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THE UNIVERSITY OF HONG KONG

**WILL NEW RESIDENTIAL DEVELOPMENTS STIMULATE  
THE TRANSACTION VOLUME OF  
NEARBY PROPERTY DEVELOPMENTS ?**

A DISSERTATION SUBMITTED TO  
THE FACULTY OF ARCHITECTURE  
IN CANDIDACY FOR  
THE DEGREE OF  
BACHELOR OF SCIENCE IN SURVEYING

DEPARTMENT OF REAL ESTATE AND CONSTRUCTION

BY

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HONG KONG

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## Declaration

I declare that this dissertation represents my own work, except here due acknowledgement is made, and that it has not been previously included in a thesis, dissertation or report submitted to this University or to any other institution for a degree, diploma or other qualification.

Signed : \_\_\_\_\_

Name : \_\_\_\_\_

Date : \_\_\_\_\_

## **Abstract**

There are lots of researches aiming at investigating the factors affecting the behaviors of transaction prices of various real estate properties, price and quantity are the two basic elements in economics, therefore there should be researches about the trading volume of properties. However, yet now the research topic relating to the trading volumes of property developments is not as popular as transaction prices. Scholars have been explored the research topic of trading volume, but, most of the researches were conducted in the macroscopic way. This dissertation aims at investigating the effect of advertising campaign of new development on the trading volume of residential property developments nearby in a microscopic perspective.

Two Hypotheses are set in this dissertation. The first Hypothesis is the introduction of new development has no effect on the transaction volumes of non-substitutable property developments nearby. The second Hypothesis is the introduction of new development has positive effect on the transaction volume of substitutable property development nearby. They aim at answering the research questions of finding if there is any positive effect on transaction volume exerted from the advertisement of the new development to the property developments nearby, and if there are any property developments not affected by the stimulation effect on trading volume.

40 sets of Samples containing the trading volumes of a substitutable property development and a non-substitutable property development nearby a new development are being used to conduct the dissertation and test for hypothesis. The empirical results

indicated that the introduction of new development has no effect on the trading volume of non-substitutable property development nearby. Also, stimulation effect on the trading volume of the substitutable property development nearby a new development is found to be present provided that the property development is highly substitutable to the new development and the advertising campaign of the new development is not too strong so that it absorbs all the potential purchasers of the property developments.

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All errors that may appear in this dissertation are mine.

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# Chapter One

## 1. Introduction

### 1.1 Background

When researchers try to start a research on residential property market, it is found that most of them put their efforts and concentrations on the residential property prices instead of the market's transaction volume. There is no doubt that the study of property price is an important and popular topic worldwide since the most important concern of the potential buyers, property owners, developers, investors and even some professionals in the real estate field is the property price. However, property price is not everything.

The study of transaction volume of property market is another important issue for research. There are many professionals that rely on the transaction volume for their survival, examples are real estate brokers, agencies and solicitors. The investigation of what factors will affect the transaction volume and how would they affect the transaction volume is then indeed essential for them. However, regrettably such kind of research in transaction volume is hardly found and rare in Hong Kong (Wu, 1999). Therefore, the author would like to explore the research topic in this area in this dissertation.

Wu (1999) had conducted a research on the major factors affecting transaction volume of private residential property in Hong Kong. The findings of the research were that, company incorporations, Hang Seng Index, income level of households, change in property price and change in mortgage interest rate were proven to have strong relationship with the transaction volume of private residential property in Hong Kong.

The author does not want to repeat Wu's research in the macroscopic factors of affecting transaction volume. Instead, a microscopic factor that the effect of introduction of new development on the transaction volume of the nearby property developments is to be investigated.

## 1.2 Reasons of the research

The focus of this dissertation is the effect of new developments on the residential property developments nearby. The determination of research focus was in fact inspired by the mass media. When talking about the private residential property market, the emphasis of the discussion is always on the property prices, locations, sizes and "quality" of the developments. In the real estate sections of newspapers, magazines and even real estate-related television programmes, the discussion focus of the real estate properties is always the comparison of the prices of different properties in terms of locations, sizes, views and "qualities".

Just a coincidence, the author heard the host of a real estate related television programme introducing a newly constructed development. The host commented on the location, size, transportation and quality of the new development, as usual. When the host mentioned the price, the host added that there was in fact another existing residential property development located near the new development having similar location, scale of development and transportation means proximity. However, price was relatively cheaper than the new development. The host recommended the audiences to consider the existing property development also when considering purchasing a residential flat.

The author was then inspired to conduct a research to investigate if there is a stimulation effect on the transaction volume of the nearby residential property developments under the introduction of new developments. Upon the introduction of new developments, the major source of impact from the new development to the surrounding should be its advertisement. There is always publication of the new development before it is sold. The advertisements emphasizing on the good view, convenient transportation system access could raise the exposure of the nearby property developments to the public and lead to information externality. The information externality brought from the advertising campaign of the new development should be the source of stimulation of transaction volume of the nearby property developments.

### 1.3 Objectives of the research

The aim of the study is to investigate when there is a new development under advertising campaign, whether or not the transaction volume of the nearby property developments will increase. It also aims to find out how to forecast which nearby property development will be affected. In this research, the following objectives are set up to achieve the aims of the research :

1. To review the factors affecting transaction volume of private residential property developments ;
2. To investigate if the new development will affect nearby property developments in terms of transaction volume ;
3. If it is proved that new development will affect the transaction volume of nearby property developments, the factors affecting the effect of new developments on the transaction volume of nearby property developments should be investigated.

## 1.4 Organization of the research

The dissertation is divided into 6 chapters.

Chapter 1 stated the background, the reasons of research, the objectives of the research as well as this section, the organization of the research.

Chapter 2 summarizes the past literatures related to this study. The review of literatures on factors affecting transaction volume of private residential property developments and their findings will be presented, as well as literatures of information externality. Besides, the definition of transaction volume will also be stated.

Chapter 3 specifies the Hypotheses of the dissertation, the methodology of the Tests in this research to test the Hypotheses and the expected results of the Tests.

Chapter 4 presents the results of the Tests, discussion of the results and their implications.

Chapter 5 is the last chapter of the dissertation which concludes the research and suggests the limitations of the research and recommendations for further studies.

## **Chapter Two**

### **2. Literature Review**

#### **2.1 Introduction**

This chapter summarizes various past literatures related to transaction volume. The definition of the transaction volume will be presented first, followed by the past literatures regarding the factors affecting the transaction volume by various researchers. Lastly, the literatures of information externality, which is the vital theory for this dissertation, will be presented.

#### **2.2 Definition of Transaction volume**

Before going into the discussion of the factors affecting the transaction volume, the definition of the transaction volume should be defined first. Without a clear definition of transaction volume, there is no point to discuss the factors affecting it.

Theoretically, the trading volume is related to three factors : the bid-ask spread, the price changes, and the information (Karpoff, 1986). The trading volume is often used as the measurement of liquidity of assets, together with the incorporation of the time that the asset is on market (Krainer and LeRoy, 2002; Lippman and McCall, 1986; Wheaton, 1990).

The bid-ask spread of an asset means the difference between the highest price that the buyer is willing to buy (immediate purchase or ask) and the lowest price that the seller is



willing to sell (immediate sale or bid). Researches found that the trading volume is negatively related to the bid-ask spread (Cohen *et. al.*, 1979). Epps (1975) derived a model that indicates the volume of transactions when price ticks up is greater than the volume when downticks. For the information, researchers showed that the magnitude of price change is positively related to the volume that after all investors received information (Copeland, 1976; Karpoff, 1986). All these factors relating to trading volume identified by scholars shown how applicable the trading volume is as proxy in the measurement of liquidity, which is hard to define and measure in some occasions.

Transaction volume is normally defined in quantity terms. Janssen *et. al.* (1994) defined the definition as “sales per year”. Follain and Velz (1995) defined transaction volume using the proxy of “turnover rate”, which is the actual number of housing sales divided by number of owner-occupied housing units. Rosen and Smith (1986) defined it as the number of sales of existing homes. The definitions were based on the number of assignment contracts. Besides, the transaction volume could also be defined in money terms, which means the amount of consideration of all transactions in the market. This is one of the definitions employed by the Land Registry<sup>1</sup> and Rating and Valuation Department<sup>2</sup> of Hong Kong.

In this research, the definitions from Janssen *et. al.* and Rosen and Smith will be adopted. Transaction volume is to be defined as the total number of sale and purchase assignments of residential units in the real estate market of Hong Kong for a particular time frame. There are two reasons for such decision. Firstly, the research focuses on the

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<sup>1</sup> <http://www.landreg.gov.hk/en/monthly/agt.htm>

<sup>2</sup> <http://www.rvd.gov.hk/en/publications/pro-review.htm>

actual number of transactions in the market but not the considerations involved. Secondly, ratio is not preferred based on similar reason.

### 2.3 Factors affecting the transaction volume

Even though the researches relating to the factors affecting the transaction volume are not popular in Hong Kong, the research topic of transaction volume of the private residential properties had began as early as the 70s and were explored by the researchers in US and other places.

Janssen *et. al.* (1994) who defined the transaction volume as number of sales per year found that mortgage rate, consumer confidence and construction costs were the important factors that affecting the transaction volume of private residential properties. They found that mortgage rate had negative correlation with the transaction volume. At the same time, the consumer confidence and construction costs were positively related with the transaction volume.

Follain and Velz (1995) who invented the turnover rate as proxy of investigation of transaction volume found that real price of housing was negatively correlated with the transaction volume and the result was very statistically significant. Besides, they found that growth rate in employment was marginally significant that it was positively related to the transaction volume.

Expected rate of inflation of housing was found positively related to the transaction volume by Boehm (1981). The reason was that under high expectation of increase in rate of inflation, there is a greater probability that investors purchase property as investment

(Boehm, 1981). Hence the transaction volume will be greater. Boehm, as the first researcher in the area, also found that increase in job stability would lead to decrease in mobility of households.

Inflation was studied by Alm and Follain (1982). They found that under inflation, people tend to purchase residential units earlier than they would in a hypothetical world that there is no inflation occurs. Such finding supported the research result from Boehm (1981) which suggested inflation would stimulate the transaction volume of residential properties.

Rosen and Smith (1986) had done an extensive research on the factors affecting the transaction volume. The examined factors included number of divorce, change in mortgage rate, expected change in house prices and nominal price of housing relative to permanent income etc. It was found that divorce and expected change (increase) in house prices would stimulate the transaction volume while an increase in mortgage rate and nominal price of housing relative to permanent income would decrease the transaction volume.

To summarize, the scholars had determined that mortgage rate, consumer confidence, construction costs, real price of housing, inflation rate, number of divorce, expected rate of inflation of housing price and ratio of nominal price of housing relative to permanent income are the major factors affecting transaction volumes.

For the prospective of Hong Kong, Wu (1999) had re-examined most of the factors mentioned and found property price, income level of households, mortgage interest rate,

company incorporations and Hang Seng Index are the major factors affecting the transaction volume in Hong Kong. However, the findings have not been further examined by other scholars.

Among the identified factors, they are rather in macroscopic level that identifying the overall change in the transaction volume of the whole city. There was yet no research put its focus of investigation at microscopic level for the factors affecting the transaction volume of particular subject property developments. The stimulation of transaction volume by the introduction of new developments is one of the examples left un-discussed.

## 2.4 Information externality

Lacking past related literature on the aspect of microscopic level of factors affecting transaction volume of particular subject property developments, the author would like to develop the rationale of the research using other theory, the information externality.

Information externality is one of the examples of externality. Externality happens when the market price cannot reflect the activities of the producers or the consumers. In order words, it happens when the participants in the economic activity does not bear all the costs or capture all the benefits of the said activity. Externalities can arise between consumers; between producers or between consumers and producers. Besides, externalities can be positive (action of one party benefits another party) or negative (action of one party harms another party). The word externality can be used on the effect on others that are external to the market. The occurrence of externality will lead to market inefficiency as there are hidden extra social benefits or social costs which are not reflected in the market price. Such theory was first addressed by Coase (1960).

Information externality is the case where there is extra benefit caused by the extra information obtained by a party in a transaction. In this research argument, information externality refers to the externality caused by the extra information released to the vendee. The release of information is regarded as external as the cost of releasing, or obtaining the information is born by the developer of the new development, whom is launching the advertising campaign and is not involved in the transaction of the property developments nearby.

## 2.5 Information externality and transaction volume

The discussion of why there is a positive effect on transaction volume from the introduction of new developments is based on the advertisement campaigns of the new developments in this dissertation.

It is a common practice for the developers to use marketing campaigns when the sale of new development starts. This is used to boost the publicity of the new development in order to attract people to visit the development and thus increase the probability of successful sale. The author believes that such advertising campaign can attract people living from other districts to visit the development. Such advertising effect can provide more information of the situation of the district of the new development, for example the transportation systems to people having less understanding of the area. For the people from other districts, the information may attract them to take a visit to the site when they are considering purchasing a flat, and thus providing them chances to search for other substitutable property development as they are already commuted to there. Therefore the chance of being visited for the nearby substitutable property development of the new development is increased, comparing with the case that there were no such new

development and thus the advertising campaign. Sometimes, the advertising campaign may not be needed to attract people to search for other substitutable property development as the property agents will try their best to introduce other residential properties to them. The minimum requirement of the advertisement to trigger the proposed stimulation effect on transaction volume of other substitutable property development is then to attract people to visit the site, and get contact with the property agents.

Since the information is imperfect in the residential property market, the transaction cost of purchasing or selling of residential unit is high due to the high information cost for searching for a suitable property. The transaction cost is usually so high that people prefer appointing property agents in order to lower the information cost. In terms of the property developments nearby the new development, the transaction (information) cost is in fact lowered with the help of the advertising campaign of new development nearby, or by the effort of the property agents since some nearby properties may not be heard of some potential buyers until the advertising campaign of the new development.

The advertising campaign of the new development will, by some means, lower the transaction (information) cost of purchasing substitutable property development nearby the new development. The decrease in transaction cost will improve the imperfect nature of the property market by the reason that part of the imperfection of the property market is due to the incomplete information and high information cost. Since trading volume is lower in the case of less perfect market and information has a persistence effect on trading volume in the imperfect market (Karpoff, 1986), the improvement in perfection of market should increase the trading volume.

Even the advertising campaign of new development is believed to be able to attract people from different districts to travel there and thus discover the property developments nearby, no matter from the advertisement or the property agents, it is not necessary that all property developments can attract those people to purchase their residential units and thus enjoy extra transaction volume. The reason is those properties are in fact not the type of property which the purchaser is seeking for, in other words, substitutable enough to the new development. Therefore, it should be proved that the nearby property developments are substitute of the new development. There are researches expressly stated that some property units are in fact can be homogeneous goods in the sense of similar function, location and quality (Goodman, 1977; King, 1976). Therefore, some property development units are in fact substitutable since they are homogeneous goods. However, most property development units are actually heterogeneous in nature and not all of them are homogeneous goods.

Researchers found that location (Alonse, 1964; So *et. al.*, 1997), age (Mok *et. al.*, 1995), view (Brown and Pollakoski, 1977; Ho, 1999; Pollard, 1980), amenities like shopping centre proximity (Benson, 1998; Linneman, 1980) and proximity to transportation systems (So *et. al.*, 1997) are important attributes to the property and thus its price. Thus those identified attributes to property price as well as price should be added in consideration of the criteria to define if the property development is homogeneous to the new development.

Once determined the property development near the new development is considered homogeneous and thus substitutable to the new development, the advertising effect of the

new development may bring additional transaction volume to those substitutable property developments. For those nearby property developments considered to be heterogeneous to the new development, they are non-substitutable to the new development and thus there should be no advertising effect affecting their transaction volume.



## **Chapter Three**

### **3. Methodology**

#### **3.1 Introduction**

The backgrounds and rationales behind the study have been established in the previous chapters. In this chapter, the Hypotheses and the methodology of the dissertation to test the Hypotheses will be presented. This chapter will start with stating the Hypotheses and research questions, and then the model specifications and remedies in case of special conditions are encountered, followed by the data collection and finally the expected result will be stated.

#### **3.2 Research questions and Hypothesis**

According to the logic delivered in the last chapters, it is to be suggested that there will be stimulation effect on the transaction volume of the nearby property development when the new development is being promoted, while the advertising campaign has no effect on the non-substitutable property due to its heterogeneous nature. Thus the research questions and Hypotheses could be formulated as the followings:

Research questions :

1. Is there any positive effect on transaction volume exerted from the advertisement of the new development to the property developments nearby ?
2. If there is an effect on transaction volume exerted from the new development, are there any property developments not affected by the stimulation effect ?

Hypotheses are designed as follows in order to answer the research questions :

Hypothesis 1 : Introduction of new development has no effect on the transaction volume of non-substitutable property developments nearby.

Hypothesis 2 : Introduction of new development has positive effect on the transaction volume of substitutable property developments nearby.

Tests to test for the Hypotheses will be specified in the later section of this chapter, from the results and analysis of the Hypotheses, the research questions should be able to be answered and thus the objectives and the aim of this dissertation could be achieved.

### 3.3 Locations of Study

The aim of the study is to investigate whether there is an impact on the existing property developments by the introduction and advertisement of new developments nearby, which brings publicity to the existing buildings. Therefore the dissertation should be started by locating new developments.

The dissertation covers the private developments in Hong Kong. There is no special criterion for the selection of the sample to be estate developments or single block developments since the research interest is the effect of the change in transaction volumes on the substitutability of the existing buildings. In this dissertation, new developments which started their sale from year 1991 to 2007 will be searched. The reason why the dissertation is restricted to the time frame of 16 years is due to the reason of lacking collectable data for transactions earlier than 1991 from the EPRC system which is vital to the study. Among the new developments, 40 new developments will be selected for the

purpose of investigation. The major selection criterion is whether there will be substitutable existing property development nearby and whether the advertising will be strong enough to trigger the stimulation effect. Such advertising effect will be estimated by the number of transaction of the new developments : it is believed that the strong advertisement is to be reflected by the large transaction number of the new developments, with reference to the number of the units of the new development. The rationale behind the belief is that strong and successful advertisement should be able to attract more people to buy the new development and thus the transaction volume should be large. Since the main objective of the advertising campaign is to increase the publicity, strong and successful advertisement should attract more people to buy the new development. Hence the transaction volume should be large.

The process of selecting new development and substitutable existing property development in fact will be conducted at the same time. For each new development selected, existing property developments nearby will be accessed, substitutable existing property development will be selected for the analysis. In cases of where there are no substitutable existing property developments, the new developments will be disregarded from the sample pool and extra new development will be selected to maintain the quantity of samples in the pool. Besides, the most substitutable existing property development will be selected in the analysis if there is more than one substitutable.

Existing property developments which are non-substitute to the new developments will also be located for the purpose of the test for Hypothesis 1 and as means of control. Similar selection process will be used in selecting the non-substitutable existing property developments : Existing nearby buildings will be searched and accessed, existing building

which is the most different from the new development, implying it is the most non-substitutable property to the new development, will be selected as non-substitutable existing property development. A new development with one substitutable property development and one non-substitutable property development is regarded as a Sample, there are 40 Samples selected in this dissertation, Table 3-1 and Table 3-2 later in this chapter presents the selected Samples. The definition of substitutable and non-substitutable property developments and the scope of search in each Sample will also be stated later in this chapter.

### 3.4 Definition of terms

In the course of the research, the number of transaction of the selected substitutable and non-substitutable existing property developments will be investigated. Terms should be defined in order to facilitate the presentation of the concepts of methodology and data analysis.

“Substitutability” is the most important term to be defined in this research as the whole research questions and Hypotheses are based on the “substitutability” of the existing property developments. The author would like to define the “substitutability” according to the main attributes to the property. Researchers found that location (Alonso, 1964; So *et. al.*, 1997), age (Mok *et. at.*, 1995), view (Brown and Pollakowski, 1977; Ho, 1999; Pollard, 1980) and proximity to transportation systems (So *et. al.*, 1997) are important attributes to the property and thus its price. Furthermore, the type of the development is also another aspect for determining if the property is substitutable to the new development. Types of development like Tenant Purchase Scheme (TPS), Home Ownership Scheme (HOS) and Private Sector Participation Scheme (PSPS) are surely

different from the private development and thus should not have any stimulation effect from it. So, the author would define the term “substitutability” as having similar location, age, price, view, proximity to transportation systems and being the same type of development (TPS, HOS, PSPS and private) in this research. The similarity of the attributes of the subject property developments regards to the least difference to the new development, and such difference should be reasonable.

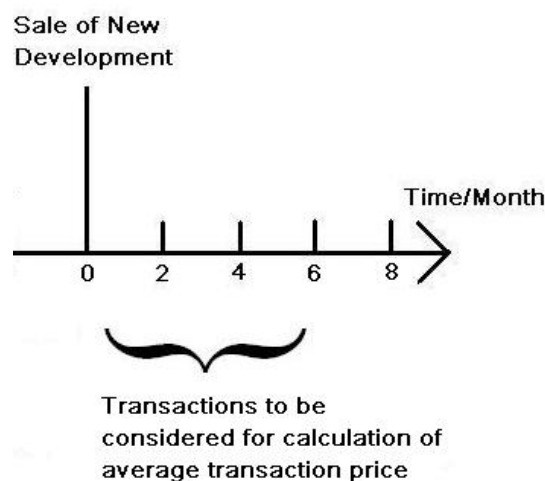
The definition of “nearby” is controversial. For the interest of the research, the impact on the existing property development is based on the advertising effect of the new development. So the term “nearby” should be defined for a reasonable short distance from the new development. In this research, the author would like to define the term “nearby” as the buildings within the same district as the new development. Therefore the existing buildings in the same district as the new developments would be accessed in the course of data selection. For the sake of maintaining consistency in defining district during the course of study, demarcate of district will be set according to EPRC.

### 3.5 Assessment of nearby property developments of new development

With the definition of “substitutability” and “nearby” defined, the assessment of substitutable and non-substitutable property developments nearby the new development should be stated.

When new development is located, all property developments in the same district should be found and their substitutability should be assessed. According to the definition of “substitutability”, the location, age, price, view, proximity to transportation systems and type of development are to be found for each property development. It is preferable to

choose the property development physically next to or near to the new development in order to fulfill the requirement of location, proximity to transportation systems and view. Type of development will then be assessed. The judgments of the similarity of location, view and transportation means proximity are based on the author's judgment with the aid of Google satellite/aerial photos<sup>3</sup> as well as the information from Centamap<sup>4</sup>. Finally the age and price of the property development are used to compare with the new development to check for substitutability. As price is a good indicator of the quality of the property development, the assessment of price difference is important in determining the substitutability of the property development. For the assessment of price, the average price per sq. ft. in terms of GFA for the period of six months is collected, the difference in price in percentage will be calculated, the lesser the difference the more substitutable they are. Since the property market in Hong Kong fluctuates throughout the year, a longer period should be used for calculation of average transaction price in order to achieve a more stable reflection of the quality of the property development.



**Figure 3-1 Calculation of average transaction price**

<sup>3</sup> <http://maps.google.com/>

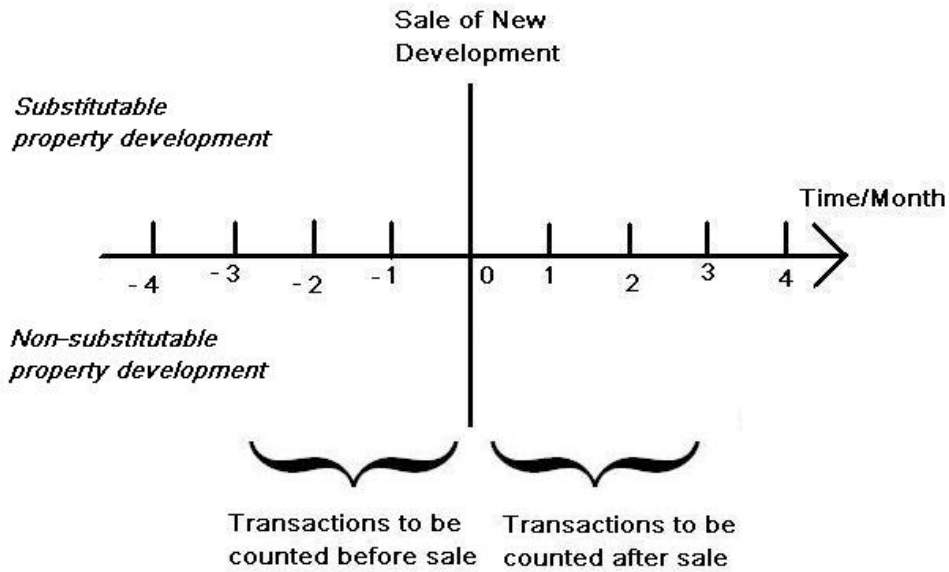
<sup>4</sup> <http://www.centamap.com/gc/home.aspx>

The assessment of the non-substitutable property development is the same as above except that all attributes should be very different from the new development.

### 3.6 Model specification

As mentioned in section 3.1 earlier in this chapter, the two Hypotheses are related to the transaction volume changes after the introduction of new development. In this dissertation, comparison method is used for the test of both Hypotheses.

In order to figure out if the numbers of transactions of the selected property developments are stimulated, the transaction volume before and after the introduction of new development should be found. The time frame of 3 months was chosen to count the transaction volume of the selected property developments. The decision was based on the facts that property market fluctuates a lot, the transaction volume of property developments varies from time to time and such fluctuating phenomenon may interfere with the research results. So a shorter time frame is selected in order to capture the impact of new development and at the same time to limit the effect of fluctuation. An argument of a longer time frame should be set may be raised based on the fact that time is needed for the spread of information, seek for substitutes, negotiation etc. in the property market. However, time should have been provided for those activities since the advertising campaign should launch before the actual sale of the new development, therefore there is no need of allocation of additional time for the actions. The transaction volumes of the substitutable (upper part of the Figure 3-2) as well as the non-substitutable (lower part of the Figure 3-2) property developments are to be counted.



**Figure 3-2 Calculation of number of transactions**

The number of transactions of substitutable property development calculated before the sale of new development is defined as  $V_{B-Sub}$ , while the number of transactions of substitutable property development calculated after the sale of new development is defined as  $V_{A-Sub}$ .

Similarly, for the number of transactions of non-substitutable property development calculated before the sale of new development is defined as  $V_{B-Non Sub}$ , and finally the number of transactions of non-substitutable property development calculated before the sale of new development is defined as  $V_{A-Non Sub}$ .

The data collected will then be calculated as percentage changes of the number of transactions and indicates the transaction status of the property developments. However, such data has to be tested under control. External effects may affect the result of the data. Such external effects like mortgage rate, consumer confidence, construction costs, real price of housing, inflation rate, number of divorce, expected rate of inflation of housing



price and ratio of nominal price of housing relative to permanent income were reviewed in the Literature Review in chapter 2 as the major factors affecting the transaction volume of private residential property. A decrease in percentage change in the number of transaction does not necessarily indicate that the introduction of new development reduced the transaction of nearby property development simply because other property developments may have even larger drop in percentage due to the adverse economic condition which implies that the subject property development was in fact having “an increase in transaction”, and vice versa. Therefore, a benchmark is needed for the investigation. The benchmark to be used in this dissertation is the change in transaction volume of the same district as the subject property developments. For all the property developments in the district, they are all experiencing all the external effects that affecting the transaction volume at the same time. Thus, the performance of the transaction of the whole district should be reasonable for the benchmarking of the subject property developments. It represents the normal percentage drop or increase in transaction volume for unaffected buildings.

For the purpose of benchmarking, the number of transactions of the district should be counted. The number of transaction of the district before the sale of the new development is defined as  $V_{B-Dist}$ , while the number of transaction of the district after the sale of the new development is defined as  $V_{A-Dist}$ .

However, for the calculation of the transaction volume of the district, adjustments should be made in order to eliminate the sudden addition of the number of transaction due to the sale of the new development and the possible effect from the new development to the substitutable and/or non-substitutable property developments. Since the dissertation

aims at investigating the impacts from the new development, the number of transaction of the new development should be disregarded in the  $V_{A-Dist}$ . This is simply because the research studies the impact of the introduction of new development, the immediately effect of such introduction (which reflects in addition of transaction volume to the district) should be eliminated. Besides, the property developments which are suspected to be affected by the introduction should also be eliminated. This is a necessary measure as those property developments may be affected and thus interfere the performance of the benchmark. Therefore, the number of transaction of the new development; substitutable property development and the non-substitutable property development should be disregarded in the calculation of  $V_{B-Dist}$  and  $V_{A-Dist}$ .

The percentage change of the number of transactions will then be calculated as the followings:

$$\% \Delta V_{Sub} = \frac{(V_{A-Sub} - V_{B-Sub})}{V_{B-Sub}} \times 100\%$$

**Equation 3-1 Percentage change of transaction volume of substitutable property development**

$$\% \Delta V_{Non-Sub} = \frac{(V_{A-Non Sub} - V_{B-Non Sub})}{V_{B-Non Sub}} \times 100\%$$

**Equation 3-2 Percentage change of transaction volume of non-substitutable property development**

$$\% \Delta V_{Dist} = \frac{(V_{A-Dist} - V_{B-Dist})}{V_{B-Dist}} \times 100\%$$

**Equation 3-3 Percentage change of transaction volume of the district**

### 3.6.1 Test 1

After the collection of data, comparison will be conducted. For the Hypothesis 1 that the number of transaction of non-substitutable property developments will not be affected by the introduction of new developments,  $\% \Delta V_{\text{Non-Sub}}$  will be compared with  $\% \Delta V_{\text{Dist}}$ . Since the  $\% \Delta V_{\text{Dist}}$  is the benchmark of the research and its value is regarded as the value of non-affected buildings. The difference in  $\% \Delta V_{\text{Non-Sub}}$  and  $\% \Delta V_{\text{Dist}}$  represent the adjusted percentage change of the non-substitutable property developments. There are three possible outcomes of Test 1 :

1.  $\% \Delta V_{\text{Non-Sub}} > \% \Delta V_{\text{Dist}}$  ;
2.  $\% \Delta V_{\text{Non-Sub}} < \% \Delta V_{\text{Dist}}$  ;
3.  $\% \Delta V_{\text{Non-Sub}} \approx \% \Delta V_{\text{Dist}}$  .

Case 1 represents the transaction volume of the non-substitutable property development increased after the introduction of new development; Case 2 represents the transaction volume of the non-substitutable property development dropped after the introduction of new development; while Case 3 represents change the transaction volume of the non-substitutable property development is in line with such change in the district, implicating that the non-substitutable property development is unaffected by the introduction of new development, which is the expected result of this test.

### 3.6.2 Test 2

Similar process is applied to the test for Hypothesis 2 that the introduction of new development will have positive effect on the transaction volume and the transaction volume will increase.  $\% \Delta V_{\text{Sub}}$  will be compared with  $\% \Delta V_{\text{Dist}}$ . The difference in  $\% \Delta V_{\text{Sub}}$  and  $\% \Delta V_{\text{Dist}}$  represent the adjusted percentage change of the substitutable property developments. There are three possible outcomes of Test 2 :

1.  $\% \Delta V_{\text{Sub}} > \% \Delta V_{\text{Dist}}$  ;
2.  $\% \Delta V_{\text{Sub}} < \% \Delta V_{\text{Dist}}$  ;
3.  $\% \Delta V_{\text{Sub}} \approx \% \Delta V_{\text{Dist}}$  .

Case 1 represents the transaction volume of the substitutable property development increased after the introduction of new development, which is the expected result of this test; Case 2 represents the transaction volume of the substitutable property development dropped after the introduction of new development; while Case 3 represents change the transaction volume of the substitutable property development is in line with such change in the district, implicating that the substitutable property development is unaffected by the introduction of new development.

### 3.6.3 Test 3

Even though there is an introduction of  $\% \Delta V_{\text{Dist}}$  aiming at controlling the external factors as specified before, further control has to be added in the methodology to prevent the internal factor of the subject property developments from interfering the test result.

From the research conducted by Follain and Velz (1995), they suggested “real price of housing” was found negatively correlated with the turnover rate (transaction volume) and was very statistically significant from the Ordinary Least Squares analysis. It was suggested that a drop in real price of housing would lead to increase in transaction volume, and vice versa.

The owners of property developments nearby the new developments may lower their asking price during the course of the sale of new development in order to attract potential buyers. The lowering of asking price will alter the bid-ask spread and thus increase the chance of successful transaction as the gap between the asking price and bidding price is reduced. As a result the transaction volume will increase due to increase in successful transaction and the transaction price will drop compared with earlier time. Therefore the change in average transaction price before and after the sale of new development should be collected to assist the data analysis. The average transaction prices, in terms of price per sq. ft. in GFA, will be collected for the counted transactions following the principle of data collection specified in the Figure. 3-2 earlier in section 3.6.

The average transaction price of substitutable property development calculated before the sale of new development is defined as  $P_{B-Sub}$ , while the average transaction price of substitutable property development calculated after the sale of new development is defined as  $P_{A-Sub}$ .

Similarly, for the average transaction price of non-substitutable property development calculated before the sale of new development is defined as  $P_{B-Non\ Sub}$ , and finally the

average transaction price of non-substitutable property development calculated before the sale of new development is defined as  $P_{A-Non\ Sub}$ .

In the price analysis, the average transaction price of the district is also needed to be included as there may be other external factors that affecting the average transaction price of the subject buildings. However, the average transaction price of the district was not possible to be found. Therefore, the average transaction price of Hong Kong will be used in the analysis. Price indices provided by the Rating and Valuation Department (RVD) of the HKSAR will be employed in the analysis. RVD provided the price indices of the private domestic properties in Hong Kong classified by classes up to year 1986. According to the RVD<sup>5</sup>, “Private Domestic” units are defined as independent dwellings with separate cooking facilities and bathroom (and/or lavatory), which is in line with the buildings included in the research. Furthermore, RVD sub-divided the units by reference to floor area such that :

Class A – Saleable area less than 40 m<sup>2</sup>;

Class B – Saleable area of 40 m<sup>2</sup> to 69.9 m<sup>2</sup>;

Class C – Saleable area of 70 m<sup>2</sup> to 99.9 m<sup>2</sup>;

Class D – Saleable area of 100 m<sup>2</sup> to 159.9 m<sup>2</sup>;

Class E – Saleable area of 160 m<sup>2</sup> or above.

The indices include Class A, B & C will be employed as Class D and E residential units rarely appear in the Samples. Adding the data of Class D and E may affect the result.

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<sup>5</sup> [http://www.rvd.gov.hk/en/doc/statistics/15\\_technotes.pdf](http://www.rvd.gov.hk/en/doc/statistics/15_technotes.pdf)

The indices will be collected under the principle of Figure. 3-2 earlier in section 3.6. An average index will first be calculated for each time frame. The average transaction price index before the sale of new development is defined as  $AP_{B-HK}$ , while the average transaction price index after the sale of new development is defined as  $AP_{A-HK}$ .

The percentage change of the transaction price will then be calculated as the followings:

$$\% \Delta P_{\text{Sub}} = \frac{(P_{\text{B-Sub}} - P_{\text{A-Sub}})}{P_{\text{B-Sub}}} \times 100\%$$

**Equation 3-4 Percentage change of average transaction price of substitutable property development**

$$\% \Delta P_{\text{Non Sub}} = \frac{(P_{\text{B-Non Sub}} - P_{\text{A-Non Sub}})}{P_{\text{B-Non Sub}}} \times 100\%$$

**Equation 3-5 Percentage change of average transaction price of non-substitutable property development**

$$\% \Delta AP_{\text{HK}} = \frac{(AP_{\text{B-HK}} - AP_{\text{A-HK}})}{AP_{\text{B-HK}}} \times 100\%$$

**Equation 3-6 Percentage change of average transaction price of Hong Kong**

The  $\% \Delta P_{\text{Sub}}$  and  $\% \Delta P_{\text{Non Sub}}$  is then compared with  $\% \Delta AP_{\text{HK}}$ . The possible outcomes of Test 3 are as the followings :

1.  $\% \Delta P_{\text{Sub}}$  or  $\% \Delta P_{\text{Non Sub}} > \% \Delta AP_{\text{HK}}$  ;
2.  $\% \Delta P_{\text{Sub}}$  or  $\% \Delta P_{\text{Non Sub}} < \% \Delta AP_{\text{HK}}$  ;
3.  $\% \Delta P_{\text{Sub}}$  or  $\% \Delta P_{\text{Non Sub}} \approx \% \Delta AP_{\text{HK}}$  .

Case 1 represents that there is an actual increase in average transaction price in substitutable or non-substitutable property development; while Case 2 represents that there is an actual decrease in average transaction price in substitutable or non-substitutable property development and Case 3 represents that there is no actual change in average transaction price in substitutable or non-substitutable property development, which is the expected result for non-substitutable property development as the owner does not need to alter their asking prices in order to attract purchasers.

The expected result for substitutable property development is difficult to judge since the reaction of owners to the introduction of new developments varies according to the behaviors of the individuals, and probably according to their financial conditions. The author believes that the average transaction price of the substitutable property development would increase as the owners should probably grab the opportunity to earn as much as they can when there are more potential purchasers attracted by the advertisements to visit the area. The owners should to raise the asking price in order to achieve profit maximization. So the expected result for substitutable property development is Case 1.

### 3.7 Special conditions

There may be some special conditions encountered during the course of data collection, the sorts of special conditions and the remedies are to be explained in this section.



### **3.7.1 Sale of new development**

The determination of the starting date (month) of the sale of new development will be relied on the help of EPRC system. The first transaction date (month) of Sale and Purchase Agreements will be searched using the system and that date (month) would be regarded as the first sale. However, a reasonably large number of transactions are needed. It is because the research interest is the advertising effect and thus the number of transaction in the month should be large enough to trigger the data collection based on the assumption that strong enough advertising campaign of the new development will lead to large number of transaction of that new development.

The reason why the transaction date but not the advertisement date is used in this dissertation is that time should be allowed for various activities before a transaction is completed, such as searching for suitable flat, negotiations etc., if the advertisement date is used, it is difficult to define when the stimulation effect will affect the transaction volume. Since the developer should have coordinated the sale of new development and the arrangement of advertising campaign to capture the largest amount of purchasers, the date of sale should be a reasonable estimation of the time when the effect of advertisements are at maximum, and so as the stimulation effect to the substitutable property development.

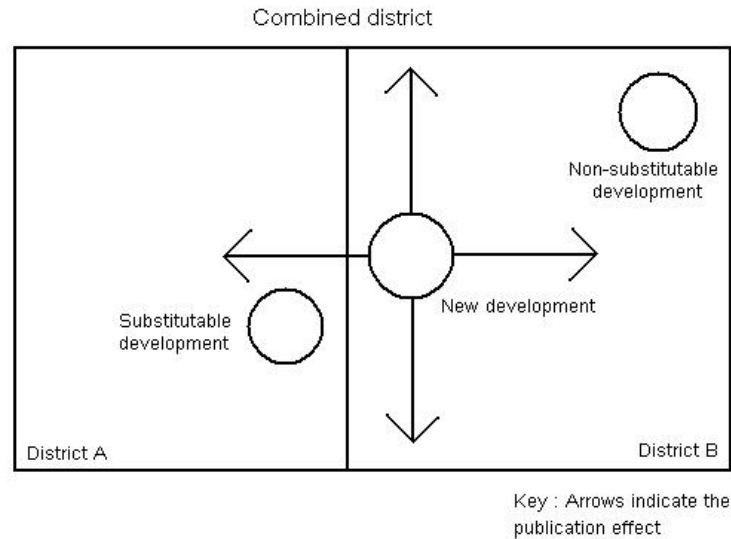
### **3.7.2 The advertising campaign**

Some new developments may have their advertising campaign being launched in one go or divided into stages. For the advertising campaign being launched in one go is relatively easy for the data collection as there is only one period for data collection since

the advertising effect should be concentrated during the campaign or last some time after such campaign. However, for the campaign that is divided into stages, each advertising effect should be captured. Based on the assumption that each advertising campaign should have their effect on the new development and thus the number of transaction of the new development should have risen, which is the objective of a successful advertising campaign. The number of transaction of new development on monthly basis should be collected to detect for any further advertising campaigns. If further advertising campaign is discovered,  $\% \Delta V_{\text{Sub}}$ ,  $\% \Delta V_{\text{Non-Sub}}$  and  $\% \Delta V_{\text{Dist}}$  should be collected for that period for the data analysis.

### **3.7.3 Subject properties in different district**

There may be situations that the new development is located in the border of a district. Since the advertising effect should be radiated from the new development, such advertising effect should also affect the substitutable property developments close to the new development but in the neighboring district. If such case happens, the two districts should be considered as a big district in the data collection. As a result, the developments in the two districts should be considered for their substitutability and the number of transaction of both districts should be considered in the control.



**Figure 3-3 Subject properties in different district**

### 3.7.4 Abnormal transaction price

During the course of average transaction price collection, abnormal transaction price may be encountered. There may be unreasonably high or low transaction price for some transactions. The reasons for the abnormal transaction price may be due to special conditions of transaction that the vendor and vendee are relatives or they have other special considerations. Therefore the maximum and minimum transaction price in terms of price per sq. ft. in GFA should be collected for the substitutable and non-substitutable property developments. The abnormal transaction price should be obvious when compared with the average transaction price. The abnormal transaction price should be disregarded from the calculation of the average transaction price as they may affect the result, even though the effect should be very little in affecting the average transaction price.

### 3.8 Data

In the research, 40 Samples are collected. Each Sample is consisted of a new development, a (the most) substitutable property development and a non-substitutable property development. The 40 Samples covered most districts of Hong Kong and they are rather dispersed. Some districts may have as much as 5 Samples located because they are considered as “New Towns” in Hong Kong and were developed by the Hong Kong Government mostly for residential uses. Furthermore, 12 out of 40 Samples selected are having the new development as the second or later phase of the substitutable property development as it is believed that the properties within the same development are most substitutable. Table 3-1 and 3-2 indicates the Sample List in this study. Table 3-3 indicates the analysis of Sample List on district base and Table 3-4 indicates the 12 Samples that the new development and substitutable property are actually the same development. The substitutability and non-substitutability tests for the subject properties are reported in the Appendix, from Appendix 1 to Appendix 20.

**Table 3-1 The Sample List (Part 1)**

<b>Sample no.</b>	<b>New Development</b>	<b>Substitutable property</b>	<b>Non-substitutable property</b>	<b>District</b>
1	Parcville	Sun Yuen Long Centre	Fairview Park	Yuen Long
2	Greenfields	Sun Yuen Long Centre	Fairview Park	Yuen Long
3	YOHO Town	Parcville	Palm Springs	Yuen Long
4	Sorrento	Waterfront	Hunghom Bay Centre	Tsim Sha Tsui
5	Harbour Green	Park Avenue	Chaming Garden	Tai Kok Tsui
6	Central Park	Park Avenue	Fu Tor Loy Sun Chuen	Tai Kok Tsui
7	Ocean Shores PH3	Ocean Shores PH1+2	La Cite Noble	Tseung Kwan O
8	Metro Town	Ocean Shores PH3	La Cite Noble	Tseung Kwan O
9	Tseung Kwan O Plaza	Park Central	Fu Ning Garden	Tseung Kwan O
10	Caribbean Coast PH3	Caribbean Coast PH1+2	Yu Tung Court (Blk. A,D,E)	Island (Tung Chung)
11	Park Royale	Scenic Gardens	Yuen Long Plaza	Yuen Long
12	Villa Oceania	Villa Athena	Sunshing City (Blk. A,B,C,D)	Ma On Shan
13	Marbella	Waterside	Sunshine City	Ma On Shan
14	Sky Tower	Majestic Park	Grandview Garden	Kowloon City
15	South Hillcrest	Beneville	Elegance Garden	Tuen Mun
16	Royal Palms	Palm Springs	Fu Loy Garden	Yuen Long
17	Hollywood Terrace	Grandview Garden	Tim Po Court	Sheung Wan
18	Merton	Cayman Rise	Academic Terrace	Hong Kong West
19	Bellagio PH1	Ocean Pointe	Riviera Garden	Tsuen Wan
20	Bellagio PH2	Bellagio PH1	Riviera Garden	Tsuen Wan

**Table 3-2 The Sample List (Part 2)**

<b>Sample no.</b>	<b>New Development</b>	<b>Substitutable property</b>	<b>Non-substitutable property</b>	<b>District</b>
21	Park Island PH3	Park Island PH1+2	Allway Garden	Tsuen Wan
22	Sausalito	La Costa	Saddle Ridge Garden	Ma On Shan
23	Chelsea Heights PH2	Chelsea Heights PH1	Prime View Garden	Tuen Mun
24	Metropolis Residence	Royal Peninsula	Laguna Verde	Tsim Sha Tsui and Hung Hom
25	Laguna Verde PH5	Laguna Verde PH1-4	Hunghom Bay Centre	Hung Hom
26	Laguna Verde PH4	Laguna Verde PH1-3	Hunghom Bay Centre	Hung Hom
27	Laguna Verde PH3	Laguna Verde PH1	Whampoa Estate	Hung Hom
28	Serenade Cove	Belvedere Garden PH3	Luk Yeung Sun Chuen	Tsuen Wan
29	Discovery Park	Tsuen King Garden	Riviera Garden	Tsuen Wan
30	Oceania Heights	Nerine Cove	Parkland Villas	Tuen Mun
31	Sea Crest	Nerine Cove	Tuen Mun Town Plaza	Tuen Mun
32	Sheung Shui Center	Metropolis Plaza	Yuk Po Court	Sheung Shui
33	Dawning Views	Avon Park	Fanling Centre	Fanling
34	Fanling Town Centre	Fanling Centre	Vienna Garden	Fanling
35	Grand Regentville	Belair Monte	Avon Park	Fanling
36	Regentville	Belair Monte	Avon Park	Fanling
37	Grand Regentville	Regentville	Avon Park	Fanling
38	Coastal Skyline PH3	Coastal Skyline PH1	Yu Tung Court	Island (Tung Chung)
39	Coastal Skyline PH3	Seaview Crescent	Yu Tung Court	Island (Tung Chung)
40	Royal Ascot	Jubilee Garden	New Town Plaza	Shatin

**Table 3-3 Sample distribution in district basis**

<b>District</b>	<b>Samples</b>	<b>Number of Samples</b>
Yuen Long	1, 2, 3, 11, 16	5
Tsim Sha Tsui	4	1
Tai Kok Tsui	5, 6	2
Tseung Kwan O	7, 8, 9	3
Island (Tung Chung)	10, 38, 39	3
Ma On Shan	12, 13, 22	3
Kowloon City	14	1
Tuen Mun	15, 23, 30, 31	4
Sheung Wan	17	1
Hong Kong West	18	1
Tsuen Wan	19, 20, 21, 28, 29	5
Tsim Sha Tsui and Hung Hom	24	1
Hung Hom	25, 26, 27	3
Sheung Shui	32	1
Fanling	33, 34, 35, 36, 37	5
Sha Tin	40	1
<b>Total</b>		<b>40</b>

**Table 3-4 The Sample List of same development**

<b>Sample no.</b>	<b>New Development</b>	<b>Substitutable property</b>	<b>Non-substitutable property</b>		<b>District</b>
6	Central Park	Park Avenue	Fu Tor Loy Sun Chuen		Tai Kok Tsui
7	Ocean Shores PH3	Ocean Shores PH1+2	La Cite Noble		Tseung Kwan O
10	Caribbean Coast PH3	Caribbean Coast PH1+2	Yu Tung Court (Blk. A,D,E)		Island (Tung Chung)
16	Royal Palms	Palm Springs	Fu Loy Garden		Yuen Long
20	Bellagio PH2	Bellagio PH1	Riviera Garden		Tsuen Wan
21	Park Island PH3	Park Island PH1+2	Allway Garden		Tsuen Wan
23	Chelsea Heights PH2	Chelsea Heights PH1	Prime View Garden		Tuen Mun
25	Laguna Verde PH5	Laguna Verde PH1-4	Hunghom Bay Centre		Hung Hom
26	Laguna Verde PH4	Laguna Verde PH1-3	Hunghom Bay Centre		Hung Hom
27	Laguna Verde PH3	Laguna Verde PH1	Whampoa Estate		Hung Hom
37	Grand Regentville	Regentville	Avon Park		Fanling
38	Coastal Skyline PH3	Coastal Skyline PH1	Yu Tung Court		Island (Tung Chung)
			<b>Total</b>	<b>:</b>	<b>12</b>



### 3.9 Expected Result

According to the Hypothesis 1, it is expected that the result of the test of the transaction volume of the non-substitutable property development should show that the number of transaction should remain unaffected while the transaction volume of the substitutable property development should be increased. In other words, in Test 1, the expected result is Case 3 which is  $\% \Delta V_{\text{Non-Sub}} \approx \% \Delta V_{\text{Dist}}$ , while in Test 2 the expected result is Case 1 which is  $\% \Delta V_{\text{Sub}} > \% \Delta V_{\text{Dist}}$  according to the Hypothesis 2.

For the Test of price, it is expected that the average transaction price of non-substitutable property development is to remain unchanged as Case 3 in the Test 3 ( $\% \Delta P_{\text{Non Sub}} \approx \% \Delta AP_{\text{HK}}$ ), while there should be an increase in average transaction price of the substitutable property development as Case 1 in the Test 3 ( $\% \Delta P_{\text{Sub}} > \% \Delta AP_{\text{HK}}$ ).

## Chapter Four

### 4. Empirical Results

#### 4.1 Introduction

In the previous chapter, the methodologies for the tests of Hypotheses have been specified. This chapter will present the results derived from the 3 Tests specified in Methodology (chapter 3). The summary of the data collected will be presented first, and then followed by detailed results of the Tests. For each Test, test result of the Hypothesis and the implication of the result will be discussed.

#### 4.2 Summary of the results

This section shows the summary of the findings. The descriptive statistics of the  $\% \Delta V_{\text{Non-Sub}}$  compared with  $\% \Delta V_{\text{Dist}}$  will be stated in Table. 4-1. Followed by the descriptive statistics of the  $\% \Delta V_{\text{Sub}}$  compared with  $\% \Delta V_{\text{Dist}}$  will be stated in Table. 4-2. Finally, the descriptive statistics of the price test :  $\% \Delta P_{\text{NonSub}}$  ,  $\% \Delta P_{\text{Sub}}$  and  $\% \Delta AP_{\text{HK}}$  will be presented in Table. 4-3.

The sections under “Before comparing with district/Hong Kong” indicate the summary of the performances of the Samples in terms of direct percentage changes calculated in the Tests. The sections under “After comparing with district/Hong Kong” indicate the summary of the performances of the Samples in terms of “actual percentage changes” after the adjustments of deducting the percentage changes of the district/Hong Kong. The empirical result is reported in Table 4-4 and Table 4-5.

**Table 4-1 Transaction volume of non-substitutable property developments**

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**Transaction volume of non-substitutable property developments**

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<i>Before comparing with district</i>	Items	Percentage
Increased	15	37.5%
Decreased	20	50.0%
Remain unchanged	5	12.5%
Total :	40	100.0%

---

<i>After comparing with district</i>	Items	Percentage
Increased	17	42.5%
Decreased	23	57.5%
Remain unchanged	0	0.0%
Total :	40	100.0%

**Table 4-2 Transaction volume of substitutable property developments**

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**Transaction volume of substitutable property developments**

---

<i>Before comparing with district</i>	Items	Percentage
Increased	21	52.5%
Decreased	17	42.5%
Remain unchanged	2	5.0%
Total :	40	40

---

<i>After comparing with district</i>	Items	Percentage
Increased	19	47.5%
Decreased	21	52.5%
Remain unchanged	0	0.0
Total :	40	100%

**Table 4-3 Comparison of transaction price of the subject properties with Hong Kong**

<b>Comparison of transaction price of the subject properties with Hong Kong</b>		
<b>Non-substitutable property developments</b>		
<i>Before comparing with Hong Kong</i>	Items	Percentage
Increased	16	40.0%
Decreased	22	55.0%
Remain unchanged	1	2.5%
Not applicable	1	2.5%
Total :	40	100.0%
<b>After comparing with Hong Kong</b>		
<i>After comparing with Hong Kong</i>	Items	Percentage
Increased	17	42.5%
Decreased	22	55.0%
Remain unchanged	0	0.0%
Not applicable	1	2.5%
Total :	40	100.0%
<b>Substitutable property developments</b>		
<i>Before comparing with Hong Kong</i>	Items	Percentage
Increased	21	52.5%
Decreased	18	45.0%
Remain unchanged	1	2.5%
Total :	40	100.0%
<b>After comparing with Hong Kong</b>		
<i>After comparing with Hong Kong</i>	Items	Percentage
Increased	25	62.5%
Decreased	15	37.5%
Remain unchanged	0	0.0%
Total :	40	100.0%

**Table 4-4 Empirical result of Test 1 and Test 2 (Part 1)**

Sample no.	New Development	Sale Date	Substitute dev	Volume before	Volume after	Non-substitute dev	Volume before	Volume after	Percentage diff. Sub	Non-sub
1	Parcville	Feb-01	Sun Yuen Long Centre	10	14	Fairview Park	61	74	40.00%	21.31%
2	Greenfields	Dec-98	Sun Yuen Long Centre	22	28	Fairview Park	139	87	27.27%	-37.41%
3	YOHO Town	Jul-03	Parcville	36	38	Palm Springs	16	17	5.56%	6.25%
4	Sorrento	Nov-01	Waterfront	24	6	Hunghom Bay Centre	15	19	-75.00%	26.67%
5	Harbour Green	Oct-05	Park Avenue	40	16	Chaming Garden	22	9	-60.00%	-59.09%
6	Central Park	Aug-00	Park Avenue	547	249	Fu Tor Loy Sun Chuen	8	10	-54.48%	25.00%
7	Ocean Shores PH3	May-02	Ocean Shores PH1+2	106	53	La Cite Noble	37	14	-50.00%	-62.16%
8	Metro Town	Sep-05	Ocean Shores PH3	41	26	La Cite Noble	41	28	-36.59%	-31.71%
9	Tseung Kwan O Plaza	Mar-03	Park Central	172	220	Fu Ning Garden	19	15	27.91%	-21.05%
10	Caribbean Coast PH3	Aug-04	Caribbean Coast PH1+2	76	128	Yu Tung Court (A,D,E)	6	9	68.42%	50.00%
11	Park Royale	Jun-98	Scenic Gardens	1	8	Yuen Long Plaza	3	3	700.00%	0.00%
12	Villa Oceania	Apr-98	Villa Athena	33	18	Sunshing City (A,B,C,D)	36	18	-45.45%	-50.00%
13	Marbella	Dec-01	Waterside	11	12	Sunshine City	98	75	9.09%	-23.47%
14	Sky Tower	Jun-02	Majestic Park	7	2	Grandview Garden	11	9	-71.43%	-18.18%
15	South Hillcrest	Jun-05	Beneville	75	33	Elegance Garden	12	6	-56.00%	-50.00%
16	Royal Palms	Jan-96	Palm Springs	18	23	Fu Loy Garden	11	11	27.78%	0.00%
17	Hollywood Terrace	Nov-99	Grandview Garden	5	5	Tim Po Court	1	1	0.00%	0.00%
18	Merton	Jan-05	Cayman Rise	13	13	Academic Terrace	9	9	0.00%	0.00%
19	Bellagio PH1	Sep-02	Ocean Pointe	20	9	Riviera Garden	49	45	-55.00%	-8.16%
20	Bellagio PH2	Sep-04	Bellagio PH1	52	57	Riviera Garden	81	115	9.62%	41.98%

Source : EPRC

**Table 4-5 Empirical result of Test 1 and Test 2 (Part 2)**

Sample no.	New Development	Sale Date	Substitute dev	Volume before	Volume after	Non-substitute dev	Volume before	Volume after	Percentage diff.	
									Sub	Non-sub
21	Park Island PH3	Jun-04	Park Island PH1+2	157	92	Allway Garden	49	40	-41.40%	-18.37%
22	Sausalito	Nov-06	La Costa	11	12	Saddle Ridge Garden	22	24	9.09%	9.09%
23	Chelsea Heights PH2	Mar-99	Chelsea Heights PH1	28	12	Prime View Garden	20	15	-57.14%	-25.00%
24	Metropolis Residence	Jan-03	Royal Peninsula	20	29	Laguna Verde	81	53	45.00%	-34.57%
25	Laguna Verde PH5	Jun-01	Laguna Verde PH1-4	398	90	Hunghom Bay Centre	13	11	-77.39%	-15.38%
26	Laguna Verde PH4	Sep-00	Laguna Verde PH1-3	63	69	Hunghom Bay Centre	13	14	9.52%	7.69%
27	Laguna Verde PH3	Mar-99	Laguna Verde PH1	25	14	Whampoa Estate	49	58	-44.00%	18.37%
28	Serenade Cove	Apr-99	Belvedere Garden PH3	26	37	Luk Yeung Sun Chuen	54	60	42.31%	11.11%
29	Discovery Park	Sep-96	Tsuen King Garden	95	141	Riviera Garden	172	248	48.42%	44.19%
30	Oceania Heights	Jul-03	Nerine Cove	10	14	Parkland Villas	12	13	40.00%	8.33%
31	Sea Crest	May-01	Nerine Cove	256	496	Tuen Mun Town Plaza	30	35	93.75%	16.67%
32	Sheung Shui Center	Nov-93	Metropolis Plaza	14	19	Yuk Po Court	7	7	35.71%	0.00%
33	Dawning Views	Apr-98	Avon Park	41	25	Fanling Centre	57	64	-39.02%	12.28%
34	Fanling Town Centre	Nov-93	Fanling Centre	70	95	Vienna Garden	42	27	35.71%	-35.71%
35	Grand Regentville	Oct-01	Belair Monte	18	14	Avon Park	34	28	-22.22%	-17.65%
36	Regentville	Sep-99	Belair Monte	81	19	Avon Park	22	17	-76.54%	-22.73%
37	Grand Regentville	Oct-01	Regentville	10	12	Avon Park	34	28	20.00%	-17.65%
38	Coastal Skyline PH3	Dec-06	Coastal Skyline PH1	29	30	Yu Tung Court	12	11	3.45%	-8.33%
39	Coastal Skyline PH3	Dec-06	Seaview Crescent	17	14	Yu Tung Court	12	11	-17.65%	-8.33%
40	Royal Ascot	Mar-95	Jubilee Garden	34	102	New Town Plaza	10	24	200.00%	140.00%

Source : EPRC

### 4.3 Empirical results and discussion of Hypothesis 1

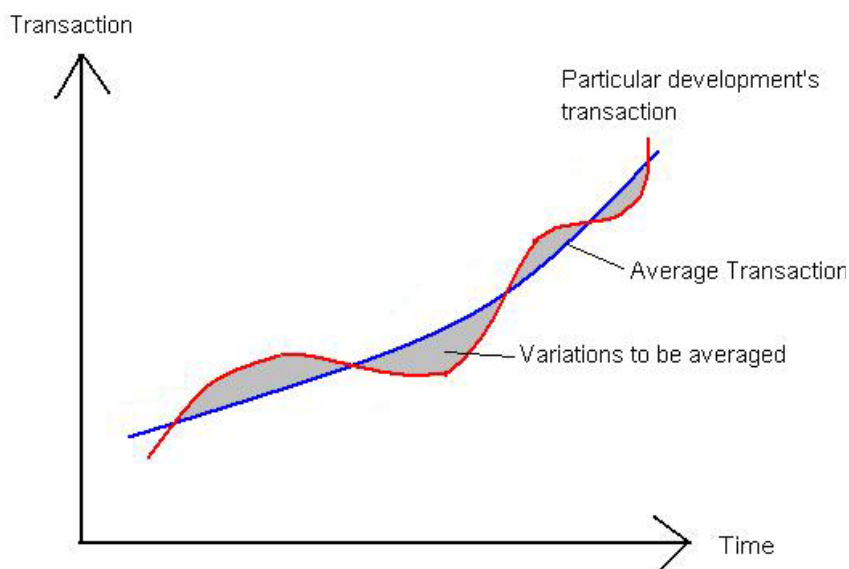
The Hypothesis 1 of the research is that there is neither positive nor negative impact on the transaction volume of the non-substitutable property developments nearby the new development in the course of advertising campaign. Therefore the expected result of the Test 1 that the percentage change of the transaction volume of the subject property should be similar to the percentage change of the transaction volume of the district :  $\% \Delta V_{\text{Non-Sub}} \approx \% \Delta V_{\text{Dist}}$ . The summary of empirical result is reported in Appendix 21. For a better illustration of the result, “adjusted percentage change in transaction volume” which is  $(\% \Delta V_{\text{Non-Sub}} - \% \Delta V_{\text{Dist}})$ , will be included in the table.

The rationale behind the Test of the Hypothesis is that if there is no impact on the non-substitutable property development by the new development. The performance of the percentage change in transaction volume of the subject property should be in line with the performance of the whole district. This is because the subject property and the district are experiencing the same external factors that affecting their transaction volume. However, due to the fluctuating nature of Hong Kong’s property market, it is impossible to require the subject property having exactly the same change in percentage in transaction volume as the district. Therefore, the adjusted percentage change in transaction volume is introduced in the analysis of the result. The resultant percentage indicates how the subject property behaves different from the benchmark. A certain resultant percentage difference from the benchmark should be decided as toleration for the variation of the transaction volume of the subject property.

### 4.3.1 The determination of transaction volume percentage difference

#### tolerance

The aim of the determination is to find out the normal deviation of the transaction volume of a normal property development from the average transaction volume of Hong Kong at a specified period. Ideally, the percentage difference tolerance should be found according to the following figure :



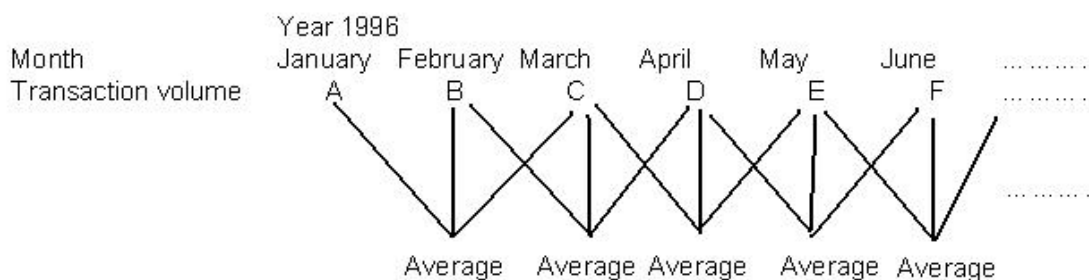
**Figure 4-1 The variations of transaction volume**

However, the method to determine the tolerance is impossible to be performed with the limited time and resources. Therefore, the author would like to alter the method by comparing the transaction volume of Hong Kong with the average transaction volume of Hong Kong for the estimation of the toleration.

Statistics of Agreements of Sale and Purchase of residential building units on monthly basis from year 1996 to 2007 could be found from the online resources website of the



Land Registry of Hong Kong<sup>6</sup>. The data will be extracted and the average number of agreements of sale and purchase, which equals to the transaction volume, on three months basis will then be calculated. Illustration of the method of calculation is presented as the followings :



**Figure 4-2 The calculation of average transaction volume**

The absolute percentage difference of the transaction volume of a particular month with respect to its corresponding average transaction volume will then be calculated. And finally the average absolute percentage difference will be calculated. Such average absolute percentage difference is regarded as the determined tolerance of the deviation. The graph of number of monthly transactions and average transactions against time is presented as Appendix 24.

According to the data collected and presented in Appendix 21 to Appendix 23, the calculated average percentage difference is 11.54%. Therefore, a tolerance of 11.54% is established to determine if the subject property's transaction volume is different from the district. The difference of the percentage change of transaction volume between the non-substitutable property development and district is then compared with the tolerance to

<sup>6</sup> <http://www.landreg.gov.hk/en/monthly/agreement.htm>

check if the transaction volume was actually increased, decreased or within tolerance (remain unchanged). A summary is presented as below :

Condition	Sample no.	Items	Percentage
Adjusted increase	33	1	2.5%
Adjusted decrease	17, 27, 38, 39	4	10.0%
Within tolerance	1-16, 18-26, 28-32, 34-37, 40	35	87.5%
Total :		40	100%

**Table 4-6 Analysis of transaction volume of non-substitutable properties**

It is found that 35 out of 40 observations of the non-substitutable property developments, which are 87.5% of the total Sample pool, are within the tolerance deviation of 11.54%. Such result indicates that the non-substitutable property developments are not affected by the introduction of the new developments. From this result, the Hypothesis 1 that non-substitutable property developments are not affected by the publication effect of new development is considered to be supported.

#### 4.4 Empirical results and discussion of Hypothesis 2

The Hypothesis 2 of the dissertation is that there should be positive impact on the transaction volume of the substitutable property developments nearby the new developments in the course of advertising campaigns. Therefore the expected result of the Test 2 that the percentage changes of the transaction volume of the subject properties should be larger than that of the District :  $\% \Delta V_{\text{Sub}} > \% \Delta V_{\text{Dist}}$ . The empirical result is reported in Appendix 25. Similar to the practice in the analysis of Test 1, “adjusted percentage change in transaction volume” which is  $(\% \Delta V_{\text{Sub}} - \% \Delta V_{\text{Dist}})$  will be included

in the table for a better illustration of the result. A summary of the substitutable property development which is defined having a larger or less transaction volume than the district after the introduction of new development compiled with the tolerance is presented as below :

Condition	Sample no.	Items	Percentage
Adjusted increase	1-2, 7, 9, 10-13, 16, 28, 30-32, 34, 37, 40	24, 17	42.5%
Adjusted decrease	4, 6, 8, 14, 17, 19-21, 23, 25, 27, 33, 36, 39	14	35.0%
Within tolerance	3, 5, 15, 18, 22, 26, 29, 35, 38	9	22.5%
Total :		40	100%

**Table 4-7 Analysis of transaction volume of substitutable properties**

The result seems to be contravening the expected result of the Test 2 Hypothesis 2 that it is expected to have majority of empirical result fall within the condition of having adjusted increase. The Hypothesis 2 seems not to be supported. Therefore a closer investigation on the Samples should be conducted.

As mentioned in the Methodology in chapter 3, it reported that there are 12 out of 40 selected Samples are having the elder phase of the new development as substitutable properties as it is believed that the elder phase developments are the most suitable Sample. as the location, price, quality of the development, proximity of transportation systems and view are supposed to be most substitutable. So the test result of those Samples should be investigated first and the result is presented as follow :

<b>Sample no.</b>	<b>New Development</b>	<b>Substitutable property</b>	<b>Adjusted % change in transaction</b>	<b>Condition</b>
6	Central Park	Park Avenue	-72.61%	Adjusted decrease
7	Ocean Shores PH3	Ocean Shores PH1+2	17.32%	Adjusted increase
10	Caribbean Coast PH3	Caribbean Coast PH1+2	12.40%	Adjusted increase
16	Royal Palms	Palm Springs	23.59%	Adjusted increase
20	Bellagio PH2	Bellagio PH1	-40.44%	Adjusted decrease
21	Park Island PH3	Park Island PH1+2	-30.34%	Adjusted decrease
23	Chelsea Heights PH2	Chelsea Heights PH1	-25.57%	Adjusted decrease
25	Laguna Verde PH5	Laguna Verde PH1-4	-57.13%	Adjusted decrease
26	Laguna Verde PH4	Laguna Verde PH1-3	-7.87%	Remain unchanged
27	Laguna Verde PH3	Laguna Verde PH1	-80.34%	Adjusted decrease
37	Grand Regentville	Regentville	40.72%	Adjusted increase
38	Coastal Skyline PH3	Coastal Skyline PH1	-1.93%	Remain unchanged
39	Coastal Skyline PH3	Seaview Crescent	-23.83%	Adjusted decrease

**Table 4-8 Analysis of change in transaction in same development Samples**

As presented in the table, only 4 Samples out of 12 experienced an adjusted increase indicating that the subject developments had a boost in transaction volume; 6 Samples out of 12 experienced a drop in transaction volume during the publication of new developments and 2 Samples remain unchanged. The results indicate that even for the most substitutable property developments, it is not necessary that the transaction volume will be boosted from the advertising effect of the new developments nearby.

#### **4.4.1 Discussion of the empirical result in Test 2**

In the previous section, it is concluded that a new development's advertising effect is not necessarily affecting the transaction volume of the nearby substitutable property development. The reason of such phenomenon is to be discussed in this section. The result of Test 3 that testing for the price movement of the subject property developments before and after the introduction of new development is then employed in the analyzing the result of Test 2. The analysis is used to investigate if such changes in transaction were due to the changes in asking prices or not. Similar to the analysis of Hypothesis 1, a tolerance of deviation in percentage change in transaction price should be determined in order to define if the property experienced an actual increase or decrease in transaction price after the introduction of new development. Such analysis helps to determine if the transaction price of the subject property developments are behaving different from the transaction price performance of Hong Kong as a benchmark.

#### **4.4.2 The determination of transaction price percentage difference tolerance**

Similar logic as the determination of transaction volume percentage difference tolerance is employed in this determination. Price indices of the Class A, B & C private domestic properties in Hong Kong from year 1993 to 2007 are extracted and the average price indices on three months basis will then be calculated. After similar procedure as the determination of the tolerated percentage variance in transaction volume, the average absolute percentage difference is then to be calculated. The result of the calculation is regarded as the tolerated percentage variance in transaction price. It was determined as 2.09% from the calculation. The detailed extracted data are to be presented in Appendix 26 to 28. The summary is presented as below :

<b>Condition</b>	<b>Sample no.</b>	<b>Items</b>	<b>Percentage</b>
Adjusted increase	1-2, 4-8, 12-13, 15, 19, 21, 23, 25, 29, 31, 36	17	42.5%
Adjusted decrease	3, 9-11, 16, 20, 32, 35, 37-38	10	25.0%
Within tolerance	14, 17-18, 22, 24, 26-28, 30, 33-34, 39-40	13	32.5%
Total :		40	100%

**Table 4-9 Analysis of the transaction price of the substitutable properties**

#### **4.4.3 Results of Test 3**

With the tolerated percentage variance being determined, the adjusted percentage changes of the transaction volume are then compared with the adjusted percentage changes of transaction price. This comparison is used to investigate if the changes in transaction volumes were due to changes in asking prices or not. The following table summarizes the Test 3's findings.

<b>Condition</b>	<b>Sample no.</b>	<b>Items</b>	<b>Percentage</b>
Transaction increase, Price increase	1-2, 7, 12, 13, 31	6	15.0%
Transaction increase, Price decrease	9, 10, 11, 16, 32, 37	6	15.0%
Transaction increase, Price within tolerance	24, 28, 30, 34, 40	5	12.5%
Transaction decrease, Price increase	4, 6, 8, 19, 21, 23, 25, 36	8	20.0%
Transaction decrease, Price decrease	20	1	2.5%
Transaction decrease, Price within tolerance	14, 17, 27, 33, 39	5	12.5%
Transaction volume within tolerance	3, 5, 15, 18, 22, 26, 29, 35, 38	9	22.5%
Total :		40	100%

**Table 4-10 Summary of Test 3 findings**

Disregarding those Samples which their percentage change in transaction fall within tolerance, the author discovered that for those Samples with adjusted transaction volume increase, their price movement is rather random which indicates that the increases in transaction volume were not due to changes in asking price and purely due to the advertising effect of the new developments. Therefore the results showed that advertising effect applies on certain substitutable property developments. However, further criteria for such effect to apply should be investigated.

Besides, there is an interesting finding that for those Samples that having adjusted transaction volume decrease, their transaction price tended to rise or remain unchanged. Such tendency occurs indicates that the transaction price changes were due to some unknown reason.

#### **4.4.4 Re-examination of the Samples for their degree of substitutability**

Re-examination of the substitutability should be performed to confirm if the unexpected test result was due to the Sample's substitutability is not enough. . As a starter of figuring out what is the essential element for adequate substitutability, the Samples where the substitutable properties are the elder phase of the new developments are extracted for investigation. This is because the selected property developments should be the most substitutable property development of the new development as they are in fact the same developments. They have the greatest proximity to the new development, which implies similar proximity to transportation means. Besides, they have the same developer which implies the quality and management of the properties are similar. Furthermore, the difference in price per sq. ft. is not deviating too much. The only concern of the doubt of

substitutability is the degree of similarity of view. Therefore a further investigation on the substitutability in terms of view should be carried out.

The result of further investigation of the degree of similarity of view compared with the adjusted percentage change of transaction volume and price difference between the new development and substitutable property development is presented in Appendix 30 and the summarized result is reported in the following table :

<b>Condition 1</b>	<b>Condition 2</b>	<b>Sample no.</b>	<b>Items</b>	<b>Percentage</b>
Substitutable property and new development have same quality of view				
	Adjusted % change in transaction volume increase	1-2, 7, 9-13, 16-17, 24, 28, 30-32, 34, 37, 40	17	42.5%
	Adjusted % change in transaction volume decrease	8, 17, 19-20, 23, 39	6	15.0%
	Adjusted % change in transaction volume within tolerance	3, 5, 18, 22, 26, 29, 35, 38	8	20.0%
Substitutable property has better quality of view than new development				
	Adjusted % change in transaction volume decrease	6	1	2.5%
New development has better quality of view than substitutable property				
	Adjusted % change in transaction volume decrease	4, 14, 21, 25, 27, 33, 36	7	17.5%
	Adjusted % change in transaction volume within tolerance	15	1	2.5%
			Total :	40 100%

**Table 4-11 Summary of re-examination of substitutable properties on view**



In the re-examination, only the views of the property developments after the new developments have been sold were taken account into consideration. Cases that the view of the substitutable property development has been changed due to the construction of the new development were disregarded in the consideration because the author believes that during the course of the construction, the impact that the erected new development affecting the view of the substitutable property should have been absorbed by the market since such construction period of buildings lasts for quite a long time. Therefore only the final views after the new developments are erected should be considered.

After the re-examination, it is found that 9 Samples are discovered not substitutable enough in terms of view. Among them, 1 out of 9 Samples is to be found that the substitutable property development has better view than the new development. The rest are found the new development has better view than the substitutable property development. The results from the 31 Samples that are re-examined to be substitutable will be discussed first, followed by the discussion of the other 9 Samples that are found not substitutable enough.

#### **4.4.5 Discussion of results from re-examination**

Substitutable property developments having the same view as new developments

As reported in Table. 4-11, there are 31 Samples that found the selected subject property is the having high degree of substitutability to the new development. 17 out of 31 Samples which is 54.8% of the relative Sample pool showed the expected result that there is a positive impact on the transaction volume of the substitutable property

developments. Together with 6 out of 31 Samples, 19.3% of the relative Sample pool that the substitutable property developments experienced a drop in transaction volume and 8 out of 31 Samples, 25.8% of the relative Sample pool that the substitutable property developments were within tolerance ( remain unchanged ) after the introduction of new development.

Again the result of the re-examination indicates that the Hypothesis 2 is not solid enough to forecast the behaviour of substitutable property development during the advertising campaign of the new development. However, there is again some interesting findings. For the Samples showing that the subject property's transaction were within tolerance, 7 out of 8 showed the price of the subject properties are around 7% to 17% cheaper than the new development and the last one shows it is 2.1% more expensive. Moreover, in the category of subject property having transaction volume decreased, 5 out of 6 the Samples showed the price of the subject properties are around 4% to 27% cheaper than the new development. The above findings attracted the author's attention : since the fact that with the high substitutability, a lower price should attract buyers and thus increasing the transaction volume of the subject properties. The findings showed that there is something that imposing a negative effect on the transaction volumes of the subject properties, together with the proposed increasing effects from the new developments end up that the transaction volumes were not changing too much and thus within the tolerance level or, in the case of the negative effects were stronger than the advertising effects, the transaction volumes drop. Therefore the source of the negative effect should be figured out in order to increase the forecasting ability of the Hypothesis 2.

## The advertising campaign of new development

The degree of substitutability has to be restricted to a relative high level. Besides they should be the same type of development. The view of the subject property development and the new development must be highly similar. The subject property development should be physically close enough to the new development and both should enjoy similar proximity to transportation means. Further addition of constraint on the subject property will decrease the contribution of the Hypothesis 2. Therefore investigation has to be carried out on the new developments, which is their advertising campaign.

There are many means of publication for property developments, examples are producing advertisement on television, news paper, magazines or elsewhere; putting a big banner outside the exterior wall of the properties and sponsoring various events in order to increase the exposure of the development. If constraint has to be added to the Hypothesis, the effect of the advertising campaign is one of the choices, constraint could be added by differentiating the effect of the advertising campaigns that how well they attract people to buy the property. However, such determination is difficult, however it could be found somewhere else. Hong Kong Institute of Surveyors (HKIS) has launched the HKIS Property Marketing Award starting from 2004. Such award is for the excellence of publication campaign of new developments. According to the newsletter from HKIS<sup>7</sup>, the judgment of the award is by determining the publication strategy in terms of material, design, choice of publicizing media, the production of sales brochures and its publication, together with the ability to cover up the weak points as well as promoting the selling points of the development and the packing of the publication. The judgment of the excellence of publication campaign is considered to be comprehensive and effective,

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<sup>7</sup> [http://www.hkis.org.hk/hkis/html/upload/NewsPressRelease/nwpr107\\_0.pdf](http://www.hkis.org.hk/hkis/html/upload/NewsPressRelease/nwpr107_0.pdf) (2005)  
[http://www.hkis.org.hk/hkis/html/upload/NewsPressRelease/nwpr120\\_0.pdf](http://www.hkis.org.hk/hkis/html/upload/NewsPressRelease/nwpr120_0.pdf) (2006)

therefore for the new developments that have been awarded, it is considered to have strong advertising effects. Besides, HKIS has also launched Property Sales Brochures Award since that the sales brochures play an important role in the advertising campaign. Therefore new developments won that award are also to be considered to have strong advertisements.

By considering the awards from HKIS, it is found that the new developments in Samples 3, 8, 10, 14, 18, 20, 21, 22, 38, 39 have won the Top 10 Property Marketing Award or the Top 10 Property Sales Brochures Award. Since the awards were established in year 2004, Samples with new development having strong advertising campaign were selected by the author according to the selection criteria of HKIS, and the selected Samples are Samples 5 and 29. After compiling the findings into the analysis, it seems the strong publication campaign is the source of negative effect on the transaction volume of the subject properties. The compilation of the result is presented as below :

<b>Sample no.</b>	<b>Condition 1</b>	<b>Condition 2</b>	<b>Price difference</b>
3	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume within tolerance	-7.91%
5	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume within tolerance	-13.95%
8	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume decrease	-17.93%
10	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume increase	-15.94%
14	New development has better quality of view than substitutable property	Adjusted % change in transaction volume decrease	4.40%
18	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume within tolerance	-17.84%
20	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume decrease	-15.42%
21	New development has better quality of view than substitutable property	Adjusted % change in transaction volume decrease	-8.36%
22	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume within tolerance	-18.90%
29	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume within tolerance	-11.85%
38	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume within tolerance	-14.09%
39	Substitutable property and new development have same quality of view	Adjusted % change in transaction volume decrease	-20.92%
Total :			12 Items

**Table 4-12 The transaction volumes under impact of strong advertisements**

The results shows that with the only exception of Sample 10 which having new development awarded the prize indicates an increase in transaction volume. The compilation showed that negative impact was imposed in the subject properties that the transaction volumes were pulled down. Possible reason is that the advertising campaign is

so strong. The campaign may bring additional potential buyers to visit the substitutable property development, however at the same time it also attracts potential buyers of the substitutable property development to buy the new development, but not the substitutable property development as their original targets. The performance of the transaction volume of the substitutable property development is then depends on the equilibrium of both effects.

Therefore, the source of the negative impact which is strong advertising campaign is located. Thus, the Hypothesis 2 should be redefined as “New developments can stimulate the transaction volume of nearby highly substitutable property developments, provided that the advertising campaign is not so strong that it absorbs the potential buyers of the substitutable property developments”. After the modification of the Hypothesis 2, among the 31 Samples, 21 Samples fits the constrain of the modified Hypothesis 2. 17 out of 21 Samples showed positive results; for the 14 Samples shown negative results, 10 out of them could be explained by the constrain. The forecasting ability of the modified Hypothesis 2 is 81%.

#### Substitutable property development having better view than new development

In Sample 6, the substitutable property development was found to have better view than the new development. The result shows that the adjusted percentage change of transaction volume was negative. The result seems to be irrational as the price difference of the new development and subject property was only 1.06%, the subject property was slightly higher than the new development. A sea view verses open/sea view with 1.06% price difference as sacrifice should boost the transaction volume of the subject property,

not to mention the advertising effect that should have been involved. However, further investigation found that the new development is in fact on top of a shopping mall and having relative higher proximity to MTR station. From the Literature Review in chapter 2, transportation means proximity and shopping centre proximity are reported to be having positive effect on the residential price (Benson, 1998; Chau and Ng, 1998; Coulson and Engle, 1987; Linneman, 1980; So *et al.*,1997). Thus it could be considered that of the property development is closer to transportation means and shopping centre, its attraction should be higher than other similar quality property development but lacking the proximity. Therefore, with this argument, the result of the Sample 6 seems rational and explainable.

#### New development having better view than substitutable property development

A total of 8 Samples were found the view of the new development is in fact better than the substitutable property development. 7 out of 8 Samples found the transaction volume of the subject property experienced a decline in transaction volume, with 1 Sample shown that the variation of the transaction volume is within tolerance. None of the Samples shown there is an increase in transaction volume.

As mentioned in the Literature Review in chapter 2, view is an essential attribute to the residential price (Brown and Pollakowski, 1977; Ho, 1999; Pollard, 1980). Thus the results of this category of Samples could be explained by since the view of the subject properties are not considered as good as the new development, with the advertising of the new development, potential buyers of the subject properties may be attracted by the new development and finally gave up buying the subject properties. Nearly all the Samples in this category are then rational and explainable.

## 4.5 Concluding remarks

In this chapter, the empirical results are presented and analyzed. For the Hypothesis 1 that non-substitutable property developments are not affected by the advertising effect of new development, 35 out of 40 observations showed the Hypothesis 1 is supported. The forecasting ability of the Hypothesis 1 is 88%.

However, the Hypothesis 2 that there should be positive impact on the transaction volume of the substitutable property developments nearby the new developments in the course of advertising campaigns was challenged. Only 17 out of 40 observations supported this Hypothesis 2. The forecasting ability of the Hypothesis 2 is 42.5%. Further investigations were taken place and identified that additional constraints should be added to the Hypothesis 2 in order to improve its forecasting ability. Two constraints were added and they are : the substitutable property developments should have the same quality of view as the new developments and the advertising campaigns of the new developments should not be too strong that it eventually absorb more potential buyers of the substitutable property developments than the potential buyers it attracted. After the modification of the Hypothesis 2, it is found that 17 out of 21 observations supported the modified version of the Hypothesis 2. The forecasting ability of the modified Hypothesis 2 is 81%.



## Chapter Five

### 5. Conclusions

The final chapter of this research includes a summary of the research and research findings, the limitations and recommendations for further research.

#### 5.1 Summary of the research and research findings

In chapter 2, the Literature Review of this dissertation, the major factors affecting the transaction volume of private residential property developments identified by various scholars have been reviewed. The identified major factors are mortgage rate, consumer confidence, construction costs, real price of housing, inflation rate, number of divorce, expected rate of inflation of housing price and ratio of nominal price of housing relative to permanent income (Alm and Follain, 1982; Boehm, 1981; Follain and Velz, 1995; Janssen *et. al.*, 1994; Rosen and Smith, 1986). For the prospective of Hong Kong, Wu (1999) had re-examined most of the factors mentioned and found property price, income level of households, mortgage interest rate, company incorporations and Hang Seng Index were the major factors affecting the transaction volume in Hong Kong.

A total of 40 Samples were collected and analyzed, the 2 Hypotheses were tested under the specifications of methodology as stated in chapter 3. The results of the tests were then presented in chapter 4. The empirical result of Test 1 indicated that 88% of the Samples showed the expected result and supported the Hypothesis 1 that the introduction of new development has no effect on the transaction volume of non-substitutable property developments nearby.

However, Hypothesis 2 was challenged by the results of Test 2. After further investigation, additional conditions were discovered and the Hypothesis 2 was modified by adding 2 constraints. The 2 constraints were :

1. The substitutable property developments should be highly substitutable that they must have the same quality of view as the new developments, and;
2. The advertising campaigns of the new developments should not be too strong that it eventually absorbs more potential buyers of the substitutable property developments than the potential buyers it attracted.

The modified Hypothesis 2 was then supported by the Tests results and showed the forecasting ability of 81%.

## 5.2 Limitations

Several limitations in this research deserve attention.

The definition of substitutability could be defined more in detail so that the results could be more significant. More Samples could be collected so that the results of the Tests could be more distinguishable. The tolerance level of the variation of transaction volume and transaction price could be determined more clearly. The definition of strong advertising campaign could be better defined instead of using HKIS awards as reference. Furthermore, since there may be idiosyncratic issues that affect the trading volume of non-substitutable property developments, it is difficult to justify the non-substitutability of the property developments. All the transaction data in the district except for the subject

new and substitutable developments should be found to assist the Tests, however, it is extremely difficult to carry out.

### 5.3 Further research recommendations

Considering the limitations of this dissertation, further research could be conducted by improving the research by collecting more Samples, better determination of the definition of substitutability and strong advertising campaign. Besides, further research could be conducted on the tolerance level of the variation of transaction volume and transaction price. Furthermore, as suggested in the previous section, all the transaction data in the district except for the subject new and substitutable developments could be found to assist the tests, despite such collection of data is extremely difficult.

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# Appendices

## Appendix 1 Substitutability and non-substitutability tests for subject properties (1)

Sample 1 Yuen Long



Substitutability Test		Non-substitutability Test	
Location comparison :	Close to new development	Location comparison :	Far from new development, out of map
Age difference :	8 years	Age difference :	12 years
Price difference :	3.00%	Price difference :	11.49%
View comparison :	New development –	View comparison :	New development –
	Open View		Open View
	Substitutable property –		Non-substitutable property –
	Open View		Open View
View comparison :	New development –	View comparison :	New development –
	Estate type private dev.		Estate type private dev.
	Substitutable property –		Non-substitutable property –
	Estate type private dev.		Village type private dev.

Sample 2 Yuen Long



Substitutability Test		Non-substitutability Test	
Location comparison :	Close to new development	Location comparison :	Far from new development, out of map
Age difference :	7 years	Age difference :	10 years
Price difference :	1.05%	Price difference :	3.63%
View comparison :	New development –	View comparison :	New development –
	Open View		Open View
	Substitutable property –		Non-substitutable property –
	Open View		Open View
Type comparison :	New development –	Type comparison :	New development –
	Estate type private dev.		Estate type private dev.
	Substitutable property –		Non-substitutable property –
	Dual blocks private dev.		Village type private dev.



## Appendix 2 Substitutability and non-substitutability tests for subject properties (2)

### Sample 3 Yuen Long



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Close to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	10 years
<b>Price difference :</b>	-7.91%	<b>Price difference :</b>	-7.08%
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Open View		Open View
	<b>Substitutable property –</b>		<b>Non-substitutable property –</b>
	Open View		Open View
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Estate type private dev.		Estate type private dev.
	<b>Substitutable property –</b>		<b>Non-substitutable property –</b>
	Estate type private dev.		Village type private dev.

### Sample 4 Tsim Sha Tsui



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	22 years
<b>Price difference :</b>	6.59%	<b>Price difference :</b>	-46.55%
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Open View		Open View
	<b>Substitutable property –</b>		<b>Non-substitutable property –</b>
	Open View / Sea View		Building View
<b>Type comparison :</b>	New development –	<b>Type comparison :</b>	New development –
	Estate type private dev.		Estate type private dev.
	<b>Substitutable property –</b>		<b>Non-substitutable property –</b>
	Estate type private dev.		Estate type private dev.

### Appendix 3 Substitutability and non-substitutability tests for subject properties (3)

Sample 5 Tai Kok Tsui



Substitutability Test		Non-substitutability Test	
Location comparison :	Reasonably close to new development	Location comparison :	Not close to new development
Age difference :	6 years	Age difference :	8 years
Price difference :	-13.95%	Price difference :	-53.25%
View comparison :	New development – Sea View	View comparison :	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Sea View / Building View
View comparison :	New development – Estate type private dev.	View comparison :	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type PSPS

Sample 6 Tai Kok Tsui



Substitutability Test		Non-substitutability Test	
Location comparison :	Next to new development	Location comparison :	Far from new development, out of map
Age difference :	2 years	Age difference :	20 years
Price difference :	1.06%	Price difference :	-46.13%
View comparison :	New development – Open View / Sea View	View comparison :	New development – Open View / Sea View
	Substitutable property – Open View		Non-substitutable property – Building View
Type comparison :	New development – Estate type private dev.	Type comparison :	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

## Appendix 4 Substitutability and non-substitutability tests for subject properties (4)

Sample 7 Tseung Kwan O



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	3 years
<b>Price difference :</b>	2.36%	<b>Price difference :</b>	-21.86%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Open View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

Sample 8 Tseung Kwan O



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	3 years	<b>Age difference :</b>	6 years
<b>Price difference :</b>	-17.93%	<b>Price difference :</b>	-36.27%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Building View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

## Appendix 5 Substitutability and non-substitutability tests for subject properties (5)

Sample 9 Tseung Kwan O



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Close to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	13 years
<b>Price difference :</b>	12.38%	<b>Price difference :</b>	-41.89%
<b>View comparison :</b>	New development – Sea View / Building View	<b>View comparison :</b>	New development – Sea View / Building View
	Substitutable property – Sea View / Building View		Non-substitutable property – Open View / Building View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type PSPS

Sample 10 Tung Chung



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	3 years	<b>Age difference :</b>	7 years
<b>Price difference :</b>	-15.94%	<b>Price difference :</b>	-62.57%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Open View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type HOS

## Appendix 6 Substitutability and non-substitutability tests for subject properties (6)

Sample 11 Yuen Long



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Close to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	1 year	<b>Age difference :</b>	9 years
<b>Price difference :</b>	4.01%	<b>Price difference :</b>	-10.40%
<b>View comparison :</b>	New development – Open View	<b>View comparison :</b>	New development – Open View
	Substitutable property – Open View		Non-substitutable property – Building View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Single block private dev.

Sample 12 Ma On Shan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Close to new development	<b>Location comparison :</b>	Reasonably close to new development
<b>Age difference :</b>	5 years	<b>Age difference :</b>	5 years
<b>Price difference :</b>	9.02%	<b>Price difference :</b>	-7.74%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Building View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

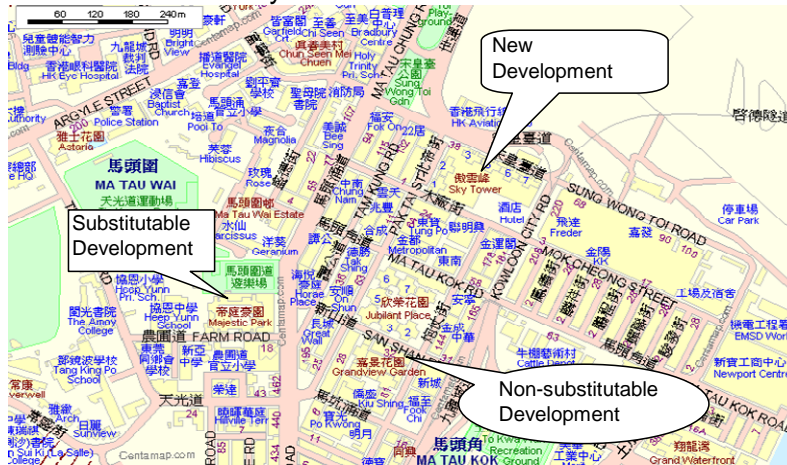
## Appendix 7 Substitutability and non-substitutability tests for subject properties (7)

Sample 13 Ma On Shan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Close to new development
<b>Age difference :</b>	4 years	<b>Age difference :</b>	8 years
<b>Price difference :</b>	-16.45%	<b>Price difference :</b>	-12.50%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Building View
<b>View comparison :</b>	New development – Dual blocks private dev.	<b>View comparison :</b>	New development – Dual blocks private dev.
	Substitutable property – Dual blocks private dev.		Non-substitutable property – Estate type private dev.

Sample 14 Kowloon City



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Close to new development	<b>Location comparison :</b>	Close to new development
<b>Age difference :</b>	4 years	<b>Age difference :</b>	9 years
<b>Price difference :</b>	4.40%	<b>Price difference :</b>	-23.43%
<b>View comparison :</b>	New development – Open View /Building View	<b>View comparison :</b>	New development – Open View /Building View
	Substitutable property – Building View		Non-substitutable property – Building View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

## Appendix 8 Substitutability and non-substitutability tests for subject properties (8)

Sample 15 Tuen Mun



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	30 years
<b>Price difference :</b>	-0.66%	<b>Price difference :</b>	-41.54%
<b>View comparison :</b>	New development – Open View /Building View	<b>View comparison :</b>	New development – Open View /Building View
	Substitutable property – Open View /Building View		Non-substitutable property – Open View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

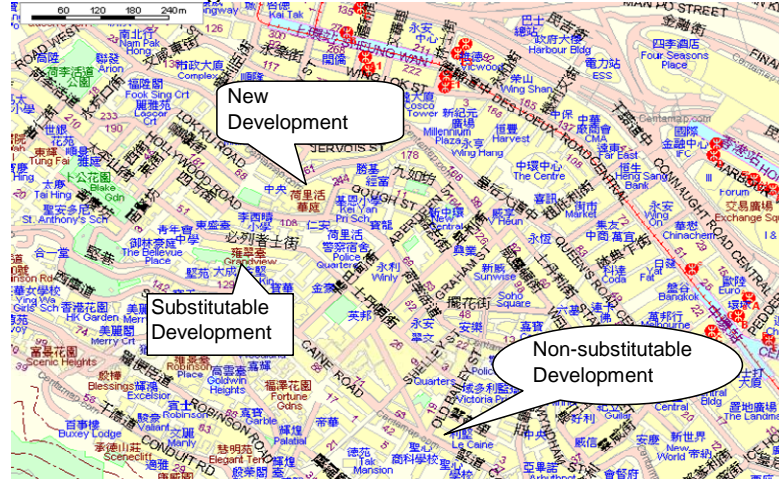
Sample 16 Yuen Long



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	3 years	<b>Age difference :</b>	1 year
<b>Price difference :</b>	-9.71%	<b>Price difference :</b>	-31.69%
<b>View comparison :</b>	New development – Open View	<b>View comparison :</b>	New development – Open View
	Substitutable property – Open View		Non-substitutable property – Open View /Building View
<b>Type comparison :</b>	New development – Village type private dev.	<b>Type comparison :</b>	New development – Village type private dev.
	Substitutable property – Village type private dev.		Non-substitutable property – Estate type private dev.

## Appendix 9 Substitutability and non-substitutability tests for subject properties (9)

Sample 17 Sheung Wan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Close to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	5 years	<b>Age difference :</b>	8 years
<b>Price difference :</b>	-3.55%	<b>Price difference :</b>	-12.23%
<b>View comparison :</b>	New development – Sea View / Building View	<b>View comparison :</b>	New development – Sea View / Building View
	Substitutable property – Sea View / Building View		Non-substitutable property – Building View
<b>View comparison :</b>	New development – Dual blocks private dev.	<b>View comparison :</b>	New development – Dual blocks private dev.
	Substitutable property – Dual blocks private dev.		Non-substitutable property – Single block private dev.

Sample 18 Hong Kong West



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Close to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	4 years	<b>Age difference :</b>	16 years
<b>Price difference :</b>	-17.84%	<b>Price difference :</b>	-16.82%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Open View /Building View
<b>Type comparison :</b>	New development – Dual blocks private dev.	<b>Type comparison :</b>	New development – Dual blocks private dev.
	Substitutable property – Dual blocks private dev.		Non-substitutable property – Estate type private dev.



# Appendix 10 Substitutability and non-substitutability tests for subject properties (10)

Sample 19 Tsuen Wan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	14 years
<b>Price difference :</b>	26.66%	<b>Price difference :</b>	-23.52%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	<b>Substitutable property</b> – Sea View		<b>Non-substitutable property</b> – Sea View / Building View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	<b>Substitutable property</b> – Estate type private dev.		<b>Non-substitutable property</b> – Estate type private dev.

Sample 20 Tsuen Wan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	2 years
<b>Price difference :</b>	-15.42%	<b>Price difference :</b>	-18.23%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	<b>Substitutable property</b> – Sea View		<b>Non-substitutable property</b> – Building View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	<b>Substitutable property</b> – Estate type private dev.		<b>Non-substitutable property</b> – Estate type private dev.

# Appendix 11 Substitutability and non-substitutability tests for subject properties (11)

Sample 21 Tsuen Wan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	26 years
<b>Price difference :</b>	-8.36%	<b>Price difference :</b>	-46.81%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View / Building View		Non-substitutable property – Open View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

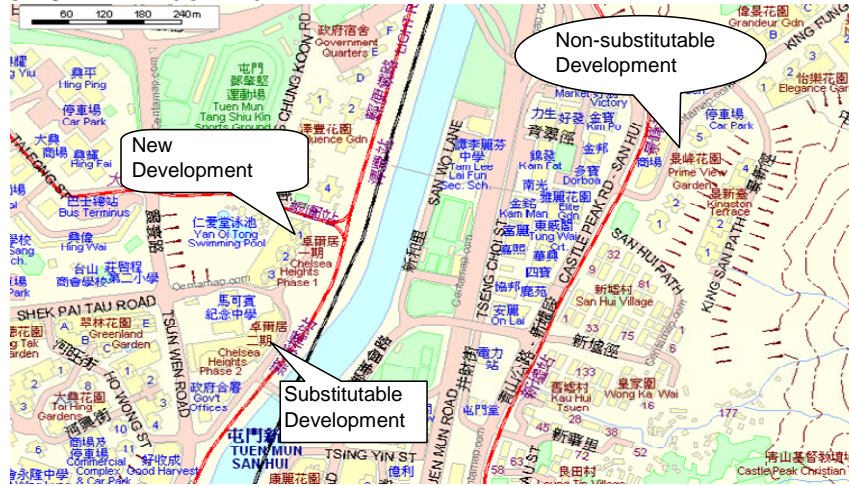
Sample 22 Ma On Shan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	4 years	<b>Age difference :</b>	13 years
<b>Price difference :</b>	-18.90%	<b>Price difference :</b>	-57.29%
<b>View comparison :</b>	New development – Sea View / Open View	<b>View comparison :</b>	New development – Sea View / Open View
	Substitutable property – Sea View / Open View		Non-substitutable property – Building View / Open View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

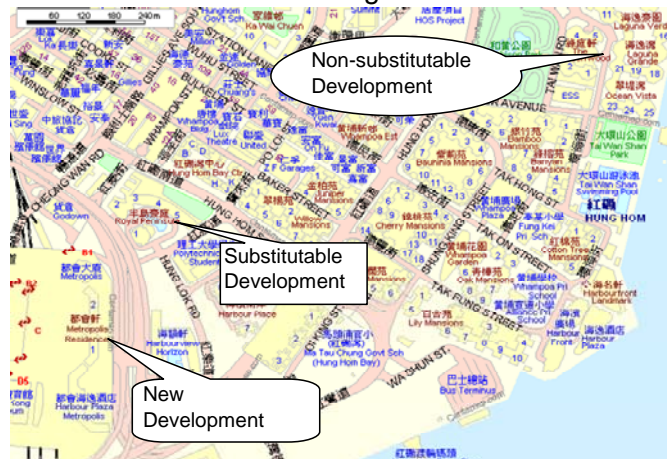
## Appendix 12 Substitutability and non-substitutability tests for subject properties (12)

Sample 23 Tuen Mun



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	2 years	<b>Age difference :</b>	14 years
<b>Price difference :</b>	16.26%	<b>Price difference :</b>	-38.68%
<b>View comparison :</b>	New development – Open View	<b>View comparison :</b>	New development – Open View
	<b>Substitutable property</b> – Open View		<b>Non-substitutable property</b> – Open View
	<b>View comparison :</b>		<b>View comparison :</b>
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	<b>Substitutable property</b> – Estate type private dev.		<b>Non-substitutable property</b> – Estate type private dev.

Sample 24 Tsim Sha Tsui and Hung Hom



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	4 years	<b>Age difference :</b>	6 years
<b>Price difference :</b>	-6.14%	<b>Price difference :</b>	-6.70%
<b>View comparison :</b>	New development – Building View / Sea View	<b>View comparison :</b>	New development – Building View / Sea View
	<b>Substitutable property</b> – Building View / Sea View		<b>Non-substitutable property</b> – Building View / Sea View
	<b>Type comparison :</b>		<b>Type comparison :</b>
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	<b>Substitutable property</b> – Dual blocks private dev.		<b>Non-substitutable property</b> – Estate type private dev.

# Appendix 13 Substitutability and non-substitutability tests for subject properties (13)

Sample 25 Hung Hom



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	4 years	<b>Age difference :</b>	22 years
<b>Price difference :</b>	-1.56%	<b>Price difference :</b>	44.59%
<b>View comparison :</b>	New development – Sea View / Open View	<b>View comparison :</b>	New development – Sea View / Open View
	Substitutable property – Sea View / Building View		Non-substitutable property – Building View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

Sample 26 Hung Hom



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	3 years	<b>Age difference :</b>	21 years
<b>Price difference :</b>	2.01%	<b>Price difference :</b>	-35.17%
<b>View comparison :</b>	New development – Sea View / Building View	<b>View comparison :</b>	New development – Sea View / Building View
	Substitutable property – Sea View / Building View		Non-substitutable property – Building View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

## Appendix 14 Substitutability and non-substitutability tests for subject properties (14)

Sample 27 Hung Hom



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	2 years	<b>Age difference :</b>	8 years
<b>Price difference :</b>	10.69%	<b>Price difference :</b>	-57.92%
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Sea View / Building View		Sea View / Building View
	<b>Substitutable property –</b>		<b>Non-substitutable property –</b>
	Building View		Building View
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Estate type private dev.		Estate type private dev.
	<b>Substitutable property –</b>		<b>Non-substitutable property –</b>
	Estate type private dev.		Estate type private dev.

Sample 28 Tsuen Wan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	7 years	<b>Age difference :</b>	14 years
<b>Price difference :</b>	-7.56%	<b>Price difference :</b>	-28.24%
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Sea View / Building View		Sea View / Building View
	<b>Substitutable property –</b>		<b>Non-substitutable property –</b>
	Sea View / Building View		Building View
<b>Type comparison :</b>	New development –	<b>Type comparison :</b>	New development –
	Estate type private dev.		Estate type private dev.
	<b>Substitutable property –</b>		<b>Non-substitutable property –</b>
	Estate type private dev.		Estate type private dev.

# Appendix 15 Substitutability and non-substitutability tests for subject properties (15)

Sample 29 Tsuen Wan



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	4 years	<b>Age difference :</b>	8 years
<b>Price difference :</b>	-11.85%	<b>Price difference :</b>	-19.10%
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Open View		Open View
	Substitutable property –		Non-substitutable property –
	Open View		Sea View / Building View
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Estate type private dev.		Estate type private dev.
	Substitutable property –		Non-substitutable property –
	Estate type private dev.		Estate type private dev.

Sample 30 Tuen Mun



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	3 years	<b>Age difference :</b>	4 years
<b>Price difference :</b>	-11.13%	<b>Price difference :</b>	-24.67%
<b>View comparison :</b>	New development –	<b>View comparison :</b>	New development –
	Sea View		Sea View
	Substitutable property –		Non-substitutable property –
	Sea View		Open View / Building View
<b>Type comparison :</b>	New development –	<b>Type comparison :</b>	New development –
	Dual blocks private dev.		Dual blocks private dev.
	Substitutable property –		Non-substitutable property –
	Estate type private dev.		Estate type private dev.

# Appendix 16 Substitutability and non-substitutability tests for subject properties (16)

Sample 31 Tuen mun



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	2 years	<b>Age difference :</b>	13 years
<b>Price difference :</b>	-15.54%	<b>Price difference :</b>	-31.88%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Open View / Building View
<b>View comparison :</b>	New development – Dual blocks private dev.	<b>View comparison :</b>	New development – Dual blocks private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

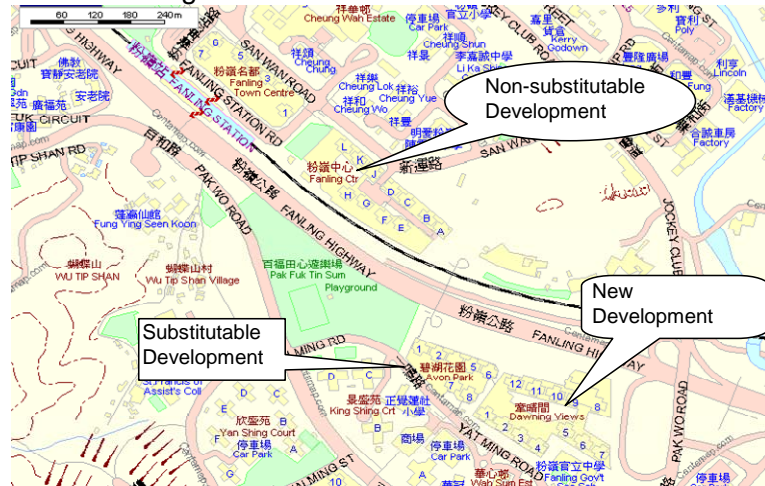
Sample 32 Sheung Shui



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Close to new development
<b>Age difference :</b>	2 years	<b>Age difference :</b>	11 years
<b>Price difference :</b>	-2.54%	<b>Price difference :</b>	-42.72%
<b>View comparison :</b>	New development – Open View /Building View	<b>View comparison :</b>	New development – Open View /Building View
	Substitutable property – Open View /Building View		Non-substitutable property – Open View / Building View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type HOS

# Appendix 17 Substitutability and non-substitutability tests for subject properties (17)

Sample 33 Fanling



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Close to new development
<b>Age difference :</b>	5 years	<b>Age difference :</b>	6 years
<b>Price difference :</b>	-4.33%	<b>Price difference :</b>	-5.75%
<b>View comparison :</b>	New development – Open View /Building View	<b>View comparison :</b>	New development – Open View /Building View
	<b>Substitutable property</b> – Building View		<b>Non-substitutable property</b> – Open View / Building View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	<b>Substitutable property</b> – Estate type private dev.		<b>Non-substitutable property</b> – Estate type private dev.

Sample 34 Fanling



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	1 year	<b>Age difference :</b>	1 year
<b>Price difference :</b>	-8.75%	<b>Price difference :</b>	-15.45%
<b>View comparison :</b>	New development – Open View /Building View	<b>View comparison :</b>	New development – Open View /Building View
	<b>Substitutable property</b> – Open View /Building View		<b>Non-substitutable property</b> – Open View / Building View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	<b>Substitutable property</b> – Estate type private dev.		<b>Non-substitutable property</b> – Estate type private dev.



# Appendix 18 Substitutability and non-substitutability tests for subject properties (18)

Sample 35 Fanling



Substitutability Test		Non-substitutability Test	
Location comparison :	Next to new development	Location comparison :	Far from new development, out of map
Age difference :	3 years	Age difference :	8 years
Price difference :	-14.67%	Price difference :	-22.23%
View comparison :	New development – Open View /Building View	View comparison :	New development – Open View /Building View
	Substitutable property – Open View /Building View		Non-substitutable property – Open View / Building View
View comparison :	New development – Estate type private dev.	View comparison :	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

Sample 36 Fanling



Substitutability Test		Non-substitutability Test	
Location comparison :	Next to new development	Location comparison :	Far from new development
Age difference :	2 years	Age difference :	6 years
Price difference :	1.35%	Price difference :	-4.61%
View comparison :	New development – Open View	View comparison :	New development – Open View
	Substitutable property – Open View /Building View		Non-substitutable property – Open View / Building View
Type comparison :	New development – Estate type private dev.	Type comparison :	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

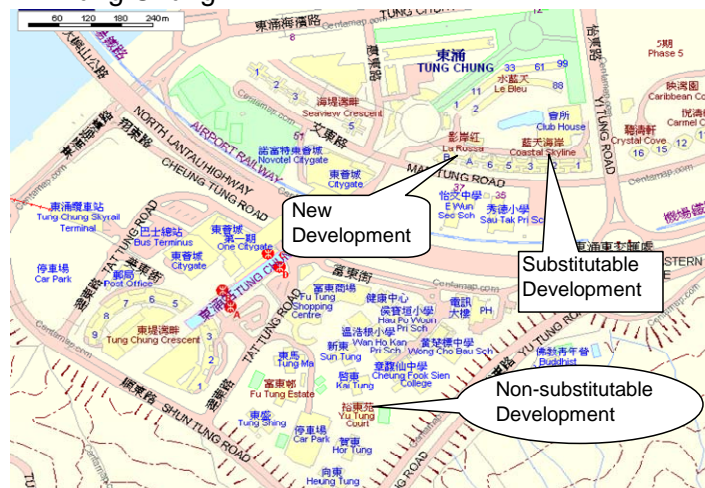
# Appendix 19 Substitutability and non-substitutability tests for subject properties (19)

Sample 37 Fanling



Substitutability Test		Non-substitutability Test	
Location comparison :	Next to new development	Location comparison :	Far from new development, out of map
Age difference :	2 years	Age difference :	8 years
Price difference :	-4.53%	Price difference :	-22.23%
View comparison :	New development – Open View /Building View	View comparison :	New development – Open View /Building View
	Substitutable property – Open View /Building View		Non-substitutable property – Open View / Building View
View comparison :	New development – Estate type private dev.	View comparison :	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

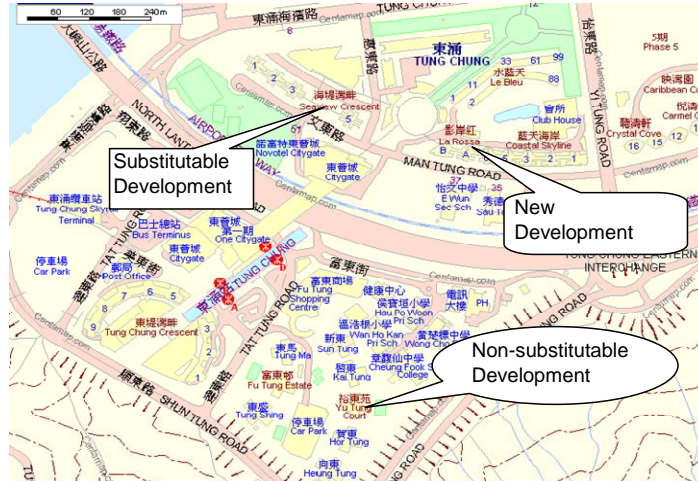
Sample 38 Tung Chung



Substitutability Test		Non-substitutability Test	
Location comparison :	Next to new development	Location comparison :	Far from new development
Age difference :	4 years	Age difference :	9 years
Price difference :	-14.09%	Price difference :	-58.46%
View comparison :	New development – Sea View	View comparison :	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Open View
Type comparison :	New development – Estate type private dev.	Type comparison :	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type HOS

# Appendix 20 Substitutability and non-substitutability tests for subject properties (20)

Sample 39 Tung Chung



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development
<b>Age difference :</b>	4 years	<b>Age difference :</b>	9 years
<b>Price difference :</b>	-20.92%	<b>Price difference :</b>	-58.46%
<b>View comparison :</b>	New development – Sea View	<b>View comparison :</b>	New development – Sea View
	Substitutable property – Sea View		Non-substitutable property – Open View
<b>View comparison :</b>	New development – Estate type private dev.	<b>View comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type HOS

Sample 40 Sha Tin



Substitutability Test		Non-substitutability Test	
<b>Location comparison :</b>	Next to new development	<b>Location comparison :</b>	Far from new development, out of map
<b>Age difference :</b>	10 years	<b>Age difference :</b>	11 years
<b>Price difference :</b>	-20.07%	<b>Price difference :</b>	27.53%
<b>View comparison :</b>	New development – Race course / Open View	<b>View comparison :</b>	New development – Race course / Open View
	Substitutable property – Race course / Open View		Non-substitutable property – Open View / Building View
<b>Type comparison :</b>	New development – Estate type private dev.	<b>Type comparison :</b>	New development – Estate type private dev.
	Substitutable property – Estate type private dev.		Non-substitutable property – Estate type private dev.

## Appendix 21 Empirical result of Hypothesis 1

<b>Sample no.</b>	<b>%change of Non-Substitutable</b>	<b>%change of the District</b>	<b>Adjusted %change in transaction</b>
1	21.31%	13.98%	7.33%
2	-37.41%	-30.92%	-6.49%
3	6.25%	0.73%	5.52%
4	26.67%	32.06%	-5.39%
5	-59.09%	-52.13%	-6.96%
6	25.00%	18.13%	6.87%
7	-62.16%	-67.32%	5.16%
8	-31.71%	-24.05%	-7.66%
9	-21.05%	-21.85%	0.80%
10	50.00%	56.02%	-6.02%
11	0.00%	1.62%	-1.62%
12	-50.00%	-57.40%	7.40%
13	-23.47%	-18.12%	-5.35%
14	-18.18%	-25.77%	7.59%
15	-50.00%	-44.58%	-5.42%
16	0.00%	4.19%	-4.19%
17	0.00%	21.10%	-21.10%
18	0.00%	0.75%	-0.75%
19	-8.16%	-5.70%	-2.46%
20	41.98%	50.06%	-8.08%
21	-18.37%	-11.06%	-7.31%
22	9.09%	8.31%	0.78%
23	-25.00%	-31.57%	6.57%
24	-34.57%	-33.46%	-1.11%
25	-15.38%	-20.26%	4.88%
26	7.69%	17.39%	-9.70%
27	18.37%	36.34%	-17.97%
28	11.11%	8.24%	2.87%
29	44.19%	53.35%	-9.16%
30	8.33%	6.37%	1.96%
31	16.67%	13.46%	3.21%
32	0.00%	-3.78%	3.78%
33	12.28%	-1.52%	13.80%
34	-35.71%	-28.16%	-7.55%
35	-17.65%	-19.38%	1.73%
36	-22.73%	-13.85%	-8.88%
37	-17.65%	-20.72%	3.07%
38	-8.33%	5.38%	-13.71%
39	-8.33%	6.18%	-14.51%
40	140.00%	149.22%	-9.22%

## Appendix 22 The transaction volume of Hong Kong (Part 1)

Year	Month	Transactions		Absolute % difference	Year	Month	Transactions		Absolute % difference
		Monthly	Average				Monthly	Average	
1996	January	7754			1999	January	7705	7885	2.34%
	February	7802	8669	11.12%		February	5759	6832	18.63%
	March	10452	8818	15.63%		March	7031	7084	0.76%
	April	8200	11128	35.71%		April	8463	8420	0.51%
	May	14732	10809	26.63%		May	9765	8281	15.19%
	June	9495	11763	23.88%		June	6616	7650	15.63%
	July	11061	9741	11.93%		July	6570	6246	4.93%
	August	8667	9652	11.36%		August	5553	5523	0.55%
	September	9228	10163	10.14%		September	4445	4959	11.57%
	October	12595	12083	4.06%		October	4880	4678	4.13%
	November	14427	14031	2.74%		November	4710	5060	7.43%
	December	15071	15770	4.64%		December	5590	5239	6.27%
1997	January	17813	16083	9.71%	2000	January	5418	5237	3.34%
	February	15366	15163	1.32%		February	4703	5098	8.41%
	March	12310	16879	37.11%		March	5174	5453	5.39%
	April	22960	17342	24.47%		April	6481	5490	15.29%
	May	16755	18264	9.00%		May	4815	5067	5.24%
	June	15076	17404	15.44%		June	3906	4878	24.88%
	July	20381	16052	21.24%		July	5913	5722	3.22%
	August	12698	14897	17.32%		August	7348	6449	12.23%
	September	11611	12109	4.29%		September	6087	6558	7.74%
	October	12018	11639	3.15%		October	6239	5841	6.38%
	November	11288	9247	18.08%		November	5197	5165	0.62%
	December	4435	7323	65.13%		December	4059	4372	7.71%
1998	January	6247	4935	21.01%	2001	January	3860	3978	3.05%
	February	4122	6324	53.43%		February	4014	5035	25.44%
	March	8604	6139	28.65%		March	7231	5415	25.11%
	April	5692	7368	29.45%		April	5000	6180	23.60%
	May	7809	7202	7.77%		May	6309	5875	6.88%
	June	8105	7137	11.95%		June	6316	6275	0.65%
	July	5496	6678	21.50%		July	6199	6339	2.26%
	August	6432	5461	15.10%		August	6503	6055	6.89%
	September	4455	5863	31.60%		September	5462	5411	0.93%
	October	6702	7639	13.98%		October	4269	5870	37.50%
	November	11760	9551	18.78%		November	7879	6258	20.58%
	December	10192	9886	3.01%		December	6625	7450	12.46%

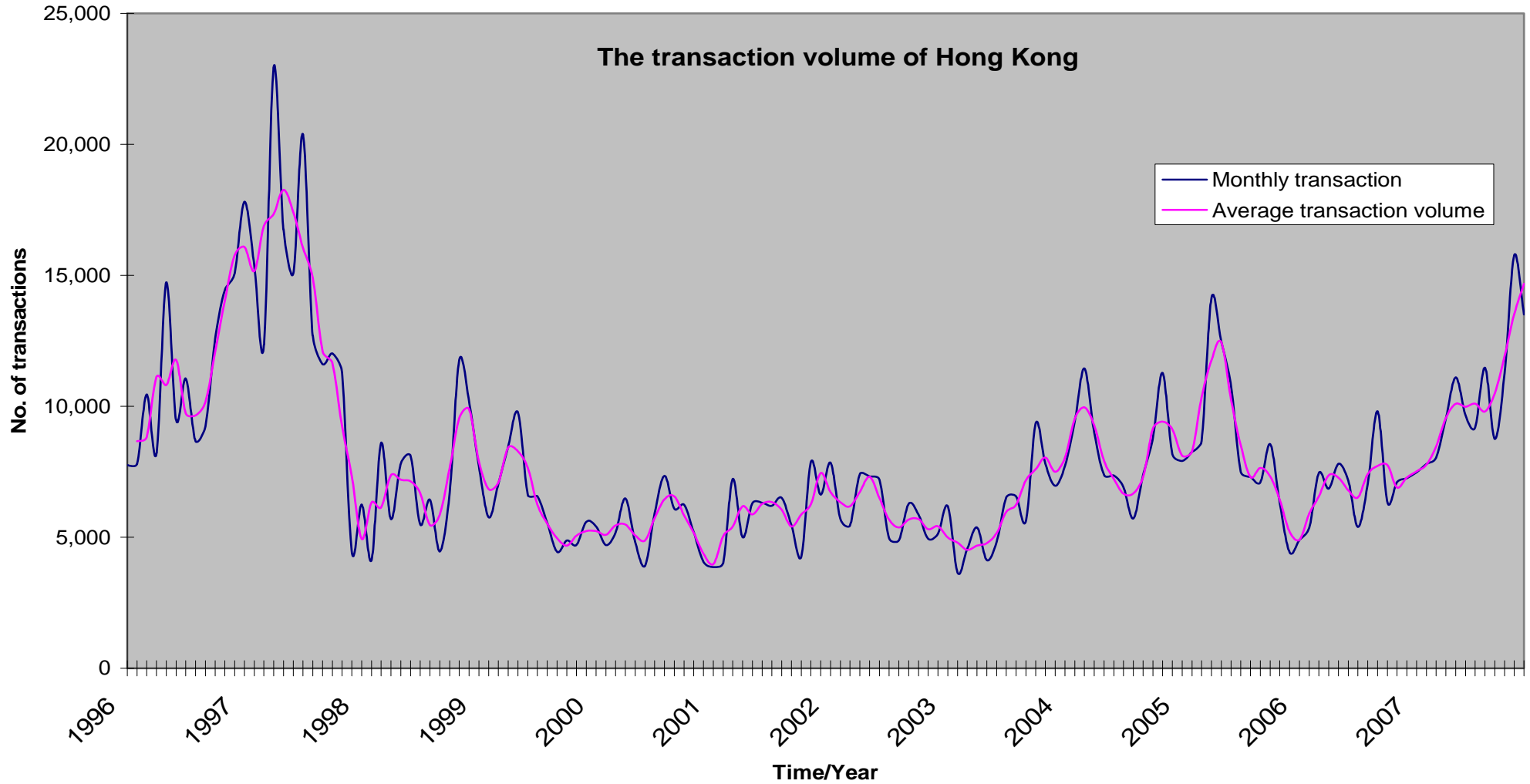
Source : Land Registry, HKSAR (2008b)

## Appendix 23 The transaction volume of Hong Kong (Part 2)

Year	Month	Transactions		Absolute % difference	Year	Month	Transactions		Absolute % difference
		Monthly	Average				Monthly	Average	
2002	January	7847	6722	14.33%	2005	January	7909	8112	2.56%
	February	5695	6331	11.16%		February	8260	8281	0.25%
	March	5450	6185	13.48%		March	8673	10352	19.36%
	April	7409	6728	9.19%		April	14124	11753	16.78%
	May	7325	7310	0.21%		May	12463	12446	0.14%
	June	7195	6494	9.75%		June	10750	10237	4.78%
	July	4961	5679	14.47%		July	7497	8515	13.58%
	August	4881	5373	10.09%		August	7298	7298	0.00%
	September	6278	5674	9.62%		September	7100	7651	7.76%
	October	5863	5694	2.88%		October	8554	7321	14.42%
	November	4941	5311	7.49%		November	6308	6429	1.92%
	December	5129	5419	5.65%		December	4426	5211	17.74%
2003	January	6187	4988	19.37%	2006	January	4899	4898	0.02%
	February	3649	4795	31.41%		February	5369	5908	10.04%
	March	4550	4524	0.57%		March	7456	6558	12.04%
	April	5373	4684	12.82%		April	6849	7372	7.64%
	May	4130	4779	15.71%		May	7812	7270	6.93%
	June	4833	5163	6.82%		June	7150	6787	5.08%
	July	6525	5972	8.47%		July	5398	6527	20.91%
	August	6559	6239	4.88%		August	7032	7414	5.43%
	September	5632	7184	27.55%		September	9811	7726	21.25%
	October	9360	7601	18.79%		October	6335	7751	22.35%
	November	7811	8046	3.01%		November	7106	6899	2.92%
	December	6967	7501	7.67%		December	7255	7282	0.37%
2004	January	7726	8047	4.16%	2007	January	7485	7515	0.40%
	February	9449	9541	0.98%		February	7804	7776	0.36%
	March	11449	9964	12.97%		March	8039	8458	5.21%
	April	8994	9274	3.12%		April	9530	9560	0.31%
	May	7380	7912	7.21%		May	11110	10098	9.11%
	June	7362	7218	1.96%		June	9653	9984	3.43%
	July	6911	6663	3.59%		July	9188	10107	10.00%
	August	5716	6671	16.70%		August	11480	9807	14.57%
	September	7385	7304	1.10%		September	8753	10501	19.97%
	October	8811	9159	3.95%		October	11271	11928	5.83%
	November	11281	9419	16.50%		November	15759	13511	14.26%
	December	8166	9119	11.67%		December	13503	14683	8.74%
					2008	January	14786		
<b>Average % difference :</b>							<b>11.54%</b>		

Source : Land Registry, HKSAR (2008b)

**Appendix 24 The transaction volume of Hong Kong**



Source : Land Registry, HKSAR (2008b)

## Appendix 25 Empirical result of Hypothesis 2

Sample no.	%change of Substitutable	%change of the District	Adjusted %change in transaction
1	40.00%	13.98%	26.02%
2	27.27%	-30.92%	58.19%
3	5.56%	0.73%	4.83%
4	-75.00%	32.06%	-107.06%
5	-60.00%	-52.13%	-7.87%
6	-54.48%	18.13%	-72.61%
7	-50.00%	-67.32%	17.32%
8	-36.59%	-24.05%	-12.54%
9	27.91%	-21.85%	49.76%
10	68.42%	56.02%	12.40%
11	700.00%	1.62%	698.38%
12	-45.45%	-57.40%	11.95%
13	9.09%	-18.12%	27.21%
14	-71.43%	-25.77%	-45.66%
15	-56.00%	-44.58%	-11.42%
16	27.78%	4.19%	23.59%
17	0.00%	21.10%	-21.10%
18	0.00%	0.75%	-0.75%
19	-55.00%	-5.70%	-49.30%
20	9.62%	50.06%	-40.44%
21	-41.40%	-11.06%	-30.34%
22	9.09%	8.31%	0.78%
23	-57.14%	-31.57%	-25.57%
24	45.00%	-33.46%	78.46%
25	-77.39%	-20.26%	-57.13%
26	9.52%	17.39%	-7.87%
27	-44.00%	36.34%	-80.34%
28	42.31%	8.24%	34.07%
29	48.42%	53.35%	-4.93%
30	40.00%	6.37%	33.63%
31	93.75%	13.46%	80.29%
32	35.71%	-3.78%	39.49%
33	-39.02%	-1.52%	-37.50%
34	35.71%	-28.16%	63.87%
35	-22.22%	-19.38%	-2.84%
36	-76.54%	-13.85%	-62.69%
37	20.00%	-20.72%	40.72%
38	3.45%	5.38%	-1.93%
39	-17.65%	6.18%	-23.83%
40	200.00%	149.22%	50.78%



### Appendix 26 Hong Kong price indices (Part 1)

Year	Month	Price Indices		Absolute % difference	Year	Month	Price Indices		Absolute % difference
		Monthly	Average				Monthly	Average	
1993	January	85.5			1996	January	105.4	106.1	0.66%
	February	86.2	86.1	0.08%		February	108.7	110.9	2.02%
	March	86.7	87.1	0.50%		March	113.1	112.6	0.44%
	April	88.5	88.9	0.49%		April	112.1	112.8	0.62%
	May	91.6	91.9	0.33%		May	113.5	114.3	0.66%
	June	95.6	95.4	0.24%		June	115	114.8	0.17%
	July	98.9	97.9	1.04%		July	114.6	116.1	1.31%
	August	99.1	98.7	0.40%		August	117.6	117.9	0.26%
	September	98.1	97.7	0.37%		September	118.2	120.6	2.03%
	October	96	97.5	1.53%		October	123	125.4	1.95%
	November	98.3	98.5	0.17%		November	127.8	131.0	2.50%
	December	101.1	102.4	1.29%		December	134.2	134.6	0.27%
1994	January	107.8	106.9	0.87%	1997	January	141.7	143.2	1.06%
	February	111.7	113.0	1.13%		February	153.7	157.9	2.73%
	March	119.4	116.3	2.57%		March	162.1	153.5	5.28%
	April	117.9	117.8	0.11%		April	156.8	160.8	2.57%
	May	116	116.7	0.57%		May	172	168.6	2.00%
	June	116.1	115.3	0.72%		June	171.6	165.0	3.83%
	July	113.7	115.8	1.82%		July	166.7	169.8	1.86%
	August	117.5	115.8	1.42%		August	170.7	170.8	0.06%
	September	116.3	116.9	0.49%		September	170.1	169.7	0.24%
	October	116.8	116.1	0.63%		October	172.3	167.6	2.73%
	November	115.1	113.9	1.01%		November	159.8	161.6	1.13%
	December	109.9	111.7	1.61%		December	154.9	152.8	1.38%
1995	January	110	110.9	0.85%	1998	January	143.6	145.0	0.97%
	February	112.9	113.2	0.27%		February	136.5	137.8	0.92%
	March	113.5	112.1	1.23%		March	139	139.1	0.05%
	April	112.8	112.0	0.74%		April	134.6	133.0	1.21%
	May	110.2	110.6	0.39%		May	127.8	126.4	1.07%
	June	108.2	109.2	0.89%		June	112.5	118.4	5.24%
	July	106.5	107.3	0.72%		July	108.1	113.6	5.09%
	August	105.1	105.0	0.06%		August	104.9	105.3	0.38%
	September	101.8	103.1	1.28%		September	98.5	100.8	2.30%
	October	101	103.1	2.08%		October	95.7	100.3	4.84%
	November	103.2	103.1	0.13%		November	100.4	101.2	0.83%
	December	104.2	104.3	0.06%		December	104.8	102.7	2.00%

Source : Rating and Valuation Department, HKSAR (2008)

## Appendix 27 Hong Kong price indices (Part 2)

Year	Month	Price Indices		Absolute % difference	Year	Month	Price Indices		Absolute % difference
		Monthly	Average				Monthly	Average	
1999	January	103.0	103.4	0.39%	2002	January	73.9	73.7	0.32%
	February	102.3	102.4	0.13%		February	73.6	73.5	0.14%
	March	102.0	102.1	0.13%		March	73.0	72.9	0.18%
	April	102.1	102.4	0.29%		April	72.0	72.4	0.51%
	May	103.1	102.5	0.61%		May	72.1	71.9	0.32%
	June	102.2	102.2	0.03%		June	71.5	71.4	0.14%
	July	101.4	101.4	0.03%		July	70.6	70.0	0.85%
	August	100.5	99.6	0.86%		August	67.9	68.3	0.54%
	September	97.0	97.7	0.76%		September	66.3	66.3	0.05%
	October	95.7	95.6	0.14%		October	64.8	65.2	0.62%
	November	94.0	95.1	1.17%		November	64.5	64.5	0.00%
	December	95.6	95.6	0.00%		December	64.2	63.9	0.47%
2000	January	97.2	96.7	0.51%	2003	January	63.0	63.4	0.58%
	February	97.3	96.5	0.82%		February	62.9	61.8	1.75%
	March	95.0	95.3	0.32%		March	60.7	61.2	0.88%
	April	93.6	92.8	0.85%		April	60.0	60.7	1.17%
	May	89.8	89.7	0.15%		May	59.2	59.6	0.62%
	June	85.6	87.2	1.91%		June	58.8	58.9	0.17%
	July	86.3	86.2	0.08%		July	57.9	58.4	0.81%
	August	86.8	87.0	0.19%		August	58.0	59.0	1.78%
	September	87.8	87.1	0.84%		September	60.3	60.3	0.06%
	October	86.6	85.9	0.85%		October	62.6	61.4	1.92%
	November	83.2	83.7	0.60%		November	63.6	62.8	1.26%
	December	81.3	81.6	0.33%		December	64.5	65.5	1.60%
2001	January	80.2	80.4	0.29%	2004	January	68.5	68.4	0.19%
	February	79.8	80.8	1.25%		February	72.1	74.4	3.19%
	March	81.8	81.3	0.61%		March	76.7	74.4	3.00%
	April	81.9	80.6	1.55%		April	78.0	75.4	3.29%
	May	80.2	80.9	0.87%		May	76.2	75.4	1.05%
	June	80.7	80.8	0.17%		June	73.3	74.9	2.23%
	July	79.9	79.4	0.58%		July	73.5	75.3	2.49%
	August	78.2	78.6	0.51%		August	76.3	76.3	0.04%
	September	76.9	76.9	0.00%		September	79.4	78.4	1.22%
	October	73.9	75.1	1.67%		October	82.4	79.9	3.07%
	November	73.3	74.6	1.73%		November	80.9	80.6	0.37%
	December	73.5	73.6	0.09%		December	81.5	81.9	0.49%

**Source : Rating and Valuation Department, HKSAR (2008)**

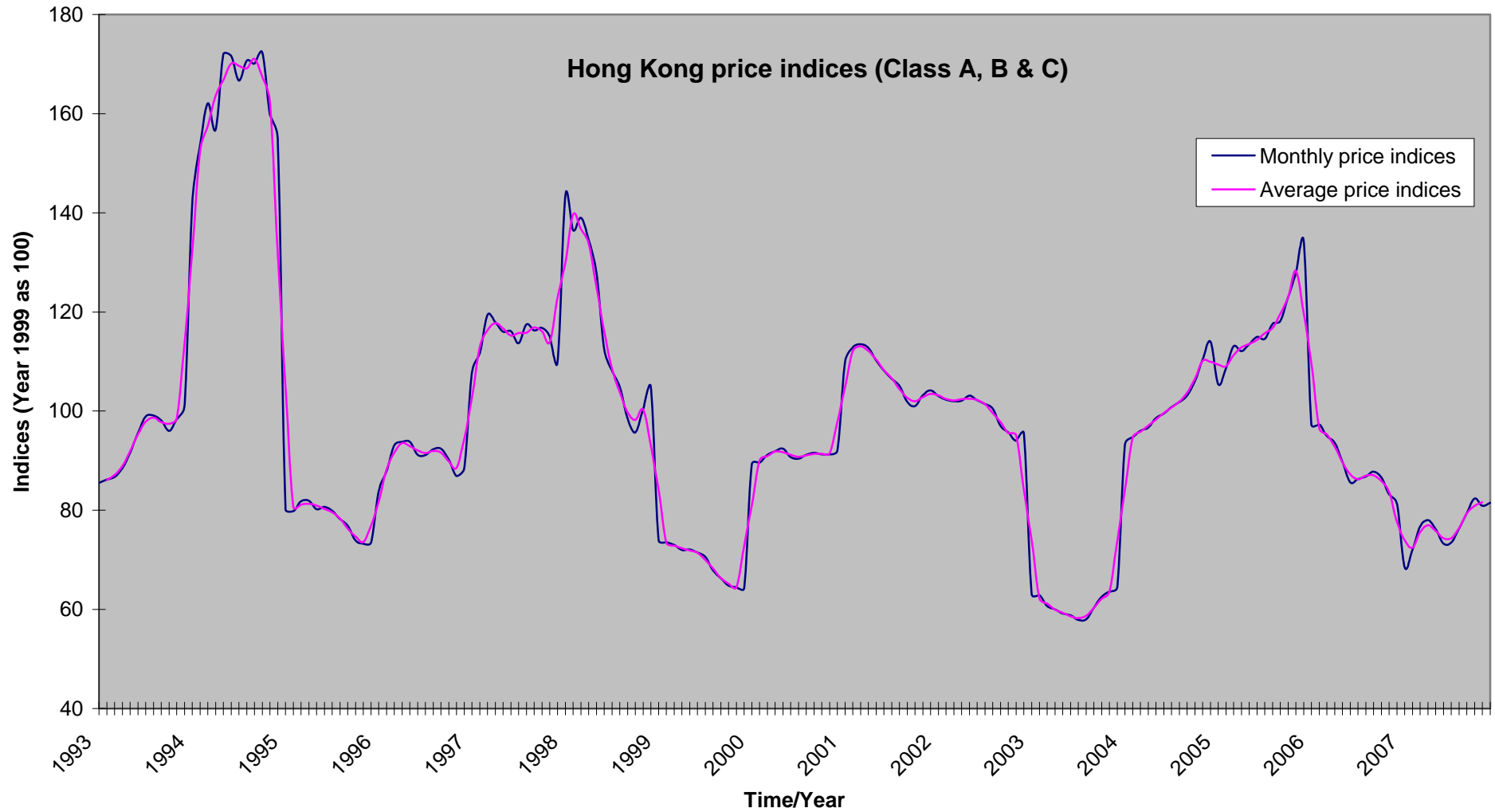
### Appendix 28 Hong Kong price indices (Part 3)

Year	Month	Price Indices		Absolute % difference
		Monthly	Average	
2005	January	83.8	84.4	0.72%
	February	87.9	88.3	0.42%
	March	93.1	91.6	1.61%
	April	93.8	93.6	0.25%
	May	93.8	92.9	0.92%
	June	91.2	92.0	0.91%
	July	91.1	91.5	0.48%
	August	92.3	91.9	0.40%
	September	92.4	91.6	0.83%
	October	90.2	89.8	0.41%
	November	86.9	88.5	1.88%
	December	88.5	88.3	0.26%
2006	January	89.4	89.2	0.26%
	February	89.6	90.1	0.52%
	March	91.2	90.9	0.33%
	April	91.9	91.8	0.07%
	May	92.4	91.7	0.79%
	June	90.7	91.2	0.51%
	July	90.4	90.8	0.41%
	August	91.2	91.1	0.15%
	September	91.6	91.4	0.25%
	October	91.3	91.4	0.11%
	November	91.3	91.5	0.26%
	December	92.0	92.2	0.22%
2007	January	93.3	93.3	0.04%
	February	94.7	95.4	0.69%
	March	96.0	95.3	0.69%
	April	96.7	96.7	0.03%
	May	98.6	98.0	0.57%
	June	99.5	99.0	0.50%
	July	100.8	100.4	0.40%
	August	101.8	101.5	0.33%
	September	103.1	103.3	0.23%
	October	106.1	106.1	0.00%
	November	110.4	109.2	1.12%
	December	114.0		

**Average % difference : 2.09%**

**Source : Rating and Valuation Department, HKSAR (2008)**

**Appendix 29 Hong Kong price indices (Class A, B & C)**



Source : Rating and Valuation Department, HKSAR (2008)

### Appendix 30 The result of re-examination of substitutable properties on view

Sample no.	View of the Substitutable property development	View of the new development	% price difference ( - Adjusted %change in ve indicates substitutable property is cheaper )	Adjusted %change in transaction volume
1	Open view	Open view	3.02%	Adjusted increase
2	Open view	Open view	1.05%	Adjusted increase
3	Open view	Open view	-7.91%	Within tolerance
4	Open view / Sea view	Sea view	6.59%	Adjusted decrease
5	Sea view	Sea view	-13.95%	Within tolerance
6	Sea view	Open view / Sea view	1.06%	Adjusted decrease
7	Sea view	Sea view	2.36%	Adjusted increase
8	Sea view	Sea view	-17.93%	Adjusted decrease
9	Sea view / Building view	Sea view / Building view	12.38%	Adjusted increase
10	Sea view	Sea view	-15.94%	Adjusted increase
11	Open view	Open view	4.10%	Adjusted increase
12	Sea view	Sea view	9.02%	Adjusted increase
13	Sea view	Sea view	-16.45%	Adjusted increase
14	Building view	Open view / Building view	4.40%	Adjusted decrease
15	Open view / Building view	Open view / Building view	-0.66%	Within tolerance
16	Open view	Open view	-9.71%	Adjusted increase
17	Sea view / Building view	Sea view / Building view	-3.55%	Adjusted decrease
18	Sea view	Sea view	-17.84%	Within tolerance
19	Sea view	Sea view	26.66%	Adjusted decrease
20	Sea view	Sea view	-15.42%	Adjusted decrease
21	Sea view / Building view	Sea view	-8.36%	Adjusted decrease
22	Sea view / Open view	Sea view / Open view	-18.90%	Within tolerance
23	Open view	Open view	16.26%	Adjusted decrease
24	Building view / Sea view	Building view / Sea view	-6.14%	Adjusted increase
25	Sea view / Building view	Sea view / Open view	-1.56%	Adjusted decrease
26	Sea view / Building view	Sea view / Building view	2.10%	Within tolerance
27	Building view	Sea view / Building view	10.69%	Adjusted decrease
28	Sea view / Building view	Sea view / Building view	-7.56%	Adjusted increase
29	Open view	Open view	-11.85%	Within tolerance
30	Sea view	Sea view	-11.13%	Adjusted increase
31	Sea view	Sea view	-15.54%	Adjusted increase
32	Open view / Building view	Open view / Building view	-2.54%	Adjusted increase
33	Building view	Open view / Building view	-4.33%	Adjusted decrease
34	Open view / Building view	Open view / Building view	-8.75%	Adjusted increase
35	Open view / Building view	Open view / Building view	-14.67%	Within tolerance
36	Open view / Building view	Open view	1.35%	Adjusted decrease
37	Open view / Building view	Open view / Building view	-4.53%	Adjusted increase
38	Sea view	Sea view	-14.09%	Within tolerance
39	Sea view	Sea view	-20.92%	Adjusted decrease
40	Race course view / Open view	Race course view / Open view	-20.70%	Adjusted increase

Source : Centaline (2008)