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# THE FALLACY BEHIND THE INFLATED FLATS – WILL STANDARDIZING TERMS MAKE RESIDENTIAL-MARKET PRICES IN CHINA COLLAPSE?

*Tsui Tat Chee\**

## **Abstract**

In China, the price of residential property mainly depends on its size. But when calculating the property's price, the Net Floor Area (NFA) is not used. Instead, China uses the Gross Floor Area (GFA), which the general public cannot easily calculate. Since the difference between the NFA and the GFA varies, many advocate using the NFA as the sole basis for calculating residential prices. In general, this would provide more reliable information to buyers.

Real estate developers object to this proposal because the price of the properties may collapse if their NFA is far below their GFA. The author asserts that these arguments are invalid because buyers and sellers will adjust to the new standard even though the properties are traded in the second-hand market.

## I. INTRODUCTION

Based on oriental agricultural traditions, Chinese people view land and property as more than something that provides a living or serves as an investment. The price and quality of their homes serve as the primary indicator of peoples' rank in society.

Despite the decline in agrarian living since the government's development of the manufacturing and service industries after the Open Door Policy in 1978, land properties still maintain their important function and act as a highly preferred investment product under the concept that "land is the source of all treasures." This concept still dominates the values of the Chinese people.

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Current real estate customs adopted in China may cause buyers to feel confused, or even misled, when they enter into an important purchasing or investment transaction. For example, the price of residential properties in China is based on the Gross Floor Area (GFA). But this measure does not reflect the actual useful area of the flat, that is, the Net Floor Area (NFA). Under this policy, buyers receive a smaller flat whose proportion of usable floor area may be unknown because the difference between GFA and NFA is not standardized or completely defined.

As it may not be easy for buyers to understand the actual usable area and compare the price of properties with different ratios of usable areas, it has been proposed that the NFA should be the standard measure for pricing. This would provide clear information for buyers to better understand the size of the flat they have purchased.

Property owners, real estate developers, and real estate agents oppose this suggestion arguing that changing the price measurement may cause a sudden drop in second-hand properties. They assert that this will happen because using the NFA will lower prices on properties that were previously priced and sold using the GFA. Moreover, changing the pricing policies may confuse people who are accustomed to the pricing structure under the GFA guidelines, even though it does not reflect the true usable area.

As legislation always lags behind policy, it is common for law makers to consider enhancing the standardization for the market after a problem occurs. Thus, the purpose of this paper is to provide an answer to the concerns stated above. Changing to the NFA will not cause market disorder for residential properties in China because they have special facets when they are still in the second-hand market. The paper also addresses why compulsory information disclosure is preferred in a market under circumstances of information asymmetry. In addition, this paper highlights the important function of foreign stakeholders in the market that should be considered when negotiating because the current

unwritten customs disadvantage foreign stakeholders. This paper provides an economic analysis of the suggestion for NFA pricing as proposed by the Hong Kong Institute of Architects. It focuses on the impacts on an existing market as it proposes new regulations for standardizing product descriptions and pricing. The suggestion at the end of the paper answers the concern that public areas excluded from NFA have value that may be ignored.

This paper discusses the pricing policies of residential properties in mainland China and Hong Kong and a proposed change in the laws regulating those policies. Next, this paper discusses some of the fears of those opposed to the proposed change and an explanation of the theories underlying the fears and those underlying the proposed change. This paper finishes by explaining the need for making the proposed changes even though the market has already adapted to the difficulties under the current regime.

## II. BACKGROUND ON PROPOSED CHANGES TO THE CHINESE REAL ESTATE PRICING SCHEME

Residential-property prices in China are calculated from the total area of the flat and are based on two systems of measurement, the gross floor area, GFA, and the net floor area, NFA. This section defines these two systems of measurement and how they are used in mainland China and Hong Kong. It then analyzes the problems created by the current system and proposes a solution to those problems. Next, this section addresses the critics' response to the solution, and concludes with a brief explanation of the possible effects of transitioning into the NFA pricing model.

### A. GFA vs. NFA

In China, the GFA is the standard pricing model used for residential properties. According to the Ministry of Housing and Urban-Rural

Development (MOHURD) of the People's Republic of China, the GFA is determined based on the following formula:

$$GFA = NFA + \frac{1}{2} \text{ Wall Area} + \text{Balcony Area} + \text{Public Area}.^1$$

While the GFA represents the total possible area of the flat, the NFA reflects only the usable area. Note that the GFA in China only includes half of the external wall of the building.<sup>2</sup> The underground area and the car parking space are excluded.<sup>3</sup> In addition, the public area is proportionally allocated to the GFA of each flat.<sup>4</sup>

In Hong Kong, where a special administrative region adopts its own laws independent of mainland China, there is not a GFA definition for individual flats but the GFA of a building is defined as follows:

[T]he area contained within the external walls of the building measured at each floor level (including any floor below the level of the ground), together with the area of each balcony in the building, which shall be calculated from the overall dimensions of the balcony (including the thickness of the sides thereof), and the thickness of the external walls of the building.<sup>5</sup>

## B. Problems with the Current System

Since the GFA measures total area rather than just usable area, this pricing model may harm the development of the real estate market in

<sup>1</sup> Jian she bu guan yu yin fa 《Shang pin fang xiao shou mian ji ji suan ji gong yong jian zhu mian ji fen tan gui ze》(Shi xing) De tung zhi (建设部关于印发《商品房销售面积计算及公用建筑面积分摊规则》(试行)的通知) [Gross Floor Area for Selling and Rules of Public Amortization (Trial Scheme) Notice], (promulgated by the Min. of Hous. and Urban-Rural Dev. [hereinafter MOHURD], Sept. 8, 1995, effective Dec. 1, 1995) MIN. OF HOUS. AND URBAN-RURAL DEV., Sept. 14, 2000, at art. 4, (China) available at [http://219.142.101.122/zcfg/jswj/fdcy/200611/t20061101\\_157411.htm](http://219.142.101.122/zcfg/jswj/fdcy/200611/t20061101_157411.htm).

<sup>2</sup> *Id.* at art. 7.

<sup>3</sup> *Id.* at art. 8.

<sup>4</sup> *Id.* at art. 10–11.

<sup>5</sup> Building (Planning) Regulations, (2005) BLIS Cap. 123F, reg. 23(3) (H.K.).

China because it creates an inconsistency in overall value of the property. For example, when the value of the non-exclusive public spaces (walls, balcony, lobby, corridor and elevator) are included in the GFA, properties with the same nominal area for pricing may have very different usable areas, which is the real value of the space and still be priced the same.

Additionally, different NFA ratios make it more difficult to compare the true values of individual properties. In China, even though flats in the same development project adopt the same NFA ratio,<sup>6</sup> buyers would still be unable to accurately compare the value of different developments with different NFA ratios.

In Hong Kong, there are no regulations governing the proportion of public areas that can be allocated to the GFA of individual flats. Unlike mainland China, even property within the same development project may not use the same NFA to GFA ratio. For example, in the same property project the NFA/GFA ratio ranges from 28% to 43%.<sup>7</sup>

In addition to the inconsistency in overall value of the flats, the GFA pricing model further widens the information barrier between developers and potential buyers who may receive far less usable area than they expect. For example, one may purchase a 1000 m<sup>2</sup> flat, only to find that the floor area is a mere 300 m<sup>2</sup> on settlement day.<sup>8</sup>

This will force buyers to expend additional time and resources into researching the actual useable area of the property. Buyers also may not be able to recognize how the GFA of individual flats is calculated, or understand the primary basis of pricing even when the total area of the project is available. In addition, the GFA model could cause both

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<sup>6</sup> MOHURD, *supra* note 1.

<sup>7</sup> See *infra* Appendix 1.

<sup>8</sup> See Pei-Lan Xin, Lou shu shi yong mian ji chang xiao shou mian ji dai ti (樓書「實用面積」倡「銷售面積」代替) [Adopt "Useable Area" Rather than "Salable Area" in Residential Selling Booklet], Hong Kong Economic Times, Mar. 22, 2007, at A26; see also Siji hao yuan 30% shi yong zui jing dian (四季豪園 30% 實用最經典) [30% Usable Area Rate in Seasons Palace, the Most Extreme Case], APPLIEDAILY (Hong Kong), May 5, 2007, at B02.

domestic and new foreign investors entering the Chinese or Hong Kong residential markets to lose confidence in the market since they may not understand why the actual area is less than what they expected based on the area for pricing.

In responding to this problem, the Hong Kong government continues to reform the regulations by standardizing the definition of salable area.<sup>9</sup> The Hong Kong Estate Agents Authority also currently recommends that developers disclose all pertinent information.<sup>10</sup> Nonetheless, the current definition of the GFA remains the core problem because it still contains unregulated values for public areas.<sup>11</sup>

### C. The Proposed Solution to the Pricing Model Dilemma

The most effective method for solving customer misunderstandings regarding the size of the flat purchased and price incomparability among properties is to adopt a uniform standard of measurement. The Hong Kong Institute of Architects suggests that residential properties should be priced based on their NFA.<sup>12</sup>

<sup>9</sup> See Press Release, Hong Kong Government, Standardized Definition of "Saleable Area" for Uncompleted First-hand Residential Properties Takes Effect Today (Oct. 10, 2008), available at <http://www.info.gov.hk/gia/general/200810/10/P200810100152.htm>.

<sup>10</sup> Memorandum from the Real Estate Developers Association of Hong Kong to REDA Corporate Members (Oct. 10, 2008), available at <http://www.eaa.org.hk/consumers/doc/20081010.pdf>.

<sup>11</sup> See jie ding bu qing "suo shui lou" lu re zheng ao (界定不清「縮水樓」屢惹爭拗) [Ill-Defined 'Shrink Floor' Repeatedly Provoke Disputes], WEN WEI PO (June 18, 2008) (Hong Kong), <http://paper.wenweipo.com/2008/06/18/HK0806180015.htm>. As of March 2012, there were no Hong Kong regulations defining gross floor area for individual flats. See *Bills Committee on Residential Properties (First-hand Sales) Bill: Background brief prepared for the meeting on 30 March 2012*, Legislative Council, LC Paper No. CB(1) 1445 /11-12(01) (H.K.), available at <http://www.legco.gov.hk/yr11-12/english/bc/bc04/papers/bc040330cb1-1445-1-e.pdf>.

<sup>12</sup> See Press Release, Hong Kong Institute of Architects, xin wen gao Xiang gang jian zhu shi xue hui dui fa shui lou wen ti ji zong lou mian mian ji kuan mian de yi jian (新聞稿:香港建築師學會對「發水樓」問題及總樓面面積寬免的意見) [The Hong Kong Institute of Architects' Opinion on Inflated Flats and Exemption on Total Floor Area] (Oct. 12, 2010), available at <http://www.hkia.net/en/News/action.do?mappingName=PressRelease&method=list>.

As a simple example, assume that a developer claims a property is 1,000 m<sup>2</sup> GFA. At \$1,000/m<sup>2</sup>, the total price would equal \$1 million. If the NFA, that is, the actual usable area, is 500 m<sup>2</sup> then the price per usable square-meter is \$2000.<sup>13</sup>

#### D. Criticism of the Proposed Solution

Although the proposed NFA pricing model could resolve potential misunderstandings regarding actual value, property owners, developers, and real estate agents object to this proposal stating that:

- a new pricing system may cause the prices of existing properties to suddenly drop,<sup>14</sup>
- buyers who have become accustomed to the current pricing system may be confused by the change,<sup>15</sup> and
- the public area should not be excluded from estimating the property price since it also creates use value for residents.<sup>16</sup>

#### E. How the Remainder of the Paper Will Evaluate the Proposed Solution

This paper focuses on the effect of transitioning from GFA pricing to NFA pricing in the case of second-hand residential property in Hong

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<sup>13</sup> Price per usable m<sup>2</sup> = (GFA x Price Per m<sup>2</sup>)/NFA = (1,000 m<sup>2</sup> x \$1,000) / 500 m<sup>2</sup> = \$2,000. With 500 m<sup>2</sup> multiplied by \$2,000 / m<sup>2</sup>, the total cost would still be \$1 million.

<sup>14</sup> Shi yong mian ji ji lou jia ye zhu you die jia liang cheng (實用面積計樓價 業主憂跌價兩成) [Property Owners Worry 20% Price Drop when Using Usable Floor Area for Pricing], THE HONG KONG HEADLINES (Oct. 15, 2010), [http://news.hkheadline.com/dailynews/content\\_hk/2010/10/15/126109.asp](http://news.hkheadline.com/dailynews/content_hk/2010/10/15/126109.asp).

<sup>15</sup> See Shih Wing Ching, Shi yong mian ji ji jia bu yi tui xing (實用面積計價不易推行) [Hardship of Net Floor Area Pricing], MY SINA BLOG (Oct. 20, 2010), <http://shihwingching.mysinablog.com/index.php?op=ViewArticle&articleId=2648819>. Shih Wing Ching is the co-founder of Centaline Property Agency, Ltd.

<sup>16</sup> See Shih Wing Ching, Mai lou bu neng zhi kan shi nei mian ji (買樓不能只看室內面積) [Net Floor Area Shall Not Be the Sole Factor for Pricing], MY SINA BLOG (Oct. 20, 2010), <http://shihwingching.mysinablog.com/index.php?op=ViewArticle&articleId=2650976>.



Kong. Goods in the first-hand market will not be affected by a new regulation being enforced, while second-hand products will be traded on the market before and after the regulation. Thus, they will be evaluated and priced by two different standards of measurement.

Residential properties are highly affected by policy changes because their duration of trading is relatively long, i.e., 50 years, which is the minimum age before a property is subject to compulsory sale for redevelopment in Hong Kong.<sup>17</sup> This age may provide a reference for the useful life of residential properties from a legal point of view. The long duration of trading makes residential properties a good example for determining the effects of regulation changes in the market.

To analyze the effect of transitioning from GFA to NFA, Hong Kong is preferred to mainland China, as a case study, for two main reasons. First, other than the common problem that the GFA pricing does not reflect the actual usable area for the residents, the proportion between the GFA and the NFA in China is well-governed, while regulations in Hong Kong are much less clear.<sup>18</sup> A test that provides an answer to the situation in Hong Kong will more effectively explain the complexities of the issue. Second, the findings will prove valuable when the legislators in Hong Kong are reviewing possible reforms to the laws regulating residential-property sales in order to guarantee that customers obtain sufficient information.

### III. THE ECONOMIC THEORIES UNDERLYING THE CRITICS' FEARS

In essence, the problem of GFA pricing can be understood as an information barrier. The area customers pay for, as claimed by developers, does not reflect the actual usable area. This creates a barrier when buyers access information about residential properties from sellers. The developer, the party who designs and builds the property, will know

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<sup>17</sup> Land (Compulsory Sale for Redevelopment) (Specification of Lower Percentage) Notice, (2010) BLIS Cap. 545A, 1, § 3 (H.K.).

<sup>18</sup> See *supra* Part II.B.

these details about the property. The purchaser, on the other hand, may not have access to this information if the developer does not disclose it or if the purchaser does not conduct an in-depth search. As a result, an asymmetrical information difference is created between the seller and the buyer.

When information about the quality of goods available to both parties is different, such as the NFA/GFA ratio in residential properties in China, analogizing to George Akerlof's lemon market model may be fitting. This analogy serves as a good starting point for considering the information asymmetry in the market before deciding whether a new standardized term, NFA pricing, should be implemented.

#### A. Akerlof's Lemon Market Model

In the lemon market model, George Akerlof concluded that the market may collapse when the information that buyers and sellers have access to is asymmetrical and the quality of the goods is uncertain. In a market where there are quality used cars and defective used cars (lemons), the model assumes that sellers understand the quality of the cars they sell, and that buyers cannot distinguish between quality cars and lemons.

Under this model, when buyers are not able to differentiate the quality of the cars available on the market, they are willing to pay the price for cars of average quality. On the other hand, sellers will decide to only offer cars of low quality because they are not willing to accept average payment for an above average car. Thus, buyers pay the price for average quality cars but receive lemons. As above average cars are removed from the used-car market, the average quality of cars declines.

Despite this trend, sellers may gain a short-term advantage by receiving prices for average quality cars even when selling lower quality cars. But in the long run buyers lower their expectations and reduce their offers. Owners of average quality cars will no longer sell,

and the market eventually fails because sellers are no longer willing to sell.

When George Akerlof received the Nobel Prize in economics, he stated in his acceptance speech that his paper on the lemon market was rejected three times.<sup>19</sup> A third round reviewer of the paper raised an interesting argument against Akerlof's conclusion saying that, "after all, eggs of different grades were sorted and sold (I do not believe that this is just my memory confusing it with my original perception of the egg-grader model), as were other agricultural commodities. If this paper was correct, then no goods could be traded (an exaggeration of the claims of the paper)."<sup>20</sup> While the reviewer's point may seem logically sound, the market does not actually collapse when Akerlof's logic is applied to the Hong Kong residential-property market.

#### B. Gresham's Law

Akerlof's analysis is one way of understanding human behaviors and market outcomes under Gresham's law.<sup>21</sup> But Akerlof's analysis may not be in complete agreement with the original idea of Thomas Gresham. Gresham stated that when dealing with the situation described by Akerlof, "both [the] buyer and seller can tell the difference between good and bad money."<sup>22</sup>

As mentioned in the previous section, buyers may not lack the knowledge required for Akerlof's model to hold true in the Chinese residential markets. This is because it is possible for buyers to search for any information the sellers do not provide. When buyers search for

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<sup>19</sup> George A. Akerlof, *Writing the "The Market for 'Lemons'": A Personal and Interpretive Essay*, NOBEL PRIZE (Nov. 14, 2003), [http://nobelprize.org/nobel\\_prizes/economics/laureates/2001/akerlof-article.html](http://nobelprize.org/nobel_prizes/economics/laureates/2001/akerlof-article.html).

<sup>20</sup> *Id.*

<sup>21</sup> George A. Akerlof, *The Market for 'Lemons': Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488, 489-90 (1970).

<sup>22</sup> *Id.* at 490.

information, the result is no trading in the market. Thus, the inference made by the reviewer of Akerlof's paper does not occur.

The conclusion of Gresham's Law is no longer applicable in the real world. As in Gresham's model, when "good" and "bad" money exist in the market, people are only willing to use the "bad" money and hold the "good" money. Such a choice in today's world would cause "good" money to disappear in the market, and only "bad" money would be left to use.<sup>23</sup>

### C. The Problem with Using the Lemon Market or Gresham's Model

In terms of logic, neither Akerlof nor the reviewer of his paper is wrong. It is a reasonable reaction for sellers in Akerlof's lemon market to offer cars of low quality when (1) buyers are not able to access the cars' quality before the transaction, and (2) sellers request a fixed amount (the price for cars of average quality) in order to maximize their profits.

The collapse of the lemon market does not occur in a predictable fashion. A market collapse will only result if buyers and sellers act in accordance with Akerlof's model. If the market still exists, and Akerlof's logic is correct, then how can Akerlof and the reviewer both be correct?

The reason may be that Akerlof's model only represents the most extreme circumstance. If buyers do not have any information about the goods they buy, market failure may be the inevitable outcome. But this situation is not realistic for buyers purchasing real estate. Buying real estate is one of the most important investments in a person's life. Even though the buyer may not search for all the information the buyer lacks, such as the true usable area of the residential property, the buyer still

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<sup>23</sup> STEVEN N. S. CHEUNG, *Zhong guo de qian tu* (中國的前途) [CHINA'S PROSPECT] 59 (Hong Kong Economic Journal Press, 10th ed. 1996). Steven Cheung also discusses the same ideas on his blog [http://blog.sina.com.cn/s/blog\\_47841af7010003w8.html](http://blog.sina.com.cn/s/blog_47841af7010003w8.html) (last visited Mar. 23, 2012).

obtains some additional information about the property. Thus, the outcome would go against Akerlof's model and the reviewer's conclusion.

#### IV. ECONOMIC THEORIES UNDERLYING SUPPORT OF THE PROPOSED CHANGES

When buyers seek information on their own they consider how to adjust their behavior and what the result of these adjustments may be. However, Steven Cheung, who examined the "Twin-Dollar System" of China in the 1980s and 1990s, rebutted this conclusion. Cheung's observations will serve as a starting point to understand whether the Chinese residential-property markets can handle a new regulation to standardize the NFA pricing policy.

##### A. China's Twin-Dollar System

Between 1980 and 1995 people used two types of currency in China: the Renminbi (RMB) and the Foreign Exchange Certificate (FEC). The RMB was the ordinary currency of the Chinese people. The FEC, on the other hand, was only available to foreign visitors entering mainland China. The FEC was highly flexible because it could be exchanged for foreign currencies and could also be taken out of the country.<sup>24</sup> The RMB could not be exchanged or taken out of China.<sup>25</sup> Some of the more exclusive retailers and restaurants accepted only the FEC, making the FEC essential to enjoy luxury products and services.<sup>26</sup> Despite the fact that the FEC was more desired the official exchange rate between the FEC and RMB remained 1-to-1.<sup>27</sup>

Under Gresham's analysis, the FEC would be classified as "good" money and the RMB as "bad" money. In Gresham's original idea, when

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<sup>24</sup> *Id.* at 57.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at 61.

<sup>27</sup> *Id.* at 57.

both “good” and “bad” money have the same face value, a reasonable person would hold the “good” money (the FEC) and only spend the “bad” money (the RMB) to maintain a higher in-hand value. If Gresham’s law held true, the FEC would have eventually disappeared from the market because people would not want to spend their “good” money. But this was not the case. So why did the FEC continue to circulate? Cheung suggested that buyers were willing to pay in “bad” money, but sellers were not necessarily willing to accept it. If sellers did not want to accept RMB, either people paying in “bad” money would have to pay a premium to compensate for paying in RMB, or sellers would have to offer a discount to buyers paying in FEC, or “good” money, until equilibrium was achieved to make a transaction possible.<sup>28</sup>

By late 1984, the difference in substantive value caused the exchange rate between the two currencies in the black market to reach 1-to-1.8.<sup>29</sup> As a result, Chinese people would rarely exchange FEC for RMB when they received FEC from a foreigner, even though regulations required them to do so.<sup>30</sup> In the interest of competing with the black market, some government-owned hotels began offering 30% to 50% discounts to customers paying with the FEC.<sup>31</sup> Still, this was not as advantageous as the 80% discounts being offered in the black market.<sup>32</sup>

Cheung posited that the Chinese government adopted the FEC as a second currency for foreigners’ use because it would result in additional economic gains for China as long as foreigners did not exchange it at a lower rate on the black market.<sup>33</sup> Information and transaction costs were pre-conditions of such gains because they would only occur if

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<sup>28</sup> *Id.* at 59.

<sup>29</sup> *Id.* at 57. The original text stated that 100 Hong Kong Dollars were equal to 35 RMB or

63 FEC.

<sup>30</sup> *Id.* at 58.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> *Id.* at 60-62.

foreigners exchanged in official ways. When foreigners realized they could obtain a better exchange rate in the black market, these gains ceased.

Cheung's 1985 analysis thus solved the paradox of Akerlof's speech in 2001. When Akerlof's model is taken to the extreme, sellers only offer low quality cars because buyers pay a given price without knowing the quality of the goods. As a result, buyers no longer want to pay the price for average quality if they cannot examine the goods before the transaction. The reviewer's conclusion that no goods would be traded under these circumstances may be logically true. However, in reality buyers would have some knowledge of the goods they intended to purchase even if the sellers did not provide it, just as foreign buyers of Chinese currencies were able to obtain information about the exchange rate of the FEC and the RMB on the black market, even though it was not available through official channels. The condition Cheung listed—that buyers might obtain information by themselves after paying reasonable information and transaction costs—provided an answer as to why Akerlof's and the reviewer's logic did not hold. Simply put, the model did not result in unaffordable costs to prevent buyers from accessing information about the quality of goods.

Cheung's answer to Gresham's law provides a framework for legislating the transition to standardized terms for Chinese and Hong Kong residential-property pricing. This framework is especially illuminating with respect to whether or not new standardized terms will cause confusion in the second-hand market. If everyone exchanges the RMB for the FEC under the official rate (1-to-1), the price of 1 FEC will be 1 RMB resulting in equilibrium at E1 in Figure 1. For people who recognize that they can obtain a better exchange rate in the black market—where the price of 1 FEC would be 1.8 RMB—the equilibrium would be E2.

Under this model, when some people are not aware that the black market offers a better rate or that competing government-owned

companies offer similar rates, not all exchange transactions will be completed at the black-market rate E2, even though the black-market rate is the equilibrium that buyers and sellers are willing to accept for the difference in quality between the FEC and the RMB. Thus, market equilibrium will neither occur at the official rate of 1 RMB, nor occur at the black-market rate of 1.8 RMB because neither the official channel nor the black market will have a monopoly on customers desiring to exchange FEC. Instead, most people will exchange their FEC at some point between these two, resulting in a 1.5 RMB exchange rate, the semi-official rate offered by government-owned companies. This new rate results from the competition between the government and the black market, creating a new equilibrium, E3 in Figure 2. E3 is even closer to whole market equilibrium than E1 or E2 because it represents the result of these two extreme situations.

At E2, 1.8 RMB is the equilibrium that buyers and sellers want. E1, the official rate, transfers part of the surplus from foreigners who buy Chinese currency. The surplus (a), or the additional gain recognized by Cheung, occurs when people obtain 1 RMB with 1 FEC.<sup>34</sup> However, the higher price of Chinese currency under the official rate results in higher costs, which discourages foreigners' consumption in China. This decreases the amount of money exchanged by foreigners. Thus, (b) becomes the surplus China loses when foreigners obtain less Chinese currency at a higher rate, and (d) is the deadweight loss due to the Twin-Dollar System. The loss is seen when foreigners pay a higher price for Chinese currency, but part of the difference is lost in transaction fees rather than a transfer to the Chinese government.

Essentially, the exchange rate difference results in an indirect tax on the exchange of currency by foreigners.<sup>35</sup> Consequently, foreigners will

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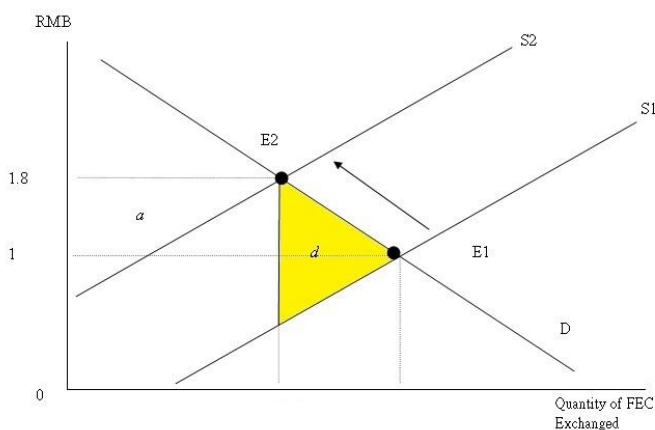
<sup>34</sup> *Id.*

<sup>35</sup> The effect of the Twin-Dollar System is similar to that of a tax but with the difference that the Chinese government acts both as tax collector and currency seller. For an example of the original model of the tax effect, see ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 336 (Prentice Hall, 7th ed. 2009).



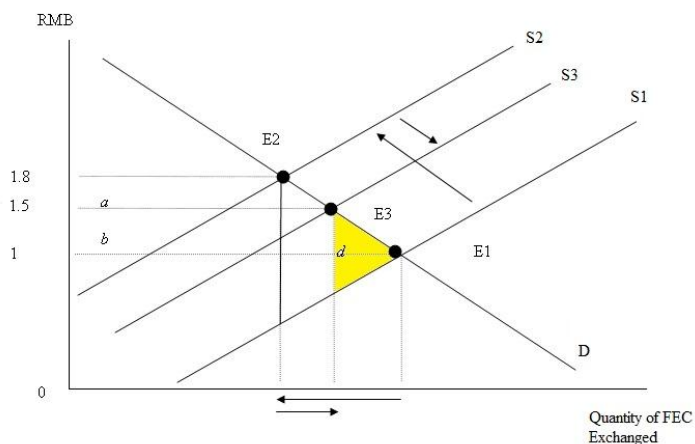
lose if they do not obtain a desirable price in the black market. The net gain or loss depends on the elasticity of foreigners' demand.<sup>36</sup> Conversely, when people exchange through both official channels and on the black market, the semi-official market rate releases part of the deadweight loss, and the government gains from the Twin-Dollar Policy. The net effect of the black market thus simulates a tax rate reduction because it forces the government to offer the semi-official rate to reduce its deadweight loss.

*Figure 1 – The Higher Rate Charged by the Government Is a Form of Indirect Tax*



<sup>36</sup> CHEUNG, *supra* note 23, at 60-62.

Figure 2 – The Black Market Offsets Part of the Government's Gain and Deadweight Loss



### B. “Adjusted-Already” Price

To some extent, China’s residential-property markets are similar to its Twin-Dollar System. But the result may be different. The GFA standard for pricing inflates the value of the property. Buyers who do not recognize the GFA’s inflationary effect may pay more because they fail to understand that they are receiving far less area than they expect. This is similar to the Twin-Dollar System when people did not realize they could obtain a better rate on the black market. As Figure 3 indicates, if buyers do not recognize that the inflated usable area using GFA is much less than the NFA, sellers have an advantage. But in contrast to the black market for Chinese currency where not all people were aware of the alternative exchange rate, it is unlikely that this is the case in the residential-property market.

First, compared to the black market where information was unavailable through public channels because it was illegal, examining the actual area of a flat by a buyer is completely reasonable and legal. Second, there is a fundamental difference in attitude between foreigners

visiting China and individuals considering the purchase of real property. It is difficult to justify the presumption that buyers do not take reasonable steps to examine such an important investment, especially considering that they may spend up to 60% of their income on the mortgage.<sup>37</sup>

In addition, the result would be completely different from that of the Twin-Dollar System if buyers in the real estate market did not merely rely on the GFA information offered by the sellers. If buyers were to calculate the NFA and examine all of the extra public area included in the GFA, buyers could assign value to the extra space to determine the price they would be willing to pay because it would tell them the true value they would receive from the property.

Returning to the simple example used earlier,<sup>38</sup> if the buyer recognizes that the actual area of the flat is 500 m<sup>2</sup> as measured in NFA instead of the 1,000 m<sup>2</sup> measured by the inflated GFA, the buyer can then determine if \$1 million is a fair price to pay for a 500 m<sup>2</sup> flat rather than a 1,000 m<sup>2</sup> flat. Assuming that this situation represents reality, even if the inflated GFA draws the equilibrium to E2 in Figure 3, the buyers' search for information would push the equilibrium back to E1 as they would have to obtain the true area, the NFA, by themselves. In short, the inflationary effect of GFA pricing does not matter when buyers adjust the area's true value per square-meter according to the NFA.

The analysis becomes even more interesting upon realizing that the primary concern for the seller—that the price of properties in the second-hand market might collapse upon changing from GFA-based pricing to NFA-based pricing<sup>39</sup>—will not occur. Buyers are likely to examine the quality of the goods that they spend 60% of their income on, unless they do not recognize the difference between the two floor

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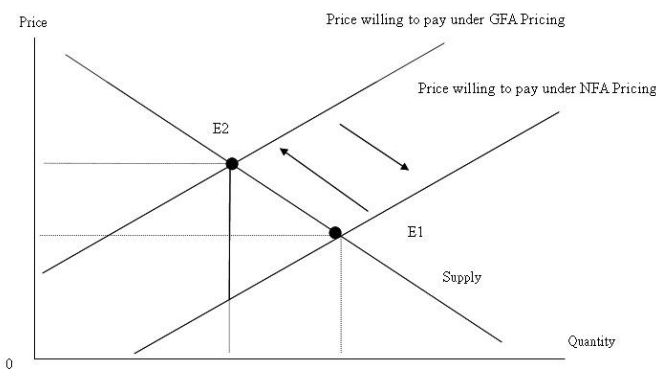
<sup>37</sup> Mei Lian: Gong lou fu dan lu shi ji da liu cheng (美聯：供樓負擔率實際達六成) [Midland Realty: The Real Rate of Mortgage Burden on Income Reaches 60%], THE SUN (March 8, 2011), [http://the-sun.on.cc/cnt/finance/20110308/00434\\_005.html](http://the-sun.on.cc/cnt/finance/20110308/00434_005.html).

<sup>38</sup> See *supra* note 13.

<sup>39</sup> See *supra* Part II.D.

areas. The other argument, that buyers have become accustomed to the inflated GFA pricing,<sup>40</sup> rebuts the possibility that buyers do not know the difference between the two meanings of “area.”

*Figure 3 – The Demand Curve Goes Back to Original When Buyers Conduct Their Own Search for Information*



### C. Summary of the Twin-Dollar and Adjusted-Already Theories

Because there is an information gap that can be filled in the residential market, the double currency is useful in coming to an understanding about the perceived and actual problems of the proposed change. Since purchasers have access to extra information already in the residential market, the prices for flats using the GFA pricing model are likely priced to include the public areas. This means that by changing from GFA to NFA will likely cause very little change in prices, since the purchasers have already priced the flats knowing the actual usable area. Thus, a property selling for \$1 million will likely still sell for one million, and the only change will be in the multiple used to get there.

<sup>40</sup> See *supra* Part II.D.

## V. WHY LEGISLATE IF THE PRICE IS ALREADY ADJUSTED

After responding to the first two objections to NFA pricing, a possible inference is that the policy enhances the price by providing information about the true value of the residential properties. But two questions remain:

1. If buyers themselves have already adjusted the price they are willing to pay, why change the law?
2. Because the public area also provides a certain value to residents, though perhaps not equivalent to that of private area, how is the value of the public area incorporated?

## A. Long-Term Cost Savings

In response to the first question, why change to NFA if buyers have already adjusted to GFA pricing because buyers are able to search for the true information by themselves, it is much more cost effective and efficient to adopt NFA pricing. When buyers discover the true area of the private area and the components of the public area, they must verify the information at the flat or calculate it from the floor plan. Under NFA pricing, the data will be available from developers as designers of the property. Put simply, social waste occurs if buyers must duplicate the work already performed by the developers.

While a possible objection to NFA pricing includes the excessive cost of providing buyers with additional information, NFA pricing passes muster even under a cost-benefit analysis. As previously discussed, this system not only saves buyers the cost of researching the true area of the flat, but it also mitigates misunderstandings for those who do not know that the GFA does not reflect the actual usable space. Specifically, the NFA serves to protect foreign investors since they are more likely than domestic residents to be misled by the GFA model. If

foreign investors have greater confidence in the Chinese residential-property market, they may be more inclined to invest in it. Furthermore, a standard NFA pricing model enhances comparability among properties because unlike the GFA, which uses different rates, buyers would not have to recalculate the value of the real property.

Compared to the benefits, the overall costs of changing to the new NFA pricing system are relatively negligible. For new first-hand properties, there is no additional cost since developers will already have all of the pertinent information when they design the buildings. The information cost for properties for which the NFA is already available is zero, while there may be a one-time evaluation cost for properties if the NFA is unknown and it is traded in the second-hand market. This one-time evaluation cost is a sunk cost because evaluating the NFA of the flat is already required of new buyers. For old properties, not only is there no additional cost, but there is an actual benefit since NFA pricing ensures that this information is available when the property is traded for a second time on the market.

The Hong Kong government has enforced the first step toward creating a more buyer-friendly market. As of 2008,<sup>41</sup> when selling unfinished first-hand residential properties, developers must disclose the NFA, and they are required to offer on-site model units as of 2010.<sup>42</sup> But this is far from enough. While the law would lower the evaluation cost for buyers in the first-hand residential-property market, it would have no influence on properties sold before 2008. It also would not improve the problems of incomparability between different projects.

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<sup>41</sup> Press Release, Hong Kong Government, Zhuzhai shiyong mianji dingyi shengxiao (住宅實用面積定義生效) [Definition of Net Floor Area for Residential Properties Comes into Force] (Oct. 10, 2008), <http://archive.news.gov.hk/isd/ebulletin/tc/category/infrastructureandlogistics/081010/html/081010tc06002.htm>.

<sup>42</sup> Press Release, Hong Kong Government, Legislative Council: Speech by Financial Secretary on Second Reading Debate on Appropriation Bill 2010 (Apr. 21, 2010), <http://www.info.gov.hk/gia/general/201004/21/P201004210173.htm>.

Furthermore, the second-hand market would not collapse, as posited by those opposed to NFA pricing, because buyers would search for the true information themselves. But what if, although unlikely, foreigners were to buy property unaware that the total price-per-area they paid for was inflated and the actual space purchased is much less than expected? If buyers do not know that the area of the GFA is not the true usable area, the price of second-hand market property may drop slightly as the critics predict.<sup>43</sup> But it will not result in a price collapse because this naïve group will not be the majority of purchasers. Even the seller side has agreed that most people are already familiar with this practice, and it is wrong to assume that investors would not examine the quality of goods before spending sixty percent of their income.<sup>44</sup> Still, NFA pricing should not be implemented to provide more reliable information to this type of investor, but rather to protect those investors who have less knowledge due to information asymmetry.

#### B. The Value of the Public Area

Although the NFA model passes muster under the cost-benefit analysis, unfortunately it may not directly resolve the question of how to adequately value the public area of a residential property because public area is composed of various components with varying functions and characteristics. It is also not fair to regard public area as equal in value to the private area under the GFA pricing. A possible solution to assessing the value of public space is to provide the NFA plus a disclosure of the price breakdown of additional components, thus allowing customers to determine how much they are willing to pay for each component.

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<sup>43</sup> See *supra* Part II.D.

<sup>44</sup> See *supra* Part IV.B.

In short, NFA pricing with compulsory disclosure would not induce additional information or transaction costs, but would instead result in net social gains in the long term.

## VI. CONCLUSION

China should move from pricing flats from using the GFA to the NFA. The question addressed in this paper is not limited to the problem of the residential market in China and the information barriers encountered by foreign investors who enter into a market with unspoken rules. More importantly, the study discussed in this paper examines how a new regulation can standardize contract terms and mitigate market disarray, even when goods are traded in a second-hand market.

The fears of those opposed to the proposed pricing change are unfounded. As described in the Lemon-Market theory, if there was no possible way for a purchaser to obtain information about the product they purchase, then it is possible for the market to collapse. But as seen in the analysis of the Twin-Dollar and Adjusted-Already theories, information is almost never completely restricted. For this reason, the latter two theories better explain what will happen to the market if China changes its pricing policies. In reality, the market has already accounted for the pricing difficulties and is evident in the price purchasers are willing to pay under the current regime.

Even though the market has already accounted for the difficulties of pricing, the governments in mainland China and Hong Kong should still adopt the changes in order to create a more stable environment for foreign investors and to decrease the overall cost. Foreign investors need to be protected because they do not have the easy access to extra information like Chinese nationals. By changing the law to one standard for NFA, accurate information about the usable floor area will be available to everyone and the cost to get that information will decrease. The overall transactional cost will decrease because the NFA needs to



be calculated and posted only once instead of each individual buyer having to break down the GFA into its components to determine NFA before buying.

For these reasons, mainland China and Hong Kong should change to NFA pricing instead of the GFA variations they currently use.

Appendix 1  
An Example of Area Breakdown of  
A Resident Property Project in Hong Kong (in ft<sup>2</sup>)<sup>45</sup>

		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)		
House Number	Type of Houses	GFA of House Included Public Area Amortized and the House	Total Area of the House	NFA of the House (Windowsills Included)	Area of Windowsills	Area of Garage and Carpark	Area of Carpark	Area of Garage	Area of Garden	Area of Roof Terrace	NFA (C/A) (%)	NFA Windowsills Excluded ((C-D)/A) (%)
1	A1	2,590	2,373	1,092	61	356	135	221	426	499	42.16	39.81
2	A2	2,562	2,346	1,083	61	349	135	214	423	491	42.27	39.89
3	A2	2,561	2,345	1,083	61	349	135	214	422	491	42.29	39.91
5	A1	2,594	2,376	1,092	61	356	135	221	429	499	42.10	39.75
6	A1	2,591	2,374	1,092	61	356	135	221	427	499	42.15	39.79
7	A2	2,552	2,337	1,083	61	349	135	214	414	491	42.44	40.05
8	A2	2,548	2,333	1,083	61	349	135	214	410	491	42.50	40.11
9	A2	2,544	2,329	1,083	61	349	135	214	406	491	42.57	40.17
10	A2	2,540	2,325	1,083	61	349	135	214	402	491	42.64	40.24
11	A1	2,572	2,355	1,092	61	356	135	221	408	499	42.46	40.09
12	A1	2,590	2,373	1,092	61	356	135	221	426	499	42.16	39.81
15	A2	2,587	2,371	1,083	61	349	135	214	448	491	41.86	39.51
16	A2	2,616	2,400	1,083	61	349	135	214	477	491	41.40	39.07
17	A1	2,711	2,495	1,092	61	356	135	221	548	499	40.28	38.03
18	A1	2,704	2,490	1,087	54	356	135	221	548	499	40.20	38.20
19	A2	2,660	2,445	1,083	61	349	135	214	522	491	40.71	38.42

<sup>45</sup> Excerpt taken from *Seasons Palace*, MIDLAND REALTY (Oct. 14, 2009), [http://app.midland.com.hk/residential\\_ebook/%A5%7C%A9u%BB%A8%B6%E9-seasons-palace](http://app.midland.com.hk/residential_ebook/%A5%7C%A9u%BB%A8%B6%E9-seasons-palace).

20	A2	2,761	2,545	1,083	61	349	135	214	622	491	39.22	37.02
21	A2	2,931	2,716	1,083	61	349	135	214	793	491	36.95	34.87
22	A2	3,101	2,886	1,083	61	349	135	214	963	491	34.92	32.96
23	A2	3,272	3,056	1,083	61	349	135	214	1,133	491	33.10	31.23
25	A2	3,431	3,215	1,083	61	349	135	214	1,292	491	31.57	29.79
26	A1	3,642	3,425	1,092	61	356	135	221	1,478	499	29.98	28.31
27	A1	3,191	2,974	1,092	61	356	135	221	1,027	499	34.22	32.31
28	A2	2,998	2,782	1,083	61	349	135	214	859	491	36.12	34.09
29	A2	2,850	2,634	1,083	61	349	135	214	711	491	38.00	35.86
30	A2	2,767	2,551	1,083	61	349	135	214	628	491	39.14	36.94
31	A2	2,737	2,520	1,083	61	349	135	214	597	491	39.57	37.34
32	A2	2,706	2,490	1,083	61	349	135	214	567	491	40.02	37.77
33	A2	2,666	2,450	1,083	61	349	135	214	527	491	40.62	38.33
35	A1	2,650	2,433	1,092	61	356	135	221	486	499	41.21	38.91
36	A3	2,821	2,605	1,096	61	349	135	214	663	497	38.85	36.69
37	A2	2,877	2,662	1,083	61	349	135	214	739	491	37.64	35.52
38	A2	2,994	2,778	1,083	61	349	135	214	855	491	36.17	34.13
39	A2	3,119	2,903	1,083	61	349	135	214	980	491	34.72	32.77
50	A2	3,180	2,964	1,083	61	349	135	214	1,041	491	34.06	32.14
51	A2	3,180	2,964	1,083	61	349	135	214	1,041	491	34.06	32.14
52	A1	3,486	3,271	1,085	54	356	135	221	1,331	499	31.12	29.58
53	A1	2,810	2,596	1,087	54	356	135	221	654	499	38.68	36.76
55	A2	2,789	2,574	1,083	61	349	135	214	651	491	38.83	36.64
56	A2	3,452	3,236	1,083	61	349	135	214	1,313	491	31.37	29.61
57	A1	3,456	3,239	1,092	61	356	135	221	1,292	499	31.60	29.83
58	A1	3,552	3,335	1,092	61	356	135	221	1,388	499	30.74	29.03
59	A2	3,601	3,385	1,083	61	349	135	214	1,462	491	30.07	28.38
60	A2	3,700	3,484	1,083	61	349	135	214	1,561	491	29.27	27.62
61	A2	3,798	3,582	1,083	61	349	135	214	1,659	491	28.52	26.91
62	A2	3,775	3,559	1,083	61	349	135	214	1,636	491	28.69	27.07
63	A2	3,429	3,213	1,083	61	349	135	214	1,290	491	31.58	29.80

65	A3	3,050	2,833	1,096	61	349	135	214	891	497	35.93	33.93
66	A1	2,774	2,559	1,085	54	356	135	221	619	499	39.11	37.17
67	A2	3,318	3,102	1,083	61	349	135	214	1,179	491	32.64	30.80
68	A2	3,274	3,058	1,083	61	349	135	214	1,135	491	33.08	31.22
69	A2	3,203	2,987	1,083	61	349	135	214	1,064	491	33.81	31.91
70	A2	3,132	2,916	1,083	61	349	135	214	993	491	34.58	32.63
71	A2	3,074	2,858	1,083	61	349	135	214	935	491	35.23	33.25
72	A2	2,519	2,303	1,083	61	349	135	214	380	491	42.99	40.57
73	A1	2,560	2,342	1,092	61	356	135	221	395	499	42.66	40.27
75	A1	2,567	2,349	1,092	61	356	135	221	402	499	42.54	40.16
76	A2	2,543	2,326	1,083	61	349	135	214	403	491	42.59	40.19
77	A2	2,608	2,392	1,083	61	349	135	214	469	491	41.53	39.19
78	A2	2,674	2,458	1,083	61	349	135	214	535	491	40.50	38.22
79	A2	2,630	2,414	1,083	61	349	135	214	491	491	41.18	38.86
80	A1	2,597	2,379	1,092	61	356	135	221	432	499	42.05	39.70
81	A1	2,597	2,380	1,092	61	356	135	221	433	499	42.05	39.70
82	A2	2,620	2,403	1,083	61	349	135	214	480	491	41.34	39.01
83	A2	2,679	2,463	1,083	61	349	135	214	540	491	40.43	38.15
85	A2	2,668	2,452	1,083	61	349	135	214	529	491	40.59	38.31
86	A2	2,613	2,397	1,083	61	349	135	214	474	491	41.45	39.11
87	A1	3,313	3,095	1,092	61	356	135	221	1,148	499	32.96	31.12
88	A1	2,700	2,482	1,092	61	356	135	221	535	499	40.44	38.19
89	A2	2,616	2,400	1,083	61	349	135	214	477	491	41.40	39.07
90	A2	2,608	2,392	1,083	61	349	135	214	469	491	41.53	39.19
91	A2	2,608	2,392	1,083	61	349	135	214	469	491	41.53	39.19
92	A2	2,608	2,392	1,083	61	349	135	214	469	491	41.53	39.19
93	A1	2,627	2,410	1,092	61	356	135	221	463	499	41.57	39.25
95	A1	3,139	2,923	1,092	61	356	135	221	976	499	34.79	32.84
96	A2	2,563	2,347	1,083	61	349	135	214	424	491	42.26	39.88
97	A2	2,563	2,347	1,083	61	349	135	214	424	491	42.26	39.88
98	A2	2,563	2,347	1,083	61	349	135	214	424	491	42.26	39.88

99	A2	2,563	2,347	1,083	61	349	135	214	424	491	42.26	39.88
100	A2	2,563	2,347	1,083	61	349	135	214	424	491	42.26	39.88
101	A2	2,563	2,347	1,083	61	349	135	214	424	491	42.26	39.88
102	A1	2,596	2,379	1,092	61	356	135	221	432	499	42.06	39.71
103	A1	2,814	2,597	1,092	61	356	135	221	650	499	38.81	36.64
105	A2	2,782	2,567	1,083	61	349	135	214	644	491	38.93	36.74
106	A2	2,782	2,567	1,083	61	349	135	214	644	491	38.93	36.74
107	A2	2,788	2,572	1,083	61	349	135	214	649	491	38.85	36.66
108	A3	3,226	3,010	1,096	61	349	135	214	1,068	497	33.97	32.08
109	A1	3,352	3,137	1,092	61	356	135	221	1,190	499	32.58	30.76
110	A1	2,976	2,759	1,092	61	356	135	221	812	499	36.69	34.64
111	A1	2,699	2,481	1,092	61	356	135	221	534	499	40.46	38.20
112	A2	2,920	2,704	1,083	61	349	135	214	781	491	37.09	35.00
113	A2	2,827	2,611	1,083	61	349	135	214	688	491	38.31	36.15
115	A1	3,149	2,932	1,092	60	356	135	221	985	499	34.68	32.77
116	A1	2,819	2,603	1,091	60	356	135	221	657	499	38.70	36.57
117	A2	2,664	2,448	1,083	61	349	135	214	525	491	40.65	38.36
118	A3	2,580	2,363	1,096	61	349	135	214	421	497	42.48	40.12
119	A1	2,490	2,272	1,092	61	356	135	221	325	499	43.86	41.41
120	A2	2,463	2,247	1,083	61	349	135	214	324	491	43.97	41.49
121	A2	2,544	2,328	1,083	61	349	135	214	405	491	42.57	40.17
122	A1	2,727	2,509	1,092	61	356	135	221	562	499	40.04	37.81
123	A1	2,680	2,463	1,094	61	356	135	221	514	499	40.82	38.54
125	A2	2,612	2,396	1,083	61	349	135	214	473	491	41.46	39.13
126	A2	2,516	2,300	1,083	61	349	135	214	377	491	43.04	40.62
127	A1	2,782	2,566	1,092	61	356	135	221	619	499	39.25	37.06