

Running head: LIVABILITY IN HONG KONG

**Investigating the Relationships between Urban Design,
Microeconomics, and Livability: A Case Study of Hong Kong**

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Table of Contents

Abstract.....	v
Executive Summary.....	vi
1- Introduction.....	1
2 - Background	3
2.1 – Introduction	3
2.2 - Defining Quality of Life	3
2.2.1 - Mercer Quality of Life Survey	5
2.2.2 - EIU Livability Index.....	6
2.2.3 - ECA Livable City Index.....	6
2.2.4 - CUHK’s Livability Index.....	7
2.2.5 - Quality of Life in Hong Kong	9
2.2.6- Comparing Quality of Life Studies	10
2.2.7 - Connecting Quality of Life to Economics	11
2.3 - Introduction to Tin Shui Wai.....	13
2.3.1 - Development of Tin Shui Wai	14
2.3.2 - Issues in the Development of Tin Shui Wai	15
2.3.3 - Citizens’ quality of life.....	18
2.4 - Sai Ying Pun.....	19
2.5 - Summary/Conclusion.....	21
3 - Methodology	22
3.1 – Introduction	22
3.2 - Identifying the demographic breakdown and urban design of Tin Shui Wai and Sai Ying Pun.....	24
3.2.1 Mapping Tin Shui Wai and Sai Ying Pun.....	24
3.2.2 - Demographics Research	25
3.3 - Examining business diversity and location	25
3.3.1 - What are the most common types of shops in each location?	26
3.3.2 - What percentage of businesses in each area are chains?	27
3.3.3 -What is the typical cost of eating out in each area?	28
3.3.4 - How much do residents of each area typically pay for three essential items (rice, green tea, and toilet paper)?	29

3.3.5 - What is the average distance that residents of these areas travel to purchase these essential items (rice, green tea, and toilet paper?)	30
3.3.6 - What is the average cost to rent commercial space?.....	30
3.4 – Interviews.....	30
3.4.1 - Interview with John Ng	31
3.4.2 - Interviews with Business Owners	32
3.5 - Objective Four: Recommend ways in which future New Towns can be designed to foster more economic opportunities and, as a result, create a higher quality of life.	33
4 - Results.....	34
4.1 - Comparisons between the design, businesses, and people of Tin Shui Wai and Sai Ying Pun	34
4.2 - Possible reasons for the Weak Economy in Tin Shui Wai	38
4.2.1 - Identifying the Cause	41
4.3 - Possible reasons for low Quality of Life in Tin Shui Wai	42
4.4 - 4th Objective Recommendations	46
4.4.1 - Increase development of Multi-Purpose buildings within a half-mile radius around the MTR to encourage foot traffic past small shops	47
4.4.2–Allow for more street level commercial space and office buildings.....	49
4.4.3 - Diversify the types of housing	51
4.4.4 - Subsidized first year of rent for businesses opened by resettled households	52
5 - Discussion and Conclusion.....	55
5.1 - Summary of Findings	55
5.2 - Potential Impacts of our Report	55
5.3 - Suggestions for further research	56
6– Bibliography	58
7 - Appendices	63
Appendix A - Interview Questions	63
1. Interviews with small business owners in Tin Shui Wai and Sai Ying Pun	63
2. Interview with John Ng	64
Appendix B - Interview Notes	66
1. Interview With John Ng.....	66
2. Interviews With Business Owners in Tin Shui Wai.....	68
3. Interviews With Business Owners in Sai Ying Pun	73

Appendix C - Distribution of Shop Types in the Three Study Areas.....	78
Appendix D - Distribution of Price Ranges at Restaurants in the Three Study Areas.....	81
Appendix E - Proportion of Chain Stores in the Three Study Areas.....	83
Appendix F - Detailed Centamap Data on the Three Study Areas.....	85

Table of Figures

Fig.1 - Plot of overall quality of life as measured by the CUHK Livability Index.	7
Fig.2 - Plot of CUHK's Livability Index's economic sub-index.....	9
Fig.3- Map of our study area in Sai Ying Pun	20
Fig.4 - Map Displaying Study Area A in South Tin Shui Wai and Study Area B in North Tin Shui Wai	23
Fig.5 - Map of Building-Types in TSW	35
Fig.6 - Street photographs of both Sai Ying Pun (left) and Tin Shui Wai (right)	46

Table of Tables

Table 1 - Comparison of Centamap data for Sai Ying Pun, TSW Area A, TSW Area B.....	37
Table 2 - Distance to and cost of essential items.....	39

Abstract

We studied the relationship between quality of life, economic opportunities, and urban design in two areas of Hong Kong. Our first study area is a New Town characterized by its high unemployment rate, high suicide rates, and a lackluster local economy. On the other hand, in our second research area, a large portion of residents own businesses, the unemployment rate is low, and residents report high rates of life satisfaction.

We endeavored to find ways in which the design of future New Towns could be improved to avoid these failures. Our research established connections between economic opportunities, quality of life and urban planning through quantitative and qualitative observations and analysis. The output of our study consists of suggestions for improving these three attributes.

Executive Summary

Our project studied the relationship between quality of life, economic opportunities, and urban design in two areas of Hong Kong. Tin Shui Wai, our first research area, is a New Town constructed in the northwestern corner of Hong Kong's New Territories between 1982 and 2009. This "City of Sorrow," as it has come to be known, is characterized by high unemployment rates, high rates of domestic abuse and suicide, and a lackluster local economy. In short, citizens of Tin Shui Wai enjoy a significantly lower quality of life than a typical Hong Kong citizen. Our second research focus, Sai Ying Pun, is a bustling old neighborhood on Hong Kong Island. Life in Sai Ying Pun could not be more different from life in Tin Shui Wai. A large portion of its residents own their own businesses, its unemployment rate is low, few residents commute outside of the area for work, and its residents report high rates of life satisfaction. We recorded observations of Sai Ying Pun and Tin Shui Wai to identify ways in which Tin Shui Wai's urban design and economic climate have failed to accommodate its citizens.

We analyzed Tin Shui Wai and Sai Ying Pun using a combination of quantitative and qualitative research methodology. We studied the urban design of each region, analyzed census data, recorded a list of businesses, studied the prices of goods, and interviewed shopkeepers. These data helped us to compare the economics and quality of life of the two regions. By examining the business environment of these areas, we were able to draw connections between the economic opportunities in Tin Shui Wai and its low quality of life. Our investigation of the quality of life in Sai Ying Pun and Tin Shui Wai was aided by extensive background research into how quality of life is measured by major livability studies.

Once we collected our findings and took note of the differences between Tin Shui Wai and Sai Ying Pun, we identified four suggestions of ways in which New Towns could be improved:

1. Increase development within a half mile radius around the MTR station
2. Allow for more street level commercial space and office buildings
3. Diversify the types of housing
4. Subsidize the first year of rent for businesses opened by resettled households.

These recommendations are geared towards improving the economic climate of future New Towns. Because we found that microeconomics are so important to quality of life, these have the potential to greatly improve the lives of residents of New Towns. Furthermore, based on our observations and research of the two areas, we also determined several novel factors for measuring quality of life, including social mobility, sense of community, and spatial mismatch.

1- Introduction

Hong Kong is a city of great variety. Its housing ranges from tiny six-square-meter “cage-homes” to the most expensive apartment in the world. Its markets range from never-ending pedestrian streets occupied by haggling hawkers to thirty-story shopping malls packed with all of the world’s finest brands. Neighborhoods run the gamut from claustrophobic alleys with decades-old, short apartment buildings to vast, airy “New Towns” with towering public housing developments built by the government. With this eclecticism, there is no typical “life in Hong Kong” that all citizens experience.

With such variety, the quality of life that citizens experience also varies greatly. For this reason, studies that attempt to quantify quality of life in Hong Kong disagree upon its relative ranking among world cities. For example, the Economist Intelligence Unit places Hong Kong at number 1 out of a list of 70 cities, but Mercer University’s index ranks Hong Kong as 70th worldwide (The Economist, 2012; Mercer, 2011). This is at least partially because quality of life greatly differs between different districts in Hong Kong. We also believe it is due to some necessary attributes being overlooked in these studies.

Our research focused on two specific areas in Hong Kong: Sai Ying Pun and Tin Shui Wai. Sai Ying Pun, located in The Western District of Hong Kong Island, is a traditional Chinese neighborhood that is characterized by bustling street life and a multitude of small businesses. Tin Shui Wai is a New Town founded in 1982 that is locally known as the “City of Sorrow.” It experiences a high unemployment rate, suicide rate, and is widely regarded as the “failed New Town.”

Life in these two districts could not be more different. Citizens in Sai Ying Pun are a quick bus or tram ride away from all of the excitement and opportunities available on Hong

Kong Island, while residents of Tin Shui Wai must take an expensive hour-and-a-half long train ride to access the island. In Tin Shui Wai, there are very few street-level businesses, and almost all of the retail space is located inside shopping malls owned by a single company. As a result of the dearth of local businesses, employment opportunities, and retail space, citizens in Tin Shui Wai have very limited opportunities to advance their economic standing.

This paper will analyze the urban, economic, and sociological characteristics of Tin Shui Wai and Sai Ying Pun. Many have already written (Hui, 2009; Cho Yam Lau, 2010) about the poor quality of life in Tin Shui Wai, and those accounts are discussed in the background, so this paper will not focus on establishing its standing as the “failed New Town.” Instead, our research has focused on the economics of Tin Shui Wai and the more quantifiable aspects of opportunity and livability, rather than anecdotes about how difficult life is. With our research and insight, we propose a connection between the area’s low quality of life and its unsatisfactory local economy. From this connection we plan to make recommendations on how future New Towns can be better designed and new indicators that quality of life studies should include to create more accurate rankings.

2 - Background

2.1 – Introduction

We had two primary goals for the outcome of our research. First, we sought to recommend ways in which future New Towns can be designed to improve economic opportunities and quality of life. Second, we endeavored to find new indicators that could be added to quality of life studies to produce more accurate rankings. Our first research focus was investigating current quality of life studies to determine what variables are most often used to measure quality of life. To this end, we conducted a literature review of several quality of life indices. During this review, we also focused on finding ways in which economics affect quality of life. The rest of our background research involved studying the histories of Tin Shui Wai and Sai Ying Pun, as well as searching for information about each area's livability and economic environment. The data we collected provided evidence for the major assumptions behind our study, namely that Sai Ying Pun has a higher quality of life and stronger economy than Tin Shui Wai.

2.2 - Defining Quality of Life

To gain an understanding of how quality of life is measured, we investigated several quality of life indices. There are a wide variety of definitions of "quality of life." According to Dasgupta and Weale (1992), quality of life can be assessed in two different ways. One method looks at the indicators of well-being, the other looks at how much access people have to the necessities of well-being. In other words, according to Dasgupta and Weale, a study can measure individual freedom, health, and happiness or evaluate the availability of food, shelter, education, personal safety, and clean water. On the other hand, renowned philosopher Peter Singer argues

that “focusing on either aspect neglects important aspects of livability” (2011). According to Singer, the satisfaction of basic needs is necessary for an adequate quality of life, but having the necessities is not sufficient for absolute life satisfaction (Singer, 2011). Hon-Lam Li (2011) believes quality of life can be understood in three ways: “purchasing power, subjective happiness, and life fulfillment.” The latter, perhaps the hardest to measure, is defined by “the meaningfulness of one’s work and life,” according to Hon-Lam Li (2011). Singer explains that attributes like “life fulfillment” are difficult to measure, but necessary for a comprehensive study of a population’s quality of life (Singer, 2011). Attributes such as these are one of the main reasons quality of life studies vary so much in their rankings.

“Scarcely a day can pass when my happiness is not affected by family, friends, colleagues, work, leisure, traffic, pollution, weather, crime.” This quote from Pavan Sukhdev (2011) shows how a wide variety of factors contribute to an individual’s quality of life. Since quality of life is so multifaceted, he argues that a combination of multiple methods of assessment, not focusing on one specific aspect but measuring all aspects of contentment, is necessary to comprehensively evaluate quality of life (Sukhdev, 2011). Leitmann (1999) agrees with this assessment, elaborating that quality of life “cannot be measured purely objectively, because different cultures value different aspects of life more than others” (Leitmann, 1999). He argued that objectively-measured quality of life is “a useful barometer,” but should not be regarded as the final word on a city’s standing, since it also depends upon respondents’ qualitative answers in addition to quantitative data (Leitmann, 1999).

The following sections examine five quality of life indices and what variables index each uses to determine city rankings. A section then examines the similarities and differences between each study, speculates upon what types of important variables might be over or under-

represented in the indices, and questions how they relate to Hong Kong. Since we were attempting to find a link between livability and micro-economics, we focused on determining the quality of life indicators related to economics. The concluding section examines the ways in which quality of life commonly relates to economics.

2.2.1 - Mercer Quality of Life Survey

The Mercer 2011 Quality of Life Survey attempts to rank the cities of the world by their quality of life (2011). Researchers at Mercer used a regional index to rank nearby cities against each other, as well as a worldwide index. The living conditions in each city are measured based on 39 factors, grouped into 10 categories:

- Political and Social Environment
- Economic Environment
- Socio-cultural Environment
- Health and Sanitation
- Schools and Education
- Public Services and Transportation
- Recreation
- Consumer Goods
- Housing
- Natural Environment

The rankings for each factor are compiled into an overall rank that allows for comparison between the cities included in the study. Hong Kong only ranks 70th worldwide and does not place highly among Asian cities (Mercer, 2011). Looking further into each category, we found

that only two factors comprise Mercer's evaluation of the economic environment of a city: currency exchange regulation and banking services.

2.2.2 - EIU Livability Index

The Economist Intelligence Unit (EIU) 2012 Spatially Adjusted Livability Index ranks the livability of cities all over the world based on several quantitative parameters. These include green space, sprawl, natural assets, cultural assets, connectivity, isolation, and pollution (The Economist, 2012). The rankings for each individual parameter are within the range 1.0 to 5.0, inclusive, with 1.0 being the best possible ranking and 5.0 being the worst. The resultant combined score of these rankings was given 25% weight in the index, while the remaining 75% was derived from five other categories, which include political stability, healthcare, culture and environment, education, and infrastructure. Although this report is performed by the Economics Intelligence Unit, none of these categories include economic data. This implies that, according to EIU, economics do not play a significant role in a city's livability. In the 2012 study, Hong Kong ranked the highest out of 70 cities that were studied.

2.2.3 - ECA Livable City Index

Employment Conditions Abroad (ECA) releases its Livable City Index every year. ECA ranked Hong Kong as the third most livable Asian city (ECA International, 2012). Recently, it released an article specifically addressing Hong Kong's rank on this year's list. ECA claims that Hong Kong's extremely low air quality ranking prevented Hong Kong from being ranked number one or two overall. The article goes on to talk about the factors that make Hong Kong one of the most livable cities, including good schooling, housing, transport connections and availability of goods and services. This article claims that Hong Kong's notable infrastructure,

healthcare, low crime, and low health risks also play a significantly positive part in these rankings. The indicators measured by the ECA do not include economic data. ECA focuses their study more on factors such as climate, housing, isolation, health services, and political tension.

2.2.4 - CUHK's Livability Index

The Chinese University of Hong Kong (CUHK) has released a study of Hong Kong's quality of life every year since 2002. The Center for Quality of Life at CUHK assesses quality of life by comparing twenty-one indicators to levels recorded in 2002. Every year, each criterion is rated higher or lower than the 2002 score of 100, based on whether or not it improved since the year before. Indicators are broken down into three categories: social, economic, and environmental. Social indicators include factors such as mortality rate, life expectancy, stress index, general life satisfaction, and overall crime rate. Factors such as housing affordability, unemployment rate, and education are included in the economic group. The results of CUHK's quality of life index over the last decade can be seen in **Fig. 1**.



Fig.1 - Plot of overall quality of life as measured by the CUHK Livability Index.

This graph shows how the study's assessment of Hong Kong's quality of life peaked in 2006 and has been in decline ever since. Specifically in the economic sub-index, the peak was between 2004 and 2006. After this point there was a sharp decline, and it is currently continuing to decline. A graph of the economic data can be seen below, in **Fig. 2**. By keeping track of Hong Kong's quality of life, CUHK's study provides policy makers with objective feedback from the city which can be referenced when considering policy or urban planning decisions. CUHK gathers its data through the government, related institutions, and through the use of surveys conducted by the social science faculty of The Hong Kong Institute of Asia-Pacific Studies at CUHK. CUHK's study is valuable because it measures Hong Kong's progress as a city, but it does not specifically look at different districts of the city, or try to compare Hong Kong to other cities.

We believe our suggestions for additional quality of life indicators could be factored into CUHK's study to improve its accuracy. However, since the study relies on comparing each year's measurements to past year, adding additional indicators would not improve its accuracy until a few years after their initial inclusion.



Fig.2 - Plot of CUHK's Livability Index's economic sub-index

2.2.5 - Quality of Life in Hong Kong

Ming Sing's *The Quality of Life in Hong Kong* evaluated quality of life in Hong Kong by combining objective measurements, such as life expectancy from birth, with qualitative interviews with a wide variety of citizens (Sing, 2009). Professional interviewers questioned individuals on a range of topics, from national pride to food preferences to religion. They also asked respondents what life attributes they most prized. Interestingly, this study found that the majority of Hong Kong's citizens are not content with their quality of life. The authors argue that the quality of life that citizens enjoy "does not match the high level of objective indicators of development under which they live" (Sing, 2009). Furthermore, they found that Hong Kong

residents are most satisfied with their interpersonal lives and less satisfied with public, material, and personal aspects of life.

This study refers to the economic development in Hong Kong many times. The only information used regarding the economy was an interview question asking how important being employed was to their quality of life. Employment was found to be ranked the third most important life circumstance, only after being healthy and having a comfortable home (Sing, 2009). This study only evaluated Hong Kong and therefore its results cannot be compared to those of a different city. The methods used in this study have been tailored specifically for Hong Kong and therefore it addresses some of the aspects that are unique to Asian urban areas that are generally left out of some of the more prominent quality of life measurement studies. The study reveals that Hong Kong people rank employment status as the third most important life attribute, which provides evidence for our hypothesis that economic opportunities are closely linked to quality of life. According to the results of this study, high unemployment rates in a district reflect a poor quality of life experienced by its citizens.

2.2.6- Comparing Quality of Life Studies

After analyzing these five quality of life studies (Mercer's, EIU's, Sing's, ECA's, and CUHK's), some trends and relationships were observed. Almost all of these studies included some form of measurement for the natural environment of each city. The only study that did not measure environment was Sing's report, which was strictly based on Hong Kong itself. Mercer, EIU, ECA, and CUHK all developed a system for ranking the quality of the environment of each city. Another common trend between these various studies was measuring the politics of a city, health, education, and housing. Surprisingly, only Mercer and CUHK's studies looked into the economic environments of cities. Of these two studies, CUHK's study was the only one that

went in-depth into economic factors such as the unemployment rate, the public attitude towards economics, the property market, and wages. Mercer's study looked at only two factors: currency exchange rate and banking services.

This comparison of indices implies that there may be variables specifically relating to Hong Kong that many major quality of life studies omit. To start, the difference in variables measured by Sing's 2009 study on Hong Kong and the other four livability studies implies that Hong Kong's quality of life may be more accurately studied by non-traditional variables. Sing's study showed that Hong Kongers highly value their employment, and suggests that economic factors are very important to the quality of life of Hong Kongers. Further, ECA and Mercer ranked Hong Kong's livability so differently (3rd and 70th, respectively) even though both measured similar variables. This implies that there are more important, confounding variables not taken into account by either index. As part of our study, we looked for novel variables that could be used to better determine quality of life in modern cities like Hong Kong.

2.2.7 - Connecting Quality of Life to Economics

Although it is impossible to measure quality of life with purely quantitative information, quality of life studies are still very useful for evaluating an urban population. There are two primary applications of quality of life measurements to urban environments, according to a paper written by Dionysia Lambiri (2007). First, politicians can use these studies to advise government policy. Second, economists and entrepreneurs use livability studies to determine whether an area has the potential for a new market. For example, a quality of life study might evaluate socioeconomic factors such as unemployment, poverty rates, and homelessness in a city, which can all be very valuable data to organizations that seek to evaluate social policy (Randall, 2001).

One of the reasons that quality of life has become so widely implemented is its potential to be used as a political tool (Lambiri, 2007). Many of the social, economic, and environmental issues that politicians and policy makers deal with are directly related to quality of life factors. Furthermore, livability measurements are now often used to compare and rank multiple cities (Rogerson, 1999). For example, the European Union uses quality of life statistics to evaluate the economic health of member states (Lambiri, 2007).

Historically, the economic conditions of an urban area have been used as the primary indicator to measure the favorableness of that area for the establishment of a new business venture (Rogerson, 1999). However, over the past several decades, studies have shown that other variables such as public health, education, and the environment can also have a significant impact on the viability of an economic venture (Rogerson, 1999). Pennings (1982), Rogerson (1999), and Lambiri (2007) argue that a high quality of life goes hand in hand with a high number of successful small enterprises in a region. Quality of life affects where households and businesses decide to locate. Therefore, quality of life affects the competitiveness of a market (Lambiri, 2007). For example, if many people chose to live in a certain location because it has a high quality of life, consumer-based enterprises will want to locate there, because it is where the consumer base is. Therefore, the businesses that follow their consumers and set up in a location with a high quality of life are often the most successful (Lambiri, 2007). In a place like Tin Shui Wai, this is not the case; with a low quality of life, businesses will not want to set up, which further hurts the situation of the area. In fact, one of the major problems resulting from the planning of Tin Shui Wai (as described below in section 2.3.2) was the lack of businesses that moved into the area due to the residents low economic standing.

2.3 - Introduction to Tin Shui Wai

Tin Shui Wai is a New Town that is a part of the Yuen Long District in the northwestern New Territories. Tin Shui Wai was conceived as a New Town in 1982, and construction on the final housing estate was finished in 2009 (Law, 2009). New Towns are public housing developments created by the Hong Kong Housing Authority in response to the high demand for subsidized apartments. Tin Shui Wai is the eighth New Town, out of a total of nine. The town consists of about 4.3 km² of developed land with a population approaching 292,000 people (CEDD, 2012). It is one of the most densely populated New Towns in Hong Kong, containing 62,579 persons per km² as of 2006; almost double that of the next densest city (Law, 2009). Transportation options in the area include an MTR station, service from the Light Rail, and an extensive bus network. In addition, roads in Tin Shui Wai connect to the surrounding areas and the Yuen Long Highway.

The New Town has recently come under significant criticism, specifically for perceived failings of its urban design, high unemployment, suicide, and domestic abuse rates, and the high density of low-income groups (Chui, 2008; Cho Yam Lau, 2010). It even gained the nickname “City of Sorrow” due to two family murder-suicides which occurred there in 2005 and 2007. This has only brought the city further into the spotlight, to the point that a major film, *Night and Fog*, was created about the 2005 case (Hui, 2009).

In the context of our study, Tin Shui Wai serves as an example of an “unsuccessful city,” due to its low quality of life and well-documented issues. Our recommendations for improving the quality of life in future city developments are based on our case study of the negative aspects of Tin Shui Wai.

2.3.1 - Development of Tin Shui Wai

The second focus of our background research was the history of Tin Shui Wai, our primary area of study. The development of Tin Shui Wai sprung from two distinct events: first came the construction of the southern district in the 1980s. Later, in the 1990s, the construction of the northern district began. The government was not initially involved in the plans to develop Tin Shui Wai (Tam Ka Yan, 2009). Rather, Mightycity Company Limited (MCL), a now-defunct construction firm, purchased 4.88 square kilometers of land in the Northwest New Territories in 1979 for a large-scale housing development. At the time, this was the largest-ever purchase of land in Hong Kong (Chi Ming et al, 1987).

Mightycity negotiated with the government to begin developing the land, which was originally envisioned to be home to 525,000 people. Half of this would be public housing, and the other half was to be luxury housing. In July of 1982, the government signed a “joint-venture” with Mightycity, wherein the government paid Mightycity HK\$1458 Billion for the entirety of the land and designated 1.7 square kilometers in the south to be developed into housing for 135,000 people. This began the development of the southern district of Tin Shui Wai. Mightycity was given a small portion, 0.388 square kilometers, of this area for the development of private property that would house half of the envisioned 135,000 population (Chi Ming et al, 1987). The agreement stipulated that Mightycity had to finish development of the area within 12 years of the first construction and invest the entirety of the HK\$1458 Billion into this area (Chi Ming et al, 1987). The development plan for southern Tin Shui Wai was submitted in 1983; however, it was revised in 1984 to remove a planned industrial area from the original report and again in 1986 to increase the envisioned population to 146,500 people. This industrial zone, in order to help boost the local economy, would have offered incentives for factories to open within its boundaries (Chi

Ming et al, 1987). In 1987, now-almost-bankrupt MCL sued the Hong Kong government, claiming that “the government delayed handing over the 0.388 km² development area for 6 years” (1991 instead of 1985). The case was dismissed in 1992 (Law, 2009). Despite these difficulties, southern Tin Shui Wai was considered fully developed by 2000 and at the time of completion had a population of approximately 187,000 (Law, 2009).

In 1994, northern Tin Shui Wai was identified as a suitable area for “fast-paced” housing construction in order to satisfy the rising demand for public housing (Law, 2009). The original proposal called for the creation of 505,000 new flats between 1995 and 2001, i.e. 84,000 units per year (Law, 2009). In 1998, the approved zoning plan, S/TSW/3, set the final population at 350,000 people, with 75% public housing and 25% private residences (Law, 2009). However, due to the drop in prices of the property market, the government halted development of Home Ownership Scheme and Private Sector Participation Scheme flats in 2003 (Law, 2009). These were integral to attracting middle-class residences to the area, and without this scheme, Tin Shui Wai’s housing became entirely geared towards low-income households. Residents began to settle in Northern Tin Shui Wai in 2000, and by 2004 its population reached approximately 100,000 (Law, 2009). The last of the public housing was finished in 2009 (Law, 2009). Since the development of Tin Shui Wai was completed so recently, it allows some insight into the most current policy and methodology of New Town creation. Therefore, recommendations drawn from our analysis of Tin Shui Wai should be applicable to current New Town development ideology.

2.3.2 - Issues in the Development of Tin Shui Wai

According to the Hong Kong Housing Authority, there are two guiding principles for New Town development. First, the population should consist of a mixture of high and lower-

income residents. Second, the New Town should be economically self-sufficient (Chui, 2008; Tam Ka Yan, 2009). Dr. Ernest Chui, who was involved in an extensive study of Tin Shui Wai, believes that Tin Shui Wai succeeded in neither of these criteria (Chui, 2008). Since Hong Kong's public housing is essentially a welfare provision, units are only given to those that require it: people in the low-income bracket. Thus, areas with a high proportion of public housing typically have a high proportion of low-income groups. Tin Shui Wai was originally planned to have a 50/50 proportion of public-to-private residences (Law, 2009). However, this ratio was later changed 75/25 and, as of 2009, only around 16.6% of the population lived in private flats (Law, 2009).

This problem was intensified by Hong Kong's "Public-Housing-Led" strategy, which entailed populating the city with "pioneer" residents before developing extensive business, transportation, and community services (Chui, 2008). The justification for this strategy was that only essential businesses would move into the area, which would reduce "under-utilization" of services (Chui, 2008). The strategy operated under two assumptions:

1. People will want to move into the inexpensive public residences
2. Retail and other industries will be attracted to the area due to the business promised by these pioneer residents.

The first assumption proved accurate, but the housing authority did not account for what type of population this would attract. Hong Kong citizens who could afford private housing options prefer to live closer to Hong Kong Island, or at least in locations with convenient infrastructure (Chui, 2008). Due to its remote location and initial lack of an MTR station (Tin

Shui Wai's MTR station opened in 2003), middle and upper class citizens had no interest in moving to Tin Shui Wai (Chui, 2008). People who were not able to afford private housing, typically immigrant families from Mainland China, make up a disproportionate part of the population in Tin Shui Wai. As of 2006, approximately 38% of the population in Tin Shui Wai was born in mainland China and 23% had been living in Hong Kong for less than a decade (Population By-Census, 2006). These newcomers to Hong Kong typically do not have local social connections, have very limited or no income, and may have trouble adapting to Hong Kong's hectic urban environment (Chui, 2008). These difficulties lead to stress and feelings of alienation, which contribute to locals' perceived low quality of life (Chui, 2008).

The second assumption of the Public-Housing-Led strategy was almost entirely unsuccessful (Chui, 2008). Chui argues that businesses had little interest in investing in Tin Shui Wai due to its distance from Hong Kong's urban center and its surfeit of low-income residents (Chui, 2008). Additionally, southern Tin Shui Wai's original design provisioned for the construction of factories, but they were removed from the final plan (Cho Yam Lau, 2010). This led to a dearth of local jobs and community facilities in Tin Shui Wai, and the failure of the second guiding principle in New Town development: economic self-sustainability.

The problems associated with the development of Tin Shui Wai serve to support our classification of the city as unsuccessful. Our background research highlights the primary failures of Tin Shui Wai's development: a lack of consideration for employment opportunities (and a focus on cheap, quickly-erected, high-density housing instead), and a disproportionate number of low-income residents. Since Hong Kong people ranked employment as the third most important attribute of quality of life (Sing, 2009), Tin Shui Wai's lack of employment opportunities significantly reduces the quality of life of its citizens. Its high proportion of low-

income residents discourages businesses from investing in the area, so a positive feedback loop of poverty and limited opportunities continues in the area. The following section will further elucidate the area's poor local economy and low quality of life.

2.3.3 - Citizens' quality of life

Tin Shui Wai has high levels of unemployment, domestic violence, and poverty, all of which correlate with a low quality of life (Chan et. al, 2009; Wong, 2011). According to the 2011 Yuen Long Detailed Census, approximately 11.2% of residents in the Yuen Long district, which contains Tin Shui Wai, were unemployed. This is over three times Hong Kong's overall unemployment rate of 3.4% (Annual Digest of Statistics, 2012). Further, the district comprises only 8% of Hong Kong's total population, but contains 13% of Hong Kong's unemployed households (Population and Household Statistics, 2011; Cho Yam Lau, 2010).

Tin Shui Wai is commonly known as the "City of Sorrow" due to two familial murder-suicide cases in 2005 and 2007. With the release of a major film based on the 2005 case, *Night and Fog* by noted Hong Kong director Ann Hui, these events have become symbolic representations of the difficulties of domestic life in Tin Shui Wai. Since 2004, Tin Shui Wai has had the highest rates of child and spousal abuse in the territory (Chui, 2008). Local Non-Governmental Organizations have named unemployment and financial difficulties as two of the primary factors which lead to such incidents (Chui, 2008).

The median monthly income of employed residents of the Yuen Long District is HK\$10,000, which is 11.5% less than the national median of HK\$11,300. Additionally, roughly 75% of the working population in Yuen Long commutes outside of the district for work (Yuen Long Census, 2011). Due to Yuen Long's remoteness from a major urban center, transportation

time and costs are high. In a 2010 report, Cho Yam Lau concluded that a low-income worker earning \$6500/month and commuting 26 days a month would spend 15% of their monthly income if commuting to Tsim Sha Tsui in Kowloon, or 17.7% of their monthly income if commuting to Hong Kong Island (Cho Yam Lau, 2010). Sadly, 32% of the working population in Yuen Long does commutes to one of these two areas (Yuen Long Census, 2011).

The multiple socio-economic problems described here support our statement that Tin Shui Wai has a low quality of life. We argue that there is sufficient data to support the image of Tin Shui Wai as a city that requires improvements. By identifying the problems that cause Tin Shui Wai's low quality of life and lackluster economy, we hope to find concrete ways in which future New Towns can be designed to avoid these pitfalls. In the following sections, we describe the area of Sai Ying Pun, which serves as a contrast to the dismal environment of Tin Shui Wai.

2.4 - Sai Ying Pun

Our second area of research, Sai Ying Pun, is an area located in the Western District of Hong Kong Island that is known for having a high quality of life and a very healthy local economy. Sai Ying Pun serves as a case study of a successful Hong Kong neighborhood. Comparing it to Tin Shui Wai will allow us to develop a few key recommendations for the design of future New Towns, thus helping us to achieve our main goal.

Sai Ying Pun's history dates back further and its growth has been more naturally-occurring than that of Tin Shui Wai. It was originally populated, in the mid-19th century, by immigrants from Mainland China who were settled in Sai Ying Pun by the British (Lau Yau Yee, 2009). As a result, Sai Ying Pun became a very densely-populated region of Hong Kong Island.

For our research, we focused on the area highlighted in **Fig. 3**, both because the data we needed for the area already existed, and because of the prevalence of locally-owned shops.



Fig.3- Map of our study area in Sai Ying Pun

Thanks to its multitude of hawker stalls offering a variety of goods and services, Centre Street became the center of economic activity in Sai Ying Pun (Lau Yau Yee, 2009). Hawker stalls were a major part of Sai Ying Pun's economy for decades. Up until the 1970s, there were a combined total of over 350 hawker stalls on First, Second, Third, and Centre Street (Lau Yau Yee, 2009). This changed when street hawkers were banned by the Hong Kong government and relocated to designated hawker areas inside the Centre Street and Sai Ying Pun markets. As a result, locals relied more on commercial space on the ground floors of mixed-use buildings rather

than street markets to go shopping and operate their businesses. Today, most of the buildings in Sai Ying Pun are for residential use, and commercial use is permitted on the lowest three floors (Lau Yau Yee, 2009). This allows for the family-run style of business often seen in the area, where families live upstairs and run their business on the lower levels. This intermingling of residential space and local businesses creates a strong community bond in the area, as demonstrated by the testimonies given during our interviews with business owners in Sai Ying Pun (**Appendix B, 3, Interviews 1, 2, 4**).

According to Ng et al's 2004 study, *The Quality of Life of Residents in Five Urban Renewal Districts*, residents of Sai Ying Pun ranked their quality of life higher than residents in similar districts (Ng et al, 2004). In this study, residents from Sai Ying Pun, Tai Kok Tsui, Sheung Wan, Wan Chai, and Sham Shui Po/Mong Kok were asked how satisfied they were with their living spaces. Residents from Sai Ying Pun ranked the highest in residential satisfaction, lowest in perception of building problems, second highest in residential needs met, and second highest in community satisfaction. We believe that this study establishes Sai Ying Pun as an area with very high quality of life and justifies our usage of it as a case study.

2.5 - Summary/Conclusion

From the data presented above, we believe it can safely be stated that the quality of life in Sai Ying Pun is much higher than in Tin Shui Wai. In a survey of residents of 5 similar areas, its citizens' reported life satisfaction ranked the highest (Ng et al, 2004). Our research will focus on analyzing the business environments and urban design of these two areas. From these contrasting observations, we plan to not only make suggestions for future New Town design but to also make a few suggestions for new quality of life indicators that will produce more accurate rankings.

3 - Methodology

3.1 – Introduction

The primary goal of this project was to examine the economic opportunities in Tin Shui Wai and Sai Ying Pun and propose suggestions on how the design of future New Towns could better accommodate the local economy and provide a better Quality of Life. To achieve this goal, we focused on four main objectives:

1. Identify the demographic breakdown and urban design of Tin Shui Wai and Sai Ying Pun
2. Examine the diversity in businesses and their locations in Tin Shui Wai and Sai Ying Pun
3. Investigate shop owners' and city planners' views on the economic prospects and health of Tin Shui Wai and Sai Ying Pun
4. Recommend ways in which future New Towns can be designed to foster more economic opportunities and a higher quality of life.

To facilitate comparison with Sai Ying Pun, areas roughly equal in size to our research area in Sai Ying Pun were chosen in the north and south of Tin Shui Wai. Both of these areas proved to be almost equal in population to the area studied in Sai Ying Pun (see **Table 1**). The area chosen in south Tin Shui Wai has been labeled Area A, and the area chosen in the north has been labeled Area B. These can be seen, highlighted in red, in **Fig. 4**. Through unstructured observation, we established that these two areas were an accurate representation of their respective sections of Tin Shui Wai.

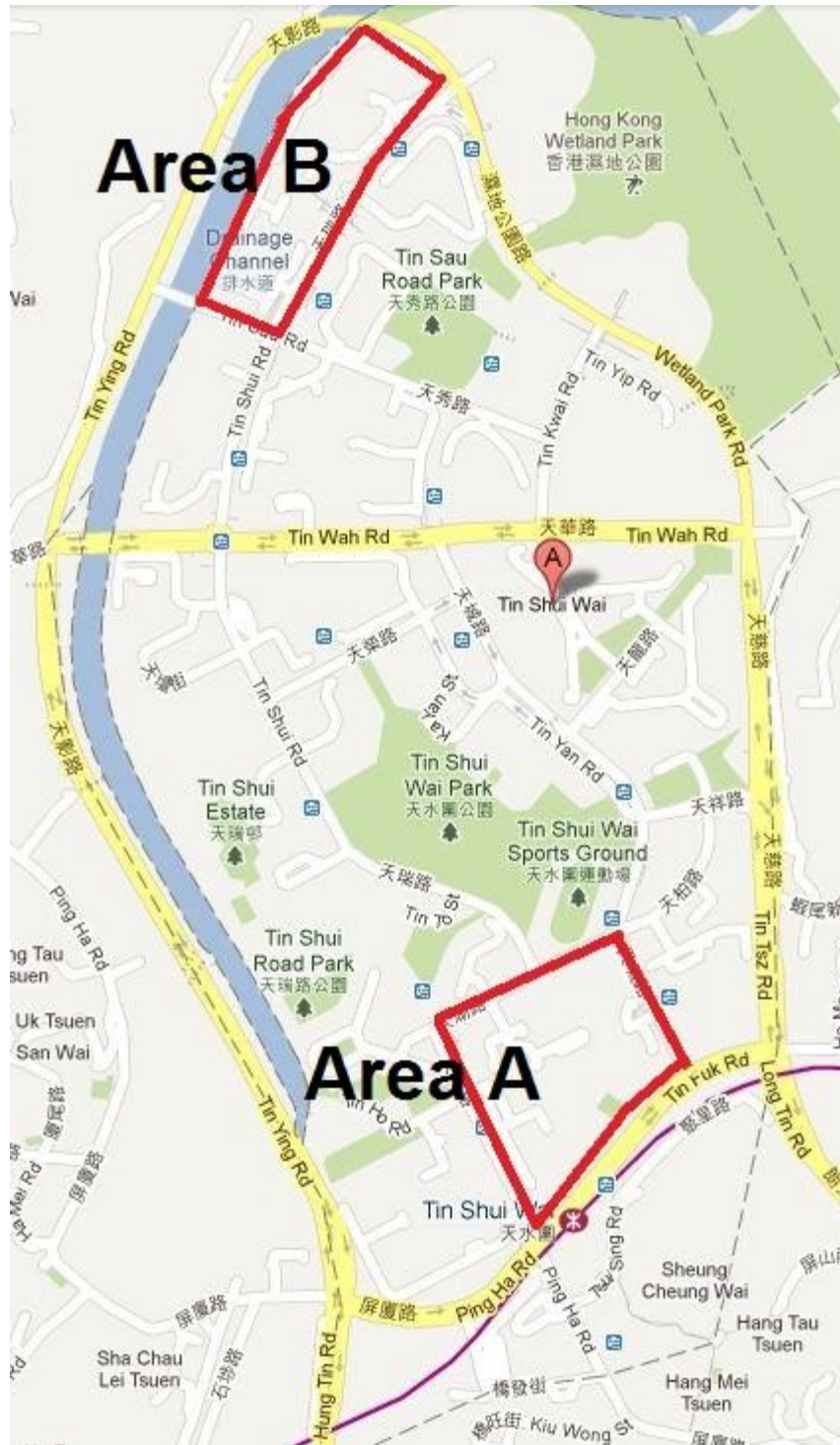


Fig.4 - Map Displaying Study Area A in South Tin Shui Wai and Study Area B in North Tin Shui Wai

3.2 - Identifying the demographic breakdown and urban design of Tin Shui Wai and Sai Ying Pun

Our first objective was to examine the demographics and urban layout of both Tin Shui Wai and Sai Ying Pun. To achieve this goal, we identified two research questions:

1. What are the defining characteristics of the urban layouts of these areas, and what are the differences between Tin Shui Wai and Sai Ying Pun?
2. What are the demographics of these areas, and what are the differences between the populations of Tin Shui Wai and Sai Ying Pun?

3.2.1 Mapping Tin Shui Wai and Sai Ying Pun

To answer the first research question, we began with unstructured observations. This entailed walking through the streets of both areas and recording major differences that were easily noticeable. We chose to map the areas differently from each other because there was a significant difference in the layout of the two areas. In Tin Shui Wai, buildings were classified by a single use. For example, a building would be residential, community-oriented (such as a school), or a shopping mall. On the other hand, in Sai Ying Pun, most buildings were mixed-use, containing multiple commercial spaces on the ground floor and residential space on upper levels.

For the mapping of Sai Ying Pun we used data collected by the Chinese University of Hong Kong in 2011. Researchers at CUHK mapped all the various street-level shops and broke them down by type of store (i.e. salon, dried seafood grocer, fashion store, etc.) (CUHK, 2012). However, since there is almost no ground-level commercial space in Tin Shui Wai, this method was not applicable there. To map Tin Shui Wai, we walked around the district recording

building locations and categories (i.e. school, public housing, shopping mall, etc.). With this data, we created a simple color-coded map. The results of our work can be seen in Section 4.1, **Fig. 5**.

3.2.2 - Demographics Research

To investigate the demographics of the two areas, we used the website, Centamap (Lands Department). This website contains information collected by Hong Kong's census in an easy-to-access format. In our three research areas, we collected the following statistics: total population, average median age, percent that have not married, percent with greater than secondary (high school) education, percent with greater than tertiary (undergraduate) education, percent of population employed, percent of population that are employees, percent of population that are employers, percent of population that are non-working, average monthly income, percent of working population that work in district of residence, the main mode of transportation used by employed residents working in their district of residence, average household size, average domestic household monthly income, and average monthly rent. This data was collected and organized into a chart to facilitate comparing differences in demographics between Sai Ying Pun and areas A and B of Tin Shui Wai. A table of this data is available in **Appendix F**.

3.3 - Examining business diversity and location

To further investigate the economic landscape of Tin Shui Wai and Sai Ying Pun, we formulated six economic research questions.

1. What are the most common types of shops in each location?

2. What percentage of businesses in each area are chains?
3. What is the typical cost of eating out in each area?
4. What do residents of each area typically pay for three essential items (rice, green tea, and toilet paper)?
5. What is the average distance that residents of these areas must travel to purchase these essential items (rice, green tea, and toilet paper)?
6. What is the average cost to rent commercial space?

Answering these questions helped us identify what types of businesses in each area, whether they are locally-owned or chains, and the spending power residents in each area. Identifying the distance traveled to purchase essential items provided insight into the convenience of living in each area, and the average cost to rent commercial space gave us an indicator for how easy it is to start a business.

3.3.1 - What are the most common types of shops in each location?

To answer the first research question we conducted a census of businesses in both the north and south of Tin Shui Wai. For Sai Ying Pun, we used the data collected from The Chinese University of Hong Kong's (CUHK) study in 2011. In Tin Shui Wai, we walked through the district and recorded the name of each business as well as its type. Almost all of the businesses we recorded in Tin Shui Wai were located inside shopping malls. Businesses were then broken down into categories, such as restaurant, grocery, fashion retail, general retail, education, office, etc. Once this was done, we recorded how many commercial spaces were vacant in each mall. Once all of the data for Tin Shui Wai was collected, we organized information from CUHK's

prior survey of Sai Ying Pun into the same categories. The data collected from CUHK was broken down into very specific types, such as dried seafood grocers and shark fin shops. Because these shops sell products used for cooking, they were grouped into the grocery category to simplify the process of comparing the regions. After organizing our observations, we noted that there was much more variety in the types of businesses operating in Sai Ying Pun than in Tin Shui Wai. We collected this information because we believe a greater variety of goods available in a neighborhood reflected greater convenience and higher quality of life for residents of that area.

3.3.2 - What percentage of businesses in each area are chains?

We used information from our map of Tin Shui Wai and the CUHK study to investigate this question. The list of all the businesses and types in areas A and B of Tin Shui Wai was used to determine what percentage of these businesses were chain stores. To do this, we researched each shop name to determine if the business had one location or multiple locations. If the shop or business had more than one location, it was considered a chain. Once we researched all the businesses and determined whether or not each was a chain, we calculated the percentage of chain businesses in each area.

Although this method worked well for collecting data in Tin Shui Wai, the large number of businesses (almost 1000) in Sai Ying Pun made the method impractical. Because there were sixty-four businesses in focus area A in south Tin Shui Wai and seventy-seven businesses in focus area B in north Tin Shui Wai, seventy businesses were chosen in Sai Ying Pun at random. To randomly select these seventy businesses, every business in the list was given a number and a random number generator was used to select which businesses would be investigated. As in Tin

Shui Wai, we searched for any additional locations of each business and calculated the percentage of businesses that were chain stores. Because we checked a random sample of shops in Sai Ying Pun, we assumed this set was representative of all shops in the area. The percentage we calculated for each study area provided an easy way to compare the number of chain businesses in each area (See **Appendix E**). We gathered this information because a high number of chain businesses reflects lower community involvement in the local economy. We argue that reduced community involvement in the economy reflects a lower quality of life and economic health.

3.3.3 -What is the typical cost of eating out in each area?

Our third research question helped us to further investigate the diversity of businesses and pricing of various goods in Tin Shui Wai and Sai Ying Pun. We collected this information as a measurement of the purchasing power of residents in each area, which is a reflection of the area's economic health. To determine the typical cost of eating out in each district, all restaurants in Area A and B of Tin Shui Wai were broken down into three categories based on price. The first category included restaurants where a typical meal costs less than forty Hong Kong dollars. The second category included restaurants with a typical meal costing between forty-one and one hundred dollars. The last category was for restaurants that had meals which typically cost over one hundred and one dollars. To determine which category a restaurant fell into, we looked at the mode cost for meals. The mode of a set of data is the value that occurs most frequently within that set. For example, if most meals at a restaurant cost less than forty dollars, then it fell into category one.

There were far more restaurants in Sai Ying Pun than Tin Shui Wai. In the north focus area of Tin Shui Wai, (area B) there were nine restaurants, in the south, (area A) there were eight. For Sai Ying Pun fourteen restaurants were chosen at random by giving each one a number and using a random number generator to select fourteen. Once again, we assumed this set was representative of the whole due to the randomness of our selection method. As in Tin Shui Wai, we visited each restaurant, examined the menu and recorded the mode price of a meal. We placed each restaurant in one of the three categories described above. A table of data is available in **Appendix D**.

3.3.4 - How much do residents of each area typically pay for three essential items (rice, green tea, and toilet paper)?

For our fourth research question we wanted to determine the price of three essential everyday items. This also helped determine purchasing power in each area. The three items we chose were rice, green tea, and toilet paper. Since rice and tea are such dominant components of the diet of a typical Hong Konger we believe that, like toilet paper, they qualify as “essentials.” To collect this information, we used information from Centamap to find the three buildings with the highest number of residents in each of our three study areas (Lands Department). We then traveled to each of these buildings, found the nearest shop carrying these items and recorded their price. These prices were then averaged together. When there were multiple brands of the same item, the cheapest was always chosen. We also made sure to choose items of the same quantity. For example, we made sure to always record the price of an eight kilogram bag of rice; this was done to ensure our data was comparable from one area to another. This data is shown in **Table 2**.

3.3.5 - What is the average distance that residents of these areas travel to purchase these essential items (rice, green tea, and toilet paper?)

Our fifth research question measured the convenience of shopping in each area. Not only does this reflect the economic vitality of each area (by illustrating the density of stores), but convenience is an important aspect of quality of life. To measure this, we used the same three residential buildings from each area that were used in research described in section 3.3.4. We walked to the entrance of these three buildings and recorded the time it took to reach the nearest shop with the three essential items. Once we recorded this for all three buildings in each area, the times were added up and divided by three to get an average. This provided us with clear, easy-to-compare data points. The results of our observations are in **Table 2**.

3.3.6 - What is the average cost to rent commercial space?

To answer our sixth research question, we contacted property agencies in North and South Tin Shui Wai and in Sai Ying Pun. For Tin Shui wai, we made phone calls to The Link, which controls the shopping centers located in focus areas A and B. For Sai Ying Pun, we took notes of numerous advertisements outside property agencies and vacancies in the area.

By answering these six research questions, we were able to collect multiple types of data that allowed us to further understand the differences in economic climates of Tin Shui Wai and Sai Ying Pun, thus achieving our second objective.

3.4 – Interviews

To complete our third objective of deducing shop owners' and city planners' views on the economics of Sai Ying Pun and Tin Shui Wai, we conducted interviews with John Ng, as well as local business owners in each study area.

3.4.1 - Interview with John Ng

We conducted an interview with John Ng, a professor of Architecture at the Chinese University of Hong Kong. Mr. Ng worked for the Hong Kong Housing Authority for 15-20 years as the Chief Architect. In this position, he was involved in designing housing estates, including those located in Tin Shui Wai. He is currently serving as a member of the expert's panel for Hung Shui Kiu, a New Town near Tin Shui Wai that is still in its planning stages.

We contacted John by approaching him after his lecture at the start of the International Forum on Urbanism (IFoU) Winter School 2013, hosted by the Chinese University of Hong Kong. We confirmed that he was willing to do an interview, and later sent him the questions we planned to ask him via email. When we conducted the interview, two group members sat down with John for approximately 45 minutes. One group member asked him questions, while the other took notes. This was necessary because he did not want to be audio or video recorded. The questions that we asked can be found in **Appendix A**. A write-up of the notes that were taken during this interview can be found in **Appendix B**.

3.4.2 - Interviews with Business Owners

We also interviewed several business owners within Sai Ying Pun and Tin Shui Wai. These businesses were selected by choosing a random sample from each of the target areas and asking the owners if they had time to talk to us. We decided to keep our interviews short, approximately fifteen minutes, and decided upon three main topics to talk about. They were, in order:

- Tell us about your business.
- How do you feel about chain stores? Why?
- How do you feel about your area of business?

Each of these questions also had sub-questions that were asked in order to facilitate discussion. The whole set of interview questions can be found in **Appendix A**. The last question was worded differently based on whether we were interviewing in Sai Ying Pun or Tin Shui Wai. For example, question 3ia was specifically geared towards business owners in Sai Ying Pun, while question 3ib was more applicable to those living in Tin Shui Wai. Our reasoning for asking only a few questions with a small sample of businesses in each area was that focusing on a small number of topics would facilitate more in-depth discussion.

In order to interview business owners, we needed help communicating with them, as many owners spoke very little or no English. We received the aid of Vanessa Kwok and Janice Leung, research assistants at Chinese University of Hong Kong, while interviewing in Tin Shui Wai and Sai Ying Pun, respectively. We conducted the interviews by having Vanessa or Janice introduce us and describe our project to business owners in Cantonese. This also served to

determine how proficient each business owner was at speaking English. Depending on their proficiency, and if they agreed to do the interview, we would either have Vanessa or Janice translate our question to Cantonese or ask the questions ourselves, sans translation. For the interviews in Tin Shui Wai where translation was always necessary, Vanessa carried out the entire interview in Cantonese and relayed the key points from the interview afterwards, which is what our notes contain (**Appendix B, 2**). In the same scenario in Sai Ying Pun, Janice acted as more of a real-time translator, where we would ask questions in English and Janice would translate them into Cantonese only if necessary. Janice would then translate the key points of the conversation as the business owner answered our questions (**Appendix B, 3**). Of course, with this type of setup, there is the possibility of certain aspects of the responses being lost in translation, so our data from the interviews represent the key points that each interviewee made, rather than exactly what was said. Although the business owners in Tin Shui Wai did not want to be recorded in any manner, most of the business owners in Sai Ying Pun did not mind audio-recordings, which we took. Unfortunately, due to Janice and Vanessa's busy schedules, we were unable to have the transcripts translated.

3.5 - Objective Four: Recommend ways in which future New Towns can be designed to foster more economic opportunities and, as a result, create a higher quality of life.

For our fourth and final objective, we analyzed the results gathered from our other three objectives and discussed ideas as a group. Our suggestions can be found in subsection 4.4 of the Results section.

4 - Results

4.1 - Comparisons between the design, businesses, and people of Tin Shui Wai and Sai Ying Pun

Through our observations and data collection, we observed some major differences in Sai Ying Pun and Tin Shui Wai. These areas differed with regards to their layout, the types of businesses, and their demographics. All of these factors reflected or contributed to differences in their quality of life and economic environments.

The urban layouts of Sai Ying Pun and Tin Shui Wai have almost nothing in common. Sai Ying Pun developed slowly over time, in an organic fashion, changing little, and remaining one of the most traditional districts in Hong Kong. As a result, Sai Ying Pun is filled with street-level shops and vendor stalls. Above the street-level commercial space lie various types of residential and office buildings. Tin Shui Wai, on the other hand, was carefully planned by a team of architects and urban planners.

The color-coded map shown in **Fig. 5** categorizes each building in Tin Shui Wai by its purpose. In the creation of this map, we learned that there are very few commercial spaces outside of the large shopping centers scattered throughout Tin Shui Wai. We also observed that residents of Tin Shui Wai live almost exclusively in high-density housing developments characterized by towering (subsidized-rent) apartment buildings. This is completely different from Sai Ying Pun, where commercial space is located on ground level throughout the entire district, and private housing and office buildings occupy the upper floors of almost every building. Tin Shui Wai has no multiple-purpose buildings like those seen in Sai Ying Pun, which have commercial space on the ground floor and housing or offices above. In Tin Shui Wai,

buildings are either residential, educational, shopping centers, or parking garages. We found only one office building in the entire district of Tin Shui Wai.

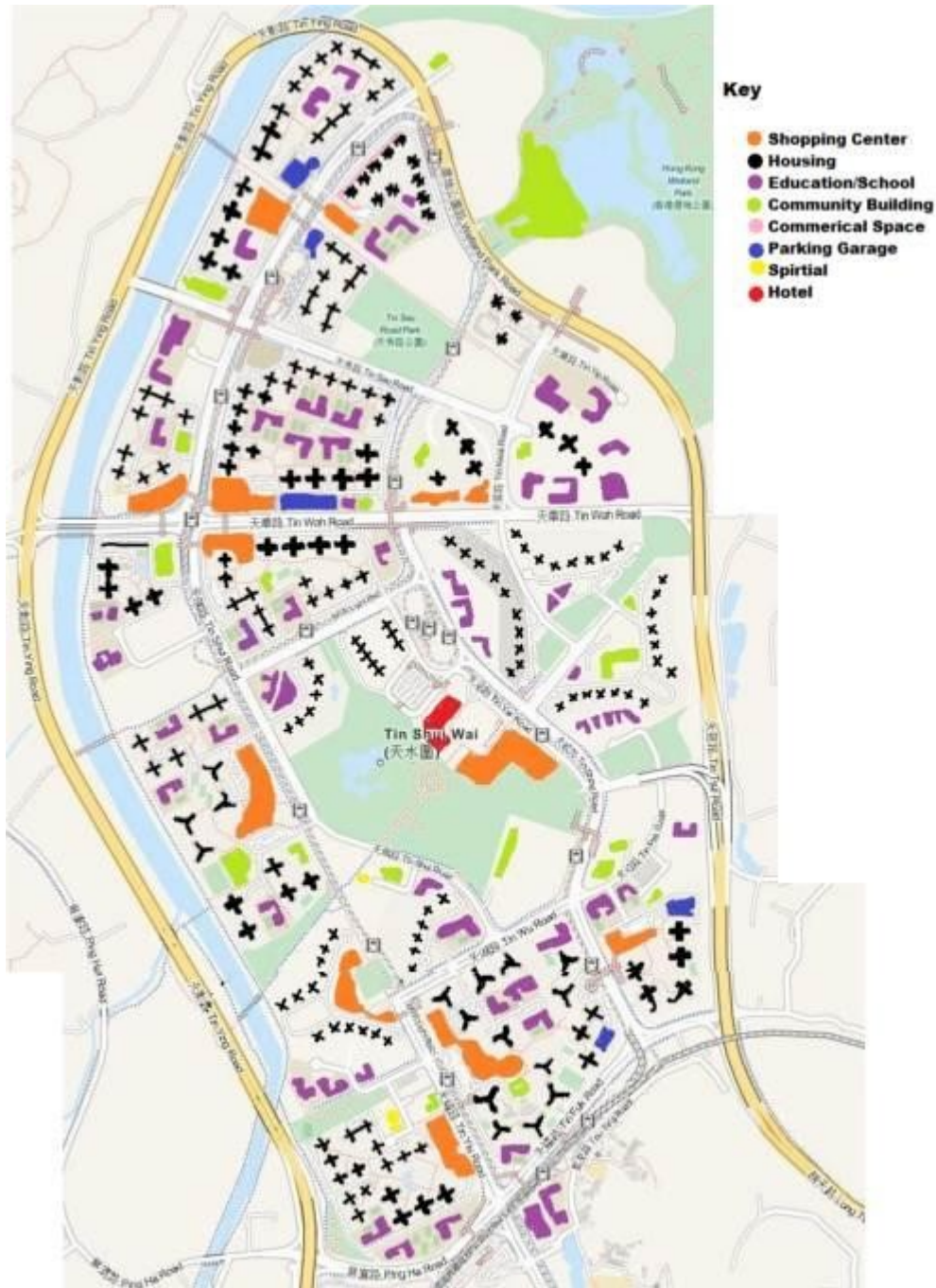


Fig.5 - Map of Building-Types in TSW

With such variation in the layout of commercial space in the two areas, there is also a great difference in the types of businesses that are located there. The main difference we observed in the three focus areas was the disparity in the number of commercial spaces. In Sai Ying Pun there were a total of 1235 spaces available for commercial use. In focus area B, in northern Tin Shui Wai, there were only 77. Area A, in southern Tin Shui Wai, contained even less -- a paltry 64 commercial spaces. After our census of commercial space in each area we discovered that the top three uses of the space in each varied (**See Appendix C**). In Area B of Tin Shui Wai, the top three uses of space were fashion retail, general retail, and vacant space. Area A was similar in that fashion retail and general retail were the top two most common type of businesses. Sai Ying Pun had a completely different top three uses. The most common business was vacancies: 23% of commercial space in Sai Ying Pun was not currently being used. The second most common business types in Sai Ying Pun were grocery stores and third were homeware stores.

Another way in which the areas varied significantly was their percentage of chain stores. To reiterate, we defined chain stores as any business that had more than one location within Hong Kong. Areas A and B in Tin Shui Wai had a similar percentage of chain stores (69% in the South and 64% in the North). However, in Sai Ying Pun, only 26% of the businesses were chain stores (**See Appendix E**). The high percentage of chain stores in Tin Shui Wai, combined with the lack of vacancies, makes it rather difficult for residents to start up and maintain a successful small local businesses. Even if an entrepreneur can find space to rent, it is much harder to compete with an established chain store (due to their immense financial means and superior

business acumen) than with local business owners. Although average rent prices are higher in Sai Ying Pun (HK\$44 per square foot monthly) than in Tin Shui Wai (HK\$35.8 per square foot monthly), due to the differences in average monthly income, the price in Tin Shui Wai is relatively higher. Given the monthly income data collected with Centamap (**Table 1**), renting a 100 sq.ft. store would cost a resident of Area A or Area B of Tin Shui Wai 43% or 46% of their monthly income, respectively, while a similarly sized space in SYP would only cost 36.5% of the residents monthly income. Further, the lack of vacant locations available to rent in Tin Shui Wai may limit entrepreneurial opportunities.

	Sai Ying Pun	Area A TSW	Area B TSW
Total Population	35960	33539	35855
Percent with Tertiary Education	29%	12%	7%
Percent Employed	55%	45%	32%
Percent of Population that are Employers	43%	1.03%	0.63%
Average Monthly Income	\$12042	\$8328	\$7762
Percent of working Population that works in district of residence	50%	32%	29%
Average Monthly Rent	\$7584	\$1448	\$2005

Table 1 - Comparison of Centamap data for Sai Ying Pun, TSW Area A, TSW Area B

We also noticed significant differences in the demographics of each area. **Table 1** highlights some key attributes of the population in each area. There were large differences in education levels, percentages of population that are employers (own their own business), average monthly incomes, monthly rents, and the percentages of the working population that work within their district of residence. Residents of Sai Ying Pun tended to have a higher education level, a higher percentage of employers, higher monthly income, and higher monthly rent. These major differences are both indicators of, and reasons for, the contrasting level of economic success of each region.

4.2 - Possible reasons for the Weak Economy in Tin Shui Wai

Tin Shui Wai's weak economy clearly plays a large role in the low quality of life when compared to that of Sai Ying Pun. However, what is less clear are the reasons behind this weak economy. Uncovering these possible reasons will help us to achieve our goal of making recommendations for the design of future New Towns, as well as give us a few ideas for future indicators that should be considered in measuring quality of life.

Tin Shui Wai's economy is in a far worse state than Sai Ying Pun's. As shown in **Table 1**, the average income of residents in Tin Shui Wai is about 2/3 of that of residents in Sai Ying Pun (69% for Area A and 64% for Area B). The unemployment rate is also higher in Tin Shui Wai than in Sai Ying Pun. All of this data points to Tin Shui Wai having a weaker economy than Sai Ying Pun. Cho Yam Lau reports that there are three major factors contributing to unemployment in Tin Shui Wai: a job-housing imbalance (where there are many more residents than local jobs), spatial mismatch (which occurs when job opportunities for low-income groups are located far away from their place of residence), and a low purchasing power among residents

(which results in much less money flowing through local stores) (2010). Our results illustrate these attributes. The data collected regarding the price of essential items and the average price of a meal reinforce the hypothesis that Tin Shui Wai residents have little purchasing power. **Table 2** shows that the overall the cost of essential items such as rice, green tea, and toilet paper is higher in Sai Ying Pun than in Tin Shui Wai. This implies that Sai Ying Pun has a stronger economy than Tin Shui Wai, since people are able to spend more money on essential items.

	Sai Ying Pun	Area A TSW	Area B TSW
Average Distance to Essential Items	1.78 Minutes	3.33 Minutes	4.67 Minutes
Average Price of Rice (8KG)	\$78.10	\$66.20	\$46.90
Average Price of Green Tea (25 Bags)	\$13.73	\$11.60	\$11.90
Average Price of Toilet Paper (12 rolls)	\$26.93	\$23.88	\$22.50

Table 2 - Distance to and cost of essential items

The interpretation of the data is justified by the census data (**Table 1**), which shows that those in Sai Ying Pun have a higher average income than either area in Tin Shui Wai. In this situation, a positive feedback loop can occur. When residents have a higher income, they can

afford to spend more on essential items; in economic terms, they have a higher “reservation price,” which is the most a customer is willing to pay for a specific good or service (Steadman, 1987). This allows the shops selling these items to increase their prices without hurting sales figures. Shop owners accumulate a greater profit, which in turn increases their income, which allows them to increase wages. The reverse effect can be seen in Tin Shui Wai: people there have a lower income, so they have a much lower purchasing power and reservation price. They can’t afford to spend as much on essential items, so shops must lower prices in order to stay in business. When the shop owners lower their prices, they make less profit and therefore have a smaller income and pay lower wages. Eventually there is a point at which the customer’s reservation price is lower than the minimum at which the shop owner can sell their product and still make a profit, and purchases become infrequent. This theory is supported by our interviews in Tin Shui Wai: four out of the five shop owners interviewed in Tin Shui Wai expressed concern that many people stop and browse at shops but few actually make purchases (**Appendix B, 2**).

Similar results were obtained from the data we collected regarding the price of a meal in the different locations (See **Appendix D**). In Tin Shui Wai, about 70% of the restaurants served meals that were less than forty Hong Kong dollars. In Sai Ying Pun, only 43% of restaurants served meals in this price range. Further, while there were no restaurants in Tin Shui Wai where the mode cost of a meal was over one hundred Hong Kong dollars, 7% of restaurants fell into this price range in Sai Ying Pun. This reinforces the conclusions drawn from the data shown above on the pricing of essential items. Our data was further supported by the owner of a small restaurant in Kingswood Richly Plaza, Tin Shui Wai: she attributed much of her shop’s 12 years of success to being able to sell food as cheaply as possible (**Appendix B, 2, Interview 2**).

The high percentage of chain stores in Tin Shui Wai causes additional economic difficulties. Money spent at a locally-owned business mostly stays in the economy, because the owner will likely spend it in their own neighborhood. Only a fraction of the money spent at a chain business (enough to cover rent and employee wages) will stay in the region. For this reason, the high percentage of chain businesses is detrimental to Tin Shui Wai's economy.

The combination of residents with low income and low spending power, spatial mismatch, and the disproportionate number of residents compared to number of jobs suited to their skill levels creates an overall worse economy, and leads to an overall low quality of life in Tin Shui Wai. Unlike in Sai Ying Pun, where residents and visitors to the area have more money to spend on local businesses, residents in Tin Shui Wai are not able to help their local economy as much. In order to avoid this weakness in future New Towns, the root cause for the current state of Tin Shui Wai's economy must be identified.

4.2.1 - Identifying the Cause

Although our data supports the hypothesis that Tin Shui Wai's economy is weaker than Sai Ying Pun's, it does not reveal a cause. Tin Shui Wai's current hardships may be a result of how it was planned. Tin Shui Wai is far from the economic center of Hong Kong, which makes commuting out of the city long and costly. However, the city's non-central location is not the only thing holding back its economic growth. Tin Shui Wai was designed primarily around housing. Office space was not accounted for and all industrial areas were removed from the final plans. Housing estates were created without space for small businesses and offices. The layout of Tin Shui Wai is very spread out, with the Light Rail forming a loose loop around the city. All roads in Tin Shui Wai lead to this loop and the major road that runs parallel to it. This Light Rail

setup allows for quick access to other parts of Tin Shui Wai, as well as neighboring cities, but it also reduces foot traffic around Tin Shui Wai. The creation of the Tin Shui Wai MTR station in 2003 has served to reduce foot traffic even further because it connects to the Light Rail and creates a quick route to leave the city. Residents can commute from home to their distant job without ever walking past a commercial center, and this hurts business for the shops in the malls.

Sai Ying Pun is laid out in a much denser manner, with streets and businesses existing in a tight grid. Because most shops and services are conveniently accessible, and residences and commercial space are mixed together (typically in the same buildings), foot traffic is significant and evenly distributed throughout the district. This increases both the convenience of buying necessities (as described by the distance to essential items shown in **Table 2**) and the likelihood that someone will wander into a shop and make an impulse buy. These purchases by people walking past a shop on their way from one location to another are a significant source of income for shop owners, according to our interviews. Mrs. Kwong, the owner of a 50-year-old family-owned shop, says that much of her business is due to people noticing a product as they walk by (**Appendix B, 3, Interview 1**). Because traffic in Tin Shui Wai is concentrated along the light rail and nearly small businesses are located inside shopping centers versus on the street, people are only exposed to shops' contents when they consciously go to the shopping centers, and are therefore far less likely to make the impulse buys that help out small businesses.

4.3 - Possible reasons for low Quality of Life in Tin Shui Wai

Tin Shui Wai is known for having a low quality of life (Chan et. al, 2009; Wong, 2011). We argue that Tin Shui Wai's poor local economy has a detrimental effect on its citizens' life-satisfaction. The economic environment of Tin Shui Wai is very different from that of Sai Ying

Pun, and these differences could play a large factor in why the quality of life in Tin Shui Wai is lower than that of Sai Ying Pun.

One possible reason for the lower quality of life in Tin Shui Wai is the lack of job opportunities. In Sai Ying Pun, not only are there countless vacant commercial spaces available for rent, but there are also many office buildings. This offers residents of Sai Ying Pun the opportunity to start their own businesses and it is clear that many of them do. In the census data collected, 43% of the working population of Sai Ying Pun are employers, meaning they have their own business. In Tin Shui Wai, there are few vacancies and only one office building. Because there are fewer office buildings and less space for new businesses to start up, only about 1% of the working population of Tin Shui Wai own their own business. Therefore, many must travel outside of their district to have the same employment opportunities residents of Sai Ying Pun have. 50% of residents of Sai Ying Pun work in Sai Ying Pun, but only about 30% of the residents of Tin Shui Wai work in Tin Shui Wai.

The lack of job opportunities within Tin Shui Wai causes 70% of the population to travel outside of the district for work. Getting from Tin Shui Wai into Hong Kong's urban center, Central Hong Kong Island, takes well over an hour by means of public transit; from Sai Ying Pun this takes about fifteen minutes. This exemplifies the spatial mismatch of Tin Shui Wai, where job opportunities are located far away from where people live. We posit that these high costs and long travel times adversely affect one's quality of life. The cost of a daily commute from Tin Shui Wai to Hong Kong island by MTR can add up to a significant amount. Joseph Cho Yam Lau determined that, for someone making HK\$6500 per month and commuting 26 days per month, the cost of commuting from Tin Shui Wai to Hong Kong island was approximately 17.7% of their monthly income (Cho Yam Lau, 2010). A long and expensive

commute can cause one to feel over-tired and drained. One woman, whose story is told in Eva Chan's "Voices of Tin Shui Wai Women," described how long traveling hours to work take a toll on her energy. She lamented that this toll which cannot be repaid by money (Chan, 2009). This is further supported by the Centamap data in **Appendix F**, which shows the percentage of people who use the MTR in both districts. Those in Sai Ying Pun do not use the MTR nearly as much as residents of Tin Shui Wai. This is mostly likely because residents of Sai Ying Pun live much closer to their location of work and have a shorter and easier commute.

The lack of economic opportunities in Tin Shui Wai either forces residents to commute or remain unemployed. Long commutes hurt one's quality of life but so does unemployment. In Sing's 2009 study *The Quality of Life in Hong Kong*, Hong Kong people described employment as the third most important attribute to their quality of life (Sing, 2009). Chan argues that unemployment leads to low self-esteem, and causes people to settle for jobs in which they are under-employed (Chan, 2009). He argues that many cases of sexual abuse, child abuse, and general family unrest and unhappiness in Tin Shui Wai stem from the same core problem: unemployment (Chan, 2009). The difficulties caused by unemployment decrease quality of life drastically. The stories of the women of Tin Shui Wai are all very similar: they all work long hours, have little time to sleep, miss seeing their children grow up, and often have an unemployed and depressed husband (Chan, 2009). Men are particularly affected by unemployment: due to pride in work instilled by Chinese culture, Chan states that they are less likely to settle for under-employment. Finding work for these husbands would do a great deal to increase the overall quality of life for the entire family.

Another possible reason for the lower quality of life in Tin Shui Wai versus that of Sai Ying Pun is the varied location of different businesses. In Tin Shui Wai, all businesses and shops

are located within one of the many shopping centers in the area. Therefore, one must travel to the nearest shopping center anytime they are in need of an item. In Sai Ying Pun, many of the residential buildings have commercial space on the street below them. When Sai Ying Pun residents are in need of an item they can just take the elevator to the ground floor of their building, where there is often a grocery or convenience store. We measured the distance from the three largest residential buildings in each area to three essential items (See **Table 2**): rice, green tea, and toilet paper. The average distance a Sai Ying Pun resident had to walk to a shop where they could purchase these items was 1.78 minutes. One of the Sai Ying Pun residential buildings we looked at even had a grocery store located within it at street-level. In the areas of study in Tin Shui Wai, the average distance one had to walk to a store to purchase the same three items was 3.33 minutes for Area A and 4.67 minutes for Area B. This data shows that residents of Sai Ying Pun live with greater convenience than residents of Tin Shui Wai. Although convenience is something many of us overlook, it can play a significant role in one's quality of life.

In addition to increasing convenience for shoppers, the wide variety and location of different shops also increases an area's visual stimuli. Walking down the streets of Sai Ying Pun, one's eyes are constantly moving. With so many small shops, hawker stalls, bakeries, and foot traffic there is always something to look at, smell, hear, and admire. Even if it does not spark enough desire for one to enter a shop and make a purchase, it's enough to keep one's thoughts moving and one's mind engaged. Walking down the streets of Tin Shui Wai is much different. Streets in Tin Shui Wai are lined with one white building after another white building. Although many of them have different purposes: a school, a residential building, or a shopping center - there is little to notice about them. All of the residential towers look the same and all of the schools and shopping centers look identical as well. Aside from a few banners hung from

schoolyards, there is hardly any color or feeling of vitality as one walks down the street. This lack of visual stimuli can put a damper on anyone's day.



Fig.6 - Street photographs of both Sai Ying Pun (left) and Tin Shui Wai (right)

Although it is something small and something we might not think much about, how engaged our senses and mind are as we walk from school or work or the grocery store can greatly affect our mood and, therefore, our quality of life.

4.4 - 4th Objective Recommendations

After analyzing the data collected in achieving our first three objectives, we were able to achieve our fourth and final objective of making recommendations for the future design of New Towns. We have come up with four recommendations that we feel will help to improve the overall quality of life in New Towns currently in development. These three recommendations are:

1. Design for more development of multiple-purpose buildings and further develop the area within a half mile radius around the MTR

2. Design buildings with more street-level commercial space and build more office buildings
3. Diversify the types of housing
4. Subsidize the first year of rent for businesses opened by individuals in resettled households

4.4.1 - Increase development of Multi-Purpose buildings within a half-mile radius around the MTR to encourage foot traffic past small shops

Our first recommendation is to increase the amount of development around MTR stations in the New Towns. Residents of Tin Shui Wai currently rely heavily on the light rail (a small train that runs in a loop through Tin Shui Wai and other nearby towns) to move around the town. This is because of the town's layout and the location of the MTR station. Since the station is at the southern tip of Tin Shui Wai, the light rail system provides a convenient method for residents to travel to and from their housing, which largely expands in a straight line north of the MTR station. This greatly reduces the amount of foot traffic on the streets. Businesses set up near a central travel hub would have greater exposure to pedestrians. We learned in the interviews conducted with business owners in Sai Ying Pun that having people constantly walking by, looking into a shop's windows, provides a significant amount of business. The greater level of exposure both generates purchases and makes more people aware of the business' existence. Having shops and other development close to a place that people are guaranteed to walk by, such as an MTR station, ensures exposure and, as a result, increases the chance that a business will be successful.

We suggest that town planners increase development in a half-mile radius around the station. Further, foot traffic will increase if the town is designed in a grid pattern similar to Sai Ying Pun, instead of relying on a light-rail “backbone.” With more foot traffic, people who are entering or leaving the town will walk past the street-level retail space more often, and these businesses will benefit from the window-shoppers passing by every day. Increasing foot traffic and helping these businesses succeed will overall increase the quality of life in the area by helping to create a healthier economy as well as encourage more social interaction.

An increase in multiple-purpose buildings would also increase the exposure of small businesses, making them more successful. An example of the most common type of multiple-purpose building found in Hong Kong is a residential complex with commercial space at ground level. This is something that was abundant in Sai Ying Pun, where most storefronts have residences on the upper floors. The second most-populated building complex in Sai Ying Pun actually contained a supermarket on the ground level. Having commercial space located at or near residential areas could provide more areas in which residents can open shops and greater traffic flow due to the convenience and visibility of the store’s location. It could also promote social interactions between residents and the workers in ground floor shops that they pass daily. This will not only help to improve the economy by helping small businesses be more successful but, it will also help to increase the resident’s quality of life by providing greater convenience and more visual stimuli.

Both the increased number of shops near to the MTR and the use of multiple-purpose buildings, specifically residential/commercial, will help to promote a sense of community among residents of New Towns. Having shops that people walk past everyday on their way to and from work promotes social interaction between residents and shop workers, and creates the possibility

of having regular customers who will get to know the business owner. Many people in Tin Shui Wai already need to travel to other districts for work, so locating these local businesses around the MTR becomes a natural choice and, in multiple-purpose residential/commercial buildings, residents will inevitably walk past businesses on the ground floor. Having regulars not only increases business because of a reliable stream of customers, but it also increases the sense of community. For example, one business owner that we interviewed in Tin Shui Wai said that her business only lasted as long as it had because of word of mouth between her first customers and people that they knew. A strong sense of community is part of what makes businesses thrive in Sai Ying Pun; locals develop a relationship with the shopkeepers in their neighborhood, and thus become loyal to these local businesses. This strong sense of community, which is lacking in Tin Shui Wai, makes one feel that they belong, a feeling that greatly increases one's quality of life.

4.4.2—Allow for more street level commercial space and office buildings

Our second recommendation is to plan New Towns with a significant amount of street-level commercial space and office buildings. Having commercial space outside of shopping centers will provide residents with more opportunities to start up a business. The sheer number of commercial spaces is one of the major differences between Sai Ying Pun and Tin Shui Wai and without open commercial space, prospective entrepreneurs have limited opportunities to get started. Office buildings would also provide a venue for different types of businesses to open in the New Town.

Having street level shops may also increase the success rate of new start up shops. In Sai Ying Pun, many shop owners rely on their shop windows to draw customers in. This way, not only do they attract customers who are going out to shop, but they might also attract individuals

who are simply walking through the neighborhood. In Tin Shui Wai, where all commercial space is in shopping centers, people do not walk past shops unless they are already in the shopping center. This greatly limits the number of potential customers. In Sai Ying Pun, on the other hand, someone heading to the bus stop to go to work might walk past a bakery and impulsively decide to buy a snack. According to the shop owners we interviewed in Sai Ying Pun, these random impulse buys provide a significant source of revenue.

In Sai Ying Pun, having retail space on the street has helped to foster a strong feeling of community between shopkeepers and customers. Three of the shop owners in the area told us that small businesses allow for social interaction. Increased social interaction creates a greater feeling of community. Mrs. Kwan, the 60 year-old owner of an 86 year-old shop in Sai Ying Pun, explained to us that running the shop is more about having fun with the neighbors and community than a making a profit (**Appendix B, 3, Interview 4**). Although some shopkeepers described feeling slightly threatened by chain stores, most felt that their shops offer value through social interactions that chain stores cannot provide. We believe the addition of street-level commercial space will result in more social interactions in New Towns, which will lead to a greater sense of community. More social interactions will help people feel like they are participating in their community and will improve residents' quality of life. This is especially relevant in a city such as Tin Shui Wai, where many residents have limited social networks due to the remoteness of the area and high proportion of new immigrants.

We also recommend the addition of office buildings. Because many New Towns under development are located so far from the business center of Hong Kong, if one wishes to work in an office setting, they must endure a long commute every day. However, with office space located in New Towns, there will be more job opportunities, which will decrease the

unemployment rate and give residents a shorter commute. Rent would be significantly cheaper than in the traditional business centers of Hong Kong, such as Central or Wan Chai, and thanks to the high density of public housing developments, employers would have a large pool of nearby workers available for hire. In a presentation at CUHK describing the currently-in-development New Town of Hung Shui Kiu, Cathy Cheung from the planning department described a “Special Industrial Zone” that has been provisioned for in the area’s plans. This area will offer incentives that will encourage businesses to relocate or open new branches in the New Town. We believe this is a fantastic way to kick-start the local economy.

The combination of street-level commercial space with office buildings will greatly improve the economic environment of a New Town and therefore increase the overall quality of life of its residents. Office buildings will create job opportunities and draw people into the New Town. With more people traveling into, out of, and around the New Town, shops at street-level will have access to more customers, and the economy will benefit from the money spent at these shops.

4.4.3 - Diversify the types of housing

Our third recommendation is to diversify the types of housing in future New Towns. In Tin Shui Wai, almost all of the housing is for low-income residents. Less than 20% of Tin Shui Wai’s residents live in unsubsidized, private housing, so there is very little intermingling of citizens from different economic backgrounds. Those who live in public housing often have minimal purchasing power. Because of this, businesses in Tin Shui Wai are forced to keep their prices as low as possible.

On the other hand, Sai Ying Pun is inhabited by a mixture of people from different economic backgrounds. Ninety percent of the residential buildings are private, and this housing varies from expensive high rises to small mix use apartment buildings. Side-by-side with these expensive high-rises and old apartment buildings are some public housing estates. This has created a diverse economy, in which people with lower incomes benefit from living close to upper-class citizens. Those with a higher income have greater spending power. As a result, business owners in Sai Ying Pun benefit from their proximity to customers with large amounts of disposable income. One business owner we interviewed in Sai Ying Pun, Mrs. Kwong, told us that she receives a fair amount of business from higher income individuals who drive to the area where her shop is located (**Appendix B, 3, Interview 1**). This mixture of economic classes leads to a healthier economy, because money “trickles down” from the upper class down to the lower class, allowing for more social mobility and more potential for individuals to increase their overall quality of life.

4.4.4 - Subsidized first year of rent for businesses opened by resettled households

Our final suggestion is for the Housing Authority to subsidize the first year of rent for businesses opened by resettled households. Based on the data that we collected and discussed, the costs of renting a space for a small business is a major deciding factor in whether or not potential business owners will actually start a business. Having a year or some other substantial amount of time of subsidized rent would create entrepreneurial opportunities for those who would otherwise not have the means to start a business. In other words, it lowers the entry hurdle for opening a new business. This will also increase residents’ sense of community, since it will allow more residents of the town to participate in the local economy. This will be especially

beneficial in a New Town, where many people have been relocated from faraway parts of the city and often feel alienated.

Subsidizing the rent for local businesses is also feasible because the infrastructure to do so is already available in two ways: the Hong Kong Trade and Industry Department's SME Loan Guarantee Scheme, and the Hong Kong Mortgage Corporation's Microfinance Scheme (TaID, 2012; HKMC). The SME Loan Guarantee Scheme helps small and medium enterprises (SMEs) obtain loans for new equipment and "meeting working capital needs" by having the government partially pay back the loan if the SME defaults (TaID, 2012). While this is generally for small businesses that are already opened, a similar method might be applicable to residents looking to start up a business. Perhaps most relevant, the Hong Kong Mortgage Corporation's Microfinance Scheme provides loans to start-up businesses and the self-employed (HKMC). Additionally, it can "provide supporting services including mentorship and entrepreneurial training to business starters and the self-employed" (HKMC). If a service like the Microfinance Scheme is promoted towards New Town residents, it could help more local businesses get started via a practical source of capital as well as better education on how a business is run.

Subsidizing rent would create entrepreneurial opportunities for New Town residents, which would increase the overall quality of life for the local population. Since only local residents could receive subsidized rent, the local unemployment rate is likely to drop and money spent in stores would stay in the district. Chain stores can also provide as many employment opportunities, but they do not offer as many entrepreneurial opportunities, which are necessary for residents to move up the socioeconomic ladder. Additionally, beyond wages paid to employees, most of the money spent in chain stores goes to the company that owns it, essentially leaving the local economy. As described in section 4.2, residents with higher incomes (like the

entrepreneurs who are successful thanks to this subsidization program) will encourage more local spending, which in turn will help businesses so that employers and employees can be paid better. Not only will more local spending be encouraged, spending at higher price points will also become more commonplace if the town's population is wealthier as a whole.

5 - Discussion and Conclusion

5.1 - Summary of Findings

Through our background research, our observations, and our data collection of both Tin Shui Wai and Sai Ying Pun, we were able to come up with four main suggestions for the design of future New Towns in hopes of having greater success and a higher quality of life than that of Tin Shui Wai. We feel that these four recommendations, if implemented, could create a better quality of life for the residents of future New Towns.

5.2 - Potential Impacts of our Report

With the housing authority planning to ramp up production of apartments, and planning to build more New Towns, our recommendations, if taken into consideration, could affect the quality of life of a great number of individuals. Hung Shui Kiu is a New Town that is still in the planning phase, and will be located right next to Tin Shui Wai. If planned carefully and with our recommendations in mind, we believe that the new city will likely have better economic opportunities and a higher quality of life than its neighbor. Its close proximity to Tin Shui Wai could help to improve current conditions there. If commercial spaces and office buildings are available in this New Town, it would increase employment and entrepreneurial opportunities for residents of Tin Shui Wai.

However, the housing authority has many of its own guidelines. As John Ng informed us, the Housing Authority has binders full of material on just how to design a mall. With this in mind, we understand that there may be many obstacles in making our suggestions a reality, but

we hope that our paper will at least help city planners understand the importance of economics and quality of life when designing a New Town.

5.3 - Suggestions for further research

During our background research, we discovered that current livability indices have a large focus on several factors, such as the environment, but ignore some very important aspects of individual quality of life. Many studies consider macroeconomic indicators (i.e. GDP and unemployment) but neglect the microeconomic and social traits that really affect individuals' lives. For example, some traits that very clearly reflect a poor quality of life, such as suicide rates, are not considered by any quality of life studies. Furthermore, Tin Shui Wai's spatial mismatch and dearth of entrepreneurial opportunities and jobs greatly cripples the social mobility, or ability to increase socioeconomic standing, of its residents. Social mobility and other microeconomic indicators were not considered by any of the quality of life indices we analyzed.

Our research also showed the effect that social interactions and a sense of community have on quality of life. These social aspects seemed very prevalent in Sai Ying Pun and the responses we received from interviews in Sai Ying Pun imply a strong sense of community. This was very different from Tin Shui Wai, where there is a weak sense of community and, as Dr. Ernest Chui put it, "poor relationships between neighbors" (Chui, 2008). The factors relating to social interactions were important enough that three out of our four recommendations hope to increase their prevalence in New Towns; however, they were not incorporated in any quality of life study. We believe that factors such as spatial mismatch, social mobility, sense of community, and social interactions have a measurable impact on the citizens' quality of life. We suggest further research into the exact relationship between quality of life and these variables. When

these factors are better understood, and perhaps even quantified objectively, we believe that their inclusion into livability studies would greatly improve the accuracy of these rankings.

6 – Bibliography

Annual Digest of Statistics.(2012). In Hong Kong Census and Statistics Department.

Chan, E. (2009). *Voices of Tin ShuiWai Women*.

Chi Ming, L., Suk Kwan, N., & Lap Kee, T. (1987). *City on Heavenly Waters - An Evaluation of Tin ShuiWai New Town Development*: University of Hong Kong.

Cho Yam Lau, J. (2010). The influence of suburbanization on the access to employment of workers in the new towns: A case study of Tin ShuiWai, Hong Kong. *Habitat International*, 34(1), 38-45. doi: 10.1016/j.habitatint.2009.05.002

Chui, E. (2008). Lessons Unlearned—Planning Disaster and Community Anomie *Asia Pacific Journal of Social Work and Development*, 18(2), 59-71.

CUHK.(2012). SYP Site Analysis - Stall Research.

CUHK Hong Kong Quality of Life Index. (2011). The Chinese University of Hong Kong.

CEDD.(2012). About Us - Tin

ShuiWai.from http://www.cedd.gov.hk/eng/about/achievements/regional/regi_tinshuiwai.htm

Dasgupta, P., & Weale, M. (1992). On Measuring the Quality of Life. *World Development*, 20(1), 119-131. Doi: 10.1016/0305-750X(92)90141-H

ECA International. (2012). Hong Kong: Asia's Third Most Livable City, but Among The World's Worst for Air Quality. from ECA International website: http://www.eca-international.com/news/press_releases/7650/Hong_Kong_Asia_s_third_most_liveable_city_but_among_the_world_s_worst_for_air_quality?HighlightText=quality+of+life#.UJVJ64arG4I

Economist, T. (2012). City Rankings: Hong Kong's best.

HKMC. Microfinance Scheme. from <http://www.hkmc.com.hk/eng/pcrm/ourbusiness/mf.html>

Lambiri, D., Biagi, B., & Royuela, V. (2007). Quality of Life in the Economic and Urban Economic Literature. *Social Indicators Research*, 84(1), 1-25.

Lands Department. Centamap. from <http://hk.centamap.com/gc/home.aspx>

Lau Yau Yee, P. (2009). *Restoration of Centre Street: The Integration of Universal Design to a Landscaped Connection*. (Master of Landscape Architecture), The University of Hong Kong.

Law, C.-k., Wong, Y.-c., Chui, E., Lee, K.-m., Pong, Y.-y., Yu, R., & Lee, V. (2009). A Study on Tin Shui Wai New Town (pp. 157): The University of Hong Kong.

Leitmann, J. (1999). Can city QOL Indicators be Objective and Relevant? Towards a Participatory Tool for Sustaining Urban Development. *Local Environment*, 4(2), 169-180. doi: 10.1080/13549839908725591

Man, T., & Lau, T. (2005). The Context of Entrepreneurship in Hong Kong: An Investigation through the Patterns of Entrepreneurial Competencies in Contrasting Industrial Environments. *Journal of Small Business and Enterprise Development*, 12(4), 464-481.

Mercer.(2011). 2011 Quality of Living worldwide city rankings – Mercer survey.

Nazir, M. (2012).Contribution of Entrepreneurship in Economic Growth.*Interdisciplinary Journal of Contemporary Research in Business*, 4(3), 273-294.

Newell, G., Yue, W., Wing, C. K., & Kei, W. S. (2010). The Development and Performance of REITs in Hong Kong.*Pacific Rim Property Research Journal*, 16(2), 190-206.

Ng, S. H., Pong, R. W., Kam, P. K., & Ho, C. (2004). The Quality of Life of Residents in Five Urban Renewal Districts.*City University of Hong Kong Press*.

Ooi, J. T. L., Newell, G., & Sing, T.-F. (2006). The Growth of REIT Markets in Asia. *Journal of Real Estate Literature*, 14(2).

Pennings, J. M. (1982). The Urban Quality of Life and Entrepreneurship. *Academy of Management Journal*, 25(1), 63-79.

Population and Household Statistics Analysed by District Council District. (2011). In Hong Kong Census and Statistics Department.

Population By-Census Main Tables. (2006). In Hong Kong Census and Statistics Department.

Randall, J. E., & Williams, A. M. (2001). Urban Quality of Life: An Overview. *Canadian Journal of Urban Research*, 10(2).

Rogerson, R. J. (1999). Quality of Life and City Competitiveness. *Urban Studies*, 36, 969-985.

Sing, M. (2009). The Quality of Life in Hong Kong. *Social Indicators Research*, 92(2), 295-335.

Singer, P., Sukhdev, P., Li, H.-L., Prakash, M. S., Lange, H., Baltscheffsky, S., & Peredo, E. (2011). Quality of Life: What Does It Mean? How Should We Measure It? (Vol. 28, pp. 3-6): *World Policy Journal*.

Siu, W.-S. (2005). An Institutional Analysis of Marketing Practices of Small and Medium-Sized Enterprises (SMEs) in China, Hong Kong, and Taiwan. *Entrepreneurship & Regional Development: An International Journal*, 17(1), 65-88.

Steedman, I. (1987). *The New Plaggrave: A Dictionary of Economics* (Vol. 4).

TaID.(2012). SME Loan Guarantee Scheme. From

http://www.smefund.tid.gov.hk/english/sgs/sgs_objective.html

Tam Ka Yan, E. (2009). *The Planning of Tin ShuiWai New Town Development From the Sustainable Planning Perspective*. (Master of Sciences (Urban Planning)), The University of Hong Kong.

Wong, H. (2011). Quality of Life of Poor People Living in Remote Areas in Hong Kong. *Social Indicators Research*, 100, 15.

Yu, T. (2000). Hong Kong's Entrepreneurship: Behaviors and Determinants. *Entrepreneurship & Regional Development: An International Journal*, 12(3), 179-194.

Yuen Long District Council District 2011 Population Census Fact Sheet.(2011). In Hong Kong Census and Statistics Department.

7 - Appendices

Appendix A - Interview Questions

1. Interviews with small business owners in Tin Shui Wai and Sai Ying Pun

The following questions were used as the basis for what we asked small business owners in both Tin Shui Wai and Sai Ying Pun. There are three questions total, each having their own set of sub-questions used to facilitate discussion. In the last question, either ia. or ib. was asked, depending on the location of the interview.

1.) Tell us about your business.

i.) How long has it been open?

ii.) Is it family-run?

iii.) How do you feel about your shop's location?

a.) Is there a place that you feel would be better suited for your business?

iv.) Was it difficult to get the business started? (only if applicable)

2.) How do you feel about chain stores? Why?

i.) Do you feel that you have ever had to compete with them?

3.) How do you feel about your area of business?

ia.) How do you feel about Sai Ying Pun as a business area?

ib.) How do you feel Tin Shui Wai is doing socially/economically?

ii.) What things in particular do you think could be improved in your area?

2. Interview with John Ng

The following questions are those that were used as the basis of our interview with John Ng.

1. We read online that you were an architect and town planner with the housing authority. Can you explain your involvement, if any, with Tin Shui Wai?
2. Can you speak about any specific lessons that the Housing Authority learned from TSW?
3. We are interested in studying the economic failures of the New Town of Tin Shui Wai, and how future New Towns can be designed to better foster economic opportunities for their citizens. Can you suggest ways in which developments can be designed for more business opportunities?
4. For example, Cathy Cheung from the planning department mentioned that Hung Shui Kiu is being designed with “special industrial areas”. What are other ways in which the planning department tries to foster economic growth?
5. How do you plan for public space for street stalls, etc? TSW lacks areas where hawker stalls can be set up. Are all New Towns designed this way? Is there any specific reason for this?

6. When planning a development, how much influence do planners have on the types of businesses that will be there? Do you just plan the space, and allow it to be filled by anyone? Or is retail space designated for specific uses?

7. You mentioned that social interaction was important for housing estates, how do you plan for this?

8. In a housing community, would you say independent or chain-operated businesses do more to foster the local economy?

9. Why shopping malls instead of retail on the streets?

Appendix B - Interview Notes

The following are notes on the interviews we conducted with business owners, as well as with John Ng. They are not transcripts; they contain the key points of the interviews in our own writing.

1. Interview With John Ng

- He was with the Housing Authority for 15-20 years.
- He is part of the experts panel for Hung Shui Kiu
- As part of the Housing Authority, he had a role in planning and designing the housing estates in the New Towns.
- In Tin Shui Wai, there is no industrial area like there is in many other New Towns.
- With regard to the development plans for Hung Shui Kiu, the plans are not completed and still open for change.
- In Tin Shui Wai, there are problems with the transit system, the facilities, and community activities.
- When planning, a planning brief is often used, where it is normal to list all of the amenities and facilities for the town.
- Tin Shui Wai did follow the master plan for New Towns when being designed.
- A specific amount of retail spaces is specified in m², as well as with residential and other spaces labeled.

- In shopping centers in New Towns there will often be wet markets with actual stalls (not like hawkers though). These are found in Tin Shui Wai in Kingswood Richly Plaza.
- The lack of hawkers in New Towns can be attributed to complaints by residents (noisy, blockages of pathways) and malls (complaining of competition).
- Reason for not having a lot of street level markets like in the Western District: “economy of space”. Ground level space is precious, and some of it should be used to covered areas or sitting out areas.
- Many of the older estates will have more street-level shops.
- **There needs to be a balance between street level businesses and estate-style arrangements** (he brought this up a few times during the interview). This could be in the form of a street-level shopping center (which Tin Shui Wai has).
- Public housing is planned with affordability in mind.
- In Sha Tin, there is more of a mix of poor and better well off people. Otherwise there could be issues.
- Consumer’s rights – these need to be taken into consideration when deciding what businesses should be set up. For example, it’s difficult (or impossible) for consumers to return items that he/she purchased from a hawker stall. With established businesses in places like shopping malls, customers will have receipts that can be used to return items.
- He brought up the concept of legitimacy in businesses, which means that businesses should only sell items based on the type of shop (for example, barber shops should not sell items that would not normally be sold in a barber shop).
- All of the shopping centers were run by the Housing Authority before The Link.

- All of the shopping centers need to be run in a business-manner, rather than in a family-manner.
- There has always been a commercial split between small and chain businesses.
- When planning for New Towns, time is always an element, and things change.

2. Interviews With Business Owners in Tin Shui Wai

Interview 1: Clothing store, picture forthcoming

About Business:

Rents space. Store is 88 sqft, costs HK\$20,000/month

Would cost HK\$5.8 Million to buy space outright

Shop has only been open for 1.5 months

Very difficult to open due to the high rental cost

Side: Stall is at an intersection of several paths

Said Kingswood Richly has the most expensive space in the New Towns? (need to check)

Most of the shops around her just opened this January

High turnover rate of shops due to high costs

A nearby small, open space is rented to different businesses daily at HK\$600 per day

Many people will look at products, but few buy

She believes is due to most of area being in the low-income group

Kingswood Richly is busier during weekdays

Says business was not very good even during pre-Christmas sales

About Chain stores:

Chain Stores also having difficulty staying afloat in the area:

Lowering prices

Starting holiday sales much earlier than typical

About running a business in TSW:

Very difficult, her shop is currently losing money (negative profit) due to low amount of purchases and high rental prices

Is planning to look for somewhere else to move business if she can't make back lost money

Interview 2: Tea Shop, picture forthcoming

Shop was small, very busy. Very inexpensive, a large cup of tea was <HK\$5.00. Did not get a long interview from her because she was serving people as we talked.

About Business:

Open for 12 years

“Family-Started”

Hires outside help

Business is good because they sell their food cheap

Still difficult to run because, in addition to the rent, running costs are increasing (e.g. buying food supplies, paying employees)

Chain Stores:

Chain stores have forced her to raise the salaries of her employees

Side: Seems that she was previously paying employees less than the minimum pay at a chain store...

Interview 3: Tailoring Service

Did not actually make clothing, but performed adjustments. This store was on the top floor of the plaza. There was almost no foot traffic and many vacant storefronts (pictures forthcoming).

About Business:

Space costs HK\$6,000/month

Open for 3 years

Large number of vacant storefronts due to limited access to area (there was a single access point, an escalator)

Was difficult to open store

She wasn't sure what kind of shop to open because it is difficult to make a living with any sort of job in TSW

Decided on tailoring adjustments because it was a skill she already knew

Believed it is better to be a specialty shop than a general store

She only lasted this long because her first customers recommended her to other people (i.e. word of mouth advertising)

Said that there was a strong sense of community

The nearby Frozen Yogurt store (picture forthcoming) only stays in business because it is owned by the building owner

Side: The yogurt store was closed while we were there

Says there is a high flow of pedestrian traffic, but few people make purchases

Tin Chak Shopping Centre:

Since this mall was owned by The Link, additionally asked for shop owners opinion of the REIT

Interview 4: Snack Shop

Looked like a grocery store, but only sold junk food and snacks

on Level 2 of Tin Chak (i.e. the 3rd story)

About Business:

Open for 10 years

Family Owned

They do not expect to make a lot transactions, but are currently satisfied with how much business they are receiving

Does not blame The Link for business, but believes the current state of Hong Kong's economy is more to blame

If given the choice to open shop elsewhere, would still stay near to Tin Chak Estate

Chain Stores:

Do not affect his business much

Due to the fact that his store has a much wider variety of snacks than chain stores

Side: This is true. His selection was spectacular

Says there is a high flow of pedestrian traffic, but a low amount of purchases

Interview 5: Shoe Store

Sold mostly dress shoes

On Level 1 of Tin Chak (i.e. the 2nd story)

About Business:

Open for 10 years

Family owned

Slightly Opposed to The Link because rental costs are going up and the mall is too quiet

Difficult to run a local shop under The Link because **they can kick out the shop if they think there is another, better suited shop?! (not sure if true, not sure if relevant, either)**

Chain Stores:

She can't afford to lower her prices as much as chain stores can

Costs her more to get shoes that chain stores buy in bulk

About the Area:

Believes the nearby legalized local market is attracting her business

Still operating business because it is too difficult to find a job elsewhere

3. Interviews With Business Owners in Sai Ying Pun

Interview 1 - Mrs. Kwong

Name: Mrs. Kwong

Age: 50's

Address: 52 Second Street

- Mrs. Kwong's shop used to be on a different street nearby: Shek Tung Tsui (sp?)
- She is the daughter-in-law of the original owner
- She took over the business in 1997 and was a full-time mother beforehand
- The shop was moved to the current location because of reconstruction
- There is plenty of competition with other shops, but not so much with chain stores; the closest chain store in terms of types of goods is Japan Home, but the goods that she sells are much more traditional Chinese.
- She has several different types of customers – neighbors, people from the South District, and the richer people from places like The Peak. People who are driving through to get someplace else can park their car on the street outside of her shop if they see something that they want/need.
- Renting in this area is incredibly expensive; she doesn't need to deal with that because she bought the space where her shop resides. She wouldn't want to sell her space at the moment.
- She doesn't want to setup in a different location because it is pricy, and because she knows her current neighborhood well.

- Mrs. Kwong lives in Sai Ying Pun, and has since the 80's.
- She thinks that Sai Ying Pun is a good place for business because it is convenient for many people to get to, and because it is near the airport.

Interview 2 - Mr. Yueng

Name: Mr. Yueng

Age: 30's

Address: Second Street

- Opened his shop in 2007
- He likes the location
- His customers are from several places, including the mid-level and Bonham Road where the richer people live.
- Since opening his shop, the rent has increased 50-60%.
- It is out of his control whether he wants his shop to be at its current location.
- If the rent keeps increasing, he will have to close his business.
- He used to do business in the Kowloon City area. The price of renting here is cheaper, but the price gap is getting smaller and smaller.
- It wasn't so difficult to get this business started, since the economy at the time of opening (2007) was very good, and because he already had experience with owning a business.
- He faces a lot of competition from chain stores because there are a lot of them.

- Customers don't choose his shop over chain stores because of a difference in goods; rather, it is because of a much different way of serving the customers (i.e. social interaction).
- There are advantages to being here, such as the rent and customers, but those advantages are becoming less beneficial as more development occurs.
- Shops like Mr. Yueng's do not benefit from improvements in the area – he does not welcome development because it increases the rent.
- Mr. Yueng believes that the government should try to manage the area in a way such that the rent does not go up.

Interview 3 – Chartole

Name: Chartole (sp?)

Age: ???

Address: 56 Centre Street

- The shop that we visited has been open for two months
- He thinks that the location is good, since there is an escalator right outside.
- He hopes that the new MTR stop helps his business by bringing more people closer.
- The only big problem with the location is all of the noise right outside.
- There really isn't any competition with chain stores, since his shop has a much different type of atmosphere.

- He also owns the bakery on Western Street called Eat My Cake. This is where the baking gets done for the baked goods he sells at this location.
- Business in the past year has been not bad.
- He used to be in an upstairs shop, delivering goods to cafés.
- He has lived in Sai Ying Pun for seven years.
- With regard to changes in the area, he wishes that the rent wasn't going up. He also thinks that there could be more parks and sitting areas, especially for the elderly.
- He signed a contract for four years for Eat My Cake.
- It is quite expensive to rent here.

Interview 4 - Mrs. Kwan

Name: Mrs. Kwan

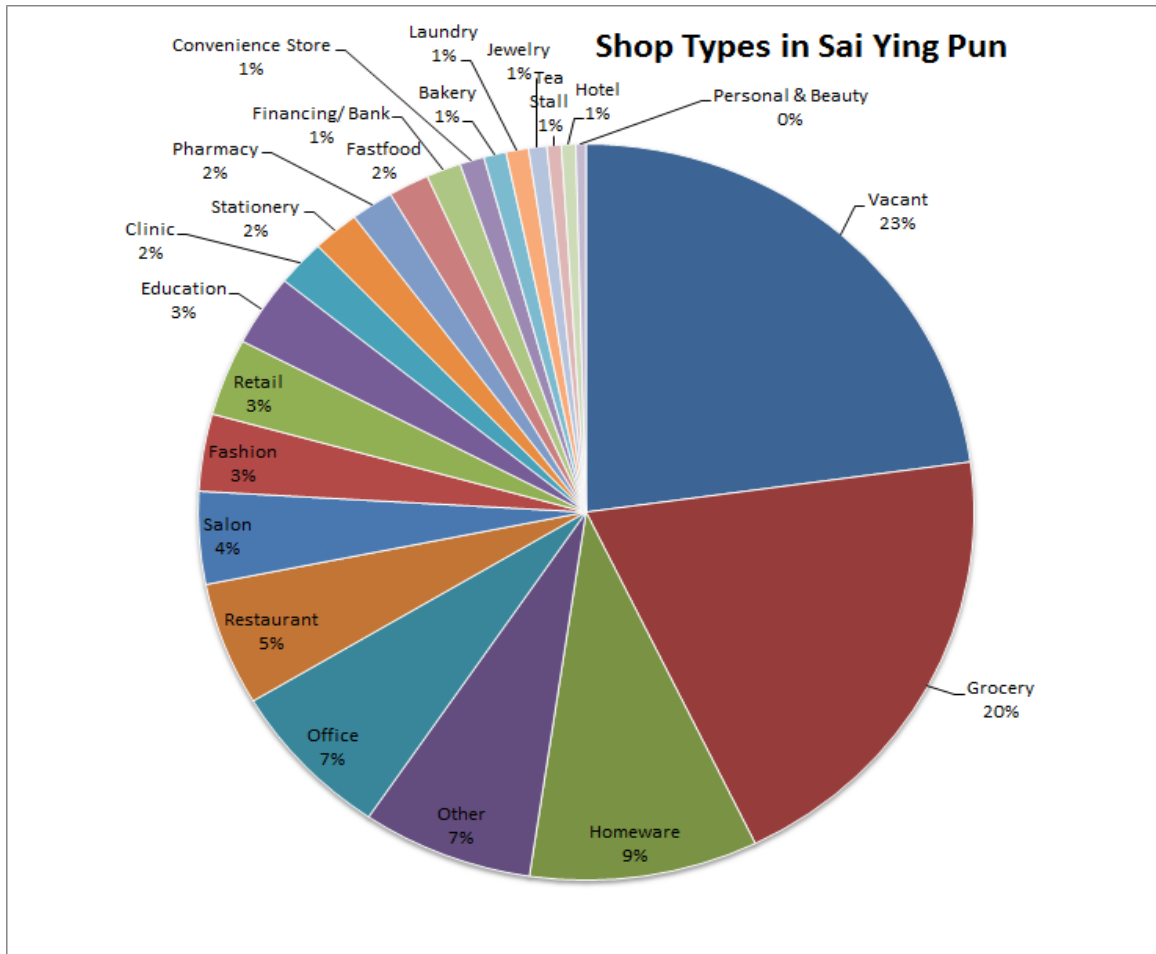
Age: 60

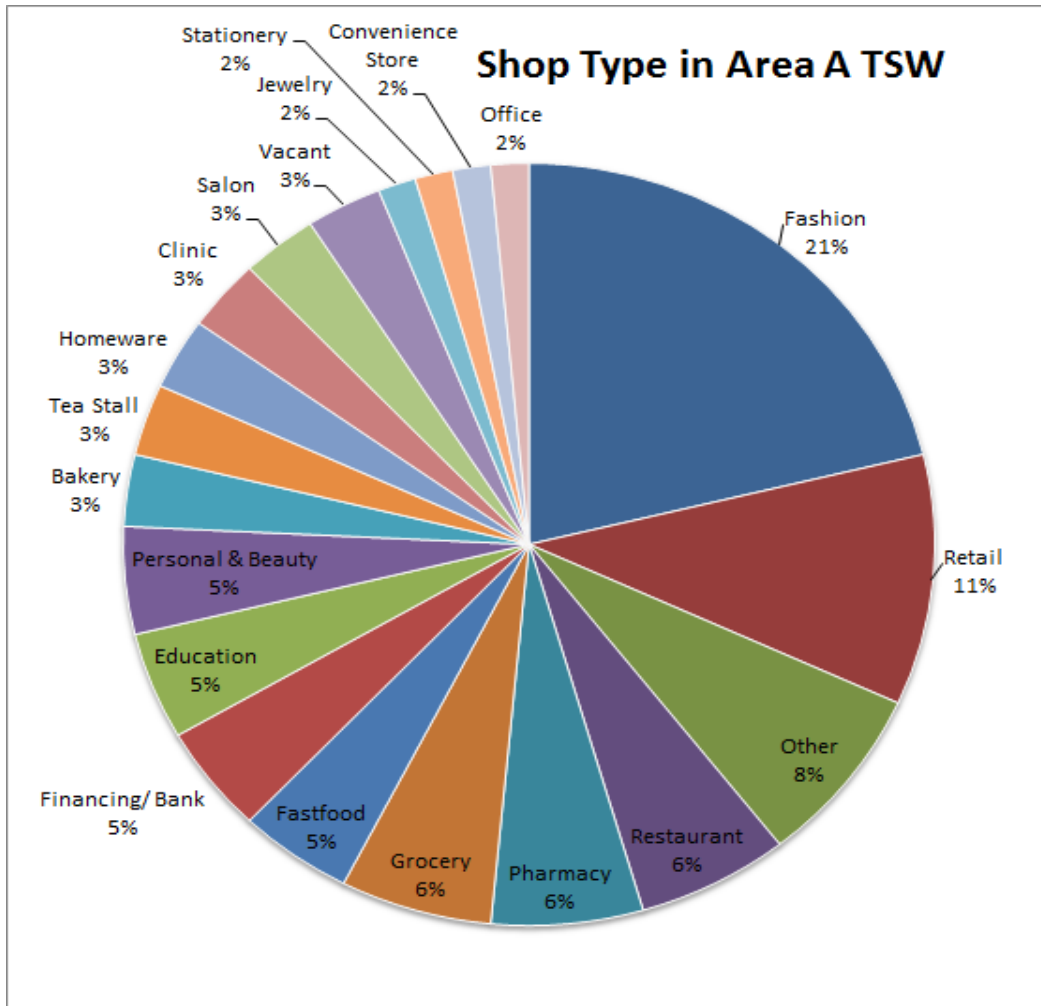
Address: 65 Third Street

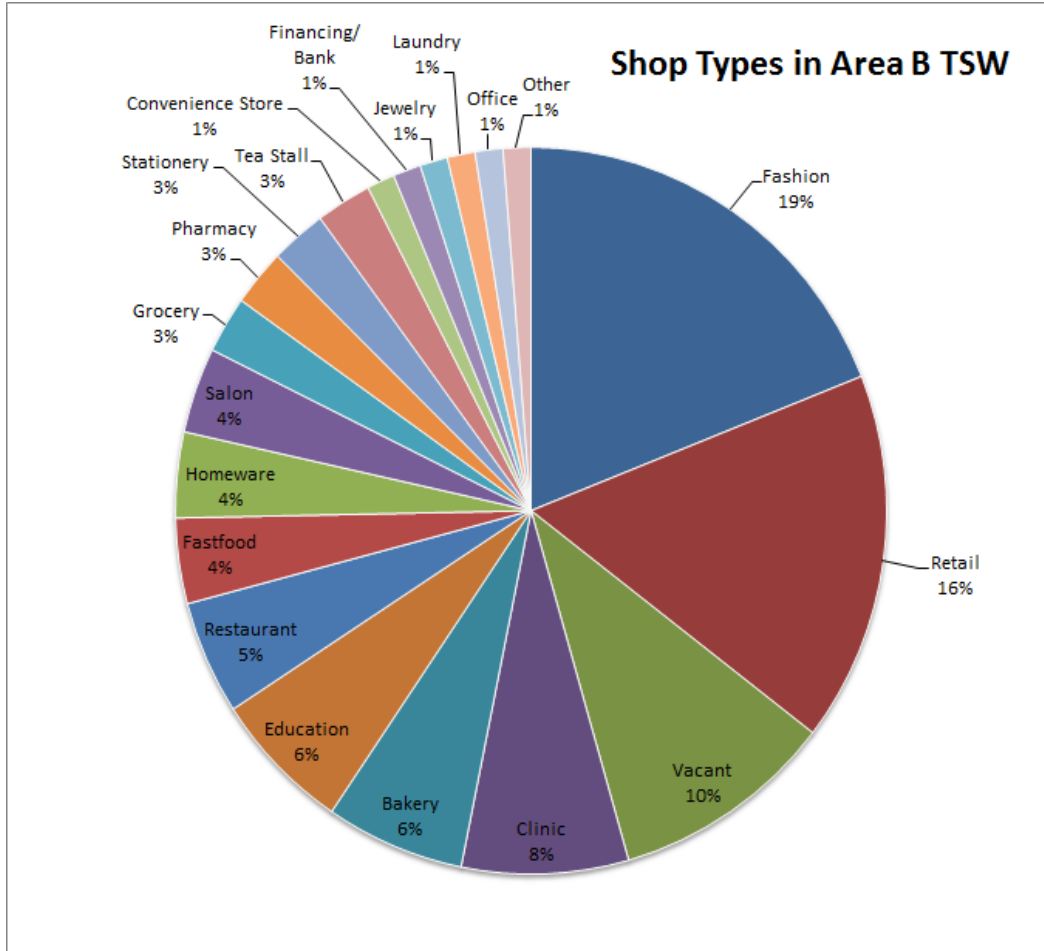
- The shop has been open for 86 years.
- It was setup by her husband's grandfather.
- It used to be an open air store on Second Street, later it was moved into an actual shop.
- The shop has been in several locations between being an outdoor stall and being in the current location.
- It has been at the current location since 1990.

- The location is OK. From 2000-2007 there was not a lot of business since the markets were empty.
- She has noticed that some businesses have moved to High Street because of the escalator.
- It is hard to do business in this area for businesses in general because of rent prices, but she owns the shop (she bought it).
- There is competition with chain stores. Sometimes she will buy things from the chain stores and resell them in her shop to sell a wider variety of items. It used to only be a soy shop, but she believes that if her customers can get several different things from her shop then they will go there instead of the chain stores.
- For her, having the shop is more about having fun (?) with neighbors, rather than making a lot of money.
- She is happy with the transportation and living spaces in Sai Ying Pun.
- She lives on Water Street, which apparently has quiet living area. It is close to this shop.
- She thinks that this area is convenient for running a business because you can get to anywhere in Hong Kong within an hour.
- The steepness of the street makes people stop by her shop.
- Many people only know about the Western District in general and not Sai Ying Pun in particular.
- She likes this area because she has her roots here
- For opening a business here, rent is a key factor to keep in consideration, but that does not matter for her since she owns the shop, rather than paying rent.

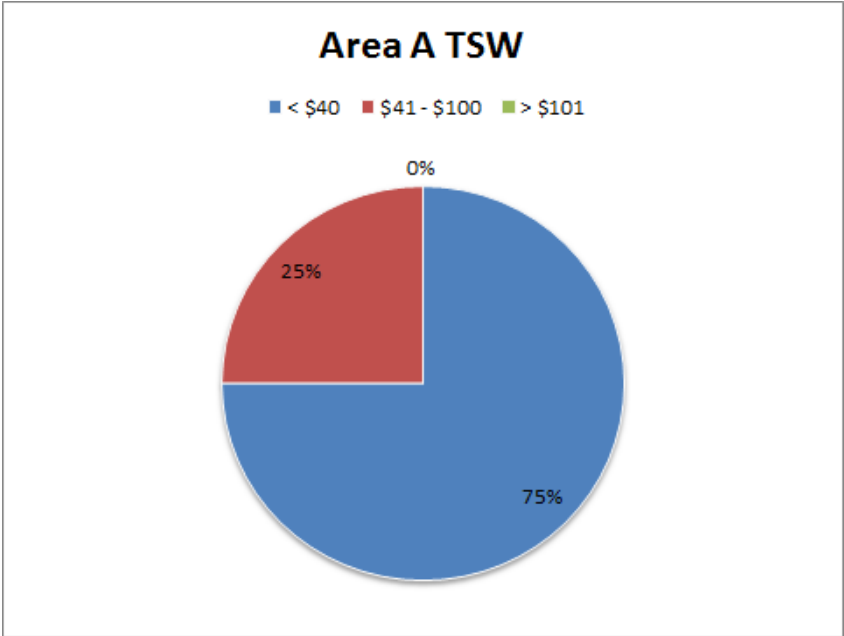
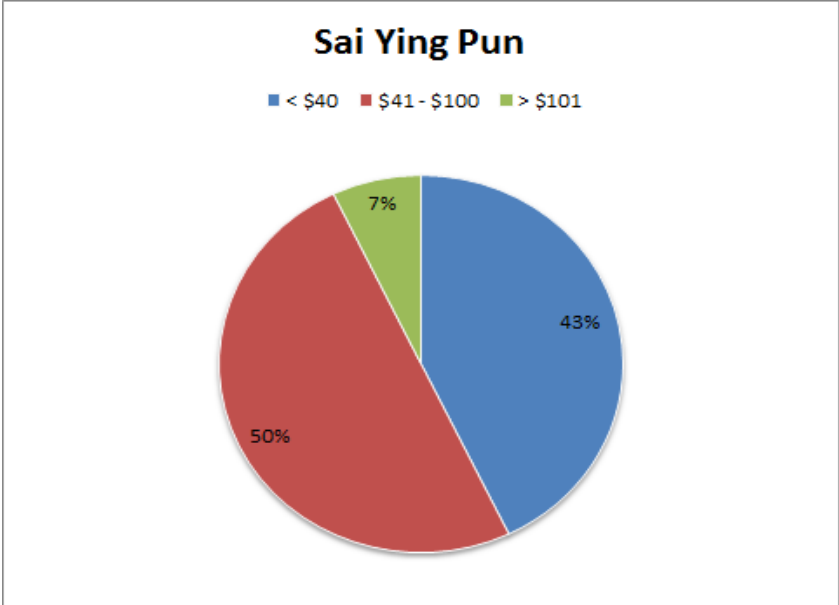
Appendix C - Distribution of Shop Types in the Three Study Areas

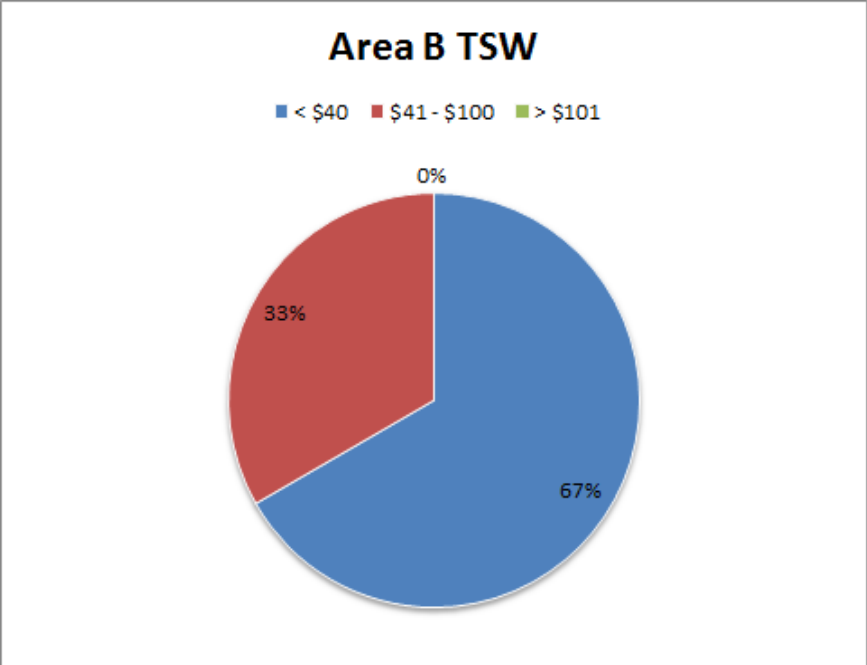




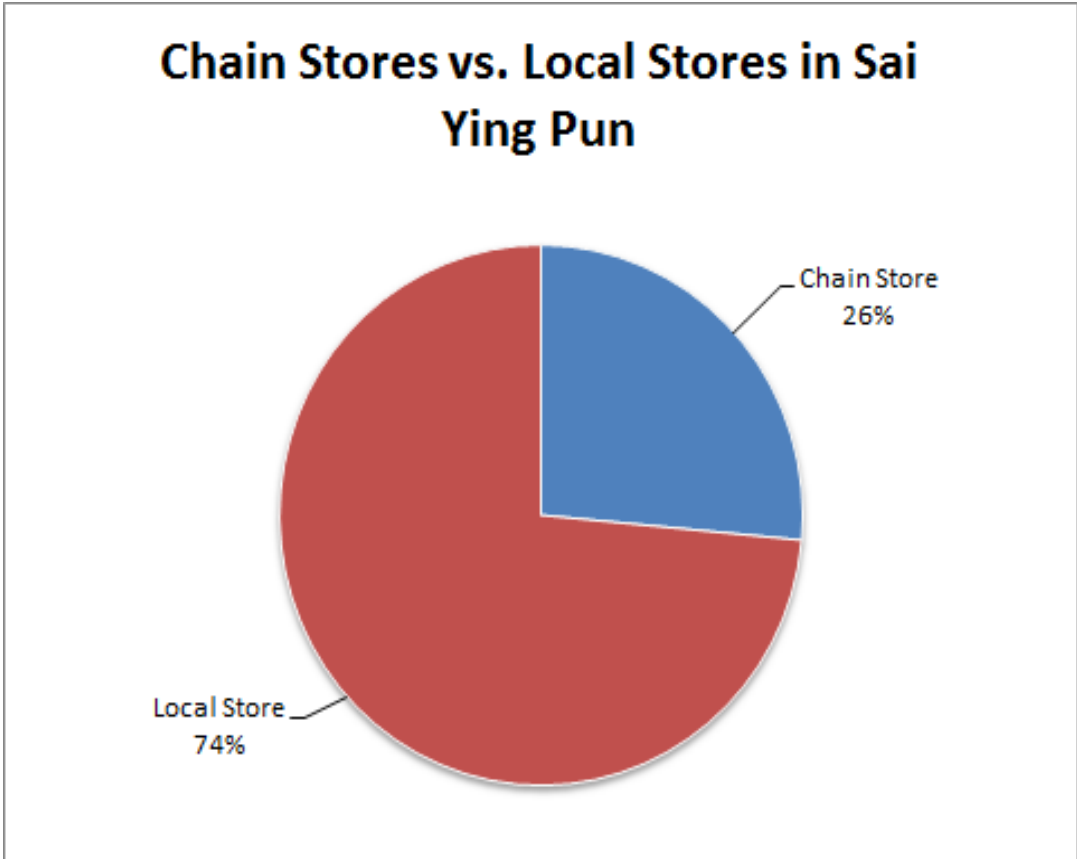


Appendix D - Distribution of Price Ranges at Restaurants in the Three Study Areas

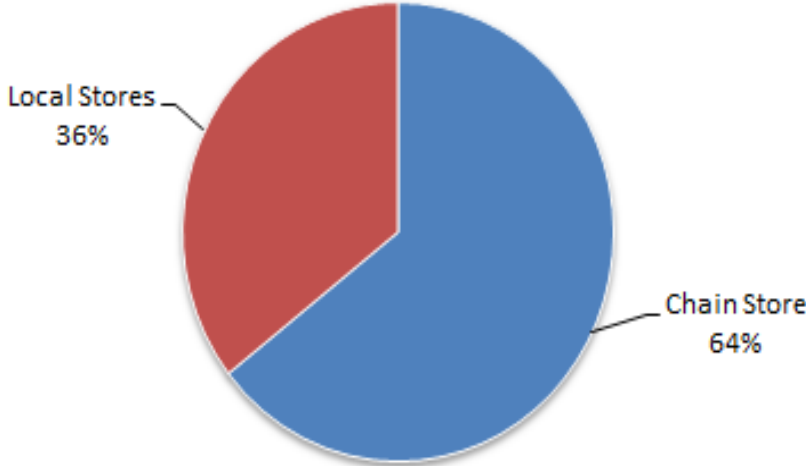




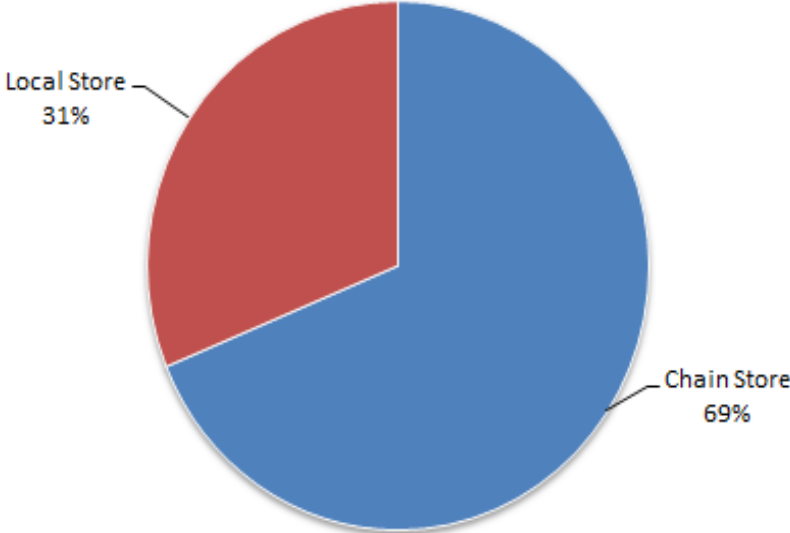
Appendix E - Proportion of Chain Stores in the Three Study Areas



Chain Stores vs Local Stores in Area B TSW



Chain Stores vs Local Stores in Area A TSW



Appendix F - Detailed Centamap Data on the Three Study Areas

	Area B North TSW	Area A South TSW	Sai Ying Pun
Total Population	35855	33539	35960
Average Median Age	27.632% +/- 3.976%	36.333% +/- 3.496%	40.714% +/- 3.194%
Percent Never Married (>15 years old)	31.753% +/- 5.868%	39.4667% +/- 4.806	36.367% +/- 5.995%
Percent with > Secondary Education	69.868% +/- 2.927%	71.333% +/- 4.356%	78.67% +/- 6.186%
Percent with > Tertiary Education	6.632% +/- 3.636%	11.727% +/- 3.276%	29.275% +/- 9.590%
Percent of Population Employed	32.375% +/- 4.684%	44.874% +/- 6.468%	54.685% +/- 5.448%
Percent of Population that are Employees	29.899% +/- 4.118%	40.549% +/- 5.683%	47.472% +/- 5.622%
Percent of Population that are Employers	0.633% +/- 0.637%	1.032% +/- 0.6869%	43.285% +/- 1.708%
Percent of Population	29.854% +/- 3.499%	30.930% +/- 3.762%	29.607% +/- 5.340%

Non-Working			
Average Monthly Income	7762.035 +/- 551.779	8327.556 +/- 975.417	12042.73 +/- 2670.048
Upper Quartile	10380 +/- 992.334	11013.33 +/- 1695.825	17752.45 +/- 4140.996
Median	7415.789 +/- 586.258	8096.667 +/- 958.204	11190 +/- 2785.929
Lower Quartile	5490.316 +/- 592.127	5872.667 +/- 579.246	7185.75 +/- 1399.253
Percent of working Population that works in district of residence	29.111% +/- 7.372%	32.273% +/- 6.309%	50.19% +/- 6.129%
Main Mode of Transportation: Percentage			
Mass Transit (MTR)	30.395% +/- 7.446%	40.387% +/- 7.710%	5.81% +/- 2.519%
Bus	48.116% +/- 8.272%	37.873% +/- 6.175%	43.71% +/- 7.050%
Public Light Bus	1.268% +/- 1.563%	1.827% +/- 1.297%	11.785% +/- 4.687%
On Foot	52.147% +/- 176.824%	10.76% +/- 3.027%	22.06% +/- 6.449%

Other	9.879% +/- 4.602%	9.153% +/- 3.190%	16.435% +/- 4.800%
Average household size	3.837 +/- 0.394 People	3.333 +/- 0.267 People	2.545 +/- 0.220 People
Average Domestic Household Monthly Income	11422.81 +/- 1538.37	14265.73 +/- 3488.027	19556.75 +/- 5320.319
Upper Quartile	15797.26 +/- 2092.181	20806.67 +/- 4145.796	30864.25 +/- 7794.835
Median	10905.37 +/- 1710.079	13790.2 +/- 4098.625	17752.7 +/- 5949.99
Lower Quartile	7565.789 +/- 1183.111	8200.333 +/- 2588.372	10053.3 +/- 3882.119
Average Median Monthly Rent (HK\$)	2005.263 +/- 360.064	1448.133 +/- 700.6974	7584.45 +/- 1714.411