

UDC: 332.832.5(512.317)

DOI: 10.5379/urbani-izziv-en-2011-22-02-003

Yung YAU

Does comprehensive redevelopment change the housing price gradient? A case study in Mongkok, Hong Kong

Urban decay is an inevitable outcome of the growth of most cities, including Hong Kong. Many old buildings in Hong Kong are dilapidated, and it is urgent to tackle urban decay in the city. Redeveloping dilapidated buildings has long been regarded as an effective solution to this urban problem. Yet, as suggested in the literature, redevelopment may be responsible for gentrifying neighbourhoods because it pushes up property and rental prices near redeveloped sites. However, there are still few empirical studies on how comprehensive redevelopment affects housing values in a neighbourhood. In this light, this study investigates the impacts of the Urban Renewal Authority's Argyle Street / Shanghai Street Redevelopment Project on the transaction prices of nearby housing. A set of panel data is employed and the change

in the spatial price gradient before and after the redevelopment project is explored. The findings suggest that proximity to the project site had a significant positive impact on housing prices before the project. However, no change was seen in the spatial-price gradient after completion of the project. These results confirm the findings of a previous study that housing prices do not respond to the change in the environmental quality resulting from comprehensive redevelopment.

Keywords: housing price, comprehensive redevelopment, gentrification, externality, hedonic price analysis, Hong Kong

1 Introduction

While a city grows, it is natural for the urban environment to decay (Khaki et al., 1999). People in Hong Kong have been enjoying the fruits of rapid economic growth in the past few decades, but at the same time are suffering from the long-term problem of urban decay. About one-quarter of the 39,000 private buildings in the city are dilapidated to various degrees (Housing, Planning and Lands Bureau, 2005). A wave of building dilapidation sooner or later results in urban decay, which has been a major eyesore in many well-developed cities (De Kleijn, 1986; Andersen, 1995). In light of the negative externalities brought about by building dilapidation (e.g., public health and safety hazards), urban renewal or regeneration is thus required to tackle the problem. Urban renewal or regeneration refers to the process in which deteriorated or functionally obsolete buildings are improved through various methods such as comprehensive redevelopment, rehabilitation and modernisation (Dumouchel, 1975). Among various approaches to urban renewal, redevelopment is perhaps still the most frequently used one. However, the initiatives of the Urban Renewal Authority (URA) to redevelop dilapidated buildings in Hong Kong have recently been challenged. Because a large amount of money is spent on compensation for the affected residents in the land assembly process, one of the many complaints is that the Hong Kong government should not use public money to sponsor URA-led redevelopment projects. In addition, some others argue that urban redevelopment inevitably displaces original residents and negatively affects the local economy. In order to justify these disputable projects, the public authorities are generally required to conduct a cost-benefit analysis (Litchfield, 1966, 1967; Messner, 1967; Rothenberg, 1967).

Although the costs and benefits of a redevelopment project can be non-monetary (e.g., destruction of the social network and improvement in residents' quality of life), one usually makes use of net monetary gains for various purposes such as measuring a government's effectiveness in an urban redevelopment project (Broadway, 1974). When assessing project benefits, one needs to take into account how this releases unused development potential at the redevelopment site and creates direct and indirect job opportunities, but at the same time one should not ignore possible spillover effects of the project. As suggested by various scholars (e.g., Rosenthal & Helsley, 1994; Baleiras et al., 2004), large-scale improvement or redevelopment projects could increase the values of properties in their vicinity. However, only a few empirical studies have been dedicated to this research area. In this light, this study empirically examines the effects of comprehensive redevelopment on the market prices of neighbouring properties based on a hedonic price analysis of a set of panel data in Hong Kong. The data set

consists of 6,475 property transactions in Mongkok, Kowloon, Hong Kong. This area was chosen for investigation because a large-scale URA-led redevelopment project, Langham Place, was completed in the area in 2004. The findings indicate that proximity to the project site did not have any significant impact on housing prices before the project. A change in the spatial price gradient could be identified upon completion of the project. These results confirm that housing prices do not respond to the change in environmental quality resulting from comprehensive redevelopment. These findings have noteworthy practical implications on housing improvement and urban regeneration in Hong Kong.

2 Theoretical framework for redevelopment externalities

2.1 Externalities in the property market

Analyses of property values advanced very quickly after the development of customer behaviour theory (Lancaster, 1966). In that theory, a good is regarded as a multi-dimensional article differentiable into a bundle of attributes that vary in both quantity and quality. This concept can actually be applied to a wide spectrum of goods, including housing. Building upon this theory, it was proposed that the market value of a house is an aggregate of the market values of varying amounts of attributes of the house (Kain & Quigley, 1970). These attributes include, but are not limited to, size, facilities, configuration, physical condition, accessibility and the surroundings of the house. One of the distinguishing features of housing is its immobility. Or, put another way, a house can only be "consumed" in the place where it is located and not any other place. In this sense, the quality of the external environment of a property can have a very significant impact on housing value because the property owner can hardly alter the external environment economically. In other words, there is a close association between neighbourhood quality and property value. Many previous studies (e.g., Jacobs, 1941; Li & Brown, 1980; Colwell et al., 2000; Boyle & Kiel, 2001; Din et al., 2001) have supported this. For example, in the United States, water views of varying quality and type add different premiums for waterside properties (Benson et al., 1998). In New Zealand, a property can be sold at a 37% premium in the presence of attractive buildings in the vicinity (Bourssa et al., 2004). In addition, another line of research (e.g., Michaels & Smith, 1990; Kohlhase, 1991; Hamilton & Schwann, 1995) established the negative effects on housing value due to proximity to undesirable land uses such as toxic waste sites and high-voltage power lines.

Following this line of thought, changes in neighbourhood quality naturally result in adjustments in property value. Urban renewal and highway construction are common examples

of neighbourhood quality change (Schall, 1971). Because urban renewal projects usually aim to improve the environment in urban black spots (Baleiras et al., 2005), they could have a strong bearing on the quality of neighbourhoods. Prior to urban renewal projects, derelict or poorly maintained buildings pose negative externalities (e.g., in terms of unsightliness and public health hazards) and thus depress the values of the neighbouring properties (Clawson, 1975; Wilkinson, 1975; Affuso et al., 2010). These negative externalities can be countered by eliminating building dereliction in the surrounding areas through various forms of improvement such as refurbishment, rehabilitation and redevelopment (Prasad, 1989; Yau & Chan, 2008).

2.2 Externalities of housing improvement

There have been many studies on the value-enhancement effects of housing improvement. For example, various methodologies have shown that a price premium resulted from housing rehabilitation in Hong Kong (Chau et al., 2003; Yiu and Leung, 2005; Hui et al., 2008). It was also determined that expenditure on minor home improvement resulted in a profit of between 1 and 8% to homeowners in New Zealand (Fortes & McCarthy, 2010). However, nearly all these previous studies focused on the improved properties rather than the unimproved ones in the surrounding areas. There has been little research on the externalities of building improvement. In fact, one study argued that homeowners would be inclined to under-maintain their properties because they did not recognize the positive externalities of maintenance for their neighbours (Pavlov & Blazenko, 2005). However, this study was only an analytical one. In this light, another study (Yau et al., 2008) sought to determine whether building refurbishment created positive externalities for the properties nearby. Using a hedonic price analysis on a set of panel data consisting of property transactions in a large housing estate located in Pokfulam, Hong Kong, it was found that refurbishment added 6.6% of the value to properties that faced refurbished buildings, keeping other factors constant.

Not much empirical evidence has been documented regarding the effects of redevelopment on the values of neighbouring properties. Two studies (Chau et al., 2004; Lai et al., 2007) examined how two comprehensive redevelopment projects in Sheung Wan, Hong Kong changed the spatial-price gradients of the residential properties in their vicinity. However, their findings did not show that comprehensive redevelopment projects exerted a net positive price effect on the dwellings in the environs. Because there is no other empirical study to confirm these findings, one cannot conclude that comprehensive redevelopment does not create any positive externality effects on neighbouring housing. To confirm the findings of

the previous research, this study empirically investigated the externality effects of another comprehensive redevelopment project in Hong Kong.

3 Methodology and data

As mentioned in Section 2.1, a property's value is an aggregate of the values of its attributes (e.g., floor area, accessibility, configuration and neighbourhood quality). In order to reveal the effects of a comprehensive redevelopment project on the values of the neighbouring properties, it is essential to keep all other attributes or factors in the analysis constant. To achieve this goal, the hedonic price model (HPM) is employed (Court, 1939; Griliches, 1971). In the very beginning, this technique was tailored for estimating the values of heterogeneous goods. After further development (Rosen, 1974), the HPM was used to value utility-bearing attributes of heterogeneous goods. Given that the housing market consists of implicit markets for individual attributes of housing, the HPM is applicable to study the changes in housing value due to variations of various housing attributes. Stimulated by the insights this work offered, there has been an enormous amount of empirical research on determinants of housing value employing HPM.

3.1 The Argyle Street / Shanghai Street Redevelopment Project

The comprehensive redevelopment project examined in this study is located at Argyle Street and Shanghai Street, which



Figure 1: Langham Place complex seen from the west (photo: Yung Yau).



Figure 2: Entrance to the Langham Place shopping arcade at the junction of Argyle Street and Portland Street (photo: Yung Yau).

is a prime location in Mongkok, Kowloon. This project has a long history. In the preparation of the draft zoning plan for Mongkok in April 1988, the subject site was proposed to be a Comprehensive Development Area (CDA). At that time, the area consisted of many dilapidated buildings and was labelled a red-light district. There were many “one-woman brothels” in the area (Emerton, 2001; Liu & Lau, 2006). The Town Planning Board approved the plan for the Argyle Street / Shanghai Street Land Development Corporation Development Area in January 1991. Originally, the Land Development Corporation^[1] planned to complete the project before 1998. However, due to the saga of an 11-year fight for land assembly, the project was finally handed over to the subsequently established URA. The assembled site was finally developed by a 50:50 joint venture between Great Eagle Holdings Limited and the URA into a commercial complex comprising a 59-storey office tower, a 42-storey hotel with 495 guest rooms and a 15-level shopping mall with about 600,000 square feet of retail space. The project was officially named Langham Place in 2003, and it was opened at the end of 2004.^[2] In 2005, Great Eagle purchased the URA’s stake so that it became the sole owner of the project. Figures 1 and 2 show the contemporary Langham Place complex. The location of the project is indicated in Figure 3.

By its nature, the Langham Place project was a public-sector-led redevelopment project although it was executed with a

public-private partnership. The stated intention of the project was to eliminate low-rise derelict buildings in the area and to improve the overall streetscape. In the outline zoning plan, the CDA was intended for well-planned residential and/or commercial uses with the provision of open space and other supporting facilities (e.g., open space and community centre), given the appropriate planning control over the development mix, scale, design and layout of development. Unlike redevelopment by means of the land readjustment technique (Yau, 2009), residents originally living in the project site were displaced. Therefore, area improvement is essentially the goal of the project. One should expect positive externalities (e.g., a safer streetscape, more aesthetic buildings, and more amenities) in neighbouring areas upon the completion of the project. In light of the more favourable built environment, these externalities created by the redevelopment project should be reflected in the increased property or rental values nearby.

3.2 Empirical model

To estimate the externality created by the comprehensive redevelopment project on the properties in its vicinity, the following HPM was set up:

$$\ln RP_{it} = \alpha_0 + \alpha_1 AGE_{it} + \alpha_2 AGE_{it}^2 + \alpha_3 FLOOR_i + \alpha_4 FLOOR_i^2 + \alpha_5 AREA_i + \alpha_6 AREA_i^2 + \beta_1 DIST_i + \beta_2 DIST_i \times AFTER_RED_i + \varepsilon_i$$

Where

- RP_{it} is the real transaction price of property i at time t (measured in million HKD);
- AGE_{it} is the age of property i , which equals the difference between the date of the issue of the occupation permit and the date of the transaction t (measured in months);
- $FLOOR_i$ is the floor level of property i ;
- $AREA_i$ is the saleable floor area of property i (measured in sq. ft.);
- $DIST_i$ is the distance between property i and the centre of the Langham Place complex; that is, the site of the Argyle Street / Shanghai Street Redevelopment Project (measured in metres);
- $AFTER_RED_i$ is a dummy variable that equals 1 if a transaction was engaged in after the opening of Langham Place and zero if otherwise;
- α_j and β_j are coefficients to be estimated; and
- ε_i is the stochastic term.

The variables AGE_i , $AREA_i$ and $FLOOR_i$ are incorporated into the model to control price variation due to these structural attributes. Their presence in the model is indispensable because these attributes were found to be significant determinants of property prices, particularly in Hong Kong’s multi-storey resi-

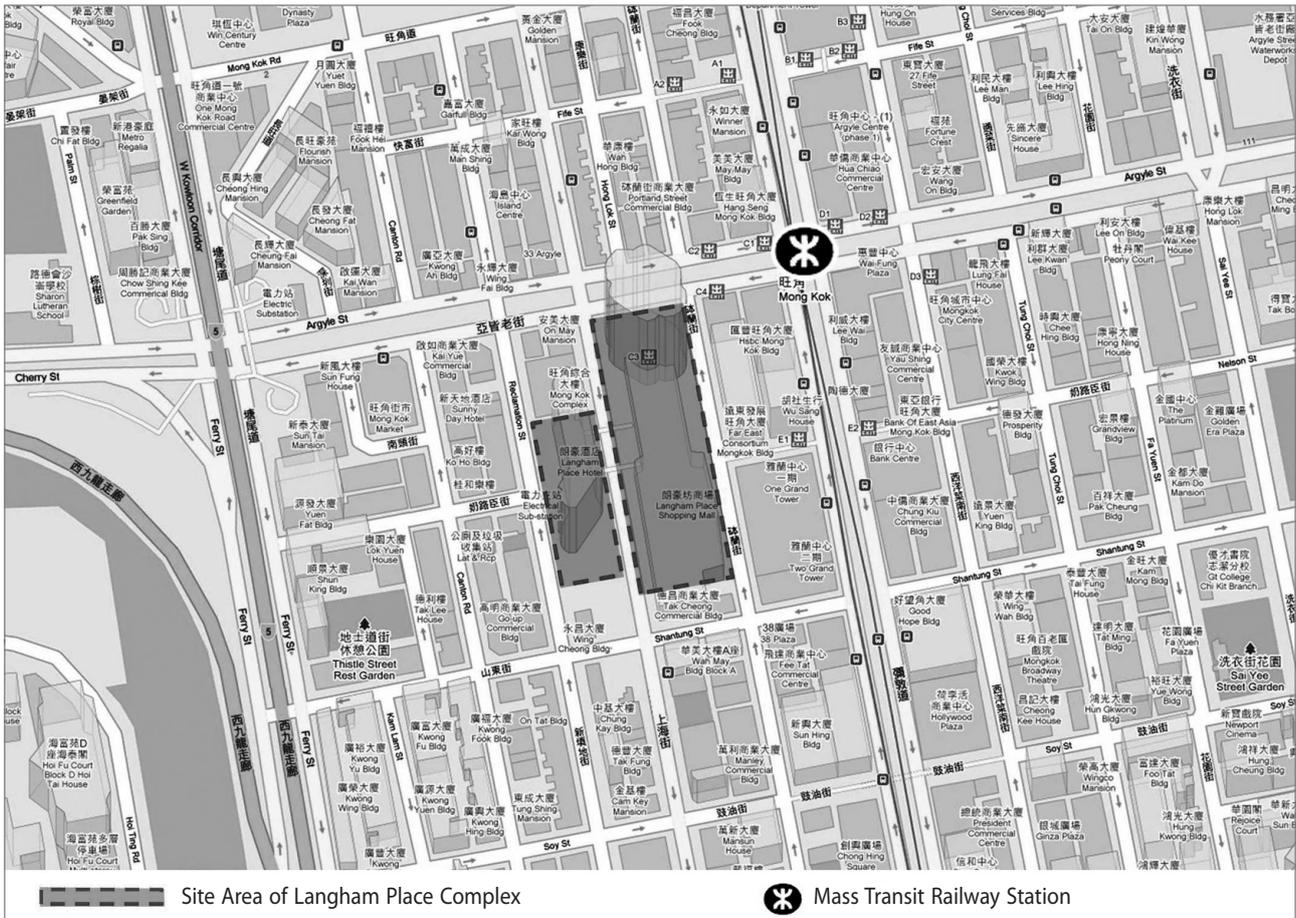


Figure 3: Langham Place (source: Internet 1).

dential buildings (e.g., Mok, 1995; So et al., 1997; Tse & Love, 2000; Chau et al., 2001; Wong et al., 2011). Otherwise, model misspecification will result because of the omission of these key variables from the empirical model. In addition, squared terms of these variables are added to the model to account for possible non-linear marginal effects of the variables on housing prices. Real property price is used instead of nominal property price in view of the changes in market conditions. For HPMs using property transactions over a time period, it is necessary to control for the possible effects of time. To this end, the nominal property prices are deflated by the domestic property price index compiled by the Rating and Valuation Department, Hong Kong. The focus of this study is on the coefficients β_1 and β_2 . The former measures the spatial-price gradient of the properties before the opening of Langham Place, and the latter measures the spatial-price gradient after the project's opening. Because other factors have been controlled, if the estimated coefficient β_2 is found significant, this indicates a change of the spatial-price gradient. Transaction data for residential properties within 500 m from the centre of Langham Place from January 2003 to September 2006 were obtained from the Economic Property Research Centre. In total, there were 6,475 property transactions during that period. The summary sta-

tistics of the data are presented in Table 1. Of these 6,475 transactions, 2,962 (about 45.75%) were engaged in after the opening of Langham Place at the end of 2004.

4 Findings and discussion

4.1 Findings

The estimation results of the hedonic price model are shown in Table 2. The adjusted R -squared is 0.86, which is relatively high for hedonic price analysis. All estimated coefficients of the structural attributes are statistically significant at least at the 10% level. The results show that property price decreased with property age at a decreasing rate, and increased with floor area and floor level at a decreasing rate. These findings are rather consistent with expectations and the findings of previous studies. The coefficient of the dummy variable $DIST$ (i.e., β_1) was found to be negative and statistically significant at the 5% level. This means that before the opening of Langham Place at the end of 2004, properties closer to the redevelopment site were sold at a higher price, all other factors remaining constant. However, the hedonic price analysis returned an insignificant estimated coefficient for the interaction term $DIST * AFTER$

Table 1: Descriptive statistics of the property transaction data.

Characteristic	Mean	σ	Minimum	Maximum
Real property price (HKD million)	2.18	2.040	0.02	12.11
Flat size (sq. ft.)	358.57	115.74	158.49	1,006.81
Floor level	13.79	11.04	1.00	51.00
Age (months)	238.67	168.53	0.00	589.00
Distance from the Argyle Street / Shanghai Street Redevelopment Project (metres)	237.12	98.41	35.00	500.00

RED (i.e., β_2), indicating that the Argyle Street / Shanghai Street Redevelopment Project did not change the spatial-price gradients of the residential properties in its vicinity.

4.2 Implications of the results

The positive coefficient of β_1 seems to contradict with the earlier intuition that proximity to a rundown area should result in a discount in housing value because of negative externalities. Yet, as can be seen from Figure 3, the project site was located in the central part of Mongkok, and near the Mass Transit Railway station. Perhaps the negative externalities were counter-balanced by the higher levels of convenience and accessibility provided by increased nearness to the subject site. Nonetheless, the results of this study still confirm previous findings (Chau et al., 2004; Lai et al., 2007) that in Hong Kong comprehensive redevelopment projects did not exert a net positive price effect on residential properties in the neighbourhoods, all other factors being equal. The findings imply the non-existence of a net positive externality generated by the comprehensive redevelopment project examined. One of the possible explanations

for the insignificant net positive externality in the empirical analysis is the negative environmental impacts (e.g., reduction in openness and blockage of natural lighting and ventilation) created by the gigantic Langham Place complex. Citizens and local environmental-concern groups raised criticisms that Langham Place has created a “screen-wall effect”, lowering the rate of air flow in the area (Nichol, 2008). Because Mongkok is a high-traffic district in Hong Kong, winds greatly help disperse vehicle emissions. When the breezeways were blocked or contracted by the Langham Place, the local residents, particularly those living close to the redevelopment project, suffered from poor air quality. This is reflected in the housing market and it counters the positive benefits (e.g., elimination of dilapidated buildings) generated by the redevelopment project.

The empirical findings of this study may also challenge traditional thoughts about the relationship between gentrification and urban regeneration. Urban renewal efforts have often been criticised because they tended to destroy more low-income housing in the neighbourhoods than they create, causing the poor to relocate, find low-quality housing elsewhere or be-

Table 2: Regression results for the hedonic price model.

Dependent Variable: ln RP					
Independent Variable	Coefficient	Standard error	t-statistic	p-value	
CONSTANT	-0.411107	0.028999	-14.17652	0.0000	***
AGE	-0.003759	0.000101	-37.39666	0.0000	***
AGE	2.87×10^{-6}	1.93×10^{-7}	14.86835	0.0000	***
FLOOR	0.010424	0.001112	9.373329	0.0000	***
FLOOR ²	-4.40×10^{-5}	2.47×10^{-5}	-1.783935	0.0745	*
AREA	0.003870	8.21×10^{-5}	47.14263	0.0000	***
AREA ²	-1.51×10^{-6}	6.59×10^{-8}	-22.90464	0.0000	***
DIST	-8.36×10^{-5}	4.23×10^{-5}	-1.975285	0.0483	**
DIST*AFTER_RED	2.29×10^{-5}	2.86×10^{-5}	0.799986	0.4237	
Adjusted R-squared	0.857634	Durbin-Watson statistic		1.002656	
F-statistic	4876.035	Akaike Info Criterion		0.366094	
Prob (F-statistic)	0.000000	Number of observations		6,475	

Note: (***), (**) and (*) denote that the estimated coefficients of the variables are significant at the 1%, 5% and 10% level, respectively. All coefficients were estimated with White's heteroscedasticity-consistent standard errors.

come homeless (Pozdena, 1988). A close association between urban regeneration and gentrification has been established in a number of studies (e.g., Munro, 1993; Wagner, 1995; Wilson, 1996). For example, a study of gentrification in several major cities in the United States found that redevelopment resulted in gentrification in most cases (Wilson, 1996). The gentrifying effects of urban regeneration can be explained by the rent gap theory (Smith, 1979), which viewed gentrification as a result of developers' or landlords' extraction of the profit or rent gap from the change in land use within urban neighbourhoods. Thus, rent gap is "the disparity between the potential ground rent level and the actual ground rent capitalised under the present land use" (Smith, 1979: 545). This school of thought on gentrification has been supported by previous empirical studies (e.g., Clark, 1987), which showed that rent gaps played a key role in driving gentrification in Malmö, Sweden.

Nevertheless, the findings of this study indicate that the spatial-price gradient for the properties in the neighbourhood of the Argyle Street / Shanghai Street Redevelopment Project in Hong Kong did not change after completion of the project. Seemingly, these findings do not support the rent gap theory. However, to refute the theory, further analyses are warranted to study whether there is an overall value enhancement in the neighbouring properties of a comprehensive redevelopment project. When the dummy variable *AFTER_RED* is added to the equation and the new HPM is run with the same set of panel data, the estimated coefficient of this additional dummy variable is not statistically significant at the 10% level, although it is positive. These results suggest that gentrification did not occur as a result of the Argyle Street / Shanghai Street Redevelopment Project or that the rent gap theory cannot explain the gentrification phenomenon.

5 Conclusion

Comprehensive redevelopment, which is a means of urban regeneration aiming to eliminate city eyesores and improve the built environment, is presumed to create positive externalities on nearby properties. To test this hypothesis, a hedonic price analysis was conducted with a set of transaction data for residential properties in the vicinity of the Argyle Street / Shanghai Street Redevelopment Project in Hong Kong. The findings suggest that the spatial-price gradient of the neighbouring properties did not change after the project completion, confirming the findings of previous studies (e.g., Chau et al., 2004; Lai et al., 2007). Apparently, comprehensive redevelopment projects initiated by the public authority have not been effective enough to improve the areas surrounding the projects. In any case, a net positive benefit cannot be perceived by the private housing market. The URA and Hong Kong government should rethink the way their urban regeneration

initiatives are implemented with a view to the benefits to be enjoyed by the local community. Otherwise, the use of public money to finance these redevelopment projects may not be justified. In addition, this study casts doubt on the usefulness of the rent gap theory to explain regeneration-led gentrification. Further studies are suggested to investigate whether a gentrification phenomenon is observed in the environs of Langham Place.

Furthermore, serving as an introductory investigation of the externality effects of housing improvements in Hong Kong, this study only targeted a large-scale public-sector-led redevelopment project in an old district in Hong Kong. It would be worth studying the impacts of different types of urban regeneration and redevelopment projects on the housing market. For example, further research could address whether private-sector-initiated redevelopment projects generate net positive externalities on the values of nearby properties. In addition, the scale of development or redevelopment may also matter. Demolition of a derelict building and the development of a new building with a similar scale to the demolished one on the same site may have more positive and less negative externalities on the neighbouring properties. Moreover, the neighbourhood effects of redevelopment and housing rehabilitation projects can be compared. All of these proposed studies can offer public administrators and urban managers valuable insights into how urban regeneration should proceed, with a view to more justifiable economic and environmental sustainability.

Yung Yau

City University of Hong Kong, Department of Public and Social Administration, Kowloon Tong, Hong Kong
E-mail: y.yau@cityu.edu.hk

Notes

[1] The Land Development Corporation was a corporate body primarily engaged in urban renewal in Hong Kong. When it was established in 1987, the Hong Kong government offered an interest-bearing non-revolving loan facility to support its operation (Land Development Corporation, 2000). The corporation was finally replaced by the URA in 2001.

[2] The grand opening of Langham Place was held on 4 March 2005.

Acknowledgements

The work described in this paper was supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China (Project no. CityU 1508/08). An earlier version of the paper was presented at the European Real Estate Society Conference 2009 in Stockholm. The author would like to thank the conference delegates for their valuable comments and suggestions for developing this paper. In addition, the author is also grateful to

Phoebe Chau and Joe Chu for helping with the data collection and consolidation processes.

References

- Affuso, E., de Parisot, C. V., Ho, C., in Hite, D. (2010) Vpliv nevarnih odpadkov na vrednost nepremičnin: posledice onesnaženja s svincem [The impact of hazardous waste on property values: The effect of lead pollution]. *Urbani izziv*, 21(2), pp. 48–57 [117–126]. DOI: urbani-izziv-en-2010-21-02-005
- Andersen, H. S. (1995) Explanations of decay and renewal in the housing market: What can Europe learn from American research? *Journal of Housing and the Built Environment*, 10(1), pp. 65–85. DOI: 10.1007/BF02498059
- Baleiras, R. N., Monteiro, R. S. & Reis, A. B. (2005) *Tax dividend evaluation of major urban renewal projects*. Paper presented at the EcoMod2005 International Conference on Policy Modeling, 29 June–1 July, Istanbul. Typescript.
- Benson, E. D., Hansen, J. L., Schwartz, A. L., Jr. & Smersh, G. T. (1998) Pricing residential amenities: The value of a view. *Journal of Real Estate Finance and Economics*, 16(1), pp. 55–73. DOI: 10.1023/A:1007785315925
- Bourassa, S. C., Hoesli, M. & Sun, J. (2004) What's in a view? *Environment and Planning A*, 36(8), pp. 1427–1450. DOI: 10.1068/a36103
- Boyle, M. A. & Kiel, K. A. (2001) A survey of house price hedonic studies of the impact of environmental externalities. *Journal of Real Estate Literature*, 9(2), pp. 117–144.
- Broadway, R. W. (1974) The welfare foundations of cost-benefit analysis. *The Economic Journal*, 84(336), pp. 926–939. DOI: 10.2307/2230574
- Chau, K. W., Lai, L. W. C., Wong, W. S., Yiu, C. Y. & Wong, S. K. (2004) The economic and social impact of redevelopment – A Hong Kong case study. In: Leung, A. Y. T. & Yiu, C. Y. (eds.) *Building dilapidation and rejuvenation in Hong Kong*, pp. 58–66. Hong Kong, The Hong Kong Institute of Surveyors and City University of Hong Kong.
- Chau, K. W., Leung, A. Y. T., Yiu, C. Y. & Wong, S. K. (2003) Estimating the value enhancement effects of refurbishment. *Facilities*, 21(1/2), pp. 13–19. DOI: 10.1108/02632770310460504
- Chau, K. W., Ma, S. M. & Ho, D. C. W. (2001) The pricing of luckiness in the apartment market. *Journal of Real Estate Literature*, 9(1), pp. 31–40.
- Clark, E. (1987) *The rent gap and urban change: Case studies in Malmö 1860–1985*. Lund, Lund University Press.
- Clawson, M. (1975) Economic and social conflicts in land use planning. *Natural Resources Journal*, 15(3), pp. 473–490.
- Colwell, P. F., Dehring, C. A. & Lash, N. A. (2000) The effect of group homes on neighbourhood property value. *Land Economics*, 76(4), pp. 615–637. DOI: 10.2307/3146956
- Court, A. T. (1939) Hedonic price index with automotive examples. In: General Motors Corporation (ed.) *The dynamics of automobile demand*, pp. 98–119. New York.
- De Kleijn, G. (1986) The state of urban renewal. *Journal of Housing and the Built Environment*, 1(3), pp. 235–251.
- Din, A., Hoesli, M. & Bender, A. (2001) Environmental variables and real estate prices. *Urban Studies*, 38(11), pp. 1989–2000. DOI: 10.1080/00420980120080899
- Dumouchel, J. R. (1975) *Dictionary of development terminology*. New York, McGraw-Hill.
- Emerton, R. (2001) *Trafficking of women into Hong Kong for the purpose of prostitution: Preliminary research findings*. Occasional paper no. 3. Hong Kong, Centre for Comparative and Public Law, Faculty of Law, University of Hong Kong.
- Fortes, R. & McCarthy, I. (2010) Renovate for profit: New Zealand residential case study. *Property Management*, 28(5), pp. 358–369. DOI: 10.1108/02637471011086545
- Griliches, Z. (ed.) (1971) *Price indexes and quality change*. Cambridge, MA, Harvard University Press.
- Hamilton, S. W. & Schwann, G. M. (1995) Do high voltage electric transmission lines affect property value? *Land Economics*, 71(4), pp. 436–444. DOI: 10.2307/3146709
- Housing, Planning and Lands Bureau (2005) *Public consultation on mandatory building inspection*. Hong Kong.
- Hui, E. C. M., Wong, J. T. Y. & Wan, J. K. M. (2008) The evidence of value enhancement resulting from rehabilitation. *Facilities*, 26(1/2), pp. 16–32. DOI: 10.1108/02632770810840282
- Internet 1: <http://www.ypMap.com> (accessed 10 Jul. 2011).
- Jacobs, J. L. (1941) Neighbourhood and property obsolescence in the assessment process. *The Journal of Land and Public Utility Economics*. 17(3), pp. 344–352. DOI: 10.2307/3158370
- Kain, J. F. & Quigley, J. M. (1970) Measuring the value of housing quality. *Journal of the American Statistical Association*, 65(330), pp. 532–548. DOI: 10.2307/2284565
- Khaki, A., Somma, P. & Thomas, H. (1999) *Urban renewal, ethnicity and social exclusion in Europe*. Aldershot, Ashgate.
- Kohlhase, J. E. (1991) The impact of toxic waste sites on housing values. *Journal of Urban Economics*, 30(1), pp. 1–26. DOI: 10.1016/0094-1190(91)90042-6
- Lai, L. W. C., Chau, K. W., Yiu, E. C. Y., Wong, K. S. K., Wong, W. S. & Chan, P. Y. L. (2007) Measuring and interpreting the effects of a public-sector-led urban renewal project on housing prices – An empirical study of a comprehensive development area zone developed upon taking in Hong Kong. *Environment and Planning B*, 34(3), pp. 524–538. DOI: 10.1068/b31139
- Lancaster, K. J. (1966) A new approach to consumer theory. *Journal of Political Economy*, 74(2), pp. 132–157. DOI: 10.1086/259131
- Land Development Corporation (2000) *The LDC experience: 12 years' efforts of urban renewal*. Hong Kong.
- Li, M. M. & Brown, J. (1980) Micro-neighbourhood externalities and hedonic housing price. *Land Economics*, 56(2), pp. 125–141. DOI: 10.2307/3145857
- Lichfield, N. (1966) Cost benefit analysis in urban development – A case study: Swanley. *Papers in Regional Science*, 16(1), pp. 129–153. DOI: 10.1007/BF01888943
- Lichfield, N. (1967) The evaluation of capital investment projects in town centre redevelopment. *Public Administration*, 45(2), pp. 129–148. DOI: 10.1111/j.1467-9299.1967.tb02033.x
- Liu, G. & Lau, J. (2006) Sexuality as public spectacle: The transformation of sex information and service in the age of the internet. In: Law, P. L., Fortunati, L. & Yang, S. (eds.) *New technology in global societies*, pp. 259–288. Singapore, World Scientific. DOI: 10.1142/9789812773555_0012
- Messner, S. D. (1967) A benefit-cost analysis of urban redevelopment: A case study of the Indianapolis program. Bloomington, Bureau of Business Research, Indiana University.
- Michaels, R. G. & Smith, V. K. (1990) Market segmentation and valuing amenities with hedonic models: The case of hazardous waste sites.

- Journal of Urban Economics*, 28(2), pp. 223–242. DOI: 10.1016/0094-1190(90)90052-O
- Mok, H. M. K. (1995) A hedonic approach to pricing of residential properties in Hong Kong. *Hong Kong Journal of Business Management*, 13(1), pp. 1–15.
- Munro, M. (1993) Evaluating the links between housing change and economic change. *Urban Studies*, 30(2), pp. 387–398. DOI: 10.1080/00420989320080361
- Nichol, J. (2008) "Upper limit" of heat islands still way too high. *South China Morning Post*, 6 June 2008, p. 14.
- Pavlov, A. & Blazenko, G. W. (2005) The neighbourhood effect of real estate maintenance. *The Journal of Real Estate Finance and Economics*, 30(4), pp. 327–340. DOI: 10.1007/s11146-005-7011-9
- Pozdena, R. J. (1988) *The modern economics of housing: A guide to theory and policy for finance and real estate professionals*. New York, Quorum Books.
- Prasad, D. R. (ed.) (1989) *Urban renewal: The Indian experience*. New Delhi, Sterling.
- Rosen, S. (1974) Hedonic prices and implicit markets: Product differentiation in pure competition. *The Journal of Political Economy*, 82(1), pp. 34–55. DOI: 10.1086/260169
- Rosenthal, S. S. & Helsley, R. W. (1994) Redevelopment and the urban land price gradient. *Journal of Urban Economics*, 35(2), pp. 182–200. DOI: 10.1006/juec.1994.1012
- Rothenberg, J. (1967) *Economic evaluation of urban renewal: Conceptual foundation of benefit-cost analysis*. Washington, DC, Brookings Institution.
- Schall, L. D. (1971) A note on externalities and property valuation. *Journal of Regional Science*, 11(1), pp. 101–105. DOI: 10.1111/j.1467-9787.1971.tb00244.x
- Smith, N. (1979) Toward a theory of gentrification: A back to the city movement by capital not people. *Journal of the American Planning Association*, 45(4), pp. 538–548. DOI: 10.1080/01944367908977002
- So, H. M., Tse, R. Y. C. & Ganesan, S. (1997) Estimating the influence of transport on house prices: Evidence from Hong Kong. *Journal of Property Valuation and Investment*, 15(1), pp. 40–47. DOI: 10.1108/14635789710163793
- Tse, R. Y. C. & Love, P. E. D. (2000) Measuring residential property values in Hong Kong. *Property Management*, 18(5), pp. 366–374. DOI: 10.1108/02637470010360669
- Wagner, G. (1995) Gentrification, reinvestment and displacement in Baltimore. *Journal of Urban Affairs*, 17(1), pp. 81–96. DOI: 10.1111/j.1467-9906.1995.tb00523.x
- Wilkinson, R. K. (1975) Economic aspects of low income housing policy in the urban economy. *International Journal of Social Economics*, 2(2), pp. 73–86. DOI: 10.1108/eb013778
- Wilson, F. H. (1996) Urban redevelopment and the post-industrial city: The persistence of gentrification in central cities, 1980–1990. In: Peck, D. L. & Hollingsworth, J. S. (eds.) *Demographic and Structural Changes: The Effects of the 1980s on America Society*, pp. 142–168. Westport, CT, Greenwood Press.
- Wong, S. K., Chau, K. W., Yau, Y. & Cheung, A. K. C. (2011) Property price gradients: The vertical dimension. *Journal of Housing and Built Environment*, 26(1), pp. 33–45. DOI: 10.1007/s10901-010-9203-8
- Yau, Y. (2009) Raziskava o sprejemljivosti komasacije za urbano prenovno v Hongkongu [A study on the acceptability of land readjustment for urban regeneration in Hong Kong]. *Urbani izziv*, 20(2), pp. 36–44 [105–114]. DOI: 10.5379/urbani-izziv-en-2009-20-02-004
- Yau, Y. & Chan, H. L. (2008) To rehabilitate or redevelop? A study of the decision criteria for urban regeneration projects. *Journal of Place Management and Development*, 1(3), pp. 272–291. DOI: 10.1108/17538330810911262
- Yau, Y., Chau, K. W., Ho, D. C. W. & Wong, S. K. (2008) An empirical study on the positive externality of building refurbishment. *International Journal of Housing Markets and Analysis*, 1(1), pp. 19–32. DOI: 10.1108/17538270810861139
- Yiu, C. Y. & Leung, A. Y. T. (2005) A cost-and-benefit evaluation of housing rehabilitation. *Structural Survey*, 23(2), pp. 138–151. DOI: 10.1108/02630800510593701