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From Spontaneous to Planned Urban Development and Quality of Life: the Case of Ho Chi Minh City

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Abstract This paper studies the quality of life (QOL) that residents perceive in typical urban patterns in Ho Chi Minh City. Its major focus is to examine the improvement in the QOL through public intervention into the urban development process. There are four findings. First, moderate government intervention to correct market failures in areas where spontaneous urban development has occurred generates similar levels of satisfaction to areas with planned development. Second, urban planning is important as housing values and subjective satisfactions in planned areas are higher than those in spontaneous development areas. Third, redevelopment negatively affects the QOL in areas undergoing redevelopment. Finally, the contrast between the housing value and the subjective life satisfaction in spontaneous development areas undergoing redevelopment shows the problem of relying on the revealed preference assumption in traditional economics and the need for having alternative approaches.

Keywords Quality of life · Urban planning · Unplanned development · Redevelopment · Ho Chi Minh City

Introduction

All desirable built-environments in the world are the fruit of reasonable planning and implementation. Planned development produces higher benefits than unplanned development (Peiser 1984), and urban planning is the process used to create modern cities (Taylor 1998). Unfortunately, the effectiveness and efficiency of urban planning in most developing cities are limited (Bertaud 2004; UN-Habitat 2009; World 2009; Belsky et al. 2013; Huynh

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2015). Numerous plans have been drawn, but practical plans are rare and it is hard to find any developing city in which the formal housing development is able to satisfy all housing demand. Therefore, during their rapid urbanization periods, informal urban development plays an integral part in satisfying high housing demand from large influxes of immigrants to cities (Feler and Henderson 2011; Arnott 2009). However, slums with negative externalities are unwanted results of this development process (Sorensen and Day 1981; Clawson 1975; UN-Habitat 2003).

Dealing with informal or spontaneous urban development is a difficult task in the developing world. There are three approaches. The first is that municipal governments just focus on their plans and abandon informal development until its costs become unbearable. Then, the planned areas are only for the rich, while the slums are for the poor, and segregation happens. Many cities around the world face troubles with this approach. Latin-American cities are a typical example. Even though the incomes per capita in Mexico City, Sao Paulo, Bogota, Rio de Janeiro, and Lima are high, the slum situation is indeed serious (Rodgers et al. 2011). The second is that municipal governments try to forbid informal development and demolish slums as soon as they appear. This approach is usually outside the capacity of most municipal governments. The third is that municipal governments intervene moderately into the informal development. At the beginning, informal development is tolerated, but the municipal governments jump in later on to provide some basic utilities and services such as roads, water supply, sewage, electricity, education, and healthcare. This is a kind of the slum infrastructure improvements as described by UN-Habitat (2003) and Ni et al. (2015). Ho Chi Minh City (HCMC) is an interesting case where this approach seems to be successfully applied (Huynh 2012):

> The quality and affordability of housing is remarkably good given the pressures of rapid growth in Ho Chi Minh City. The vast slums have not been the case there… There is a harmonious society, in which diverse socioeconomic classes live side-by-side.

How do the residents in different urban patterns in HCMC perceive their quality of life (QOL), and are there any differences in QOL satisfaction of the residents between planned areas and areas of spontaneous development which have undergone moderate government intervention to correct market failures?

This paper examines the QOL that residents perceive under typical urban patterns in HCMC. We find that redevelopment is a painful process for the residents, but after the municipal government intervenes moderately into informal urban development, both the housing value and the subjective QOL satisfaction in these areas are comparable to those in the planned areas.

The rest of the paper is as follows: The second section presents a literature review of the QOL in urban areas and measuring QOL; the third section briefs the history of the urban formation in HCMC; the fourth section analyzes the urban patterns and QOL satisfaction in HCMC; and the final section presents the conclusions and policy implications.

Quality of Life in Urban Areas and Measuring Quality of Life

QOL in urban areas has been a common concept and issue for decades (Diener and Suh 1997; Gyourko et al. 1999; Lambiri et al. 2006; van Praag and Ferrer-i-Carbonell

2010). It is an interest not only in academia but also in public policy and business. Governments and international/interregional organizations have tried to understand and measure QOL for their policy purposes. Companies measure and publish QOL surveys for their business purposes. Although it is widely researched and analyzed, there is no absolute consensus on the definition of QOL (Craglia et al. 2004; Lora et al. 2010; Morais et al. 2011). Van Kamp et al. (2003) summarized a number of different definitions covering a wide spectrum. However, there is a common agreement about the QOL satisfaction among many organizations including World Health Organization and European Commission. QOL satisfaction is a subjective perception of individuals, and it is usually categorized within five dimensions: physical well-being, material well-being, social well-being, emotional well-being, and development and activity (Felce and Perry 1995). QOL satisfaction can be measured objectively through value of goods consumed or subjectively through surveys to ask respondents' perception (Diener and Suh 1997). There are two common methods to measure QOL satisfaction including hedonic and life satisfaction approaches (van Praag and Ferrer-i-Carbonell 2010).

Hedonic Approach

According to the mainstream neoclassical economic approach, utility or satisfaction is measured through a monetizing process. The higher the value, the higher satisfaction is; maximizing utility is the nature of human behavior. The hedonic approach has a long tradition in the urban economic literature as a method of placing monetary values on the welfare impact of urban amenities and public goods (Powell and Sanguinetti 2010). Hedonic analysis is the study of the relationship between the price and characteristics of a product, and it is a popular analytical technique applied in housing markets (Hill 2011; Malpezzi 2002; Sheppard 1999). The hedonic model deconstructs the price of houses into the separate attributes that determine the price (Malpezzi 2002). A primary reason for undertaking hedonic analysis of housing markets is to understand the structure of demand for housing attributes and environmental amenities (Sheppard 1999). Dependent variables are either rents or prices of properties. Independent variables are individual characteristics of properties, described below. The regression coefficients may be translated into estimates of the implicit prices or values of these characteristics (Malpezzi 2002). In research of QOL in urban areas, the hedonic approach has been developed from Rosen (1979), Roback (1982), Blomquist et al. (1988), and Gyourko (1991).

There are literally hundreds of potential housing characteristics which could be included on the right-hand side of equations. Which variables should be included in hedonic models depends on the particular data sources available and the analytical objectives. Basically, there are three main groups of attributes. The first type ($X_{1i(n)}$) is urban patterns and location. With respect to urban patterns in this article, there are five types and they are the main independent variables. To quote the common expression, the three most important determinants of real-estate value are "location, location, location." These locations usually refer to proximity to transport hubs or links, distance from the central business district (CBD), access to shopping, schools, and other important amenities and needs. The second type ($X_{2i(n)}$) is structural or physical characteristics of properties such as numbers of rooms, floor area, structure type (villa, front houses, alley houses, apartments…), quality, and age. The third type ($X_{3i(n)}$) is

household characteristics such as education level, age, marriage status, and neighborhood characteristics and amenities including an overall neighborhood rating, quality of schools, socioeconomic characteristics of the neighborhood, and the environmental situation (noise and pollution, for example). The regression model is as follows:

$$\text{Ln(Price)} = \beta_0 + \beta_1 X_{1i(n)} + \beta_2 X_{2i(n)} + \beta_3 X_{3i(n)} + e \quad (1)$$

Life Satisfaction Approach

There are limitations to define quality of life that rests solely on economics (Diener and Suh 1997), van Praag and Ferrer-i-Carbonell (2010) summarized three problems of the traditional economic approach: First, observing only purchases does not provide a way to determine the contribution to individuals' utility of those goods that are not bought directly in the market. Second, the assumption that individuals have reached the most optimal situations available to them is not always true. Third, the neoclassical approach denies the possibility of measuring differences in satisfaction derived from different situations, yielding only preference orderings but no cardinal measurement of differences in satisfaction. Moreover, QOL satisfaction is a subjective perception of individuals that depends on a variety of characteristics such as health, family situation, working conditions, personal safety, crime, traffic, street and sanitary conditions, and access to education. Therefore, economists and psychologists have turned to alternative ways of thinking about and measuring utility, and the interest in the economics of happiness has increased (Dolan et al. 2008). Surveys on life satisfaction (LS) have become either an alternative or complementary approach (Diener and Suh 1997; van Praag and Ferrer-i-Carbonell 2010; Powell and Sanguinetti 2010; Lora et al. 2010). The LS approach starts empirically by asking individuals how satisfied they are with their life instead of assuming that their happiness is reflected through their housing value. The assumption behind this approach is that individuals are able to evaluate their satisfaction with life as a whole (Clark and Oswald 1994; Easterlin 1974; Diener and Suh 1997; van Praag and Ferrer-i-Carbonell 2010).

Similar to the hedonic approach, there are literally hundreds of potential characteristics that could affect the life satisfaction. Moreover, the choice of which variables should be included depends on the particular data sources available and the analytical objectives. In addition to location, housing and neighborhood characteristics definitely influence the LS. Other attributes such as education, demography, and so on also determine the level of satisfaction of each individual. The regression equation of the LS approach is quite similar to the hedonic equation as follows:

$$\text{LS} = \beta_0 + \beta_1 X_{1i(n)} + \beta_2 X_{2i(n)} + \beta_3 X_{3i(n)} + e \quad (2)$$

Factor Analysis

As mentioned above, there are literally hundreds of potential characteristics that could affect the life satisfaction of residents and housing value. Moreover, a number of attributes are highly correlated with one another. Therefore, FA is applicable as

demonstrated by Fayers and Hand (1997), Kim (1998), Reisig and Parks (2000), and Chen and Davey (2009). The regression equations are as follows:

$$\text{Housing value}: \quad \text{Ln(Price)} = \sum \beta_i F_i + \varepsilon \tag{3}$$

$$\text{Life satisfaction}: \quad LS_i = \sum \beta_i F_i + \varepsilon \tag{4}$$

A Brief History of the Urban Formation in Ho Chi Minh City

HCMC is the largest city and the economic and commercial capital of Vietnam (CPV 2002). In spite of accounting for only 0.6 % of the land mass and 8.5 % of the population of Vietnam, it accounted for around a fifth of the country's GDP and nearly a third of the nation's public budget revenue. The city's total GDP, GDP per capita, and population in 2014 were USD 41 billion, USD 5100, and 8.05 million people, respectively (DOS-HCMC 2015). However, if estimates of over 2 million floating immigrants are correct (Dapice et al. 2010), the city's population has already passed 10 million—the population of a megacity.

Modern urban planning has been applied in HCMC since the early 1860s when Vietnam became a French colony. However, plans have always been impractical (Huynh 2015). Either the total population estimation or its distribution has always been far from the reality. The city's first master plan in 1862 was intended for an area of 25 km^2 accommodating a population of 500,000; however, it already became outdated when the city's size was expanded to 51 km^2 in 1931 (Nguyen 2008) and the population reached around 1 million in 1945 (Thrift and Forbes 1986). The 1943 plan was designed for 1.2 million people by 2000 (USAID 1972), however, the actual population was 5.2 million in 2000 (DOS-HCMC 2011). Opposite to the 1943 plan, the 1972 plan by USAID (1972)—the latest plan prior to 1975—was too ambitious with a projected population by 2000 at 11.23 million.

Comparing plans prior to 1975 with the city's current Google map, there is only a modest proportion of the city which has been well designed and built (Fig. 1). This area includes the whole districts 1 and 5, and parts of districts 3, 6, and 10.

The situation has not changed since the reunification in 1975. The 1993 plan projected the population in 2010 to be 5 million, but it had already surpassed that mark in 1998. Even though the projected population to 2010 in the 1996 plan was close to the official statistical population (7.5 vs. 7.4 million), the population distribution was very different. The 1996 plan projected that the southeast half of the city would account for 70 % of the absolute population increase, while the other half would account for 30 %, but the actual ratio was 23–77 (Huynh 2012).

As a result, spontaneous development has been the city's main development pattern throughout its history. A major proportion of the city's residents have purchased sections of agricultural land or "taken" empty land to build their houses either legally or illegally without sufficient infrastructure (Trinh and Nguyen 1998; Waibel et al. 2007). To save on the cost of building roads, including land, land lots are usually strip-shaped with narrow widths facing roads, and there is almost no land for open or common spaces. Without government's interventions, slums usually come from such developments.

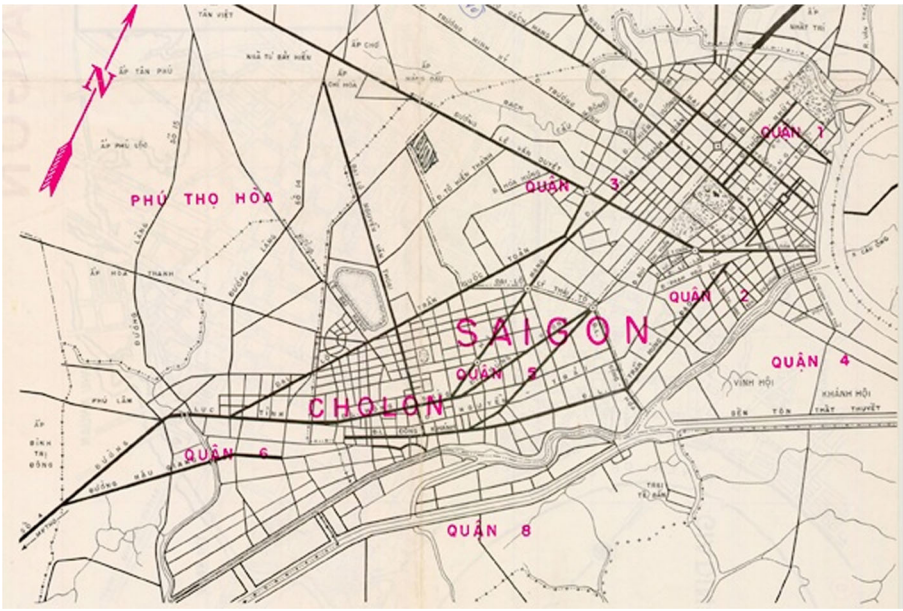

Fig. 1 Planned areas prior to 1975. Source: Nguyen (2012)

Fortunately, unlike many developing cities around the world, there are no vast slums in HCMC due to the government's moderate interventions. To correct market failures and improve living amenities, the government has frequently needed to upgrade the spontaneously developed areas by building some basic infrastructure such as roads, sewage, drainage, and water supply systems. However, the high population density and the complications of taking land for public use have prevented the building of well-organized grids of roads and other facilities. Only a few roads have been built or expanded, while numerous narrow and curved alleys have still remained (Huynh 2012).

Throughout the development periods described above, along with modestly effective urban planning, there have been five typical urban patterns in HCMC named: old-planned, newly planned, established, spontaneous, and between. *Old-planned* patterns are areas built under the master plans prior to 1975. *Newly planned* patterns are areas well-planned and built with complete infrastructure since the early 1990s such as Phu My Hung, Nam Long, and Trung Son. *Spontaneous* patterns are areas spontaneously developed recently such as fringes in Hoc Mon, district 9, and so on. *Established* patterns are areas redeveloped from spontaneous development through the government's moderate intervention, which is basically completed. *Between* patterns are areas being transformed from *spontaneous* developments to the *established* ones. The five urban patterns and housing distributions are illustrated in Fig. 2.

Urban Patterns and QOL Satisfactions in HCMC

The objective of this study is to explore how residents feel about their QOL in the five typical urban patterns in HCMC. Since the authors were able to distinguish the old-planned areas from the established areas and to simplify the questionnaire, the survey

asked respondents to choose whether they live in the newly planned, established, spontaneous, or between areas. Ideally, a randomized sample should have been conducted to have objective representatives of a 10 million-population city. However, this is beyond the resources available to this research. Thus, the survey was conducted through two channels: online and onsite surveys. For the online survey, the questionnaire was sent to over three thousand email addresses as well as social networks of the authors. There were 646 respondents through this channel in October 2013. A team of a dozen undergraduates and graduates in economics and public policy in HCMC conducted 409 on-site questionnaires in November 2013.

With the final data set, there are 1055 respondents with 75 in newly planned areas, 160 in old-planned areas, 622 in established areas, 131 in spontaneous development areas, and 67 in between areas (see Fig. 2). Ninety-three items were asked to be answered. However, due to the incompletion of data, refusal or unknown, the sample sizes of categories are smaller. Fortunately, after eliminating outliers and missing data, there are still 481 observations in the factor analysis regressions of 42 variables and over 700 observations in the multi-variable regressions. The main characteristics of the samples are in Table 1 (Table 2).

Specific numbers are usually preferred, but they usually cause hesitation for respondents. Therefore, to encourage responding to questions, intervals were used instead in response to questions of housing values and areas, years in the neighbor, travel time to work, and electricity bills. For example, there are 12 options in the housing value question including nine intervals ranged from below VND 500 million to over VND 20

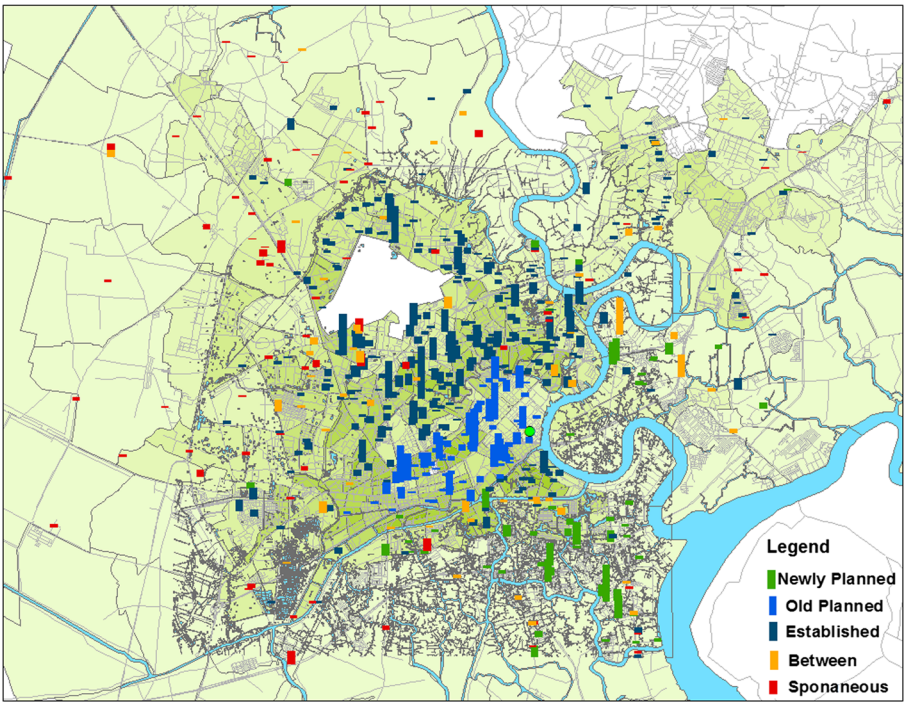

Fig. 2 Housing distribution in the five urban patterns in HCMC. Source: Authors' rendering

billion along with "don't know," "refusal," and "be specific." Most respondents chose intervals and just a few chose specific numbers.

To estimate values, the medians of intervals are used, except the first and the last ones. For the first interval, it is assumed that the median is the number at the third quarter of the interval from 0 to the lowest number. For example, the housing value in the first interval is 0.375 billion dong (0+0.5)/4×3. For range of the last interval, its size is assumed the same as the previous range (VND 10 billion). Therefore, the housing value median of this interval is VND 25 billion ([30+20]/2=25). For years in neighborhood, for the first interval, we round it up to 1 year instead of 0.75 year. In order to avoid mistakes, we tested all regressions with assumptions that the values of the first and the last intervals are the highest and the lowest numbers (VND 0.5 billion and VND 20 billion for housing values). There are no significant differences of regression results between the two approaches.

Table 1 Main characteristics of the samples

No. of observations	Newly planned	Old-planned	Established	Spontaneous	Between
	75	160	622	131	67
Housing characteristics					
Area (SQM)	130	94	101	93.39	107
Value (billion VND)	4.72	4.85	3.08	1.91	3.09
Persons per house	3.99	4.01	3.93	4.19	4.16
No. of bedroom	3.20	2.81	2.64	2.52	2.74
No. of bathroom	2.74	2.21	2.24	1.84	2.31
Travel time to work (min)	32	21	25	31	29
Distance to the CBD (km)	7.9	3.2	8.4	14.8	9.7
Respondent characteristics					
Own home (%)	81.3	56.3	57.7	64.9	59.7
Head of households (%)	57.3	24.4	33.0	28.2	23.9
Female respondents (%)	56.1	55.9	59.4	58.8	68.4
Years in neighborhood	5.3	9.6	8.7	7.7	5.7
Education (%)					
Vocational and below	2.6	28.1	32.3	46.6	17.9
Undergraduate	50.7	43.8	41.0	33.6	55.2
Graduate	46.7	28.1	26.7	19.8	26.9
Expenditures (mil VND)					
Monthly fees	0.44	0.24	0.20	0.18	0.38
Monthly expenditure	26.5	12.9	11.6	11.6	10.7
Intention to move (%)					
No	60.0	42.5	53.1	50.4	52.2
To better places	33.3	29.4	33.3	29.0	37.3
To more affordable places	2.7	7.5	5.0	9.9	3.0
Not decided yet	4	20.6	8.6	10.7	7.5

Source: Authors' survey

Table 2 Respondents' perception and assessment (scale of 1–5)

	Newly planned	Old-planned	Established	Spontaneous	Between
No. of observations	75	160	622	131	67
Overall satisfaction	3.59	3.38	3.32	3.34	2.97
Average satisfaction	3.60	3.34	3.31	3.30	3.07
Education	3.64	3.56	3.44	3.36	3.42
Job	3.32	3.28	3.16	3.13	2.96
Living standard	3.28	3.15	3.01	2.95	2.78
Accommodation	3.59	3.13	3.24	3.13	2.91
Family relation	4.21	3.49	3.76	3.79	3.61
Health	3.88	3.56	3.57	3.66	3.33
Social life	3.40	3.30	3.20	3.19	2.93
Financial condition	3.47	3.22	3.11	3.15	2.66
Social complexity	3.60	3.24	3.45	3.38	3.16
Using surrounding public facilities	2.98	2.45	2.40	2.32	2.19
Interaction with neighbor	1.93	1.84	2.02	2.30	1.99
Pollution, noise, congestion, housing quality, and infrastructure	3.56	3.06	3.01	3.11	3.02
Adequacy of park, tree, road, school, hospital, and recreation places	3.40	3.35	3.00	2.62	2.60
Quality of basic services	3.60	3.53	3.40	3.30	3.21

Overall satisfaction is one response; average satisfaction is for the eight responses beneath. Source: Authors' survey

Basically, housing size and values in planned areas are bigger than in the others. Housing sizes and values in spontaneous development areas are the smallest. There are, on average, four people per house, and there is no statistically significant difference of persons per house among housing typologies. The average travel times to work in the old planned and established areas are 21 and 24 min, respectively. They are significantly lower than those in the other patterns, which are around 30 min. These numbers are higher than the average time to work of respondents in the survey in 2002 by ALMEC Corporation (2004). This means that either the traffic conditions are worse or the city has been expanded, or both.

The average time living in the old-planned areas is 9.6 years—highest among the five patterns. That of newly planned ones is 5.2 years. It is surprising that the average time in the between neighborhoods (5.7 years) is significantly lower than that in the spontaneous development (7.7 years). The total expenditures of households in the planned areas are significantly higher than the others. There are no statistically significant differences among the three other patterns.

A 60.5 % of respondents in the newly planned areas have "the intention to not move," while the lowest rate is in the old-planned areas with 42.5 %. Those in the other areas are around 50 %. This reflects the redevelopment trend in the central business district (CBD). A third of the respondents intend to move to better places. This means

that the trend of segregation in HCMC is predictable and the demand for high-quality urban areas is high in the future (Table 2). This trend raises concerns about retaining the harmonious social mix in the city as analyzed by Huynh (2012).

Besides data from the survey, some data such as the distance to CBD and the population density were collected from other sources. Based on the revealed addresses, all houses have been coded in Google maps to generate distances to the CBD. The population density was based on Vietnam's population and housing survey in 2009 by the General Statistics Office.

Basically, the average perception and evaluation of respondents on satisfaction and service quality and amenities are between 3 and 3.5 on the 1–5 Likert scale. In most criteria, those of respondents in the newly planned areas are the highest, and those of the old-planned areas are the second highest. The overall and average satisfactions of respondents in the between areas are the lowest. Indicators of using surrounding public facilities and interaction with neighbors are much lower than the average (3.0), especially the interaction with neighbors. The interaction with neighbors in the planned, established, and between areas is rare, while it is much higher in the spontaneous areas. This trend perhaps reflects Vietnamese culture and tradition rooted in rural areas as described by Ton and Nguyen (2007). The quality of basic utilities, services, and amenities in the planned and established areas are superior to the other areas.

Factor Analysis

Due to high correlation among many variables, factor analysis is applied to quantify the impacts of different groups of characteristics on housing values and subjective satisfaction. There are seven groups of variables with specific variables presented in appendices 1 and 2 including satisfaction, quality of basic utilities and services, interaction with neighbor, housing size and expenditure, quality of education and healthcare, service improvement, and using surrounding facilities.

The average Kaiser-Myer-Olkin (KMO) of 42 variables used to analyze housing value is 0.8893, and the KMO of 34 variables used to analyze the overall satisfaction and average satisfaction is 0.8681. Interpretive adjectives for the Kaiser-Meyer-Olkin Measure of Sampling Adequacy are the following (University of Texas 2014), in the 0.90s as marvelous, in the 0.80s as meritorious, in the 0.70s as middling, in the 0.60s as mediocre, in the 0.50s as miserable, and below 0.50 as unacceptable. The KMOs are really high in our sample. Groups or factors of variables are presented in appendices 1 and 2, and the factor analysis regression is in Table 3 below.

In general, most factors are statistically significant and follow the conventional intuition. Satisfaction is positively correlated with housing value. Perception of quality of basic service, quality of education and health care, improvement of service, housing quality, and using surrounding facilities clearly affect the satisfaction. However, the perception on the quality of education and health care has no significant relationship to housing value. This is explainable because these indicators are considered in the district level at which everybody in all housing typologies has the rights to share the same healthcare and education facilities. The interaction with neighbors is interesting. The more one interacts with his/her neighbors, the higher the satisfaction, but the lower the housing value.

Table 3 Factor analysis regressions

	Log of housing value	Overall satisfaction	Average satisfaction
Satisfaction (9)[a]	0.108***		
Quality of basic utilities and services (9)	0.111***	0.277***	0.215***
Interaction with neighbor (8)	−0.0948***	0.0565*	0.0729***
Housing size, value[b] and households' expenditure (5)	0.732***	0.136***	0.176***
Quality of education and healthcare (5)	0.0146	0.212***	0.150***
Service improvement (4)	0.137***	0.126***	0.123***
Using surrounding facilities (3)	−0.00256	0.107***	0.146***
Constant	7.458***	3.268***	3.300***
Number of observations	481	481	481
Adjusted R-square	0.6558	0.2615	0.3119

T-statistics in parentheses. Source: Authors' estimation

*$p<10$ %; **$p<5$ %; ***$p<1$ %

[a] Number of variables

[b] There is no value independent variable in the log of housing value regression

Regressions of Housing Value and Satisfaction

The established pattern is chosen as the reference to compare the QOL satisfactions of the residents in the planned areas and the established ones, or it is the omitted variable. The empirical results in Table 4 confirm that planning and government's intervention to correct market failures generate positive effects on both housing value and subjective QOL satisfaction.

Regarding the housing value, houses in the old-planned areas have the highest value. The reason is that they are around the CBD, where everything is the most completed with a lion's share of resources invested there. In contrast, the housing value in the spontaneous development areas is the lowest. This supports Peiser's (1984) finding that planned development produces higher benefits than unplanned development. However, the most astonishing result is that there are no statistically significant differences of housing values in newly planned areas and in established ones. This means that either planning at the beginning or moderate public intervention after informal development generates similar outcomes. There are no differences of housing values in newly planned areas, established areas, and between areas or spontaneous development areas undergoing redeveloped means that housing prices have been adjusted quickly as soon as additional information appears.

Regarding subjective satisfaction, there is no clear difference of satisfactions between newly planned areas and established ones. The satisfaction level of the residents in the established areas is similar to that in the newly planned areas. The overall satisfaction in old planned areas is significantly higher than that in established areas, but the average satisfactions are similar. Thus, once again, the planning at the beginning and the government's intervention to correct market failures after spontaneous urban development generates similar satisfaction.

Table 4 Regressions of housing value and satisfaction

Variable	Log of housing value	Overall satisfaction	Average satisfaction
Urban patterns			
Old-planned	0.248***	0. 214**	0.097
Newly planned	0.100	0.131	0.034
Spontaneous	−0.152*	−0.265**	−0.185**
Between established	0.014	−0.477***	−0.311***
Housing typologies			
Villa	0.653***	−0.282	0.096
Front	0.359***	0.109	0.071
Vehicular	0.180***	0.091	0.021
Condo after 1993	0.008	0.137	0.117
Others non-vehicular (omitted)	−0.295***	−0.129	−0.137
Education			
Graduate	0.213***	0.244***	0.360***
Undergraduate vocational and below	0.154**	0.148*	0.249***
Status and intention			
Owning house	0.200***	0.082	0.090*
Chatting with neighbor	−0.064**	0.167***	0.145***
Intention not to move	0.026	0.238***	0.256***
Population density	0.004**	−0.001	−0.001
Housing value and spaciousness and household expenditure			
Housing value		0.022**	0.015**
Housing area	0.005***	−0.0002	−0.00001
No. of bathroom	0.193***	0.182	0.034*
Monthly expenditure	0.006***	0.004*	0.006***
Accessibility			
Travel time to work	0.0001	−0.004**	−0.002*
Distance to CBD	−0.008**	0.017***	0.012***
Constant	6.280***	2.282***	2.252***
N	706	706	706
Adjusted R-square	0.644	0.179	0.239

T-statistics in parentheses. Source: Authors' estimation

*p<10 %; **p<5 %; ***p<1 %

The differences of objective and subjective satisfaction are reflected clearly in the spontaneously developed areas, which are undergoing redeveloped. There is no difference in housing value between spontaneous development areas being redeveloped and established ones because "the between" will become established areas after redevelopment and the prices have been quickly adjusted (Table 5). However, the subjective satisfaction in places undergoing redevelopment is significantly lower (Table 6). During the redevelopment period, there are many problems affecting the lives of the residents in the region as Fainstein and Fainstein (2010) and Fainstein (2001 and 2010) point out. The differences show problems in the traditional economic perspectives on utility, which is able to be monetarized. Sometimes, this argument is not true. Thus, alternative approaches are necessary as proposed by Diener and Suh's (1997), Dolan

et al.'s (2008), van Praag and Ferrer-i-Carbonell (2010), Powell and Sanguinetti (2010), and Lora et al. (2010).

Redevelopment of spontaneous urban development is a painful process for the residents, but afterward, the QOL satisfaction in these areas is comparable to that in planned ones. Both objective and subjective satisfactions support the argument that it is acceptable for informal developments followed by moderate interventions from the municipal governments to correct market failures.

Since the houses in non-vehicular alleys are the most popular in HCMC, it is chosen as the referenced or omitted variable. In comparison to the average value of non-vehicular houses, the average values of villas, front houses, and vehicular houses are 65.3, 35.9, and 18 % higher, respectively, the average value of condos built after 1993 is similar, and the average value of other houses mainly condos built before 1993 and resettlement apartments is 29.5 % lower. The trend of housing value is similar to Huynh's (2012) estimation. However, the subjective satisfaction of the residents in HCMC is not affected by housing typologies. This is explainable because the satisfaction has already been reflected in the other characteristics.

Coefficients of housing values and sizes and household expenditure are also as expected. They have impacts on both objective and subjective satisfaction.

Perspectives on distance to the CBD go in two opposite directions. The hedonic coefficient of distance to the CBD confirms the conventional theories of urban economics—the foundation of the monocentric model by Alonso (1964), Mills (1967), and Muth (1969). In contrast, living further from the CBD makes respondents happier. The result reflects a common tendency to live further from the downtown around the world.

Education follows normal intuition. Better-educated people live in higher valued houses and are more satisfied. This is similar to the finding by Blanchflower and Oswald's (2004). Similar to the interaction with neighbors in the factor analysis, the chatting with neighbor variable is interesting. The more chatting with neighbor, the higher the satisfaction is. This result is similar to Lelkes's (2006) and Pichler's (2006) findings that socializing with other people is positively associated with subjective satisfaction. However, the more chatting with neighbor is, the lower the housing value is. This result reflects the data that those in all types of spontaneous areas interact more frequently with their neighbors than those in the planned ones. Those not intending to move are happier. Similar to the finding by Stutzer and Frey (2008), longer travel time to work makes residents less satisfied. The population density is significant at the 5 % level with housing value, but it is not significant with satisfaction. These results support the findings by previous researchers that the relationship between demographic variables and life satisfaction is weak (Carmel L. Proctor et al. 2008).

Conclusions and Policy Discussions

There are four main findings. First, both objective and subjective QOL satisfactions of the residents in spontaneous development areas after being redeveloped by a moderate intervention of the municipal government are comparable to those in newly planned areas. This means that the planning at the beginning and the government's appropriate intervention to correct market failures after spontaneous urban development generate similar levels of satisfactions. Thus, if the QOL of the residents is the main concern of municipal governments, this should be a reasonable remedy. Since the effectiveness and efficiency of urban planning

are limited (Belsky et al. 2013; Bertaud 2004; Huynh 2015; UN-Habitat 2009; World 2009), and informal urban development is rampant in most developing cities, municipal governments should reserve a significant proportion of their resources and efforts for the slum infrastructure improvements as described by UN-Habitat (2003) and Ni et al. (2015).

Second, both housing values and residents' satisfaction in planned areas are higher than in the spontaneous ones. The result signifies that urban planning is important and confirms Peiser's (1984) findings that planned development produces higher benefits than unplanned development. Thus, municipal governments should find solutions to expand practical roles of urban planning to mitigate the negative aspects of unplanned development.

Third, following the universal phenomena, redevelopment does affect the QOL of the city's residents. Residents of areas undergoing redevelopment have the lowest satisfaction levels among the five patterns. This supports the findings of Fainstein 2001, 2010 and Fainstein and Fainstein 2010 that redevelopment is a problematic and painful process. Therefore, municipal governments should carefully design and implement the redevelopment process.

Fourth, the contrast between the housing value and subjective life satisfaction of the residents in the spontaneously developed areas, which are undergoing redevelopment, shows the problem of the reliance on revealed preference assumption of traditional economics and the need for having alternative approaches. There is a clear difference between subjective and objective satisfaction in spontaneously developed areas undergoing redevelopment. There is no value difference between houses in established areas and houses in spontaneous development areas undergoing redevelopment process, but the subjective life satisfaction is significantly different. On the one hand, residents accept the price of houses in spontaneous development areas undergoing redevelopment process to be as high as that in established areas. On the other hand, residents in spontaneous development areas undergoing redevelopment reveal their displeasure due to the redevelopment. This result supports the argument of the traditional economics that price adjust immediately as soon as additional information arise, but it also reveals problems of traditional economic perspectives on utility which is able to be monetarized. Sometimes, it is not true. Thus, alternative approaches are necessary as proposed by Diener and Suh's (1997), Dolan et al.'s (2008), van Praag and Ferrer-i-Carbonell (2010), Powell and Sanguinetti (2010), and Lora et al. (2010).

Regarding HCMC, the good news is that the municipal government has been able to deal quite effectively with the informal urban development. A harmonious society in which households with different income levels live side-by-side has been formed (Huynh 2012). However, the problem is that the QOL satisfaction of the resident in the city is very low in comparison to those in other cities. Residents in the newly planned areas have the highest satisfaction level, but the average grade is just around 3.5 on a 5-grade scale or around 7 on a 10-grade scale, while the others are only around 3.0. These results are much lower than the similar surveys in other cities, especially developed ones such as the survey of 79 cities in Europe in the Quality of life in cities in 2013 by the European Commission (2013). In the European survey, the rates of *strongly agree* and *somewhat agree* for most cities was over 80 %. Only two cities have rates below 60 %. It is also lower than those in Latin-American cities (Lora et al. 2010). For example, the grade of Buenos Aires is 7.79 per 10-point scale. Furthermore, in the livable rankings by EIU (2012), ECA International (2012) and Mercer Consultant (2012). HCMC is at the bottom of both east and southeast Asian cities. Thus, HCMC's government needs to find appropriate solutions for raising the QOL satisfaction of its residents.

Appendix

Table 5 Rotated factors for housing value regression

	Quality of basic utilities and services	Interaction with neighbor	Satisfaction	Quality of education and healthcare	Housing size and expenditure	Service improvement	Using surrounding facilities	Uniqueness
Perception on security	0.7276							
Perception on housing quality	0.6062							
Perception on infrastructure	0.6882							
Quality of electricity	0.6501							
Quality of supply water	0.6104							
Quality of sewage	0.7096							
Quality of street sanitation	0.8181							
Quality of garbage collection	0.7695							
Quality of security	0.7856							
Inviting neighbor to special events		0.7309						
Inviting neighbor to eat out		0.8018						
Inviting neighbor to watch sport		0.8155						
Invited to neighbor special events		0.7365						
Eating out with neighbor		0.8006						
Watching sport event with neighbor		0.7827						
Inviting neighbor to go shopping		0.7258						
Inviting neighbor to visit in regular days		0.7560						
Job satisfaction			0.7132					
Living standard satisfaction			0.7780					
Accommodation satisfaction			0.6007					
Family relation satisfaction			0.4798					
Education satisfaction			0.5083					

Table 5 (continued)

	Quality of basic utilities and services	Interaction with neighbor	Satisfaction	Quality of education and healthcare	Housing size and expenditure	Service improvement	Using surrounding facilities	Uniqueness
Health satisfaction			0.6987					
Social life satisfaction			0.6677					
Financial condition satisfaction			0.7926					
Overall satisfaction			0.7886					
Adequacy of school				0.7462				
Adequacy of hospital				0.8368				
Adequacy of recreation place				0.6487				
Quality of health care in district				0.6554				
Quality of general education				0.6920				
Area					0.7775			
Number of bedroom					0.8605			
Number of bathroom					0.8708			
Electricity bill					0.6825			
Electricity quality compared to cost						0.8142		
Water supply compared to cost						0.8174		
Sewage compared to cost						0.6966		
Street sanitation compared to cost						0.6030		
Walk in park							0.8305	
Walk along street							0.7156	
Physical exercise outside							0.7620	

Source: Authors' estimation

Table 6 Rotated factors for satisfaction regressions

	Quality of basic utilities and services	Interaction with neighbor	Housing size and expenditure	Quality of education and healthcare	Service improvement	Using surrounding facilities	Uniqueness
Perception on security	0.7173						
Perception on housing quality	0.5945						
Perception on infrastructure	0.6764						
Quality of electricity	0.7178						
Quality of supply water	0.6784						
Quality of sewage	0.7352						
Quality of street sanitation	0.8062						
Quality of garbage collection	0.7696						
Quality of security	0.7748						
Inviting neighbor to special events		0.7408					
Inviting neighbor to eat out		0.8107					
Inviting neighbor to watch sport		0.8124					
Invited to neighbor special events		0.7454					
Eating out with neighbor		0.7950					
Watching sport event with neighbor		0.7712					
Inviting neighbor to go shopping		0.7395					
Inviting neighbor to visit in ordinary days		0.7585					
Area			0.8040				
Value			0.7776				
Number of bedroom			0.8135				
Number of bathroom			0.8525				
Electricity bill			0.6810				
Adequacy of school				0.7539			

Table 6 (continued)

	Quality of basic utilities and services	Interaction with neighbor	Housing size and expenditure	Quality of education and healthcare	Service improvement	Using surrounding facilities	Uniqueness
Adequacy of hospital				0.8450			
Adequacy of recreation place				0.6706			
Quality of health care in district				0.6580			
Quality of general education				0.6882			
Electricity quality compared to cost					0.8344		
Water supply compared to cost					0.8314		
Sewage compared to cost					0.7335		
Street sanitation compared to cost					0.5884		
Walk in park						0.8365	
Walk along street						0.7260	
Physical exercise outside						0.7613	

Source: Authors' estimation

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