suggestion

In addition to need variables (sharing type, rental purpose, type of accommodation), demographic factors (gender, in-migration status, household structure), and tenant income, additional tenant characteristics can be discovered and studied to form distinct groupings. According to the survey results, "lifestyle" can be investigated further to form more diverse tenant groupings.

In addition to the identified correlations, in-depth interviews can be used to refine the results further. Among the criteria influencing young people's decision to rent a home,

"Accessibility to Utilities" was rated as the least significant. Whether this is accurate based on the supplied explanations or more reasons have not been specified. Future face-to-face interviews with additional tenant input may be undertaken.

The study's conclusions depend on the survey results; however, this outcome may change if economic and social situations alter. If tenants can access better social security provisions, their decisions may vary. It is also a potential research direction.

The study used HCMC as a case study; the conclusions can be generalized to other large cities with numerous similarities to HCMC, such as Hanoi. However, specialized and pertinent studies require smaller cities with distinct demographic characteristics.

Bibliography

A.N. Oppenheim. (1992). *QUESTIONNAIRE DESIGN, INTERVIEWING AND ATTITUDE MEASUREMENT*. Pinter Publishers.

Acioly, C., & French, M. (2012). Housing developers. Developing world. *International Encyclopedia of Housing and Home*, 422–428. https://doi.org/10.1016/B978-0-08-047163-1.00443-4

Alessi, E. J., & Martin, J. I. (2010). Conducting an Internet-based Survey: Benefits, Pitfalls, and Lessons Learned. *Research*, *34*(2), 122–128. https://www.jstor.org/stable/42659754

Alkarkhi, A. F. M., & Alqaraghuli, W. A. A. (2019). *Chapter 10 - Discriminant Analysis and Classification* (A. F. M. Alkarkhi & W. A. A. B. T.-E. S. for F. S. with R. Alqaraghuli (eds.); pp. 161–175). Academic Press. https://doi.org/https://doi.org/10.1016/B978-0-12-814262-2.00010-8

ASEAN Secretariat. (2015). Report of the ASEAN Regional Assessment of MDG Achievemnt and Post-2015 Development Priorities. In *Paper Knowledge . Toward a Media History of Documents*.

Bachmann, D., Elfrink, J., & Vazzana, G. (1996). Tracking the progress of e-mail vs. snail-mail. *Marketing Research*, *8*(2), 31–35. https://archive.ama.org/archive/ResourceLibrary/MarketingResearch/documents/9608142811.pdf

Bartholomew, K., Henderson, A. J. Z., & and Marcia, J. E. (2000). Coded Semistructured interviews in Social Psychological Research. *Handbook of Research Methods in Social and Personality Psychology*, *January 2000*, 286–312.

Beatty, P. C., Collins, D., Kaye, L., Padilla, J. L., Willis, G. B., & Wilmot, A. (2019). Advances in questionnaire design, development, evaluation, and testing. In *Advances in Questionnaire Design, Development, Evaluation and Testing*. https://doi.org/10.1002/9781119263685

Beer, A. (2001). Labour market change and housing market segmentation in south Australia's non-metropolitan private rental market. *Urban Policy and Research*, *19*(4), 441–466. https://doi.org/10.1080/08111140108727893

Berry, W. (1993). *Understanding Regression Assumptions*. https://doi.org/10.4135/9781412986427

Berry, W., & Feldman, S. (1985). *Multiple Regression in Practice*. https://doi.org/10.4135/9781412985208

Birks, D. F., & Southan, J. M. (1992). An evaluation of the rationale of tenant satisfaction surveys. *Housing Studies*, *7*(4), 299–308. https://doi.org/10.1080/02673039208720744

Bonnet, F., & Pollard, J. (2020). Tenant selection in the private rental sector of Paris and Geneva. *Housing Studies*. https://doi.org/10.1080/02673037.2020.1769565

Centre for Liveable Cities. (2019). Affordable housing: profiles of five metropolitan cities. www.clc.gov.sg.

Chisholm, E., Howden-Chapman, P., & Fougere, G. (2017). Renting in New Zealand: perspectives from tenant advocates. *Kotuitui*, *12*(1), 95–110. https://doi.org/10.1080/1177083X.2016.1272471

Clapham, D., Mackie, P., Orford, S., Thomas, I., & Buckley, K. (2014). The housing pathways of young people in the UK. *Environment and Planning A*, *46*(8), 2016–2031. https://doi.org/10.1068/a46273

Clark, V., Tuffin, K., Frewin, K., & Bowker, N. (2017). Shared housing among young adults: avoiding complications in domestic relationships. *Journal of Youth Studies*, *20*(9), 1191–1207. https://doi.org/10.1080/13676261.2017.1316834

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences Second Edition. Lawrence Erlbaum Associates.

Davis, M. (2006). *Planet of Slums*. Verso. https://books.google.de/books?id=FToaDLPB2jAC

Decker, P. De. (2001). Jammed Between Housing and Property Rights: Belgian Private Renting in Perspective. *European Journal of Housing Policy*, *1*(1), 17–39. https://doi.org/10.1080/14616710110036409

Deng, Y., Gabriel, S. A., & Nothaft, F. E. (2003). Duration of Residence in the Rental Housing Market. *Journal of Real Estate Finance and Economics*, *26*(2–3), 267–285. https://doi.org/10.1023/A:1022987010545

Dolnicar, S., Grün, B., & Leisch, F. (2011). Management for Professionals Market Segmentation Analysis Understanding It, Doing It, and Making It Useful. http://www.springer.com/series/10101

Döring, Nicola; Bortz, J. (2016). *Forschungs- methoden und Evaluation*. http://www.lehrbuch-psychologie.de

Doyle, P., & Fenwick, I. (1975). The Pitfalls of AID Analysis. *Journal of Marketing Research*, *12*(4), 408–413. https://doi.org/10.1177/002224377501200404

Doyle, P., & Hutchinson, P. (1976). *The identification of target markets*. Wiley Online Library.

Everitt, B., Landdau, S., Leese, M., & Stahl, D. (2011). *Cluster analysis* (5th ed.). John Wiley & Sons, Ltd. https://doi.org/10.1007/BF00154794

Field, A., Miles, J., & Field, Z. (2012). *Discovering Statistics Using R*. SAGE Publications Inc.

Francois, M., & Mai, D. (2021). Diện mạo mới của người tiêu dùng Việt.

Freedman, D. A. (2009). *Statistical Models*. Cambridge University Press. https://doi.org/10.1017/CBO9780511815867

Garrison, R. H., Noreen, E. W., Brewer, P. C., & Mardini, R. U. (2003). *Managerial accounting*. McGraw-Hill/Irwin New York.

General Statistics Office of Vietnam. (2021). Niên giám thống kê - The Statistical Yearbook 2021.

Gibler, K. M., & Nelson, S. L. (2003). Consumer Behavior Applications to Real Estate Education. In *Source: Journal of Real Estate Practice and Education* (Vol. 6, Issue 1).

Gilbert, A. (2016). Rental housing: The international experience. *Habitat International*, *54*, 173–181. https://doi.org/10.1016/j.habitatint.2015.11.025

Gilderbloom, J. I. (2009). *Invisible City: Poverty, Housing, and New Urbanism*. University of Texas Press. https://books.google.com.vn/books?id=nIlHzWfm2lIC

Goodman, J. (1999). The changing demography of multifamily rental housing. *Housing Policy Debate*, *10*(1), 31–57. https://doi.org/10.1080/10511482.1999.9521326

Gray, D. E. (2004). *Doing Research in the Real World*. SAGE Publications.

Green, P. E. (1977). A new approach to market segmentation. *Business Horizons*, *20*(1), 61–73. https://doi.org/10.1016/0007-6813(77)90088-X

Groves, R. M., & Kahn, R. L. (1979). *Surveys by telephone*. Academic Press.

Hansen, K. (2008). *Youth and the City in the Global South*. Indiana University Press.

Hua, T. M. T. (2014). Determinants of middle-income condominium market in Hochiminh city - [Unpublished master's thesis]. Technical University of Darmstadt.

Huang, Y., Yi, D., & Clark, W. A. V. (2020). A homeownership paradox: why do Chinese homeowners rent the housing they live in? *Housing Studies*. https://doi.org/10.1080/02673037.2020.1793916

Hulse, K., Morris, A., & Pawson, H. (2018). *Private Renting in a Home-owning Society: Disaster, Diversity or Deviance?* https://doi.org/10.1080/14036096.2018.1467964

Islam, K. S., & Asami, Y. (2009). Housing market segmentation: A review. *Review of Urban and Regional Development Studies*, *21*(2–3), 93–109. https://doi.org/10.1111/j.1467-940X.2009.00161.x

Jain, A. K., Mao, J., & Mohiuddin, K. M. (1996). Artificial neural networks: A tutorial. In *Computer* (Vol. 29, Issue 3, pp. 31–44). https://doi.org/10.1109/2.485891

Jensen, C. B. (2021). Material Itineraries: Southeast Asian Urban Transformations. *East Asian Science, Technology and Society*, *15*(2), 124–134. https://doi.org/10.1080/18752160.2021.1917840

Jones, S. (1999). Doing Internet Research: Critical Issues and Methods for Examining the Net. https://doi.org/10.4135/9781452231471

Jullien, C. (2021). *Nhà Trọ*, Rental Rooms for Fragments of Life. Temporary Footprint of Rural Migrants in Ho Chi Minh City. *The Russian Journal of Vietnamese Studies*, *5*(1S), 52–65. https://doi.org/10.54631/vs.2021.s-52-65

Kamakura, W. A., Wedel, M., & Agrawal, J. (1994). Concomitant variable latent class models for conjoint analysis. 8116(94), 4–8.

Kemp, P. A. (2011). Low-income Tenants in the Private Rental Housing Market. *Housing Studies*, *26*(7–8), 1019–1034. https://doi.org/10.1080/02673037.2011.615155

Kemp, S. (2020). *DIGITAL 2020: VIETNAM*. https://datareportal.com/reports/digital-2020-vietnam

Kontgis, C., Schneider, A., Fox, J., Saksena, S., Spencer, J. H., & Castrence, M. (2014). Monitoring peri-urbanization in the greater Ho Chi Minh City metropolitan area. *Applied Geography*, *53*, 377–388. https://doi.org/10.1016/j.apgeog.2014.06.029

Kotler, P. (2000). *Marketing Management* (Millennium). Pearson Custom Publishing.

Kotler, P., Armstrong, G., & Opresnik, M. O. (2018). *Principles of Marketing* (17th ed.). Pearson Education Limited.

La, H. A., Tran, T. B., & Nguyen, U. (2019). *Housing Gaps Between Rural–Urban Migrants and Local Urban Residents: The Case of Vietnam* (pp. 211–243). Springer, Cham. https://doi.org/10.1007/978-3-319-94574-3_9

Labbé, D., & Musil, C. (2014). Periurban Land Redevelopment in Vietnam under Market Socialism. *Urban Studies*, *51*(6), 1146–1161. https://doi.org/10.1177/0042098013495574

Le, L. T. P., & Leung, A. (2018). Associations between urban road-traffic emissions, health risks, and socioeconomic status in Ho Chi Minh City, Vietnam: a cross-sectional study. *The Lancet Planetary Health*, *2*, S5. https://doi.org/10.1016/s2542-5196(18)30090-1

Leaf, M. (2002). A tale of two villages: Globalization and peri-urban change in China and Vietnam. *Cities*, *19*(1), 23–31. https://doi.org/10.1016/S0264-2751(01)00043-9

Li, J., Li, D., Ning, · Xin, Sun, J., Du, H., & Li, J. (2019). *Residential satisfaction among resettled tenants in public rental housing in Wuhan, China*. *34*, 1125–1148. https://doi.org/10.1007/s10901-019-09667-x

Maalsen, S. (2019). I cannot afford to live alone in this city and I enjoy the company of others: why people are share housing in Sydney. *Australian Geographer*, *50*(3), 315–332. https://doi.org/10.1080/00049182.2019.1613026

McKee, K., Mihaela Soaita, A., & Hoolachan, J. (2019). “Generation rent” and the emotions of private renting: self-worth, status and insecurity amongst low-income renters. https://doi.org/10.1080/02673037.2019.1676400

Meyer, K. E., & Nguyen, H. V. (2005). Foreign investment strategies and sub-national institutions in emerging markets: Evidence from Vietnam. *Journal of Management Studies*, *42*(1), 63–93. https://doi.org/10.1111/j.1467-6486.2005.00489.x

Mills, E. S. (1990). Housing tenure choice. *The Journal of Real Estate Finance and Economics*, *3*(4), 323–331. https://doi.org/10.1007/BF00178856

MOHA; UNFPA. (2019). Report on Vietnamese youth in the period of 2015 - 2018.

Patanjali, S., & Bhatta, N. M. K. (2022). Work from Home During the Pandemic: The Impact of Organizational Factors on the Productivity of Employees in the IT Industry. *Vision*, 1–13. https://doi.org/10.1177/09722629221074137

Pham, T. S., Hua, T. M. T., Doan, T. Q., Nguyen, V. P., & Nguyen, T. G. (2017). Đề án phát triển thị trường bất động sản thành phố Hồ Chí Minh giai đoạn 2016-2020, định hướng đến năm 2025 và tầm nhìn đến năm 2030 (English translation: Project on real estate market development in Ho Chi Minh City for the period 2016-2020, orientation.

Raya, J., & Garcia, J. (2012). Which Are the Real Determinants of Tenure? A Comparative Analysis of Different Models of the Tenure Choice of a House. *Urban Studies*, *49*(16), 3645–3662. https://doi.org/10.1177/0042098012446998

Read, D. C., & Tsvetkova, A. (2012). Review Articles: Housing and social issues: A cross disciplinary review of the existing literature. *Journal of Real Estate Literature*, *20*(1), 3–35. http://search.proquest.com/docview/1020639302?accountid=39807

Reuschke, D. (2016). The Importance of Housing for Self-employment. *Economic Geography*, *92*(4), 378–400. https://doi.org/10.1080/00130095.2016.1178568

Riera-Prunera, C. (2014). Opportunity Cost. *Encyclopedia of Quality of Life and Well-Being Research*, 4497–4500. https://doi.org/10.1007/978-94-007-0753-5_2016

Röder-Sorge, M. (2018). Ein- und Zweifamilienhauskäufer - Ein Ansatz zur Immobilienmarktbeschreibung Dissertation. *Techischen Universitaet Darmstadt*.

Rowley, J. (2014). Designing and using research questionnaires. *Management Research Review*, *37*(3), 308–330. https://doi.org/10.1108/MRR-02-2013-0027

Saris, W. E., & Gallhofer, I. N. (2014). *Design, Evaluation, and Analysis of Questionnaires for Survey Research* (2nd ed.). John Wiley & Sons, Inc. https://doi.org/10.1002/9781118634646.ch8

Schnell, R. (2012). Survey- Interviews Methoden standardisierter Befragungen. In *Survey-Interviews* (2nd ed.). Springer VS. https://doi.org/10.1007/978-3-531-19901-6

Steenkamp, J.-B. E. M., & Wedel, M. (1991). Segmenting retail markets on store image using a consumer-based methodology. *Journal of Retailing*, *67*(January 1991), 300. http://www.mendeley.com/research/segmenting-retail-markets-store-image-using-consumerbased-methodology/

Taylor, H. (2000). Does Internet Research Work? *International Journal of Market Research*, *42*(1), 1–11. https://doi.org/10.1177/147078530004200104

Turok, I. (2016). Housing and the urban premium. *Habitat International*, *54*, 234–240. https://doi.org/10.1016/J.HABITATINT.2015.11.019

Turok, I., & McGranahan, G. (2013). Urbanization and economic growth: The arguments and evidence for Africa and Asia. *Environment and Urbanization*, *25*(2), 465–482. https://doi.org/10.1177/0956247813490908

UN-Habitat. (2003). Rental Housing An essential option for the urban poor in developing countries. UNON Printshop. http://www.unhabitat.org/

UN-Habitat. (2012). Young people, participation, and sustainable development in an urbanizing world. www.unhabitat.org/youth

UN-Habitat. (2020). *The right to adequate housing*. 180–201. https://doi.org/10.4337/9781788974172.00018

Vachaud, G., Quertamp, F., Phan, T. S. H., Tran Ngoc, T. D., Nguyen, T., Luu, X. L., Nguyen, A. T., & Gratiot, N. (2019). Flood-related risks in Ho Chi Minh City and ways of mitigation. *Journal of Hydrology*, *573*, 1021–1027. https://doi.org/10.1016/J.JHYDROL.2018.02.044

Varady, D. P., & Lipman, B. J. (1994). What Are Renters Really Like? Results from a National Survey. *Housing Policy Debate*, *5*(4), 491–531. https://doi.org/10.1080/10511482.1994.9521176

Vietnam General Statistics Office. (2019). Completed Results of the 2019 Viet Nam Population and Housing Census.

Vu, T. T., Thy, P. T. M., & Nguyen, L. Đ. (2018). Multiscale remote sensing of urbanization in Ho Chi Minh city, Vietnam - A focused study of the south. *Applied Geography*, *92*(June 2016), 168–181. https://doi.org/10.1016/j.apgeog.2017.12.026

Wedel, M., & Kamakura, W. A. (2000). Market Segmentation: Conceptual and Methodological Foundations (International Series in Quantitative Marketing) (pp. 1–382).

William D. Crano, Marilynn B. Brewer, Andrew Lac, William D. Crano, M. B. B. (2001). *Principles and Methods of Social Research* (2nd ed.). Psychology Press. https://doi.org/https://doi.org/10.4324/9781410613134

Wind, Y. (1978). Issues and Advances in Segmentation Research. *Journal of Marketing Research*, *15*(3), 317–337. https://doi.org/10.1177/002224377801500302

World Bank. (2015). Vietnam Affordable Housing: A Way Forward. In *The World Bank* (Vol. 23, Issue 4). https://doi.org/10.1353/jod.2012.0070

World Bank. (2020). Improving the Performance of Higher Education in Vietnam: Strategic Priorities and Policy Options. *World Bank Group*, 76. https://openknowledge.worldbank.org/handle/10986/33681

Wright, K. B. (2005). Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software

packages, and web survey services. *Journal of Computer-Mediated Communication*, *10*(3). https://doi.org/10.1111/j.1083-6101.2005.tb00259.x

Yun, G. W., & Trumbo, C. W. (2000). Comparative Response to a Survey Executed by Post, E-mail, and Web Form. *Journal of Computer-Mediated Communication*, *6*(1). https://doi.org/10.1111/j.1083-6101.2000.tb00112.x

Zhu, J. (2012). Development of sustainable urban forms for high-density low-income Asian countries: The case of Vietnam: The institutional hindrance of the commons and anticommons. *Cities*, *29*(2), 77–87. https://doi.org/10.1016/j.cities.2011.08.005

Appendices

I. Questionnaire (Original Version: Vietnamese)

Khảo sát về việc thuê nhà của người trẻ tại Thành phố Hồ Chí Minh

Xin chào Anh/Chị.

Chân thành cảm ơn anh/chị đã dành thời gian tham gia cuộc khảo sát!

Đây là bài khảo sát phục vụ cho việc nghiên cứu khoa học, để tìm hiểu về việc thuê nhà của người trẻ tại Thành phố Hồ Chí Minh.

Bài khảo sát sẽ cần khoảng 10 phút để trả lời. Kết quả của cuộc khảo sát sẽ rất có ích trong việc cung cấp những dữ liệu cần thiết giúp cho việc phát triển thị trường nhà cho thuê một cách bền vững, và góp phần vào việc đảm bảo chỗ ở hợp lý cho người dân tại các thành phố lớn như Tp. Hồ Chí Minh.

Những thông tin được các anh/chị cung cấp sẽ hoàn toàn được giữ bí mật và các câu trả lời chỉ phục vụ cho mục đích học thuật.

Xin chân thành cảm ơn sự hỗ trợ nhiệt tình của anh/chị!

Thạc sỹ - Kỹ sư Hứa Trần Minh Trí

Nghiên cứu sinh – Viện Trắc đạc - Đại học kỹ thuật Darmstadt

Email: tri.hua@tu-darmstadt.de

* Các câu hỏi bắt buộc phải trả lời

1. Anh/chị có đang thuê nhà HOẶC đã từng thuê nhà tại Tp.HCM không? *

- □ Đang thuê nhà
- □ Đã kết thúc việc thuê nhà cách đây chưa đến 3 năm
- □ Đã kết thúc việc thuê nhà cách đây hơn 3 năm (Chuyển đến Mục " Cảm ơn các anh/chị đã tham gia khảo sát!")
- □ Chưa từng thuê nhà

(Chuyển đến Mục " Cảm ơn các anh/chị đã tham gia khảo sát!")

2. Anh/chị thuê nhà vào mục đích gì? *

- □ Chỉ ở
- □ Ở và thường xuyên làm việc tại nhà
- □ Ở và kinh doanh
- □ Không sử dụng để ở, mà sử dụng vào mục đích khác. (Chuyển đến Mục " Cảm ơn các anh/chị đã tham gia khảo sát!")

3. Anh/chị vui lòng cho biết tuổi của anh/chị? * *(chỉ cần nhập số nguyên, ví dụ: 25)*

_____

_____

4. Anh/chị vui lòng cho biết tình trạng hôn nhân của anh/chị? *

(Anh/chị có thể chọn ô "Khác" và thêm thông tin đúng nhất với trường hợp của anh/chị)

- □ Độc thân/ chưa kết hôn/ đã Ly hôn và sống một mình
- □ Đã kết hôn/ đang sống cùng người yêu
- □ Khác:

_____

_____

5. Anh/chị vui lòng chọn giới tính? *

□ Nam □ Nữ

6. Chỗ ở anh/chị thuê là: *

(Anh/chị có thể chọn ô "Khác" và thêm thông tin đúng nhất với trường hợp của anh/chị)

- □ Thuê ở riêng (Chuyển đến câu 7a)
- □ Thuê ở chung với gia đình (vợ/chồng/người yêu/con cái, cha/mẹ, anh/chị/em, họ hàng) *(Chuyển đến câu 7b)*
- □ Thuê ở chung với bạn bè/người lạ (không có mối quan hệ gia đình) *(Chuyển đến câu 7c)*
- □ Khác:

_____

_____

7a. Loại hình nhà ở mà anh/chị thuê ở riêng là: *

(Anh/chị có thể chọn ô "Khác" và thêm thông tin đúng nhất với trường hợp của anh/chị)

- □ Thuê một ngôi nhà
- □ Thuê một căn hộ chung cư
- □ Thuê một căn chung cư mini
- □ Thuê phòng riêng trong nhà nguyên căn
- □ Thuê phòng riêng trong căn hộ chung cư
- □ Thuê nhà trọ nhỏ/phòng trọ trong một dãy trọ
- □ Phòng riêng trong ký túc xá
- □ Khác:

_____

_____

7b. Loại hình nhà ở mà anh/chị thuê ở cùng gia đình là: *

(Anh/chị có thể chọn ô "Khác" và thêm thông tin đúng nhất với trường hợp của anh/chị)

- □ Thuê nguyên một căn nhà
- □ Thuê nguyên một căn chung cư
- □ Thuê một căn chung cư mini
- □ Thuê phòng riêng trong nhà nguyên căn
- □ Thuê một phòng riêng trong căn hộ chung cư
- □ Thuê nhà trọ nhỏ/phòng trọ trong một dãy trọ
- □ Khác:

_____

_____

7c. Loại hình nhà ở mà anh/chị thuê ở chung với người khác là: *

(Anh/chị có thể chọn ô "Khác" và thêm thông tin đúng nhất với trường hợp của anh/chị)

- □ Thuê một ngôi nhà (mỗi người sẽ ở 1 phần trong ngôi nhà này)

□ Thuê một căn hộ chung cư (mỗi người sẽ ở 1 phòng trong nhà này)
□ Thuê một căn chung cư mini (mỗi người sẽ ở một phần trong nhà này)
□ Thuê phòng riêng trong nhà nguyên căn (mỗi người sẽ ở 1 phần trong phòng này)
□ Thuê phòng riêng trong căn hộ chung cư (mỗi người sẽ ở 1 phần trong phòng này)
□ Thuê nhà trọ nhỏ/phòng trọ trong một dãy trọ (mỗi người sẽ ở một phần trong phòng này)
□ Thuê phòng trong ký túc xá (mỗi người sẽ ở 1 phần trong phòng ký túc xá)
□ Khác:

_____

_____

8. Thời gian anh/chị thuê chỗ ở được đề cập ở câu trên là bao lâu? *

(Nếu anh/chị đã kết thúc việc thuê, vui lòng lựa/chọn tổng thời gian ở lần thuê gần đây nhất. Nếu anh/chị vẫn đang thuê thì anh/chị vui lòng tính từ lúc anh/chị ký hợp đồng thuê đến khi anh/chị kết thúc việc thuê nhà)

□ dưới 1 năm
□ từ 1 đến 3 năm
□ trên 3 đến 5 năm
□ trên 5 năm

9. Tính tới thời điểm hiện tại, anh/chị đã ở nhà thuê trong bao lâu? (năm)

Thời gian ở nhà thuê được tính Tổng các lần anh/chị thuê nhà (Ví dụ: anh/chị một nơi ở trong 2 năm, sau đó thuê nơi khác 1 năm, thì tổng thời gian sẽ là là 3 năm)

□ dưới 1 năm
□ từ 1 đến 3 năm
□ trên 3 đến 5 năm
□ trên 5 đến 10 năm
□ trên 10 năm

10. Anh/chị thuê nhà ở quận nào? * (chọn lựa từ danh sách 24 quận/huyện)

11. Tổng thu nhập hàng tháng của anh/chị nằm trong nhóm nào sau đây: *

□ Dưới 5 triệu
□ 5 đến 10 triệu
□ Trên 10 đến 20 triệu
□ Trên 20 triệu

12. Tổng thu nhập hàng tháng của gia đình anh/chị nằm trong nhóm nào sau đây: *

□ Dưới 10 triệu
□ 10 đến 20 triệu
□ Trên 20 đến 30 triệu
□ Trên 30 triệu

13. Giá thuê mà anh/chị HOẶC anh/chị VÀ gia đình của anh chị chi trả là bao nhiêu? (triệu đồng) * (Giá thuê là giá anh/chị trả cho chủ nhà, không bao gồm các phụ phí như tiền điện, nước, chi phí quản lý,..) Xin anh/chị vui lòng nhập số tiền thuê với đơn vị là triệu đồng; Ví dụ: giá thuê là 7 triệu: anh/chị nhập 7; giá thuê là 7 triệu 600 nghìn, anh/chị nhập 7.6.

_____

_____

14. Diện tích sử dụng mà anh chị đang trả tiền thuê là bao nhiêu? (mét vuông) *

(Nếu không rõ, anh/chị có thể tham khảo diện tích theo hợp đồng thuê nhà, có thể nhập số lẻ)

_____

_____

15. Anh/chị có đang thuê để ở cùng với con cái hay không? *

□ Có □ Không

16. Anh/chị có đang thuê để ở cùng với bố mẹ hoặc ông bà hay không? *

□ Có □ Không

17. Khoảng cách từ chỗ ở của anh/chị đến nơi làm việc là bao xa? (km) *

Ví dụ: trường hợp nhỏ hơn 1km, như 800m, anh/chị sẽ nhập 0.8

_____

_____

18. Lúc anh/chị chuyển đến, tình trạng của chỗ được thuê như thế nào? (bao gồm: tường, sàn nhà, trần nhà, cửa đi, cửa sổ, thiết bị vệ sinh, thiết bị chiếu sáng) *

□ Mới 100% hoặc vừa được làm mới
□ Cũ nhưng không cần mất thêm chi phí để cải tạo
□ Cũ và phải cải tạo để có thể ở

19. Anh/chị đã sống ở TpHCM được bao nhiêu năm? *

_____

_____

20. Lý do anh/chị thuê nhà là gì? (anh/chị có thể chọn nhiều câu trả lời nếu cảm thấy phù hợp, hoặc đánh vào ô "khác" để điền thêm nội dung) *

○ Đang tiết kiệm để đủ tiền mua nhà
○ Đang tìm kiếm căn nhà tốt và phù hợp nhất
○ Vì dự định cư trú ở nơi khác trong tương lai (định cư ở nước ngoài, đi tỉnh/thành phố khác…)
○ Vì chờ đợi lãi suất tốt cho việc mua nhà
○ Mua nhà đã không còn là điều thiết yếu, tôi có thể thuê nhà và tận hưởng cuộc sống.
○ Vì tính chất công việc, phải thay đổi nơi làm việc thường xuyên
○ Tôi có nhà ở Tp.HCM, nhưng ngôi nhà của tôi không đáp ứng đủ chất lượng sống mà tôi muốn
○ Khác:

_____

_____

21. Anh/chị vui lòng cho biết mức độ quan trọng của các yếu tố sau đây đến quyết định lựa chọn chỗ thuê của anh/chị. *

	Không quan trọng	Ít quan trọng	Bình thường	Quan trọng	Rất quan trọng
Giá thuê					
Tình trạng nhà khi thuê (mới, khá mới, hoặc không phải cải tạo, sửa chữa)					
Diện tích sử dụng					
Số nhà tắm và vệ sinh					
Chỗ để xe					
Chợ và siêu thị ở gần, dễ tiếp cận					
Thuận tiện cho công việc và học tập (gần nơi làm việc, khu đông dân cư dễ kinh doanh)					
Trạm xe buýt, trạm giao thông công cộng ở trong khoảng cách có thể đi bộ					
Trường mầm non hoặc nơi giữ trẻ dưới 5 tuổi trong khoảng cách có thể đi bộ					
Hệ thống camera an ninh					
Hệ thống chiếu sáng công cộng					
Công viên, mảng xanh xung quanh trong khoảng cách có thể đi bộ được					
Môi trường sống yên tĩnh					
Hàng xóm và cư dân xung quanh thân thiện					
Khoảng cách đến nhà người thân, họ hàng					
Cách xa các nguồn gây ô nhiễm (nước, không khí)					
Nơi khám chữa bệnh ở gần, dễ tiếp cận					
Trung tâm giải trí ở gần, dễ tiếp cận					
Nơi ở được cách âm tốt					
Nơi ở được cách nhiệt tốt					
Nơi ở được thông gió tốt					
Nơi ở được thiết kế có nhiều ánh sáng tự nhiên					
Uy tín của chủ cho thuê bất động sản					
Sự ổn định của giá nhà thuê					

Cách thức xác định trách nhiệm của các bên khi có sự cố liên quan đến căn nhà (như liên quan đến hệ thống điện, nước , thiết bị trong nhà bị hỏng)	
Thời hạn của hợp đồng thuê	
Khác	

Xin chân thành cảm ơn sự tham gia của Anh/chị!

II. Questionnaire (Translated Version: English)

Vietnamese-German University

TECHNISCHE UNIVERSITÄT DARMSTADT

Survey on renting housing of young people in Ho Chi Minh City

Thank you very much for taking the time to participate in the survey!

This is a survey for scientific research, to learn about renting houses of young people in Ho Chi Minh City.

The survey will take about 10 minutes to respond. The results of the survey will be very helpful in providing the necessary data to help develop the rental housing market in a sustainable way, and contribute to ensuring reasonable accommodation for people in the urban areas. big city like City. Ho Chi Minh.

The information you provide will be kept strictly confidential and answers will be used for academic purposes only.

Once again, thank you for your enthusiastic support!

M.Sc. Eng. Tran Minh Tri HUA

Ph.D. student – Geodesy Institute – Technical University of Darmstadt

Email: tri.hua@tu-darmstadt.de

* Required

1. Are you currently renting a house OR have you ever rented a house in HCMC? *

- □ Renting a house
- □ End of tenancy less than 3 years ago
- □ End of tenancy more than 3 years ago

(Go to the “Thank you for taking part in the survey!” section.)

- □ Never rented a house

(Go to the “Thank you for taking part in the survey!” section.)

2. What are you renting the house for?*

- □ For stay only
- □ For stay and often work from home
- □ For stay and run business

Not for staying, but for differental purposes.
(Go to the “Thank you for taking part in the survey!” section.)

3. Could you please input your age?* *(Please input integer, e.g: 25)*

4. Could you please indicate your marital status? *

(You can check the box "Other" and add the information that best suits your situation.)

- □ Single/ unmarried/ Divorced and living alone
- □ Married/ living with partner
- □ Other:

_____

5. Could you please choose your gender? *

□ Male □ Female

6. Could you please select the type of rented accommodation?: *

(You can check the box "Other" and add the information that best suits your situation.)

- □ Rent to stay alone *(To question 7a)*
- □ Rent with family (spouse/lover/children, father/mother, brother/sister, relative) *(To question 7b)*
- □ Rent with friends/strangers (without family relationship) *(To question 7c)*
- □ Other:

_____

7a. What type of housing do you rent to stay alone?: *

(You can check the box "Other" and add the information that best suits your situation.)

- □ Rent a house
- □ Rent an apartment
- □ Rent a mini apartment
- □ Rent a private room in a house
- □ Rent a private room in an apartment
- □ Rent a unit in a row rooms
- □ Private room in dormitory
- □ Other:

_____

7b. What type of housing do you rent to stay with family? *

(You can check the box "Other" and add the information that best suits your situation.)

- □ Rent a house
- □ Rent an apartment
- □ Rent a mini apartment
- □ Rent a private room in a house
- □ Rent a private room in an apartment
- □ Rent a unit in a row rooms
- □ Other:

_____

7c. What type of housing do you rent to stay with friend/stranger? *

(You can check the box "Other" and add the information that best suits your situation.)

- □ Rent a house (each person will live in a part of this house)
- □ Rent an apartment (each person will live in a part of this apartment)

□ Rent a mini apartment (each person will live in a part of this apartment)
□ Rent a private room in a house (each person will stay in a part of this room)
□ Rent a private room in an apartment (each person will stay in a part of this room)
□ Rent a unit in a row rooms (each person will stay in a part of this room)
□ Rent a room in the dormitory (each person will stay in a part of the dormitory room)
□ Other:

_____

8. How long have you rented/did you rent the above mentioned accommodation? *

(If you have ended your lease, please select the total length of the last rental. If you are still renting, please calculate from the time you sign the lease to the time you end the tenancy)

□ Under 1 year
□ From 1 year to 3 years
□ Above 3 years to 5 years
□ Above 5 years

9. Up to now, how long have you lived in a rented house? (year)

The time you stay in the rented accommodation is calculated as the sum of the duration you rent

(e.g., you live in one place for 2 years, then rent another place for 1 year, the total time will be 3 years)

□ Under 1 year
□ From 1 year to 3 years
□ Above 3 years to 5 years
□ Above 5 years to 10 years
□ Above 10 years

10. In which district do you rent an accommodation? * *(choose from a list of 24 districts)*

11. Which of the following groups does your total monthly income fall into? (VND) *

□ Under 5 million
□ 5 to 10 million
□ Above 10 to 20 millions
□ Above 20 millions

12. Which of the following groups does your family's total monthly income fall into? (VND) *

□ Under 10 million
□ From 10 to 20 million
□ Above 20 to 30 millions
□ Above 30 millions

13. How much rent do you OR you AND your family pay? (million VND) *

(The rent is the price you pay to the landlord, excluding additional fees such as electricity, water, management costs, etc.) Please enter the rental amount in a million dong; E.g., the rent is 7 million: you enter 7; rent is 7 million 600 thousand, you enter 7.6.

_____

14. How much space are you paying rent for? (square meters) *

(If not clear, you can refer to the area according to the rental contract, you can enter odd numbers)

_____

15. Are you renting to live with your children? *

□ Yes
□ No

16. Are you renting to live with your parents or grandparents? *

□ Yes □ No

17. How far is the distance from your place of residence to the place of work? (kilometer)*

E.g., if it is less than 1km, like 800m, you will enter 0.8

_____

_____

18. When you moved in, what was the condition of the rented place? (including walls, floors, ceilings, doors, windows, sanitary ware, lighting equipment) *

- □ 100% new or just refreshed
- □ Old but no need to spend extra money to renovate
- □ Old and must be renovated to live

19. How many years have you lived in HCMC? *

_____

_____

20. Could you state the reasons of your renting decision? (you can choose as many answers as you feel like, or check the box "other" to fill in more information) *

- o Saving to buy a house
- o Looking for the good and most suitable house
- o Because they plan to reside in another place in the future (settling abroad, going to another province/city, etc.)
- o Waiting for a reasonable interest rate to buy a house
- o Buying a house is no longer essential; I can rent and enjoy life.
- o Due to the nature of the job, the workplace must be changed frequently
- o I have a house in HCMC, but my house doesn't meet the quality of life I want
- o Other:

  _____

  _____

22. Please indicate the importance of the following factors to your decision when you rent an accommodation *

	Not important	Slightly important	Moderately important	Important	Very important
Rent price					
House condition when renting (new, relatively new, or not renovated or repaired)					
Usable area					
Number of bathrooms and toilets					
Parking					
Markets and supermarkets are close by, easy to access					
Convenient for work and study (near workplace, densely populated area, easy to do business)					
Bus stop, public transport station within walking distance					
Kindergarten or daycare for children under five within walking distance					
Security camera system					
Public lighting system					
Park, surrounding green space within walking distance					
Quiet living environment					
Neighbors and surrounding residents are friendly					
Distance to relatives, relatives					

Keep away from sources of pollution (water, air)	
The place of medical examination and treatment is near, easy to reach	
Entertainment centers close by, easy to reach	
The place is well soundproofed	
The place is well insulated	
The place is well ventilated	
The place is designed with lots of natural light	
The reputation of the real estate owner	
The stability of rent prices	
How to determine the responsibility of the parties when there is a problem related to the house (such as related to broken electricity, water, equipment in the house)	
Term of the rental contract	
Other	

Thank you very much for your participation!

III. Table of Statistical analysis

- Basic demographic information.

Table A.0.1 Age, Years tenants lived in HCMC, and their age at the first arrival

	Age when move to HCMC	**Years in HCMC**	**Age**
Min	0.00	0.50	18.00
Max	37.00	39.00	39.00
Median	18.00	7.00	26.00
Average	16.99	9.34	26.33
Q1	18.00	4.00	23.00
Q2	18.00	7.00	26.00
Q3	19.75	11.00	29.00

Table A.0.2 The proportion, and quantity of tenants according to Hometown, Gender, and In-migration status

	Hometown		**Gender**		**"Local" or "Migrant"**	
	HCMC	Other provinces	Female	Male	"Local"	"Migrant"
N	26	307	217	116	96	237
Proportion	8%	92%	65%	35%	29%	71%
Total	333 / 100%		333 / 100%		333 / 100%	

Table A.0.3 Household structure of respondents in the survey

	Marital status		**Household structure**	
	Single	Living with partner	One-generation	Two-generation or more
N	264	69	286	47
Proportion	79%	21%	86%	14%
Total	333 / 100%		333 / 100%	

- Statistical analysis tables between Sharing type and Factors.

Table A.0.4 Statistical analysis results between Sharing type and Location

Rent Type		Inner core	Inner fringe	Urban fringe	Row Total
No share	Count	44	48	41	133
	Expt Value	35.147	44.733	53.120	
	Chisq	2.230	0.239	2.765	
	% Row	33.083%	36.090%	30.827%	39.940%
	% Column	50.000%	42.857%	30.827%	
	% Total	13.213%	14.414%	12.312%	
	Std Residual	1.493	0.489	-1.663	
Share with friends/ stranger	Count	28	34	50	112
	Expt Value	29.598	37.670	44.733	
	Chisq	0.086	0.357	0.620	
	% Row	25.000%	30.357%	44.643%	33.634%
	% Column	31.818%	30.357%	37.594%	
	% Total	8.408%	10.210%	15.015%	
	Std Residual	-0.294	-0.598	0.788	
Share with family	Count	16	30	42	88
	Expt Value	23.255	29.598	35.147	
	Chisq	2.264	0.005	1.336	
	% Row	18.182%	34.091%	47.727%	26.426%
	% Column	18.182%	26.786%	31.579%	
	% Total	4.805%	9.009%	12.613%	
	Std Residual	-1.504	0.074	1.156	
Column Total		88	88	112	133
		26.426%	33.634%	39.940%	

- Statistical analysis tables between Rent purpose and Factors.

Table A.0.5 Statistical analysis results between Rent purpose and Rental duration

Rent purpose		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Just stay	Count	74	125	26	24	249
	Expt Value	77.766	120.387	29.162	21.685	
	Chisq	0.182	0.177	0.343	0.247	
	% Row	29.719%	50.201%	10.442%	9.639%	74.775%
	% Column	71.154%	77.640%	66.667%	82.759%	
	% Total	22.222%	37.538%	7.808%	7.207%	
	Std Residual	-0.427	0.420	-0.586	0.497	
Stay and business	Count	2	8	3	2	15
	Expt Value	4.685	7.252	1.757	1.306	
	Chisq	1.539	0.077	0.880	0.368	
	% Row	13.333%	53.333%	20.000%	13.333%	4.505%
	% Column	1.923%	4.969%	7.692%	6.897%	
	% Total	0.601%	2.402%	0.901%	0.601%	
	Std Residual	-1.240	0.278	0.938	0.607	
Stay and work	Count	28	28	10	3	69
	Expt Value	21.550	33.360	8.081	6.009	
	Chisq	1.931	0.861	0.456	1.507	
	% Row	40.580%	40.580%	14.493%	4.348%	20.721%
	% Column	26.923%	17.391%	25.641%	10.345%	
	% Total	8.408%	8.408%	3.003%	0.901%	
	Std Residual	1.390	-0.928	0.675	-1.228	
Column Total		104	161	39	29	333
		31.231%	48.348%	11.712%	8.709%	

Table A.0.6 Statistical analysis results between Rent purpose and Total rental duration

Rent purpose		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Just stay	Count	48	82	48	71	249
	Expt Value	48.604	83	47.108	70.288	
	Chisq	0.007	0.012	0.017	0.007	
	% Row	19.28%	32.93%	19.28%	28.51%	74.78%
	% Column	73.85%	73.87%	76.19%	75.53%	
	% Total	14.41%	24.63%	14.41%	21.32%	
	Std Residual	-0.087	-0.11	0.13	0.085	
Stay and business	Count	2	4	2	7	15
	Expt Value	2.928	5	2.838	4.234	
	Chisq	0.294	0.2	0.247	1.807	
	% Row	13.33%	26.67%	13.33%	46.67%	4.51%
	% Column	3.08%	3.60%	3.18%	7.45%	
	% Total	0.60%	1.20%	0.60%	2.10%	
	Std Residual	-0.542	-0.447	-0.497	1.344	
Stay and work	Count	15	25	13	16	69
	Expt Value	13.468	23	13.054	19.477	
	Chisq	0.174	0.174	0	0.621	
	% Row	21.74%	36.23%	18.84%	23.19%	20.72%
	% Column	23.08%	22.52%	20.64%	17.02%	
	% Total	4.51%	7.51%	3.90%	4.81%	
	Std Residual	0.417	0.417	-0.015	-0.788	
Column Total		65	111	63	94	333
		19.52%	33.33%	18.92%	28.23%	

- Statistical analysis tables between Accommodation types and Factors.

Table A.0.7 Statistical analysis results between Accommodation type and Income

Accommodation types		Less than 5 Mil VND	5 - 10 Mil VND	10 - 20 Mil VND	More than 20 VND	Row Total
Type I	Count	40	35	30	8	113
	Expt Value	25.79	30.541	39.024	17.646	
	Chisq	7.83	0.651	2.087	5.273	
	% Row	35.40%	30.97%	26.55%	7.08%	33.93%
	% Column	52.63%	38.89%	26.09%	15.39%	
	% Total	12.01%	10.51%	9.01%	2.40%	
	Std Residual	2.798	0.807	-1.445	-2.296	
Type II	Count	26	33	44	17	120
	Expt Value	27.387	32.432	41.441	18.739	
	Chisq	0.07	0.01	0.158	0.161	
	% Row	21.67%	27.50%	36.67%	14.17%	36.04%
	% Column	34.21%	36.67%	38.26%	32.69%	
	% Total	7.81%	9.91%	13.21%	5.11%	
	Std Residual	-0.265	0.1	0.397	-0.402	
Type III	Count	10	22	41	27	100
	Expt Value	22.823	27.027	34.535	15.616	
	Chisq	7.204	0.935	1.21	8.3	
	% Row	10.00%	22.00%	41.00%	27.00%	30.03%
	% Column	13.16%	24.44%	35.65%	51.92%	
	% Total	3.00%	6.61%	12.31%	8.11%	
	Std Residual	-2.684	-0.967	1.1	2.881	
Column Total		76	90	115	52	333
		22.82%	27.03%	34.54%	15.62%	

Table A.0.8 Statistical analysis results between Accommodation type and House condition

Rent Type		100% New	Fairly New	Need to repair	Row Total
Type I	Count	33	72	8	113
	Expt Value	46.15	60.402	6.447	
	Chisq	3.747	2.227	0.374	
	% Row	29.20%	63.72%	7.08%	33.93%
	% Column	24.27%	40.45%	42.11%	
	% Total	9.91%	21.62%	2.40%	
	Std Residual	-1.936	1.492	0.611	
Type II	Count	54	64	2	120
	Expt Value	49.009	64.144	6.847	
	Chisq	0.508	0	3.431	
	% Row	45.00%	53.33%	1.67%	36.04%
	% Column	39.71%	35.96%	10.53%	
	% Total	16.22%	19.22%	0.60%	
	Std Residual	0.713	-0.018	-1.852	
Type III	Count	49	42	9	100
	Expt Value	40.841	53.453	5.706	
	Chisq	1.63	2.454	1.902	
	% Row	49.00%	42.00%	9.00%	30.03%
	% Column	36.03%	23.60%	47.37%	
	% Total	14.72%	12.61%	2.70%	
	Std Residual	1.277	-1.567	1.379	
Column Total		136.00	178.00	19.00	333
		40.84%	53.45%	5.71%	

Table A.0.9 Statistical analysis results between Accommodation type and Rental duration

Rent Type		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Type I	Count	24	54	21	14	113
	Expt Value	35.291	54.634	13.234	9.841	
	Chisq	3.613	0.007	4.557	1.758	
	% Row	21.24%	47.79%	18.58%	12.39%	33.93%
	% Column	23.08%	33.54%	53.85%	48.28%	
	% Total	7.21%	16.22%	6.31%	4.20%	
	Std Residual	-1.901	-0.086	2.135	1.326	
Type II	Count	47	57	10	6	120
	Expt Value	37.477	58.018	14.054	10.45	
	Chisq	2.42	0.018	1.169	1.895	
	% Row	39.17%	47.50%	8.33%	5.00%	36.04%
	% Column	45.19%	35.40%	25.64%	20.69%	
	% Total	14.11%	17.12%	3.00%	1.80%	
	Std Residual	1.555	-0.134	-1.081	-1.377	
Type III	Count	33	50	8	9	100
	Expt Value	31.231	48.348	11.712	8.709	
	Chisq	0.1	0.056	1.176	0.01	
	% Row	33.00%	50.00%	8.00%	9.00%	30.03%
	% Column	31.73%	31.06%	20.51%	31.03%	
	% Total	9.91%	15.02%	2.40%	2.70%	
	Std Residual	0.317	0.238	-1.085	0.099	
Column Total		104	161	39	29	333
		31.23%	48.35%	11.71%	8.71%	

Table A.0.10 Statistical analysis results between Accommodation type and Total rent time

Rent Type		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Type I	Count	14	39	31	29	113
	Expt Value	22.057	37.667	21.378	31.898	
	Chisq	2.943	0.047	4.33	0.263	
	% Row	12.39%	34.51%	27.43%	25.66%	33.93%
	% Column	21.54%	35.14%	49.21%	30.85%	
	% Total	4.20%	11.71%	9.31%	8.71%	
	Std Residual	-1.716	0.217	2.081	-0.513	
Type II	Count	27	36	19	38	120
	Expt Value	23.423	40	22.703	33.874	
	Chisq	0.546	0.4	0.604	0.503	
	% Row	22.50%	30.00%	15.83%	31.67%	36.04%
	% Column	41.54%	32.43%	30.16%	40.43%	
	% Total	8.11%	10.81%	5.71%	11.41%	
	Std Residual	0.739	-0.632	-0.777	0.709	
Type III	Count	24	36	13	27	100
	Expt Value	19.52	33.333	18.919	28.228	
	Chisq	1.028	0.213	1.852	0.053	
	% Row	24.00%	36.00%	13.00%	27.00%	30.03%
	% Column	36.92%	32.43%	20.64%	28.72%	
	% Total	7.21%	10.81%	3.90%	8.11%	
	Std Residual	1.014	0.462	-1.361	-0.231	
Column Total		65	111	63	94	333
		19.52%	33.33%	18.92%	28.23%	

Table A.0.11 Statistical analysis results between Accommodation type and Location

Rent Type		Inner core	Inner fringe	Urban fringe	Row Total
Type I	Count	17	36	60	113
	Expt Value	29.862	38.006	45.132	
	Chisq	5.54	0.106	4.898	
	% Row	15.04%	31.86%	53.10%	33.934%
	% Column	19.32%	32.14%	45.11%	
	% Total	5.11%	10.81%	18.02%	
	Std Residual	-2.354	-0.325	2.213	
Type II	Count	46	43	31	120
	Expt Value	31.712	40.36	47.928	
	Chisq	6.438	0.173	5.979	
	% Row	38.33%	35.83%	25.83%	36.036%
	% Column	52.27%	38.39%	23.31%	
	% Total	13.81%	12.91%	9.31%	
	Std Residual	2.537	0.415	-2.445	
Type III	Count	25	33	42	100
	Expt Value	26.426	33.634	39.94	
	Chisq	0.077	0.012	0.106	
	% Row	25.00%	33.00%	42.00%	30.030%
	% Column	28.41%	29.46%	31.58%	
	% Total	7.51%	9.91%	12.61%	
	Std Residual	-0.277	-0.109	0.326	
Column Total		88	112	133	333
		26.43%	33.63%	39.94%	

Table A.0.12 Statistical analysis results between Accommodation type and Rent purpose

Rent Type		Just stay	Stay and business	Stay and work	Row Total
Type I	Count	90	0	23	113
	Expt Value	84.495	5.09	23.414	
	Chisq	0.359	5.09	0.007	
	% Row	79.65%	0.00%	20.35%	33.93%
	% Column	36.15%	0.00%	33.33%	
	% Total	27.03%	0.00%	6.91%	
	Std Residual	0.599	-2.256	-0.086	
Type II	Count	96	1	23	120
	Expt Value	89.73	5.405	24.865	
	Chisq	0.438	3.59	0.14	
	% Row	80.00%	0.83%	19.17%	36.04%
	% Column	38.55%	6.67%	33.33%	
	% Total	28.83%	0.30%	6.91%	
	Std Residual	0.662	-1.895	-0.374	
Type III	Count	63	14	23	100
	Expt Value	74.775	4.505	20.721	
	Chisq	1.854	20.017	0.251	
	% Row	63.00%	14.00%	23.00%	30.03%
	% Column	25.30%	93.33%	33.33%	
	% Total	18.92%	4.20%	6.91%	
	Std Residual	-1.362	4.474	0.501	
Column Total		249	15	69	333
		74.78%	4.51%	20.72%	

Table A.0.13 Rent reasons according to Accommodation type

	Economic reason	Convinience	Tendency	Future plan	No-ownership-need	Total
Type I	69.03%	66.37%	5.31%	15.04%	18.58%	113
Type II	49.17%	52.50%	10.00%	10.83%	10.83%	120
Type III	53.00%	50.00%	5.00%	10.00%	13.00%	100

- Statistical analysis tables between Gender and Factor.

Table A.0.14 Statistical analysis results between Gender and Sharing type

Gender		No share	Share with friends/ stranger	Share with family	Row Total
Male	Count	62	33	21	116
	Expt Value	46.33	39.015	30.655	
	Chisq	5.3	0.927	3.041	
	% Row	53.45%	28.45%	18.10%	34.84%
	% Column	46.62%	29.46%	23.86%	
	% Total	18.62%	9.91%	6.31%	
	Std Residual	2.302	-0.963	-1.744	
Female	Count	71	79	67	217
	Expt Value	86.67	72.985	57.345	
	Chisq	2.833	0.496	1.625	
	% Row	32.72%	36.41%	30.88%	65.17%
	% Column	53.38%	70.54%	76.14%	
	% Total	21.32%	23.72%	20.12%	
	Std Residual	-1.683	0.704	1.275	
Column Total		133	112	88	333
		39.94%	33.63%	26.43%	

- Statistical analysis tables between In-migration status and Factors.

Table A.0.15 Statistical analysis results between In-migration status and Sharing type

Local		No share	Share with friends/ stranger	Share with family	Row Total
Local	Count	101	65	71	237
	Expt Value	94.658	79.712	62.631	
	Chisq	0.425	2.715	1.118	
	% Row	42.62%	27.43%	29.96%	71.17%
	% Column	75.94%	58.04%	80.68%	
	% Total	30.33%	19.52%	21.32%	
	Std Residual	0.652	-1.648	1.058	
Migrant	Count	32	47	17	96
	Expt Value	38.342	32.288	25.369	
	Chisq	1.049	6.703	2.761	
	% Row	33.33%	48.96%	17.71%	28.83%
	% Column	24.06%	41.96%	19.32%	
	% Total	9.61%	14.11%	5.11%	
	Std Residual	-1.024	2.589	-1.662	
Column Total		133	112	88	333
		39.94%	33.63%	26.43%	

Table A.0.16 Statistical analysis results between In-migration status and Accommodation type

Local		House Type I	House Type II	House Type III	Row Total
Local	Count	70	83	84	237
	Expt Value	80.423	85.405	71.171	
	Chisq	1.351	0.068	2.312	
	% Row	29.54%	35.02%	35.44%	71.17%
	% Column	61.95%	69.17%	84.00%	
	% Total	21.02%	24.93%	25.23%	
	Std Residual	-1.162	-0.26	1.521	
Migrant	Count	43	37	16	96
	Expt Value	32.577	34.595	28.829	
	Chisq	3.335	0.167	5.709	
	% Row	44.79%	38.54%	16.67%	28.83%
	% Column	38.05%	30.83%	16.00%	
	% Total	12.91%	11.11%	4.81%	
	Std Residual	1.826	0.409	-2.389	
Column Total		113	120	100	333
		33.93%	36.04%	30.03%	

Table A.0.17 Statistical analysis results between In-migration status and Rental duration

Local		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Local	Count	67	114	29	27	237
	Expt Value	74.018	114.586	27.757	20.64	
	Chisq	0.665	0.003	0.056	1.96	
	% Row	28.27%	48.10%	12.24%	11.39%	71.17%
	% Column	64.42%	70.81%	74.36%	93.10%	
	% Total	20.12%	34.23%	8.71%	8.11%	
	Std Residual	-0.816	-0.055	0.236	1.400	
Migrant	Count	37	47	10	2	96
	Expt Value	29.982	46.414	11.243	8.36	
	Chisq	1.643	0.007	0.137	4.839	
	% Row	38.54%	48.96%	10.42%	2.08%	28.83%
	% Column	35.58%	29.19%	25.64%	6.90%	
	% Total	11.11%	14.11%	3.00%	0.60%	
	Std Residual	1.282	0.086	-0.371	-2.200	
Column Total		104	161	39	29	333
		31.23%	48.35%	11.71%	8.71%	

Table A.0.18 Statistical analysis results between In-migration status and Total rental duration

Local		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Local	Count	36	63	45	93	237
	Expt Value	46.261	79	44.838	66.901	
	Chisq	2.276	3.241	0.001	10.182	
	% Row	15.19%	26.58%	18.99%	39.24%	71.17%
	% Column	55.39%	56.76%	71.43%	98.94%	
	% Total	10.81%	18.92%	13.51%	27.93%	
	Std Residual	-1.509	-1.800	0.024	3.191	
Migrant	Count	29.000	48.000	18.000	1.000	96
	Expt Value	18.739	32	18.162	27.099	
	Chisq	5.619	8	0.001	25.136	
	% Row	30.21%	50.00%	18.75%	1.04%	28.83%
	% Column	44.62%	43.24%	28.57%	1.06%	
	% Total	8.71%	14.41%	5.41%	0.30%	
	Std Residual	2.370	2.828	-0.038	-5.014	
Column Total		65.000	111.000	63.000	94.000	333
		19.52%	33.33%	18.92%	28.23%	

- Statistical analysis tables between Household structure and Factors.

Table A.0.19 Statistical analysis results between Household structure and Location

Household structure		Inner core	Inner fringe	Urban fringe	Row Total
Not with children or elders	Count	78	96	112	286
	Expt Value	75.580	96.192	114.228	
	Chisq	0.078	0.000	0.043	
	% Row	27.273%	33.566%	39.161%	85.886%
	% Column	88.636%	85.714%	84.211%	
	% Total	23.423%	28.829%	33.634%	
	Std Residual	0.278	-0.020	-0.208	
With children or elders	Count	10	16	21	47
	Expt Value	12.420	15.808	18.772	
	Chisq	0.472	0.002	0.264	
	% Row	21.277%	34.043%	44.681%	14.114%
	% Column	11.364%	14.286%	15.789%	
	% Total	3.003%	4.805%	6.306%	
	Std Residual	-0.687	0.048	0.514	
Column Total		88	112	133	333
		26.426%	33.634%	39.940%	

Table A.0.20 Statistical analysis results between Household structure and Accommodation type

Household structure		House Type I	House Type II	House Type III	Row Total
Not with children or elders	Count	103	116	67	286
	Expt Value	97.051	103.063	85.886	
	Chisq	0.365	1.624	4.153	
	% Row	36.01%	40.56%	23.43%	85.89%
	% Column	91.15%	96.67%	67.00%	
	% Total	30.93%	34.84%	20.12%	
	Std Residual	0.604	1.274	-2.038	
With children or elders	Count	10	4	33	47
	Expt Value	15.949	16.937	14.114	
	Chisq	2.219	9.882	25.271	
	% Row	21.28%	8.51%	70.21%	14.11%
	% Column	8.85%	3.33%	33.00%	
	% Total	3.00%	1.20%	9.91%	
	Std Residual	-1.49	-3.144	5.027	
Column Total		113	120	100	333
		33.93%	36.04%	30.03%	

Table A.0.21 Statistical analysis results between Household structure and House condition

Household structure		100% New	Fairly New	Need to repair	Row Total
Not with children or elders	Count	113	160	13	286
	Expt Value	116.805	152.877	16.318	
	Chisq	0.124	0.332	0.675	
	% Row	39.51%	55.94%	4.55%	85.89%
	% Column	83.09%	89.89%	68.42%	
	% Total	33.93%	48.05%	3.90%	
	Std Residual	-0.352	0.576	-0.821	
With children or elders	Count	23	18	6	47
	Expt Value	19.195	25.123	2.682	
	Chisq	0.754	2.02	4.106	
	% Row	48.94%	38.30%	12.77%	14.11%
	% Column	16.91%	10.11%	31.58%	
	% Total	6.91%	5.41%	1.80%	
	Std Residual	0.868	-1.421	2.026	
Column Total		136	178	19	333
		40.84%	53.45%	5.71%	

Table A.0.22 Statistical analysis results between Household structure and Rental duration

Household Structure		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Not with children or elders	Count	97	138	31	20	286
	Expt Value	89.321	138.276	33.495	24.907	
	Chisq	0.66	0.001	0.186	0.967	
	% Row	33.92%	48.25%	10.84%	6.99%	85.89%
	% Column	93.27%	85.71%	79.49%	68.97%	
	% Total	29.13%	41.44%	9.31%	6.01%	
	Std Residual	0.812	-0.023	-0.431	-0.983	
With children or elders	Count	7	23	8	9	47
	Expt Value	14.679	22.724	5.505	4.093	
	Chisq	4.017	0.003	1.131	5.883	
	% Row	14.89%	48.94%	17.02%	19.15%	14.11%
	% Column	6.73%	14.29%	20.51%	31.03%	
	% Total	2.10%	6.91%	2.40%	2.70%	
	Std Residual	-2.004	0.058	1.064	2.425	
Column Total		104	161	39	29	333
		31.23%	48.35%	11.71%	8.71%	

Table A.0.23 Statistical analysis results between Household structure and Total rent time

Household Structure		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Not with children or elders	Count	58	95	55	78	286
	Expt Value	55.826	95.333	54.108	80.733	
	Chisq	0.085	0.001	0.015	0.093	
	% Row	0.280%	3.217%	9.231%	27.273%	85.886%
	% Column	89.231%	85.586%	87.302%	82.979%	
	% Total	17.417%	28.529%	16.517%	23.423%	
	Std Residual	0.291	-0.034	0.121	-0.304	
With children or elders	Count	7	16	8	16	47
	Expt Value	9.174	15.667	8.892	13.267	
	Chisq	0.515	0.007	0.089	0.563	
	% Row	14.894%	34.043%	17.021%	34.043%	14.114%
	% Column	10.769%	14.414%	12.698%	17.021%	
	% Total	2.102%	4.805%	2.402%	4.805%	
	Std Residual	-0.718	0.084	-0.299	0.750	
Column Total		65	111	63	94	333
		19.520%	33.333%	18.919%	28.228%	

Table A.0.24 Statistical analysis results between Household structure and Rent purpose

Household Structure		Just stay	Stay and business	Stay and work	Row Total
Not with children or elders	Count	219	6	61	286
	Expt Value	213.856	12.883	59.261	
	Chisq	0.124	3.677	0.051	
	% Row	76.57%	2.10%	21.33%	85.89%
	% Column	87.95%	40.00%	88.41%	
	% Total	65.77%	1.80%	18.32%	
	Std Residual	0.352	-1.918	0.226	
With children or elders	Count	30	9	8	47
	Expt Value	35.144	2.117	9.739	
	Chisq	0.753	22.377	0.31	
	% Row	63.83%	19.15%	17.02%	14.11%
	% Column	12.05%	60.00%	11.59%	
	% Total	9.01%	2.70%	2.40%	
	Std Residual	-0.868	4.73	-0.557	
Column Total		249	15	69	333
		74.78%	4.51%	20.72%	

Table A.0.25 Rent reasons according to Household structure

	Economic reason	Living conditions requirements	Tendency	Future plan	No-ownership-need	Total
Not with children or elders	55.59%	56.64%	7.69%	12.59%	14.34%	286
With children or elders	65.96%	55.32%	2.13%	8.51%	12.77%	47

Table A.0.26 Statistical analysis results between Household structure and Group of factors (general)

Household structure		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Not with children or elders	Count	450	556	1917	3015	1498	7436
	Expt Value	500.715	564.27	1928.997	2974.228	1467.79	
	Chisq	5.137	0.121	0.075	0.559	0.622	
	% Row	6.05%	7.48%	25.78%	40.55%	20.15%	85.89%
	% Column	77.19%	84.63%	85.35%	87.06%	87.65%	
	% Total	5.20%	6.42%	22.14%	34.82%	17.30%	
	Std Residual	-2.266	-0.348	-0.273	0.748	0.789	
	Adj Std Residual	-6.247	-0.964	-0.845	2.569	2.343	
With children or elders	Count	133	101	329	448	211	1222
	Expt Value	82.285	92.73	317.003	488.772	241.21	
	Chisq	31.257	0.738	0.454	3.401	3.784	
	% Row	10.88%	8.27%	26.92%	36.66%	17.27%	14.11%
	% Column	22.81%	15.37%	14.65%	12.94%	12.35%	
	% Total	1.54%	1.17%	3.80%	5.17%	2.44%	
	Std Residual	5.591	0.859	0.674	-1.844	-1.945	
	Adj Std Residual	6.247	0.964	0.845	-2.569	-2.343	
Column Total		583	657	2246	3463	1709	8658
		6.73%	7.59%	25.94%	40.00%	19.74%	

Table A.0.27 Statistical analysis results between Household structure and Group of factors: Rent and legal factors

Household structure		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Not with children or elders	Count	72	32	252	630	444	1430
	Expt Value	91.039	39.508	251.646	614.084	433.724	
	Chisq	3.982	1.427	0	0.413	0.243	
	% Row	5.04%	2.24%	17.62%	44.06%	31.05%	85.89%
	% Column	67.93%	69.57%	86.01%	88.11%	87.92%	
	% Total	4.32%	1.92%	15.14%	37.84%	26.67%	
	Std Residual	-1.995	-1.194	0.022	0.642	0.493	
	Adj Std Residual	-5.489	-3.224	0.066	2.263	1.574	
With children or elders	Count	34	14	41	85	61	235
	Expt Value	14.961	6.492	41.354	100.916	71.276	
	Chisq	24.229	8.681	0.003	2.51	1.482	
	% Row	14.47%	5.96%	17.45%	36.17%	25.96%	14.11%
	% Column	32.08%	30.44%	13.99%	11.89%	12.08%	
	% Total	2.04%	0.84%	2.46%	5.11%	3.66%	
	Std Residual	4.922	2.946	-0.055	-1.584	-1.217	
	Adj Std Residual	5.489	3.224	-0.066	-2.263	-1.574	
Column Total		106	46	293	715	505	1665
		6.37%	2.76%	17.60%	42.94%	30.33%	

Table A.0.28 Statistical analysis results between Household structure and Group of factors: Accomodation quality

Household structure		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Not with children or elders	Count	89	93	514	1117	475	2288
	Expt Value	108.216	95.333	526.48	1095.045	462.925	
	Chisq	3.412	0.057	0.296	0.44	0.315	
	% Row	3.89%	4.07%	22.47%	48.82%	20.76%	85.89%
	% Column	70.64%	83.78%	83.85%	87.61%	88.13%	
	% Total	3.34%	3.49%	19.29%	41.93%	17.83%	
	Std Residual	-1.847	-0.239	-0.544	0.663	0.561	
	Adj Std Residual	-5.038	-0.65	-1.65	2.446	1.673	
With children or elders	Count	37	18	99	158	64	376
	Expt Value	17.784	15.667	86.52	179.955	76.075	
	Chisq	20.764	0.348	1.8	2.679	1.917	
	% Row	9.84%	4.79%	26.33%	42.02%	17.02%	14.11%
	% Column	29.37%	16.22%	16.15%	12.39%	11.87%	
	% Total	1.39%	0.68%	3.72%	5.93%	2.40%	
	Std Residual	4.557	0.59	1.342	-1.637	-1.384	
	Adj Std Residual	5.038	0.65	1.65	-2.446	-1.673	
Column Total		126	111	613	1275	539	2664
		4.73%	4.17%	23.01%	47.86%	20.23%	

Table A.0.29 Statistical analysis results between Household structure and Group of factors: Surrounding enviroment

Household structure		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Not with children or elders	Count	51	76	315	467	235	1144
	Expt Value	58.402	81.592	308.33	468.078	227.598	
	Chisq	0.938	0.383	0.144	0.002	0.241	
	% Row	4.46%	6.64%	27.54%	40.82%	20.54%	85.89%
	% Column	75.00%	80.00%	87.74%	85.69%	88.68%	
	% Total	3.83%	5.71%	23.65%	35.06%	17.64%	
	Std Residual	-0.969	-0.619	0.38	-0.05	0.491	
	Adj Std Residual	-2.647	-1.71	1.183	-0.173	1.459	
With children or elders	Count	17	19	44	78	30	188
	Expt Value	9.598	13.408	50.67	76.922	37.402	
	Chisq	5.709	2.332	0.878	0.015	1.465	
	% Row	9.04%	10.11%	23.40%	41.49%	15.96%	14.11%
	% Column	25.00%	20.00%	12.26%	14.31%	11.32%	
	% Total	1.28%	1.43%	3.30%	5.86%	2.25%	
	Std Residual	2.389	1.527	-0.937	0.123	-1.21	
	Adj Std Residual	2.647	1.71	-1.183	0.173	-1.459	
Column Total		68	95	359	545	265	1332
		5.11%	7.13%	26.95%	40.92%	19.90%	

Table A.0.30 Statistical analysis results between Household structure and Group of factors: Accessibility to utilities

Household structure		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Not with children or elders	Count	238	355	836	801	344	2574
	Expt Value	243.057	347.838	842.541	797.021	343.544	
	Chisq	0.105	0.147	0.051	0.02	0.001	
	% Row	9.25%	13.79%	32.48%	31.12%	13.36%	85.89 %
	% Column	84.10%	87.65%	85.22%	86.32%	86.00%	
	% Total	7.94%	11.85%	27.90%	26.73%	11.48%	
	Std Residual	-0.324	0.384	-0.225	0.141	0.025	
	Adj Std Residual	-0.907	1.099	-0.731	0.452	0.07	
With children or elders	Count	45	50	145	127	56	423
	Expt Value	39.943	57.162	138.459	130.979	56.456	
	Chisq	0.64	0.897	0.309	0.121	0.004	
	% Row	10.64%	11.82%	34.28%	30.02%	13.24%	14.11 %
	% Column	15.90%	12.35%	14.78%	13.69%	14.00%	
	% Total	1.50%	1.67%	4.84%	4.24%	1.87%	
	Std Residual	0.8	-0.947	0.556	-0.348	-0.061	
	Adj Std Residual	0.907	-1.099	0.731	-0.452	-0.07	
Column Total		283	405	981	928	400	2997
		9.44%	13.51%	32.73%	30.96%	13.35%	

- Statistical analysis tables between Income and Factors

Table A.0.31 Statistical analysis results between Income and Location

Income		Inner core	Inner fringe	Urban fringe	Row Total
Less than 5 Mil VND	Count	23	16	37	76
	Expt Value	20.084	25.562	30.354	
	Chisq	0.423	3.577	1.455	
	% Row	30.263%	21.053%	48.684%	22.823%
	% Column	26.136%	14.286%	27.820%	
	% Total	6.907%	4.805%	11.111%	
	Std Residual	0.651	-1.891	1.206	
5-10 Mil VND	Count	21	31	38	90
	Expt Value	23.784	30.270	35.946	
	Chisq	0.326	0.018	0.117	
	% Row	23.333%	34.444%	42.222%	27.027%
	% Column	23.864%	27.679%	28.571%	
	% Total	6.306%	9.309%	11.411%	
	Std Residual	-0.571	0.133	0.343	
10-20 Mil VND	Count	27	49	39	115
	Expt Value	30.390	38.679	45.931	
	Chisq	0.378	2.754	1.046	
	% Row	23.478%	42.609%	33.913%	34.535%
	% Column	30.682%	43.750%	29.323%	
	% Total	8.108%	14.715%	11.712%	
	Std Residual	-0.615	1.660	-1.023	
More than 20 Mil VND	Count	17	16	19	52
	Expt Value	13.742	17.489	20.769	
	Chisq	0.773	0.127	0.151	

	% Row	32.692%	30.769%	36.538%	15.616%
	% Column	19.318%	14.286%	14.286%	
	% Total	5.105%	4.805%	5.706%	
	Std Residual	0.879	-0.356	-0.388	
Column Total		88	112	133	333
		26.426%	33.634%	39.940%	

Table A.0.32 Statistical analysis results between Income and Rental duration

Income		Less than 1 years	1-3 years	3-5 years	More than 5 years	Row Total
Less than 5 Mil VND	Count	25	39	9	3	76
	Expt Value	23.736	36.745	8.901	6.619	
	Chisq	0.067	0.138	0.001	1.978	
	% Row	32.895%	51.316%	11.842%	3.947%	2.823%
	% Column	24.038%	24.224%	23.077%	10.345%	
	% Total	7.508%	11.712%	2.703%	0.901%	
	Std Residual	0.259	0.372	0.033	-1.407	
5-10 Mil VND	Count	28	43	11	8	90
	Expt Value	28.108	43.514	10.541	7.838	
	Chisq	0.000	0.006	0.020	0.003	
	% Row	31.111%	47.778%	12.222%	8.889%	7.027%
	% Column	26.923%	26.708%	28.205%	27.586%	
	% Total	8.408%	12.913%	3.303%	2.402%	
	Std Residual	-0.020	-0.078	0.142	0.058	
	Count	36	55	14	10	115

10-20 Mil VND	Expt Value	35.916	55.601	13.468	10.015	
	Chisq	0.000	0.006	0.021	0.000	
	% Row	31.304%	47.826%	12.174%	8.696%	4.535%
	% Column	34.615%	34.161%	35.897%	34.483%	
	% Total	10.811%	16.517%	4.204%	3.003%	
	Std Residual	0.014	-0.081	0.145	-0.005	
More than 20 Mil VND	Count	15	24	5	8	52
	Expt Value	16.240	25.141	6.090	4.529	
	Chisq	0.095	0.052	0.195	2.661	
	% Row	28.846%	46.154%	9.615%	15.385%	5.616%
	% Column	14.423%	14.907%	12.821%	27.586%	
	% Total	4.505%	7.207%	1.502%	2.402%	
	Std Residual	-0.308	-0.228	-0.442	1.631	
ColumnTotal		104	161	39	29	333
		31.231%	48.348%	11.712%	8.709%	

Table A.0.33 Statistical analysis results between Income and Total rental duration

Income		Less than 1 years	1 - 3 years	3 - 5 years	More than 5 years	Row Total
Less than 5 Mil VND	Count	18	36	14	8	76
	Expt Value	14.835	25.333	14.378	21.453	
	Chisq	0.675	4.491	0.01	8.437	
	% Row	23.68%	47.37%	18.42%	10.53%	22.82%
	% Column	27.69%	32.43%	22.22%	8.51%	
	% Total	5.41%	10.81%	4.20%	2.40%	

	Std Residual	0.822	2.119	-0.1	-2.905	
5 - 10 Mil VND	Count	14	32	23	21	90
	Expt Value	17.568	30	17.027	25.405	
	Chisq	0.724	0.133	2.095	0.764	
	% Row	15.56%	35.56%	25.56%	23.33%	27.03%
	% Column	21.54%	28.83%	36.51%	22.34%	
	% Total	4.20%	9.61%	6.91%	6.31%	
	Std Residual	-0.851	0.365	1.448	-0.874	
10 - 20 Mil VND	Count	23	30	19	43	115
	Expt Value	22.447	38.333	21.757	32.462	
	Chisq	0.014	1.812	0.349	3.421	
	% Row	20.00%	26.09%	16.52%	37.39%	34.54%
	% Column	35.39%	27.03%	30.16%	45.75%	
	% Total	6.91%	9.01%	5.71%	12.91%	
	Std Residual	0.117	-1.346	-0.591	1.849	
More than 20 VND	Count	10	13	7	22	52
	Expt Value	10.15	17.333	9.838	14.679	
	Chisq	0.002	1.083	0.819	3.652	
	% Row	19.23%	25.00%	13.46%	42.31%	15.62%
	% Column	15.39%	11.71%	11.11%	23.40%	
	% Total	3.00%	3.90%	2.10%	6.61%	
	Std Residual	-0.047	-1.041	-0.905	1.911	
Column Total		65	111	63	94	333
		19.52%	33.33%	18.92%	28.23%	

Table A.0.34 Statistical analysis results between Income and House condition

Income		100% New	Fairly New	Need to repair	Row Total
Less than 5 Mil VND	Count	31	40	5	76
	Expt Value	31.039	40.625	4.336	
	Chisq	0	0.01	0.102	
	% Row	40.79%	52.63%	6.58%	22.82%
	% Column	22.79%	22.47%	26.32%	
	% Total	9.31%	12.01%	1.50%	
	Std Residual	-0.007	-0.098	0.319	
5 - 10 Mil VND	Count	26	60	4	90
	Expt Value	36.757	48.108	5.135	
	Chisq	3.148	2.94	0.251	
	% Row	28.89%	66.67%	4.44%	27.03%
	% Column	19.12%	33.71%	21.05%	
	% Total	7.81%	18.02%	1.20%	
	Std Residual	-1.774	1.715	-0.501	
10 - 20 Mil VND	Count	48	60	7	115
	Expt Value	46.967	61.471	6.562	
	Chisq	0.023	0.035	0.029	
	% Row	41.74%	52.17%	6.09%	34.54%
	% Column	35.29%	33.71%	36.84%	
	% Total	14.41%	18.02%	2.10%	
	Std Residual	0.151	-0.188	0.171	

More than 20 VND	Count	31	18	3	52
	Expt Value	21.237	27.796	2.967	
	Chisq	4.488	3.452	0	
	% Row	59.62%	34.62%	5.77%	15.62%
	% Column	22.79%	10.11%	15.79%	
	% Total	9.31%	5.41%	0.90%	
	Std Residual	2.118	-1.858	0.019	
Column Total		136	178	19	333
		40.84%	53.45%	5.71%	

Table A.0.35 Multiple comparison test between Distance to workplace with Income groups

	Obs difference	Critical difference	Difference
Less than 5 Mil/5-10 Mil VND	41.933	39.568	TRUE
Less than 5 Mil/10-20 Mil VND	28.210	37.548	FALSE
Less than 5 Mil/More than 20 Mil VND	14.811	45.711	FALSE
5-10 Mil/10-20 Mil VND	13.723	35.746	FALSE
5-10 Mil/More than 20 Mil VND	27.121	44.243	FALSE
10-20 Mil/More than 20 Mil VND	13.399	42.445	FALSE

Table A.0.36 Multiple comparison test between Rent with Income groups

	Obs difference	Critical difference	Difference
Less than 5 Mil/5-10 Mil VND	21.135	39.568	FALSE
Less than 5 Mil/10-20 Mil VND	56.738	37.548	TRUE
Less than 5 Mil/More than 20 Mil VND	118.868	45.711	TRUE
5-10 Mil/10-20 Mil VND	35.603	35.746	FALSE
5-10 Mil/More than 20 Mil VND	97.733	44.243	TRUE
10-20 Mil/More than 20 Mil VND	62.130	42.445	TRUE

Table A.0.37 Multiple comparison test between Area with Income groups

	Obs difference	Critical difference	Difference
Less than 5 Mil/5-10 Mil VND	0.552	39.506	FALSE
Less than 5 Mil/10-20 Mil VND	30.002	37.503	FALSE
Less than 5 Mil/More than 20 Mil VND	70.743	45.400	TRUE
5-10 Mil/10-20 Mil VND	30.554	35.388	FALSE
5-10 Mil/More than 20 Mil VND	71.295	43.669	TRUE
10-20 Mil/More than 20 Mil VND	40.741	41.866	FALSE

Table A.0.38 Rent reasons according to Income

	Economic reason	Living conditions requirements	Tendency	Future plan	No-ownership-need	Total
Less than 5 Mil VND	51.32%	59.21%	6.58%	26.32%	11.84%	76
5 - 10 Mil VND	56.67%	52.22%	7.78%	8.89%	16.67%	90
10 - 20 Mil VND	62.61%	56.52%	7.83%	8.70%	11.30%	115
More than 20 VND	53.85%	59.62%	3.85%	3.85%	19.23%	52

Table A.0.39 Statistical analysis results between Income and Group of factors (general)

Income groups		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Less than 5 Mil.VND	Count	92	148	455	750	531	1976
	Expt Value	133.057	149.946	512.601	790.354	390.042	
	Chisq	12.669	0.025	6.473	2.06	50.941	
	% Row	4.66%	7.49%	23.03%	37.96%	26.87%	22.82%
	% Column	15.78%	22.53%	20.26%	21.66%	31.07%	
	% Total	1.06%	1.71%	5.26%	8.66%	6.13%	
	Std Residual	-3.559	-0.159	-2.544	-1.435	7.137	
	Adj Std Residual	-4.195	-0.188	-3.365	-2.109	9.069	
5 - 10 Mil VND	Count	180	165	543	995	457	2340
	Expt Value	157.568	177.568	607.027	935.946	461.892	
	Chisq	3.194	0.889	6.753	3.726	0.052	
	% Row	7.69%	7.05%	23.21%	42.52%	19.53%	27.03%
	% Column	30.88%	25.11%	24.18%	28.73%	26.74%	
	% Total	2.08%	1.91%	6.27%	11.49%	5.28%	
	Std Residual	1.787	-0.943	-2.599	1.93	-0.228	
	Adj Std Residual	2.166	-1.148	-3.535	2.917	-0.297	
10 - 20 Mil VND	Count	153	226	908	1171	532	2990
	Expt Value	201.336	226.892	775.646	1195.931	590.195	
	Chisq	11.604	0.004	22.585	0.52	5.738	
	% Row	5.12%	7.56%	30.37%	39.16%	17.79%	34.54%

	% Column	26.24%	34.40%	40.43%	33.82%	31.13%	
	% Total	1.77%	2.61%	10.49%	13.53%	6.15%	
	Std Residual	-3.407	-0.059	4.752	-0.721	-2.395	
	Adj Std Residual	-4.36	-0.076	6.825	-1.15	-3.305	
More than 20 VND	Count	158	118	340	547	189	1352
	Expt Value	91.039	102.595	350.727	540.769	266.871	
	Chisq	49.251	2.313	0.328	0.072	22.722	
	% Row	11.69%	8.73%	25.15%	40.46%	13.98%	15.62%
	% Column	27.10%	17.96%	15.14%	15.80%	11.06%	
	% Total	1.83%	1.36%	3.93%	6.32%	2.18%	
	Std Residual	7.018	1.521	-0.573	0.268	-4.767	
	Adj Std Residual	7.911	1.722	-0.725	0.377	-5.792	
Column Total		583	657	2246	3463	1709	8658
		6.73%	7.59%	25.94%	40.00%	19.74%	

Table A.0.40 Statistical analysis results between Income and Group of factor: Rent and legal issues

Income groups		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Less than 5 Mil VND	Count	14	11	48	145	162	380
	Expt Value	24.192	10.498	66.871	163.183	115.255	
	Chisq	4.294	0.024	5.325	2.026	18.959	
	% Row	3.68%	2.90%	12.63%	38.16%	42.63%	22.82%
	% Column	13.21%	23.91%	16.38%	20.28%	32.08%	
	% Total	0.84%	0.66%	2.88%	8.71%	9.73%	
	Std Residual	-2.072	0.155	-2.308	-1.423	4.354	
	Adj Std Residual	-2.438	0.179	-2.894	-2.145	5.938	
5 - 10 Mil VND	Count	36	11	57	204	142	450
	Expt Value	28.649	12.432	79.189	193.243	136.486	
	Chisq	1.886	0.165	6.218	0.599	0.223	
	% Row	8.00%	2.44%	12.67%	45.33%	31.56%	27.03%
	% Column	33.96%	23.91%	19.45%	28.53%	28.12%	
	% Total	2.16%	0.66%	3.42%	12.25%	8.53%	
	Std Residual	1.373	-0.406	-2.493	0.774	0.472	
	Adj Std Residual	1.662	-0.482	-3.216	1.199	0.662	
10 - 20 Mil VND	Count	30	14	131	243	157	575
	Expt Value	36.607	15.886	101.186	246.922	174.399	
	Chisq	1.192	0.224	8.784	0.062	1.736	
	% Row	5.22%	2.44%	22.78%	42.26%	27.30%	34.54%

	% Column	28.30%	30.44%	44.71%	33.99%	31.09%	
	% Total	1.80%	0.84%	7.87%	14.60%	9.43%	
	Std Residual	-1.092	-0.473	2.964	-0.25	-1.318	
	Adj Std Residual	-1.395	-0.593	4.035	-0.408	-1.951	
More than 20 VND	Count	26	10	57	123	44	260
	Expt Value	16.553	7.183	45.754	111.652	78.859	
	Chisq	5.392	1.105	2.764	1.153	15.409	
	% Row	10.00%	3.85%	21.92%	47.31%	16.92%	15.62%
	% Column	24.53%	21.74%	19.45%	17.20%	8.71%	
	% Total	1.56%	0.60%	3.42%	7.39%	2.64%	
	Std Residual	2.322	1.051	1.663	1.074	-3.925	
	Adj Std Residual	2.612	1.16	1.994	1.548	-5.12	
Column Total		106	46	293	715	505	1665
		6.37%	2.76%	17.60%	42.94%	30.33%	

Table A.0.41 Statistical analysis results between Income and Group of factor: Accommodation quality

Income groups		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Less than 5 Mil.VND	Count	14	28	133	284	149	608
	Expt Value	28.757	25.333	139.904	290.991	123.015	
	Chisq	7.573	0.281	0.341	0.168	5.489	
	% Row	2.30%	4.61%	21.88%	46.71%	24.51%	22.82 %
	% Column	11.11%	25.23%	21.70%	22.28%	27.64%	
	% Total	0.53%	1.05%	4.99%	10.66%	5.59%	
	Std Residual	-2.752	0.53	-0.584	-0.41	2.343	
	Adj Std Residual	-3.209	0.616	-0.757	-0.646	2.986	
5 - 10 Mil VND	Count	42	22	151	364	141	720
	Expt Value	34.054	30	165.676	344.595	145.676	
	Chisq	1.854	2.133	1.3	1.093	0.15	
	% Row	5.83%	3.06%	20.97%	50.56%	19.58%	27.03 %
	% Column	33.33%	19.82%	24.63%	28.55%	26.16%	
	% Total	1.58%	0.83%	5.67%	13.66%	5.29%	
	Std Residual	1.362	-1.461	-1.14	1.045	-0.387	

	Adj Std Residual	1.633	-1.747	-1.521	1.695	-0.508	
10 - 20 Mil VND	Count	36	40	240	420	184	920
	Expt Value	43.514	38.333	211.697	440.315	186.141	
	Chisq	1.297	0.072	3.784	0.937	0.025	
	% Row	3.91%	4.35%	26.09%	45.65%	20.00%	34.54 %
	% Column	28.57%	36.04%	39.15%	32.94%	34.14%	
	% Total	1.35%	1.50%	9.01%	15.77%	6.91%	
	Std Residual	-1.139	0.269	1.945	-0.968	-0.157	
	Adj Std Residual	-1.442	0.34	2.74	-1.657	-0.217	
More than 20 VND	Count	34	21	89	207	65	416
	Expt Value	19.676	17.333	95.724	199.099	84.168	
	Chisq	10.428	0.776	0.472	0.314	4.365	
	% Row	8.17%	5.05%	21.39%	49.76%	15.63%	15.62 %
	% Column	26.98%	18.92%	14.52%	16.24%	12.06%	
	% Total	1.28%	0.79%	3.34%	7.77%	2.44%	
	Std Residual	3.229	0.881	-0.687	0.56	-2.089	
	Adj Std Residual	3.602	0.979	-0.853	0.844	-2.547	

Column Total	126	111	613	1275	539	2664
	4.73%	4.17%	23.01%	47.86%	20.23%	

Table A.0.42 Statistical analysis results between Income and Group of factor: Surrounding environmental issues

Income groups		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Less than 5 Mil.VND	Count	9	25	69	110	91	304
	Expt Value	15.52	21.682	81.934	124.384	60.48	
	Chisq	2.739	0.508	2.042	1.663	15.401	
	% Row	2.96%	8.22%	22.70%	36.18%	29.93%	22.82%
	% Column	13.24%	26.32%	19.22%	20.18%	34.34%	
	% Total	0.68%	1.88%	5.18%	8.26%	6.83%	
	Std Residual	-1.655	0.713	-1.429	-1.29	3.924	
	Adj Std Residual	-1.934	0.842	-1.903	-1.91	4.991	
5 - 10 Mil VND	Count	25	19	89	155	72	360
	Expt Value	18.378	25.676	97.027	147.297	71.622	
	Chisq	2.386	1.736	0.664	0.403	0.002	
	% Row	6.94%	5.28%	24.72%	43.06%	20.00%	27.03%
	% Column	36.77%	20.00%	24.79%	28.44%	27.17%	
	% Total	1.88%	1.43%	6.68%	11.64%	5.41%	
	Std Residual	1.545	-1.317	-0.815	0.635	0.045	
	Adj Std Residual	1.856	-1.6	-1.116	0.967	0.058	
10 - 20 Mil VND	Count	10	38	156	188	68	460
	Expt Value	23.483	32.808	123.979	188.213	91.517	
	Chisq	7.742	0.822	8.27	0	6.043	
	% Row	2.17%	8.26%	33.91%	40.87%	14.78%	34.54%

	% Column	14.71%	40.00%	43.45%	34.50%	25.66%	
	% Total	0.75%	2.85%	11.71%	14.11%	5.11%	
	Std Residual	-2.782	0.906	2.876	-0.016	-2.458	
	Adj Std Residual	-3.53	1.163	4.159	-0.025	-3.395	
More than 20 VND	Count	24	13	45	92	34	208
	Expt Value	10.619	14.835	56.06	85.105	41.381	
	Chisq	16.863	0.227	2.182	0.559	1.317	
	% Row	11.54%	6.25%	21.64%	44.23%	16.35%	15.62%
	% Column	35.29%	13.68%	12.54%	16.88%	12.83%	
	% Total	1.80%	0.98%	3.38%	6.91%	2.55%	
	Std Residual	4.106	-0.476	-1.477	0.747	-1.147	
	Adj Std Residual	4.589	-0.538	-1.881	1.058	-1.396	
Column Total		68	95	359	545	265	1332
		5.11%	7.13%	26.95%	40.92%	19.90%	

Table A.0.43 Statistical analysis results between Income and Group of factor: Accessibility to utilities

Income groups		Not important	Slightly important	Moderately imporant	Important	Very important	Row Total
Less than 5 Mil.VND	Count	55	84	205	211	129	684
	Expt Value	64.589	92.432	223.892	211.796	91.291	
	Chisq	1.423	0.769	1.594	0.003	15.576	
	% Row	8.04%	12.28%	29.97%	30.85%	18.86%	22.82%
	% Column	19.44%	20.74%	20.90%	22.74%	32.25%	
	% Total	1.84%	2.80%	6.84%	7.04%	4.30%	
	Std Residual	-1.193	-0.877	-1.263	-0.055	3.947	
	Adj Std Residual	-1.427	-1.074	-1.752	-0.075	4.826	
5 - 10 Mil VND	Count	77	113	246	272	102	810
	Expt Value	76.486	109.459	265.135	250.811	108.108	
	Chisq	0.003	0.115	1.381	1.79	0.345	
	% Row	9.51%	13.95%	30.37%	33.58%	12.59%	27.03%
	% Column	27.21%	27.90%	25.08%	29.31%	25.50%	
	% Total	2.57%	3.77%	8.21%	9.08%	3.40%	
	Std Residual	0.059	0.338	-1.175	1.338	-0.587	
	Adj Std Residual	0.072	0.426	-1.677	1.885	-0.739	
10 - 20 Mil VND	Count	77	134	381	320	123	1035
	Expt Value	97.733	139.865	338.784	320.48	138.138	
	Chisq	4.398	0.246	5.261	0.001	1.659	
	% Row	7.44%	12.95%	36.81%	30.92%	11.88%	34.54%

	% Column	27.21%	33.09%	38.84%	34.48%	30.75%	
	% Total	2.57%	4.47%	12.71%	10.68%	4.10%	
	Std Residual	-2.097	-0.496	2.294	-0.027	-1.288	
	Adj Std Residual	-2.724	-0.659	3.456	-0.04	-1.71	
More than 20 VND	Count	74	74	149	125	46	468
	Expt Value	44.192	63.243	153.189	144.913	62.462	
	Chisq	20.105	1.83	0.115	2.736	4.339	
	% Row	15.81%	15.81%	31.84%	26.71%	9.83%	15.62%
	% Column	26.15%	18.27%	15.19%	13.47%	11.50%	
	% Total	2.47%	2.47%	4.97%	4.17%	1.54%	
	Std Residual	4.484	1.353	-0.338	-1.654	-2.083	
	Adj Std Residual	5.129	1.583	-0.449	-2.167	-2.436	
Column Total		283	405	981	928	400	2997
		9.44%	13.51%	32.73%	30.96%	13.35%	