

# The Missing Public Interest in Land: Auctions of Public Land in Taipei City\*

TZU-CHIN LIN AND YUN-TING CHENG

*One of the fundamental services a modern government shall furnish is affordable housing. The ratio of the housing price to household income in Taipei has in recent years reached an astonishing figure of 15. Taipei has long suffered from a lack of readily available sites for residential development. In addition to monetary and fiscal policies, a supply-oriented and location-specific measure is therefore called for. In this vein, the supply of public land in the market has become a promising policy alternative. In spite of that, public land is an asset that belongs to all citizens. Therefore, sales of public land shall meet three conditions so as not to violate the requirement of the public interest. First of all, the price of land sold to private developers shall reflect the reasonable price that the parcel expects to fetch in the market. Secondly, the land sold to the developers shall be quickly developed in accordance with its highest and best use, and not instead remain idle. Finally, no excessive profits shall be obtained from the land by the developers when the land is later developed and houses are sold. Our empirical evidence on auctions of public land in Taipei between 2006 and 2014 provides some disappointing findings. On average, public land is worth 1.37 times more than its auctioned price. In addition, nearly 90% of undeveloped public land has been idle for more than three years after being auctioned. Besides, the effective rates of land value tax and land value increment tax are on average 0.155% and 1.01%, respectively. We therefore conclude that the auctioning of public land in Taipei has operated against the public interest. We suggest that the government in future consider both fiscal*

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*and physical measures to improve the uses of public land. However, taxation shall remain the cornerstone of the policy package.*

**KEYWORDS: Public land auctions; public interest; land taxation.**

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One of the fundamental missions of a government is to ensure affordable housing to citizens, either through ownership or by being sold leasehold in the market, or through the direct provision of public housing. The ratio of home ownership in Taiwan as of the year 2015 reached as high as 85.34%.<sup>1</sup> This figure suggests that ownership is predominately the favored type of housing tenure for the Taiwanese. As a consequence, a reasonable price of housing has been at the center of housing policies. In spite of the apparent policy significance of keeping housing prices affordable, the ratio of the average house price to average household income in Taipei in the third quarter of the year 2015 was 15.63, among the highest globally. In addition, *Chang, Chen, Teng, and Yang (2009)* estimated that the housing price bubble accounted for 38% and 27% of the housing prices, respectively, when measured by household income and housing rents.

In the face of skyrocketing housing prices, monetary and fiscal policies are frequently employed to affect the housing markets as a whole. However, a high housing price is often a local phenomenon that calls for a supply-oriented and location-specific policy measure. In Taiwan, the rental housing managed by governments presently accounts for a mere 0.08% of the total stock of housing.<sup>2</sup> Given the extremely low rates for both the public and private rental housing sectors, the new supply of housing will come about primarily through the development projects undertaken by private developers. Nevertheless, Taipei has long suffered from difficulties in redeveloping urban areas (*Jou, Clark, & Chen, 2016*). One significant factor that has contributed to a slow pace of urban redevelopment is associated with the combining together of neighboring land parcels, particularly when parcels are small and jointly owned. The combining of small sites into one large one with economic viability is of

<sup>1</sup>Sourced from the Construction and Planning Agency, Ministry of the Interior, <[http://www.cpami.gov.tw/chinese/index.php?option=com\\_content&view=article&id=19293:2015-11-30-14-01-48&catid=183:2010-03-03-07-45-29&Itemid=76#a](http://www.cpami.gov.tw/chinese/index.php?option=com_content&view=article&id=19293:2015-11-30-14-01-48&catid=183:2010-03-03-07-45-29&Itemid=76#a)>.

<sup>2</sup>Sourced from the Social Housing Advocacy Consortium, <[http://socialhousingtw.blogspot.tw/2014/08/blog-post\\_93.html](http://socialhousingtw.blogspot.tw/2014/08/blog-post_93.html)>.

particular importance in large cities such as Taipei where fragmented ownership of land is commonplace (Lin, 2014; Shoup, 2008).

Taking into consideration the difficulties identified earlier, one proposed solution to the shortage of affordable housing in Taipei is to sell public land to the developers through public auctions. Developers are therefore expected to save significant amounts of time and costs in securing a development site. Moreover, competition in land bidding among developers is intended to ensure that the auction price is close to the land's fair market value. However, whether or not the auction of public land can meet such intentions warrants empirical investigation. In this paper, we propose conditions so that by satisfying them the use of land can be claimed to meet the requirements of the public interest. We will later offer statistical evidence to conclude that, first, public land has been auctioned at a price significantly lower than what it is worth; secondly, a high percentage of auctioned land has remained unutilized for years; and, finally, effective rates for both the land value tax and land value increment tax have been astonishingly low. This evidence has convinced us that the public interest in land has not been safeguarded. We would further like to suggest that taxes on land should remain the cornerstone of any future policy package used to improve the uses of public land.

## **The Government as a Supplier of Land**

The land market is probably the market that has had the most intervention and comprehensive regulation by the government. Historically, the use of land was controlled by the government through three classic powers: the power to condemn, the power to tax, and the power to police (Raup, 1973). Garba and Al-Mubaiyedh (1999) also proposed three types of measures to manage urban land: legal measures, fiscal control measures, and direct public action. Legal measures take the form of laws and regulations primarily associated with the pattern and rights of ownership, which control and influence the workings of the private land market. Fiscal control measures, which mostly consist of various forms of taxation, are used to control and regulate the use of private land, so as to recoup the cost of public investment and recapture unearned increments resulting from land development. Direct public action refers to the public sector's direct participation in the land market, such as through the acquisition or combining of various tracts of land, and even direct participation as a financier or developer.

The experiences of Sweden and the Netherlands whose governments act as a major supplier of land have been discussed in some depth in Evans (1999). It has been

a government policy in those countries for many years to buy up agricultural land that it anticipated would be developed in the foreseeable future. Land for development is, in effect, supplied to developers “off the shelf” at a market price that allows only for the cost of acquiring the land at the agricultural use price and the cost of any infrastructure. It is thought that, if the developers supply housing in a competitive market, the result is that their costs are lower and, hence, the price of housing should be lower. The chief benefits of land being owned and held by the government include retaining appreciation of the land value in public hands, and keeping the sites best suited for future public purposes from premature commitment to private use, among other things (Shoup, 1983). Another piece of evidence related to the public supply of land has been found in Li, Wong, and Cheung (2015) regarding the Hong Kong experience. With all land being owned by the government, land auctions have been an important channel for developers to acquire land for development. It is therefore to be generally expected that the government’s policy in supplying land has a major bearing on the housing price. That study, however, did not find supporting evidence for this relationship. In addition, the private sector was found to be more responsive than the government to changes in the housing market.

Despite the heavy involvement of certain governments in the land development process, Eidelman (2016) rightly pointed out the surprising lack of understanding in scholarly research on public ownership in cities, as well as the forces that shape the behavior of public landowners. The previous urban political economy literature has long emphasized the dominance of private landowners in urban development, but says little about the prevalence and impact of public landowners in cities. One of the exceptions was reported in Adams and Hutchison (2000) who looked into the land ownership constraints in brownfield redevelopment in the United Kingdom. A ransom strip was identified as a small piece of land incapable of being used or developed on its own, but essential to the successful development of adjacent land. It was found that, among the six examples of ransom strips, five involved land either currently or previously owned by the public sector. In two of these cases, local authorities actually harmed redevelopment prospects by holding out for substantial sums merely to maximize their capital receipts from the sale of land in their ownership.

Despite the differences in history, culture and land use controls, a number of countries have long retained the system of releasing developable land directly to developers to help them overcome the problems associated with combining separate tracts of land and reducing the price of housing as a result. Besides, the review in this paper reveals that the motive of a government to hold land in its ownership and to use or dispose of land in a certain way should not be to simply assume it away for the

convenience of analysis in regard to urban development or the housing price. Land is assumed to be owned by the state so as to direct urban development, modulate market forces and accommodate public facilities, among other things, if needed. [Deininger \(2003\)](#) argued that to the extent that publicly-owned land is sub-optimally used, the transfer of ownership to the private sector could improve land use, increase government revenue, and minimize a potential source of corruption. [Shoup \(1983\)](#) also argued that land banking is essential for governments to best exploit land resources. Ideally, in response to an increasing demand for an additional supply of urban land that results from immigration and an expanding economy, public land can be released in a timely manner to the market. It is by no means the case that the supply of public land alone will markedly suppress housing prices. Nevertheless, given the limited amount of readily developable sites in the city, the supply of public land in specific areas shall be considered a potential candidate measure, together with others, to help make housing more affordable.

### **Auctions of Public Land in Taipei**

At the time when the Japanese colonization of Taiwan ended in 1945, the land that the government received from the Japanese accounted for over 70% of the total land area in Taiwan. The Bureau of National Property Administration was later established in 1960 under the Ministry of Finance to manage public properties of which land formed a significantly large part. For a variety of reasons, the Bureau of National Property Administration was unable over the years to function as an active land manager, and instead frequently engaged in land auctions to remedy the tax shortfall ([Lin, Dong, & Chang, 1993](#)). In the year 2010, the revenue from sales of public land throughout Taiwan even reached as high as 80% of the total revenue from all public properties. In addition, Taipei alone contributed over 60% of the total revenue from public land sales island-wide in both 2008 and 2009. All in all, the government was expected to manipulate public land to correct for the failure of the land market. However, over time, the government relied on sales of public land to make up for the budget deficit.

The present study makes no attempt to address the issue of how to best manage public land. We, however, believe that, besides sales revenue, additional policy goals that benefit the public as a whole should also be realized when public land is sold, for example, to depress soaring housing prices, to release land that governments are unable to develop, and to encourage new development in certain strategic locations and so on. No matter what goals the government sets when land is sold, there are three

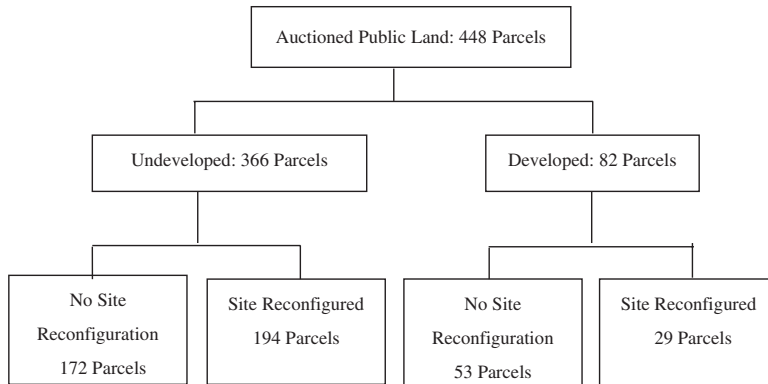


Figure 1. Development classification of the auctioned public land.

fundamental conditions that need to be met. In the first place, the price of land sold to the private developers should reflect a reasonable price based on what the parcel would expect to fetch in the market. Secondly, the land sold to the developers should quickly be developed for its highest and best use, and not instead remain idle. Finally, no excessive profits should be earned from the land by the developers when the land is later developed and houses are sold.

The sample of public land auctions examined in this study includes a total of 448 parcels of land designated by the Taipei city government for residential purposes (Figure 1). At the time of writing, 366 parcels were undeveloped and 194 of them had been combined with neighboring parcels or partitioned. By contrast, 82 parcels were already developed and 29 of them were developed together with neighboring parcels or partitioned prior to development.

### Public Lands That Are Undersold

It has been suggested that developers in Taiwan often take advantage of the auction system to gain supernormal profits. One of the possibilities is for the developers to acquire the auctioned sites at a price that is below the market value. In order to understand if public land is sold at too low a price to developers, the expected market price of a site has to be estimated and compared with the actual auction price. [Chau, Wong, Yiu, Tse, and Pretorius \(2010\)](#) employed the median of the estimated values of several real estate appraisers of a public site on the day before the public auction in Hong Kong as the expected market price. In a study by [Qu and Liu \(2012\)](#) on the auctioning of public land in Beijing, the first stage involved establishing a regression

model for the prices of non-auctioned land sales samples. The authors later on estimated the value of the samples of auctioned land based on the variable coefficients of the regression constructed in the first stage. These studies either relied on expert opinions or regression inferences to estimate the prices of auctioned land if sold in the open market, and compared them with the auction price so as to understand, if there existed one, the price difference between sales in the market and at auctions.

Valuation opinions are likely to vary with the experts selected. In addition, heterogeneity among sites, the sizes of sample sites and the regression model adopted all inevitably reduce the reliability of statistical modeling. With an attempt to avoid the aforementioned difficulties, this study employs land development analysis to estimate the value of auctioned land for development purposes. The essence of land development analysis in the present context is to find the difference between the value of a housing development project at the time when it is completed and the costs involved in undertaking this development. This difference is the residual value left to pay for the undeveloped land (Lusht, 2001, p. 356). A similar concept is found in Appraisal Institute (2013, p. 365) although it involves a different term for the subdivision development method: direct and indirect costs and the entrepreneurial incentive are deducted from an estimate of the anticipated gross sales price of the finished lots, and the net sales proceeds are discounted to their present value at a market-derived rate over the development and absorption period.

While land development analysis is widely recognized as a legitimate approach to valuing development sites, Hudson (2010) pointed out its potential limitations in terms of application. The value of auctioned land is regarded in this analysis as a residual — the amount of money left over that is available to be paid for the land after all other production factors have been rewarded. Hudson drew attention to a negative value of 4 billion US dollars for all land owned by nonfinancial corporations for the year 1993 that was published by the US Federal Reserve Board in its Flow-of-Funds statistics. He explained that the “land development” method left little room for land value, for replacement values continue their rise even when overall market prices decline, which periodically occurs. Bearing this limitation in mind, we examine the trend of the Sinyi Realty Housing Price Index and Construction Costs Index over the period from 2003 through 2010 (see Figure 2). During this period of time, up to the year 2008, housing prices were on a par with construction costs. Afterwards, construction costs fell slightly, but the housing price continued to rise. The divergence between the housing prices and construction costs suggests that land to a large extent reflects the rise in house values. As a result, it is legitimate in this context to employ land development analysis to estimate the value of auctioned parcels.

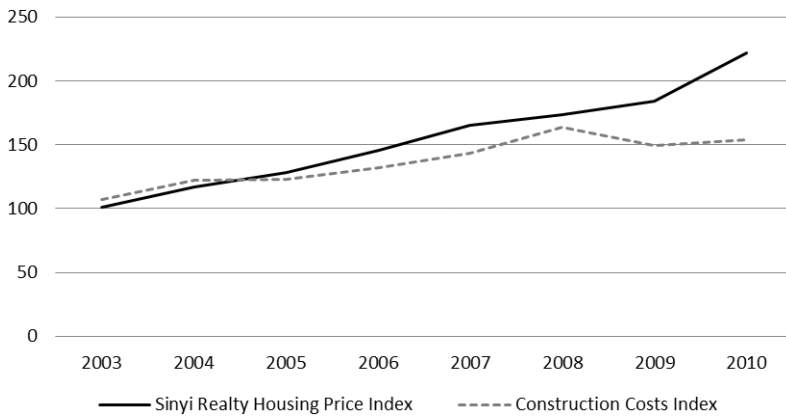


Figure 2. Trend of housing prices and construction costs between 2003 and 2010.

In order to empirically examine whether the public land has been undersold, we employ land development analysis to retrospectively estimate the value of individual parcels of publicly auctioned land, and compare the estimated value with the actual auction price for the same site. For the land development analysis to be used effectively and reliably in practice, there are a number of criteria that need to be met. First of all, those housing developments for which the sites were auctioned needed to be sold in the open market, and the sales prices of houses are known. Secondly, the auctioned sites were not later partitioned into smaller ones or combined with other parcels for development. Finally, no transfer occurred after the land was auctioned. Largely because of the low percentage of development of auctioned land and the strict criteria for selection, only 26 out of 53 developed parcels without site reconfiguration (see Figure 1) meet all the requirements. The descriptive statistics for the parcel sample for the land development analysis are provided in Table 1. The average size of those 26 housing development sites is 1,364 m<sup>2</sup>, and is much larger than the average size of other residential development sites (where land is privately-owned) in Taipei of 637 m<sup>2</sup> (calculated from the record of building permits in Taipei City over the same

Table 1.

*Descriptive Statistics of the 26 Parcels for Land Development Analysis*

	Mean	S.D.	Minimum	Maximum
Parcel Size (m <sup>2</sup> )	1,364	1,999	138	5,483.1
Reserve Price (NTD/m <sup>2</sup> )	227,457	149,499	68,001	728,680
Auction Price (NTD/m <sup>2</sup> )	417,648	395,763	71,212	1,344,933



period of time). This significant size difference in development sites suggests that the state is able to supply sites larger than the private developers could for housing development. Taipei has suffered grave difficulty in assembling small sites into larger ones for urban (re)development (Lin, 2014). In this regard, the auction of public land seems to be promising in terms of enlarging the development sites.

Article 70 of Taiwan's Regulations on Real Estate Appraisal states that the method of land development analysis to be used in estimating the value of a development site prior to development or construction involves deducting the direct cost, indirect cost, capital interest and profit during the development period from the total sales price of the properties after the completion of development or construction. In addition, Article 81 of the same Regulations stipulates that the calculation formula for the value of land under land development analysis is as follows:

$$V = S \div (1 + R) \div (1 + i) - (C + M),$$

where

*V*: land value,

*S*: expected sales price of the housing development project when completed,

*R*: rate of return,

*i*: interest rate on capital invested in the housing development project,

*C*: direct cost of the housing development project,

*M*: indirect cost of the housing development project.

As the auctioned sites selected for land development analysis were already developed, we were able to acquire the sales price of houses. We also consulted with a number of appraisal reports on new residential development projects and accordingly set the rate of return at 20%. In addition, based on Article 58 of the Regulations on Real Estate Appraisal, the interest rate on capital was derived by taking into account the prevailing rates of demand and fixed deposits and lending in the banks. This rate is thought to be attributable to two components of equity and debt which are respectively given weights (Appraisal Institute, 2013, p. 495). Within this framework of the weighted average cost of capital, by reference to common market practice, it is assumed that the rate for demand and fixed deposits was 0.96% with a weight of 40%, and that the rate of bank lending was 2.56% with a weight of 60%. The weighted average cost of capital thus comes up to be 1.92%. The figures for both direct and indirect costs are estimated in accordance with Articles 57 and 77 of the Regulations on Real Estate Appraisal.

The expected market values of all 26 auctioned sites are individually estimated through land development analysis. The derived value is the market value of auctioned

land at the time when development took place. In order to make this derived market value and auction price comparable, the derived market value is further discounted to the year when the site was auctioned. The price premium is thus defined as the price difference (derived market value less auction price) divided by the auction price. The following formula is employed to calculate the price premium of auctioned public land:

$$P_{\text{premium}} = (P_d - P_a) \div P_a,$$

where

$P_{\text{premium}}$ : price premium,

$P_d$ : derived market value (based on land development analysis),

$P_a$ : auction price.

A positive price premium suggests that developers paid a price for the site in the auction that was, viewed retrospectively, lower than the true worth of the land. In other words, the developers struck a good bargain and made a profit in the land auction. If the price premium had turned out to be negative, the developer would have made a bad transaction and, viewed retrospectively, would have suffered a loss in purchasing the site at the auction. Figure 3 shows the distribution of the price premium. Only one out of the 26 land auctions indicates that a loss was incurred for the developers. The average price premium was close to 137%. The developers overall paid for the auctioned land a price that is lower than the land's true value in the market. The majority of the price premium fell in the range of 51% to 100%. However, the price premium for two of the 26 auctions was in excess of 300%.

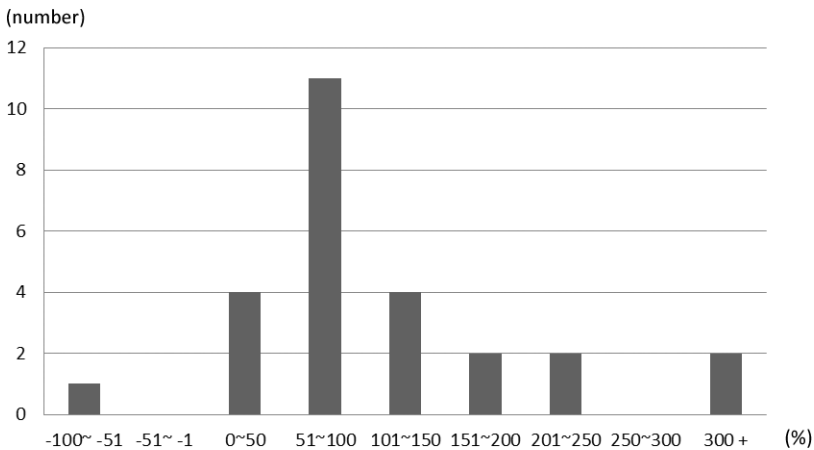


Figure 3. Distribution of price premium of auctioned public land.

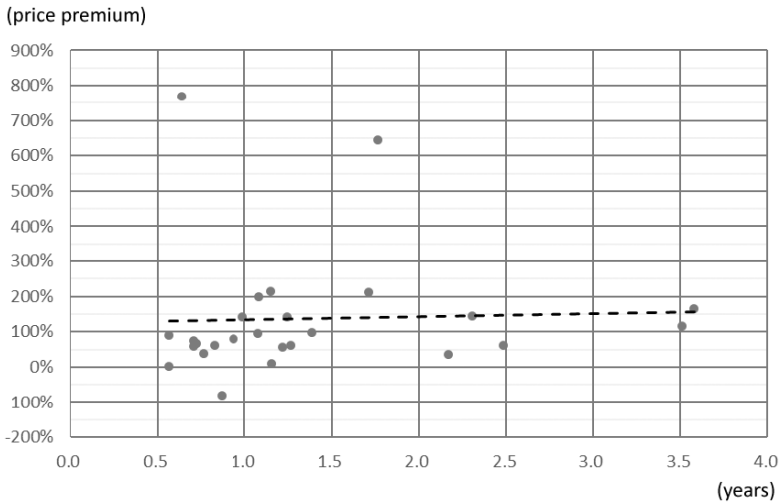


Figure 4. Relationship between holding duration and price premium.

One reviewer raised concerns regarding the effects of time on the price premium. The relationship between the duration of time (between the time the land was auctioned and the housing developed) and the corresponding price premium seems to be weak (see Figure 4) with a correlation coefficient of 0.043. A weak relationship suggests that the price premium is not dependent upon the length of time a site was held.

The statistics in regard to the price premium for auctioned land alone shall not be treated as definitive evidence that the governments have deliberately sold the public land at too low a price. However, these statistics do strongly suggest that the prices developers have paid for auctioned land tend to be lower than their real values. This finding, interpreted from another perspective, suggests that developers could actually generate profits if land is later sold, even without any improvement or development. This seems to be in violation of the public interest in land.

### Taxes on Land Have Prompted Misallocation of Land Use

Public and private interests are reflected in three areas of law around land: eminent domain, regulation and taxation, and each of these areas affects the scope of property interests and the value of those interests. Tax on land is a commitment to pay a portion of the return to land under a system of rules which, when breached, may result in a forfeit of ownership. Obligations for, and exemptions of, the tax adapt and

modify the interest or the value of the interest the owner/taxpayer holds in the land (Wunderlich, 1995). Taxes on land are often employed as instruments to affect land use in addition to providing a steady source of revenue.

As far as a recurring tax on land is concerned, if the assessed land value is independent of any activity on the owner's part, a land value tax should not affect the allocation of land use. Furthermore, if land is taxed according to its revenue potential, there is a stimulus to develop the land to its full capacity. A land value tax of this kind meets the efficiency principle of taxation. In addition, progressive rate structures help align tax burdens crudely with the ability to pay (Shoup, 1983). Taiwan's land value tax fits all the descriptions.

A land value tax in Taiwan is not only intended to raise a steady stream of revenue, but also to prompt the use of land to its full or highest capacity. As argued earlier, auctioned public land is expected to be quickly developed in accordance with the use stipulated by the city plan and not to be held idle by developers. Among the 448 parcels of examined auctioned land, 172 of them at the time of writing were not properly developed, and had not been involved in land partition or assembly. It is found that a very high percentage (89%) of the 172 undeveloped sites have been idle for over three years following their being auctioned (see Figure 5). Because there are no ownership constraints in place to hinder land development, developers appear to keep land idle for the sake of their own private interest. However, the pursuit of private interest is in conflict with the public interest that favors a prompt supply of housing.

Shoup (1970) studied the optimal timing of urban land development for the landowner. In order to maximize the present value of land, development should take

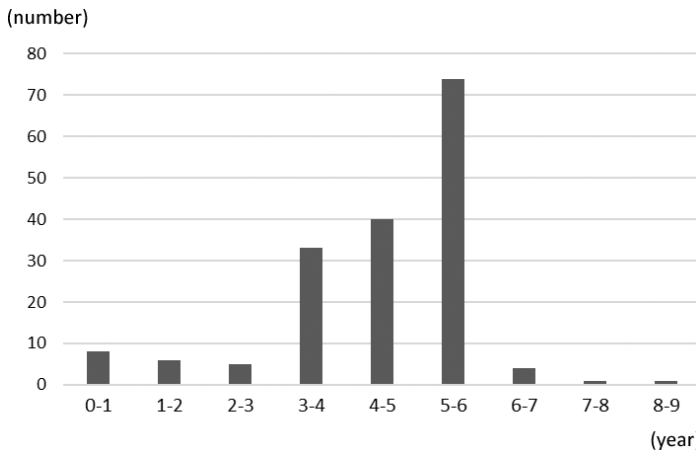


Figure 5. Years of holding 172 parcels of undeveloped auctioned land.

place when the rate of change in the development value of the land is equal to the sum of the interest rate and the tax rate, minus the rate of return on interim use earned by delaying the date of development for one more period. In other words, land should be developed when the sum of the annual rate of increase in land value plus the rate of return from temporary use is equal to the sum of the interest rate plus the rate of the land value tax.

For each of the 172 auctioned idle parcels of land, the announced present value in 2015, set by local governments to reflect its market value for a tax on land transfer, is divided by its announced present value in the year of auction to arrive at the increase in land value during the period of time that it has been held. The average compound growth rate of land value is then calculated. A representative annual interest rate is again calculated by means of the weighted average cost of capital method. The effective rate of land value tax for each site for each year is the ratio of the annual tax payment to the estimated land value in the market. The estimated market value for each year is the auction price of this site adjusted by the year-to-year inflation rate of the announced present land value. A representative effective rate of land value tax for all 172 idle parcels of land over time is thus reached as the sum of the average effective rate for each site divided by the number of sites (172). Finally, we employ the Google street view service to examine the land use of all undeveloped sites as of the year 2012, and the types of land use observed are summarized in Table 2. Apparently, the majority of the 172 parcels of auctioned land were not being used in an economically viable manner prior to development. We therefore assume the rate of return for interim use to be negligible (zero).

The respective values of the input variables for the model of optimal land development timing proposed by Shoup (1970) are summarized in Table 3. Given the soaring land values and both a low interest rate and a low land value tax rate, the

Table 2.  
*Types of Land Use on Undeveloped Sites*

Land Use	No. of Sites	Percentage
Car Parking	9	5%
Café	1	1%
Open Green	7	4%
Vacant	104	60%
Proposed Development	23	13%
Temporary Buildings	24	14%
Unidentifiable	4	2%
Total	172	100%

Table 3.  
*Representative Values for Variables in Shoup (1970) Model*

Annual Rate of Land Value Increase	Interest Rate	Effective Rate of Land Value Tax	Benefit-Cost Gap of Hoarding Land
10.336%	2.382%	0.155%	7.799%

difference between the benefits and costs of hoarding auctioned land that is undeveloped is vast. That is to say, the market conditions as a whole strongly incentivize landowners to continue holding their sites vacant so as to speculate on the rising land value. The 7.799% benefit-cost gap is best understood as an average figure. It represents the calculation of a rational economic actor in maximizing the value of a specific development site by deciding on the date of development. Developers might have considerations other than maximizing land value, and development firms of various sizes might behave differently. The actual decision making regarding site development is by all means more complicated than this single figure could suggest. We, however, also believe that this economic gap is one of the essential factors taken into account by developers, and is therefore worth pursuing further.

This huge excess of the benefits over costs of holding sites undeveloped reduces the supply of auctioned land into the market, thus preventing additional housing from being supplied and pushing up housing prices. The hoarding of auctioned land certainly goes against the intention of releasing public land to private developers. The interest rate is largely decided by the capital market, and is only influenced through monetary policy. Various forms of monetary policy, such as raising the interest rate for bank lending, could be implemented to shorten the benefit-cost gap, and consequently reduce the landowners' intention to hoard land. However, monetary policies will not only affect the housing market, but also other investment market segments. In addition, monetary policy often affects the whole country, but a high housing price tends to be a local or regional phenomenon. As a result, tax measures seem to be a better policy alternative. If the effective tax rate rises sufficiently, the landowners will be under pressure to develop their land sooner. One reviewer rightly raised the argument that a higher tax will affect all landowners, and not only the developers. It is, however, noted that a preferential tax rate of 0.2% is applicable to a self-occupied residential site. Moreover, the amount of land that an individual household owns is much smaller than that of a developer. The impact of an increased effective tax rate will therefore be disproportionately placed on developers with large sites and not on individual households with only a share of a land parcel. Another alternative tax measure is a vacant land tax. A vacant land tax is referred to in legislation and is therefore readily

available. This tax was implemented in the 1970s and 1980s to curb land hoarding and speculation. In history, the vacant land tax was implemented and later on suspended twice, first because of the global energy crisis in the 1970s and again due to the economic recession in Taiwan in the 1980s (Lam & Tsui, 1998). The performance of this tax was overall unsatisfactory largely because of the difficulties involved in identifying “vacant” land and obtaining approval from local councils, and the lengthy time lag before policy implementation. Although the vacant land tax was afterwards occasionally raised, it has subsequently not been seriously considered.

The rate of land value tax in Taiwan is, on the one hand, stipulated by the central government for all cities and counties to follow. On the other hand, local governments enjoy a certain discretion in setting the tax base. An increase in the assessed tax value will raise the effective tax rate even if the nominal tax rate remains unchanged. The legislation allows the tax base to be reviewed and adjusted if necessary every three years. The rate of adjustment in the tax base each time in the past for the 172 parcels of idle auctioned land is around 2.85%, equivalent to an increase of 0.16% in the effective tax rate. If Taipei city wishes to impose sufficient tax costs on owners to develop their land, past history would suggest that the tax base needs to be adjusted upwards 204 times and the whole process will take 612 years to complete.

In addition to the recurring land value tax, another tax in Taiwan that is employed to facilitate the recoupment of unearned income is the land value increment tax. Land is viewed in Taiwan as a very special asset and the gains in value earned from investment in land are taxed by the land value increment tax. Article 143 of the Constitution of the Republic of China (Taiwan) states:

All land within the territory of the Republic of China shall belong to the whole body of citizens. Private ownership of land, acquired by the people in accordance with law, shall be protected and restricted by law. Privately-owned land shall be liable to taxation according to its value, and the Government may buy such land according to its value. . . . If the value of a piece of land has increased, not through the exertion of labor or the employment of capital, the State shall levy thereon an increment tax, the proceeds of which shall be enjoyed by the people in common. . . .

Hudson and Feder (1997) also argued for land and other forms of capital gains, such as stock, to be taxed differently. Part of the increment in land value is not created by the owners alone, but collectively originates from the society or is given freely by nature, and should be taxed at a higher rate than other forms of capital gains. As the gain (increase in price between two sales) from land sales is generally larger on those parcels held for a longer period of time, the structure of progressive rates, based on the gain in terms of the increase in value, is supposed to hurt short-term speculators in Taiwan more. A tax reduction is also applied to transactions of land that has been held

for over 20 years. However, speculators will normally not hoard land for that long. In other words, the law implicitly suggests that any owner who holds land for more than 20 years before selling it is not a speculator.

The tax base of Taiwan's land value increment tax is the price difference between two transactions involving a parcel of land. In practice, the land value increment between two transactions is computed as the announced present land value at the time of this transaction less the announced present land value at the time of the last transaction. The announced present land value in Taiwan, however, has long been significantly lower than the land value in the market.

Apart from the parcel of land for which the developer seemed to have paid too high a price in the auction, the other 25 auctioned parcels of land bought at a premium are subjected to the land value increment tax when the land was sold to house buyers. The payment of the land value increment tax, calculated based on announced present land values, is divided by the actual rise in land value, calculated in the previous section of the [Shoup \(1970\)](#) model, to arrive at the effective rate of the land value increment tax. It turns out that the average effective rate of land value increment tax is approximately 1.01%. The schedule of the progressive rates of the land value increment tax in Taiwan consists of 20%, 30% and then 40%. The effective rate is merely one-twentieth of the base rate. It is apparent that the tax base is falling behind the actual value in the market.

### **The Missing Public Interest in Land**

In the face of the recent soaring housing prices in Taipei, land in the hands of the government should be put to better use. The auctioning of public land is not only expected to be able to bring in public revenue, but also to supply new houses to the market to suppress housing prices. [Barker \(2004\)](#) already suggested that a limited land supply tends to result in competition for the acquisition of land instead of competing for consumers. As a result, the profitability of development depends on obtaining valuable land rather than building a high quality product in the most efficient way. In other words, a severe shortage of land for new housing will benefit whoever happens to own land at the expense of better and more affordable housing for the general public. In this regard, the supply of public land could be significant in affecting market outcomes. The National Property Act was amended in the year 2012 and Article 53 of the Act states "... If its area (of public land) is 1,650 square meters or more, it shall not be sold by public tendering." It seems that the restriction on auctioning is imposed to



prevent the loss of large public parcels, and also arguably the price ripple-effects that are thus caused. However, given the evidence presented in this research, we would argue that the major concern shall not be placed on the size of the parcels but on the functioning of taxes. In a free market system, the pricing of land parcels is largely the outcome of the market mechanism and there is little room left for the government. The core issue may not be who owns the land, but instead how to put the piece of land to its best use.

Public land is in principle owned by all citizens and has a strong element of public interest. In this vein, the price that the public land fetches when auctioned and how such land is later used deserves a closer examination. Research on the auctioning of public land in Taipei in recent years sadly reveals rather disappointing consequences. Land development analysis suggests that the private developers tend to have struck a good bargain in purchasing public land even through a public auction. The significant gap between the auctioned price of land and its estimated market value suggests a serious drain on the public purse. Furthermore, even if public land is sold at a price below its market price, the government can still possibly direct the land to a proper use and recoup the increment in value if the taxes on land held and land transactions are functioning well. Our empirical study nevertheless has revealed that the effective rate of the land value tax is only 0.155%, and the effective rate of the land value increment tax is 1.01%. Both of the tax rates are far below the tax rates that are depicted in the legislation.

Taiwan has been proud of its tradition of taxes on land that follow the teachings of eminent scholars such as David Ricardo, John Stuart Mill and Henry George in which the public interest is an essential element. Our study regarding the auctioning of public land in Taipei, however, has revealed a disappointing and uncomfortable fact, and that is the total failure to take into account the public interest in land. Our taxes on land are not only unable to direct land toward a more productive use, but also fail to recoup the increment in land value that belongs to society. Recent years have seen a series of notable reforms in Taiwan with regard to taxes on both the holding of land and transactions involving land. Assessed land values have been steadily increasing island wide to approach the market value over time as indicated by Article 33 of the amended Land Tax Act for the year 2005. During the time span of a mere three years, the ratio of the assessed value to market value between 2013 and 2016 was raised by 33.26% for Taipei (Department of Land Administration, Ministry of the Interior, R.O.C.). In addition, a combined land and building income tax was introduced in 2016 for transactions involving houses. Prior to the year 2017, when a house was sold, the gains in relation to the land and building for a house were taxed, respectively, and the land value

increment tax was levied on the gain in the land portion. The new tax, together with the compulsory registration of the sales price of a house that took effect in August 2012, is intended in the future to a large extent to rectify the problems of the old tax regime. The two significant moves on taxes are expected to alleviate the problems associated with the land uses of auctioned public land identified in this paper. However, the practical effects remain to be seen and to be backed up by concrete evidence in the future.

In the context of a free market for land, the respect for property rights actually allows very little room for government intervention except for taxation. However, in addition to fiscal measures like taxes, another kind of measure would be a physical one, such as land use control (Evans, 1999). For example, the winning bidder in a public land auction in Singapore is requested to complete development within a given time frame, or face a penalty for late completion. Moreover, the winning bidder is prohibited from selling the site to outside parties. With these restrictions imposed, the winning bidder cannot flip the land for immediate profit or engage in land banking for future development (Ooi & Sirmans, 2004). Foreign experiences indeed provide food for thought for future policy improvement. However, given the differences in the legal and planning framework, no major changes in this direction seem to be on the horizon. By taking into account the empirical evidence and foreign experience presented in this research, we suggest that the government should in the future consider both fiscal and physical measures regarding the auctioning of public land. However, we believe that taxation should remain the cornerstone of potential policies. After all, the imposition of taxes on land is a well-established and relatively modest measure that is already in place.

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