

## **The Impact of the Nano Flats Development in Developed Cities: the Evidence from Hong Kong**

**Michael C.P. Sing<sup>1</sup>, Michael Y. Mak<sup>1</sup>, L.Y. Yi<sup>2</sup>**

<sup>1</sup> The University of Newcastle, Australia

<sup>2</sup> The Hong Kong Polytechnic University

### **ABSTRACT**

Hong Kong has been ranked as the most expensive housing market in the world in the recent years. As property prices spiral upwards in Hong Kong, the race is on to build smaller and smaller apartments. The downsizing of flats comes in the midst of continued rise in property prices in the city, which has made it increasingly difficult for people to own a home. Tiny apartments, nicknamed as “Nano flats” with floor areas between 12 to 18 square metres, are the latest trend in the real estate development in Hong Kong. It is just big enough for a bed, a small bathroom and a kitchenette. From the real estate perspective, it is essential to explore to what extent does this situation affect Hong Kong society. Property developers seize every chance to develop tiny new flats with plenty of supply to the public. Many factors are affecting the demand, such as the changes in population and income level, facilitating the growth in Nano flats, to cope with this changing environment. This paper aims to provide a systematic analysis of the growing supply and demand in Nano flats in the Hong Kong real estate market. The research findings showed that the Nano flat development could facilitate many first-time buyers as the property price is much affordable. However, the problem of imbalance caused in terms of the extra load on community facilities and overcrowding stimulated by this type of flats’ rental market should not be underestimated.

Keywords: Nano flats, tiny apartment, Hong Kong, real estate market

### **1. INTRODUCTION**

For many newly married couples, living in the urban area despite the unit size, is convenient for work and social life, as well as saving more travel time and their daily expenses (Brown and King, 2016). The developers are interested in building more tiny flats in the urban centre to attract young couples who have a limited budget. In August 2017, a real estate development offered Nano flats in one of the Hong Kong urban areas, Mong Kok, and sold all units within a few days, despite the parking space sized apartments (Li, 2017). The development comprises of 138 1-bedroom units whose sizes ranged between 15 to 30 square metres. In addition to the soaring property price, shrinkage in the size of household, as well as the average household affordability has also led to the rapid demand for Nano flats. In some populated cities, like Tokyo and London, the per capita living area is much larger than that of Hong Kong. However, more students and young professionals are eager to move into an urban centre for seeking job opportunities, stimulating the property prices and also becoming the catalyst for the development of Nano flats (Miller, 2014). As Nano flats have become more popular, there has been a lack of research to study its impact on the property market and social development. Economic consequences like the property price, rental price, market yield and other social effects such as lowering the living standard of residents, will be affected as well as twist the overall residential market. This study aims to conduct a systematic analysis on growing Nano flat markets and its social implications.

## 2. REVIEW OF LITERATURE

### 2.1 Definition of Nano flat

Depending on the property market and also the property size, different terms such as studio and micro homes have been assigned to describe the tiny apartments in many international cities. The definition of this kind of micro-living apartment is listed in Table 1.

Table 1 Summary of global definition in micro-living apartments

Term	City	Size (sqm)	Descriptions
Nano flat	Hong Kong	18	Self-contained living space
Studio	Hong Kong, the UK, North America	20+	Self-contained living space
Micro home	UK, North America	20-40	Maybe self-contained may encompass shared amenities
Compact living	UK	-	Self-contained living space
Tiny House	UK, North America, Australia	11	Self-contained living space

Source: (Jones Lang LaSalle, 2017)

### 2.2 DRIVING FACTORS ON THE GROWTH OF NANO FLATS IN HONG KONG

- Growth in Small Households

The proportion of smaller households (i.e. one to three people) in Hong Kong has grown from about 60% in 2014 to 69.9% in 2019. Further, it is estimated to even reach about 75% in 2024. Furthermore, demographic factors such as the decrease in fertility rates, increase in unmarried rates and divorce rates, are also leading to the expansion of a small household's family (Planning Department, 2016).

- Housing affordability

Income level (or the living affordability) is another critical factor to affect the willingness to purchase a property or the amount to spend on buying a property (Suhaida et al., 2011). According to C&SD (2018), more than 80% of the family income is ranging from HK\$8,000 to HK\$34,999. Considering that a family would like to purchase a HK\$4 million property, with an 80% mortgage loan to be repaid in 25 years, with 3% interest rate, they have to repay at least HK\$15,175 per month. In other words, with not exceeding 60% of buyers' monthly income, bank requires buyer's minimum income level to be HK\$34,363.

According to Midland, (2018), the unit price of the property in the main district of Hong Kong is around HK\$17,000/sqm. Considering that the family income is HK\$34,000 and the mortgage ratio does not exceed 60%, the maximum property size they can afford should be calculated as  $HK4M/17,000 = 235\text{sqm}$ , that is around the size of the Nano flat.

- Favourable mortgage policy

Hong Kong citizens can enjoy a higher LTV (Loan-to-Value) ratio with a favourable policy of MIP (Mortgage Insurance Programme). In other words, buyers only need to pay 10% to 20% of the

property price for down payment, that is, a price below HK\$6 million (see Table 2). The MIP was introduced to provide mortgage insurance to banks. Banks can then offer higher loans to buyers without sharing any additional credit risk.

Table 2 Maximum LTV Ratio

<b>Property Value</b>	<b>Maximum LTV Ratio</b>
At or below HK\$4 million	80% or 90%
Above HK\$4 million and below HK\$4.5 million	80% - 90%, subject to a cap of HK\$3.6 million (whichever is lower)
At or above HK\$4.5 million and up to HK\$6 million	80% or capped at HK\$4.8 million (whichever is lower)

### 3.0 RESEARCH METHODOLOGY

In this research study, a mixed research methodology including quantitative research and case studies was used to provide a systematic analysis of how the Nano flats have become more popular and also its implications to the local property market and society. Quantitative research in this study covered a wide range of statistics including domestic household statistics, income level statistics, mortgage data as well as the property market statistics, extracted from Hong Kong Census and Statistics Department (C&SD) and Rating and Valuation Department (RVD). It aims to evaluate the influences concerning the market performance of Nano flats. In order to obtain a concise picture to reflect the actual condition or to measure the market performance, the overview of property market development in the last 20 years were collected in terms of the number of completions, stock, price indices and rental indices by class in private domestic market as well as residential mortgage statistics. In addition, several key residential developments in Hong Kong have been selected as case studies to compare the ratio of the Nano flats in the residential projects. The case studies cover a wide variety of researches from the flat mix study and unit size study which will provide a more consolidated picture on the growth of the Nano flats and its implications.

### 4.0 RESEARCH FINDINGS

#### 4.1 Completion of the Nano flats

There was a continuous growth in the supply of Nano flats since 2011. Nano flats are less than 40 sqm and the completion of units reached a high-level at 3,937 units in 2016 (see Table 3).

Table 3 Completion of Nano flats from 2011-2016

<b>Year</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Number of Completion	636	1,511	1,423	2,160	2,135	3,937
% change (2011 as a base)	-	138%	124%	240%	236%	519%

Source: Rating and Valuation Department (1998-2018)

Starting from 2011, there has been a dramatic increase in the construction of Nano flats. The number increased by more than 200% in 2014 and even 500% in 2016 (See Table 3). This trend has been the highest between 1990-2010. This kind of rise has reflected the changes in the property market, e.g. more property buyers prefer to buy small units as it is much more affordable in the booming property market.

Figure 1 and Figure 2 provide an overview of the completion and stock of residential buildings under different classes. The completion of the “Class A” residential building which is below 40 sqm represents the number of Nano flats being completed, a dramatic increase starting from 2012.

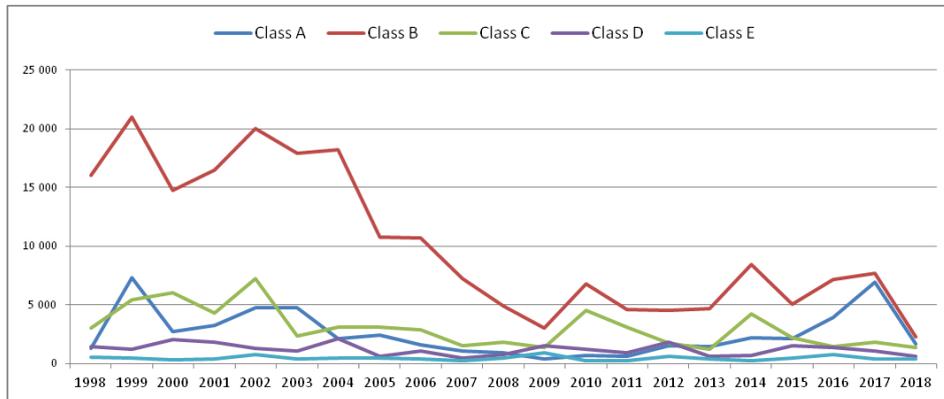


Figure 1 Private Domestic- Completions by Class in 20 years (source: Rating and Valuation Department (1998-2018))

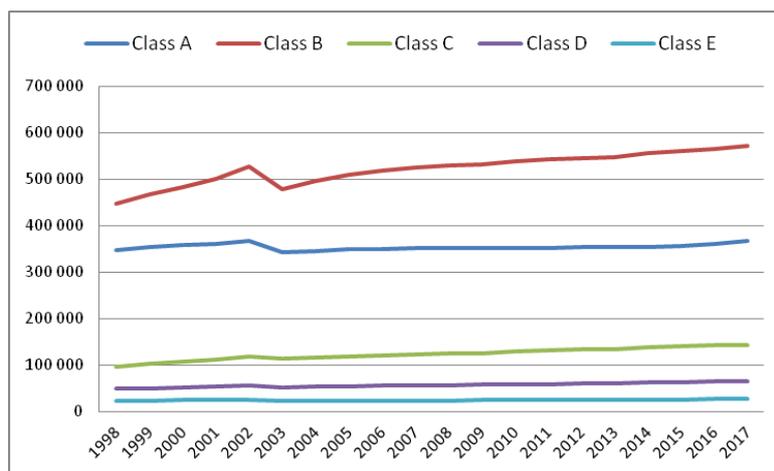


Figure 2 Private Domestic- Stock by Class in 20 years (source: Rating and Valuation Department (1998-2018))

#### 4.2 Price Index

In addition to the number of flats completed and the stock findings, the price index is also another indicator to demonstrate the demand and supply of the Nano flats. With reference to the technical notes provided by the Rated and Valuation Department (2018), a property price index (HPI) measures the price changes of residential housing as a percentage change from some specific start date. The higher the rateable value, the higher will be the index. According to Figure 3, the price indices of all the classes grew substantially and evenly throughout the years, except in 2003, the incidence of SARS (Severe Acute Respiratory Syndrome) occurred, resulting in a severe crash in the real estate market. Therefore, particularly in the year of 2013, the price index of Class A exceeded Class E, in which Class E is normally regarded as the class of luxury properties, representing a twisted market condition where Class A units were more expensive than other units, even exceeding the luxury sector. Further, the price of Class A units continued to grow by a large percentage, since 2013. This expansion further implies that there was a strong demand for Nano flats (or Class A flats). The buyers or investors are more willing to spend their money on Class A units rather than other types of units, with the

expectation that the performance of Class A units will generate greater rental income or result in higher capital appreciation.

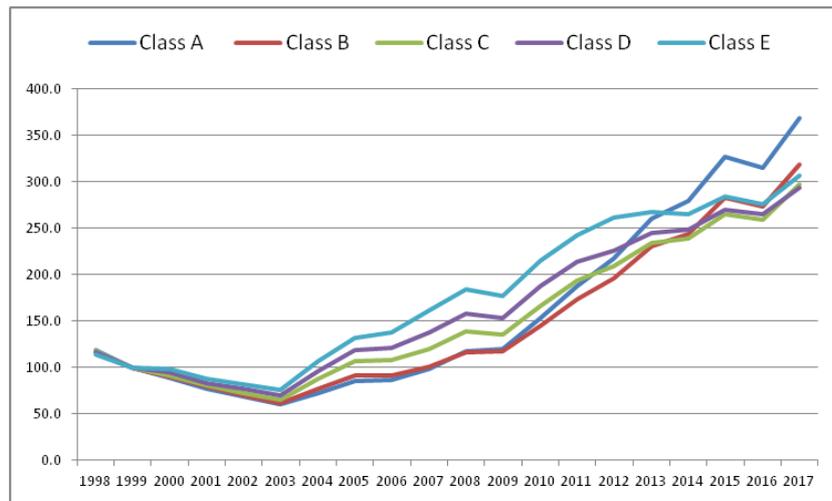


Figure 3 Private Domestic- Price Indices by Class in 20 years (source: Rating and Valuation Department (1998-2018))

### 4.3 Property Market Yield

In addition to the price and rental indices, another indicator that is being used to illustrate the property performance is the property market yield. It is calculated by dividing the annual rent by the property value. Figure 4 shows the trend of the market yield in the last 20 years. From the denominator of the market yield calculation, it can be seen that a dramatic increase in property value has led to the drop in market yield. For example, the market yield has been decreasing over the years, from a high 6.3 in 2001 to 2.8 in 2017 for Class A (or Nano flats), resulting in a drop of around 56%. Although Class A decreased by a percent, it has been still ranking as the highest market yield among the other classes throughout the years. It is an attractive piece of evidence for investors when considering which class of property they need to invest in, especially in the short time period, with a limited budget or to control the cash flow better. Investors intend to invest on Class A property concerning their outstanding performance in property market yield when compared to other classes.

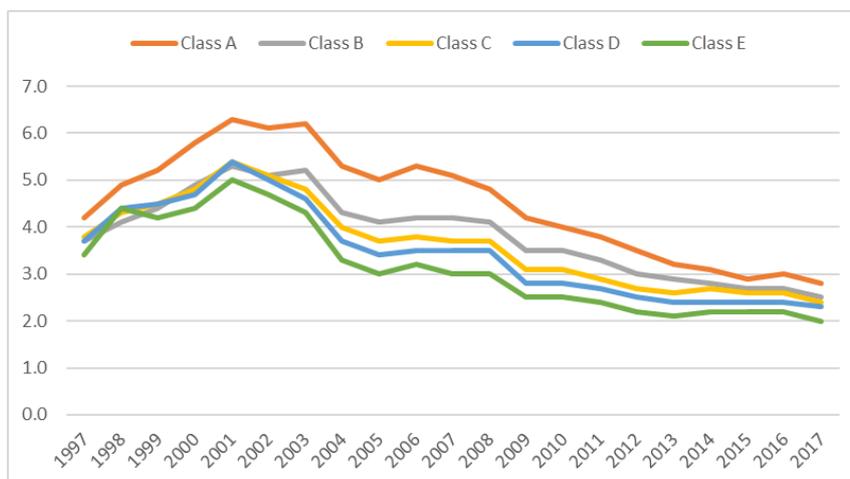


Figure 4 Private Domestic- Property Market Yield by Class in 20 years (source: Rating and Valuation Department (1998-2018))

#### 4.4 Case Studies

The estate developers in Hong Kong have seized every opportunity to build as many Nano flats to cater to the growing demand of newly formed families', also based on the affordability of families. Most likely, these Nano flats do not come with a conventional kitchen; they are usually equipped with open kitchen in a studio layout. For example, 36 studio units ranging from 194 sq. ft to 362 sq. ft per single floor on the Upper East side. Many of the new developments consist of a higher percentage of Nano flats compared to other types of units and the prices are maintained at HK\$3million (=US\$0.384M) to HK\$4.5 million (=US\$0.576M), considering the affordability of small households. Table 4 provides a summary on the similarities and differences among these three case studies, in terms of size, percentages of units and price range.

Table 4 in terms of size, price and percentage of units

<b>Development / Factor</b>	<b>Mont Vert</b>	<b>Upper East</b>	<b>One Prestige</b>
District	Tai Po	Hung Hom	North Point
Year	2013	2015	2016
Size	177'-196'	194'-362'	163'-207'
No. of studios and 1-Bedroom unit	196	937	121
% of studios and 1-Bedroom units	18.3%	93%	95%
Price range	HK\$1,743,000 to HK\$2,113,000	HK\$3,450,000 to HK\$7,440,000	HK\$3,867,000 to HK\$4,784,000

(source: (Hong Kong Economic Times, 2018b, Hong Kong Economic Times, 2018a))

Table 4 shows that the percentage of Nano flats range from 163' to 362' increasing from 18.3% in 2013, to 93% and 95% in 2015 and 2016 respectively. Such dramatic increases in percentages imply that developers tend to build more Nano flats to cater for the growing demand for such flats. The smallest size falls within the range of 163' to 194', even smaller with only 163' in 2016, when compared to the other two developments in the earlier years—2013 and 2015. It further implies that the house size is getting smaller due to the rapid growth in population, thus motivating the developers to build more Nano flats, as there is no regulation on the minimum size of flats in Hong Kong. The price range for minimum size range from 163' to 194' in North Point (HK\$3,867,000) is the highest among the other two developments (HK\$1,743,000 and HK\$3,450,000) in Tai Po and Hung Hom. Further, it reveals that Nano flats tend to be more beneficial for investment and fetch higher rental income than other size units.

#### 5.0 IMPLICATIONS OF NANO FLATS

Nano flats normally cost less due to its small size, so homebuyers may be able to finance their purchase even if they are not financially very sound.

- **Low affordability**

Since the Nano flats are small in size, the down payment is low and the overall property price is also less. This means that more people can afford to own a flat.

- **Attractive rate of return**

With the growing demand for small size units, it has become the most popular type of units among other classes (Rating and Valuation Department, 1998-2018), the price and rental index can both

reflect this beneficial factor. Investors can maximize their capital appreciation through the disposal of the properties or lease out the unit with attractive rents, relatively easier to transact or lease out than large units.

However, the social problem arising from the growth of Nano flats cannot be underestimated. It may include:

- **Poor living condition**

As the size of the unit is small, people have to sacrifice their living standard by living in such a tiny space, squeezed in a small area, sleep or eat in the same small space.

- **Overcrowding in community**

The new completion of Nano flats' developments will cause overcrowding problems inside a community, such as inadequacy of public playgrounds, carparks and public transport.

- **Non-limitation of unit size**

Developers seize every opportunity to build as small a flat as possible, as they can maximize their profits as class A units are very popular nowadays. Some residence sizes are very small, even smaller than the carpark size. Some new developments aim to charge a relatively small lump sum price but higher price per square foot. Yet the government has no control nor does the Building Department have any measures to regulate or to restrict the minimum living size of the private domestic market. Developers therefore, build many Nano flats getting benefitted under this favourable government policy.

- **Substitution of non-residential premises**

Large supply of Nano flats with unaffordable prices may lead to another substitution of non-residential premises such as the industrial and commercial buildings. It provides conventional living space by converting these buildings for residential use. However, many living conditions such as clean water supply and fire facilities with safety measures must be fixed before occupancy. Besides, there may be other drawbacks as many industrial owners may intend to convert their buildings into residences, for example, by providing subdivided units illegally which threaten the life of many residents who live in the industrial buildings. On the other hand, the rent or price of industrial buildings will increase as there is another business opportunity apart from industrial or commercial activities, if it is legal to use the building for non-industrial use in future.

## **6.0 CONCLUSIONS**

Nano flats are affordable to the young people and couples who have limited financial capability, but the flat size ranges only between 16 sqm. to 18 sqm. In this study, the systematic review on several key indicators such as the price index and market yield have explained the rationale behind the expansion of the Nano flats in the cities with high population density such as Hong Kong. Considering the affordability, the Nano flats have been viewed as one way of solving chronic housing shortage. However, the social problem arising from the Nano flats cannot be simply ignored, for example, the living conditions have gotten worse because of the limited sizes of the flats.

**Email contact: [Michael.sing@newcastle.edu.au](mailto:Michael.sing@newcastle.edu.au)**

## REFERENCES

- BROWN, M. & KING, R. 2016. *City or suburbs: Where can you afford to live?* [Online]. Hong Kong. Available: <https://www.moneysense.ca/spend/real-estate/city-or-suburbs-where-can-you-afford-to-live/> [Accessed 28 January 2016].
- CENTALINE MORTGAGE. 2018. *Centraline Mortgage Calculator* [Online]. Hong Kong. Available: <http://www.centamortgage.com/icms/template-en.aspx?series=689&para1=BMC> [Accessed 12 December 2018].
- HONG KONG ECONOMIC TIMES. 2018a. *Property Station: One Prestige* [Online]. Hong Kong. Available: <https://ps.hket.com/srpe002/2511/%E5%B0%9A%E8%AD%BD/%E6%96%B0%E7%9B%A4%E8%A9%B3%E6%83%85> [Accessed 7 September 2018].
- HONG KONG ECONOMIC TIMES. 2018b. *Property Station: Upper East* [Online]. Hong Kong. Available: [https://ps.hket.com/srpe002/2455/%E7%92%B0%E6%B5%B7%E2%80%A7%E6%9D%B1%E5%B2%B8%20\(UPPER%20EAST\)/%E6%96%B0%E7%9B%A4%E8%A9%B3%E6%83%85](https://ps.hket.com/srpe002/2455/%E7%92%B0%E6%B5%B7%E2%80%A7%E6%9D%B1%E5%B2%B8%20(UPPER%20EAST)/%E6%96%B0%E7%9B%A4%E8%A9%B3%E6%83%85) [Accessed 10 November 2018].
- JONES LANG LASALLE. 2017. *London microflats attract investors after millennials priced out of traditional housing market* [Online]. Hong Kong. Available: <https://www.independent.co.uk/news/business/indyventure/london-microflats-investment-millennials-coliving-priced-out-housing-market-share-facilities-a7908381.html> [Accessed 23 August 2017].
- LI, S. 2017. *Hong Kong's latest nano flats prove popular despite HK\$3m price tag* [Online]. Hong Kong. Available: <https://www.scmp.com/business/companies/article/2105643/hong-kongs-latest-nano-flats-prove-popular-despite-hk3m-price-tag> [Accessed 6 August 2017].
- MIDLAND. 2018. *Property Price Chart* [Online]. Hong Kong: Midland Hong Kong, . Available: [n.midland.com.hk/property-price-chart](http://n.midland.com.hk/property-price-chart) [Accessed 10 November 2018].
- MILLER, C. C. 2014. *Urban Renewal-Where Young College Graduates Are Choosing to Live* [Online]. New York. [Accessed 10 November 2018].
- PLANNING DEPARTMENT. 2016. *Hong Kong 2030+: Towards a planning vision strategy transcending 2030*, *Baseline review: population, housing, economy and spatial development pattern* [Online]. Hong Kong. [Accessed 10 November 2016].
- RATING AND VALUATION DEPARTMENT 1998-2018. *Hong Kog Property Review. In: DEPARTMENT, R. A. V. (ed.). Hong Kong.*
- SUHaida, M., TAWIL, N. M., HAMZAH, N., CHE-ANI, A., BASRI, H. & YUZAINEE, M. 2011. Housing affordability: A conceptual overview for house price index. *Procedia Engineering*, 20, 346-353.