

# **Measuring the Costs and Benefits of Favorable Tax Treatments for Owner-Occupied Housing-The Case of Taiwan**

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## **Abstract**

This study examines the favorable tax treatments for owner-occupied housing from an efficiency and equity aspect, highlighting the fiscal, macroeconomic and housing market consequences of the mix of these tax arrangements. From the fiscal perspective, the favorable tax treatments for owner-occupied housing reduces the tax revenue of both local and central government through exemption and relief measures and also government's ability to provide better public services. These arrangements also provide substantial incentives to encourage households to buy rather to rent a house by reducing the relative cost of owning versus renting. It distorts households' tenure choice, allocation of capital, and causing high housing price which may against the intended goal of promoting home ownership. According to our analysis, we suggest the governments to reconsider the current favorable tax treatments for owner-occupied housing, especially the mortgage interest deduction.

Subject Topic: Housing Market

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**Keywords:** Owner-Occupied Housing, Favorable Tax Treatments, Efficiency, Equity

## 1. Introduction

Housing is a unique commodity which consists of both consumption and investment functions. However, it is very difficult to distinguish these two motivations only when the households are renters. We can say that when the households consume the housing services through owning a housing unit, they are also investing it.<sup>1</sup> Theoretically, it is government's responsibility to provide affordable and good quality housing environment to protect people's housing consumption right. One debatable question is that should the government encourage the households to own a housing unit through some policy instruments to further protect the investment right (or property right)? If the answer is "Yes", then the government should further evaluate which instrument can achieve better efficiency and equality.

Some studies argued and identified the external benefits of ownership, such as better maintenance (Galster 1983, DiPasquale and Glaeser 1999, Harding et al. 2000, Rossi-Hansberg et al. 2010), better citizenship (DiPasquale and Glaeser 1999, Fischel 2001, Hoff and Sen 2005), and better children achievement (Green and White 1997, Haurin et al. 2002, Lien et al. 2008). Coulson and Li (2013) estimated a housing transition from renting to owning created approximately \$ 1300 directly in measured benefits. However, there are still some other studies doubted the external benefits of ownership. For example, some studies argued that most previous empirical studies related to external effects of ownership might ignored the problem of endogeneity (Engelhardt et al. 2010), no significant difference between owners and rents for the influence of maintenance on housing price (Gatzlaff et al.1998), the longer spell of residence for owners instead of ownership affected the children learning achievement (Aaronson 2000, Barker and Miller 2009, Holupka and Newman 2012) and little evidence of increased civil or neighborhood involvement by new owners (Engelhardt et al. 2010).

Housing is the most important single asset for most households. Housing expense is also one of the largest expenditures of household income. No matter the direct subsidy (such as preferential mortgage interest rate for the first-time homebuyers) or indirect tax advantages provided by the governments will create great financial incentives to households. Some studies agreed with the positive benefits of ownership, however, argued the costs of favorable tax treatments for owner-occupied

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<sup>1</sup>According to the survey of housing demand which conducted by the Construction and Planning Agency, Ministry of Interior. The average share of motivation for potential homebuyers is 70% consumption and 30% investment, respectively.

housing was already larger than their benefits (Glaeser and Shapiro 2013, Hilber and Turner 2014) or their side effects were larger than the external benefits (Rosen and Gayer 2014). These studies argue that the governments should remain the tax neutrality between owning and renting instead of title to encourage households to become homeowners.

Among those favorable owner-occupied tax treatments, mortgage interest deduction (MID) is the most widely discussed one. In addition to Taiwan, there are many countries have the same tax treatment which only different in the amount of deduction. For example, the deduction amount is higher in U.S., Netherland, and Swiss, but lower in Belgium, Demark, Finland and Sweden. However, the MID is not allowed in some countries, such as Canada, France, England, Germany, Australia, New Zealand, Japan, and Korea. Recently, many studies argued that the benefit of MID will capitalize to house prices and make households' affordability even worse, so it does not increase ownership rate. (Bourassa et al. 2013) The MID may also distort the individual's investment choice, it benefits the high income instead of low income households. So, it is neither efficient nor equal. (Hung and Chen 2016).

Should the governments continue to provide favorable tax treatments for owner-occupied housing? This study tries to discuss this issue from different aspects. First, does higher ownership rate really generate external benefits? Second, do the favorable tax treatments for owner-occupied housing increase homeownership rate? Third, what is the cost of the governments to promote ownership rate through tax subsidies? Finally, who are the ones get benefits from these tax advantages?

In the second section, we review previous studies which focusing on the favorable treatments for owner-occupied housing and their empirical results. Section 3 measures the costs and benefits of the tax treatments of owner-occupied housing. Section 4 discusses whether the governments should continue to support or eliminate these tax advantages for homeowners. Finally, we draw the conclusions and suggestions in the last section.

## **2. Literature Review**

External benefits are the main reasons for the governments to provide favorable tax treatments for owner-occupied housing. These tax arrangements reduce revenue of the governments, but whether they really achieve their goal of promoting ownership rate? What are the costs and benefits of these tax arrangements? Do the target groups really get benefits from these tax arrangements? There are a lot of debates for these

questions during last four decades.

Cremer and Gahvari (1998) argues that limited social resources can achieve Pareto optimality through proper tax arrangements. It is necessary to design nonlinear tax rates for different income households and different quality housing units. Chambers et al. (2009) analyzed the impacts of asymmetric tax treatments for owner-occupied and rental housing in income tax. They confirmed tax treatments for owner-occupied housing are very important in the revolution of income tax system.

However, Eerola and Maattanen (2013) argued that treating housing and business capital as the same is the best arrangement in tax code. The second best is deciding the tax rates based on the substitution elasticity between housing, non-housing and leisure. Tax on housing can ease the tax distortion on labor. Evans (2012) argued that the optimal taxation is treated housing neutral, which can prevent over-investment in housing. In the US, the property tax is relatively high. When the property tax is considered, owner occupied housing is not undertaxed in the US. In the UK, property taxes are relatively low but the cost of land has been increasing because of land development control. When land is considered over-investment in housing is not encouraged in the UK either.

According to the abundant housing and taxation literature, most previous studies confirmed the positive influences of favorable tax treatments for owner-occupied housing. Poterba (1984) found that the tax provisions for mortgage interest deductibility, in tandem with rising inflation rates, could explain most of the 30 percent increase in real house prices during the 1970s. Persistent high inflation rates could lead ultimately to a sizable increase in the stock of owner-occupied housing.

Berkovec and Fullerton (1992) indicates that demographic factors are the main determinants of ownership rates. Taxes on owner housing would raise welfare not only by reallocating capital but also by the government's taking part of the risk from individual properties and diversifying it away. Sommer et al. (2013) used a dynamic equilibrium model of housing tenure choice with fully specified markets for homeownership and rental properties, and endogenous house prices and rents. They found that lower interest rates, relaxed lending standards, and higher incomes are shown to account for approximately one-half of the increase in the U.S. house price-rent ratio between 1995 and 2006, and to generate the pattern of rapidly growing house prices, sluggish rents, increasing homeownership, and rising household indebtedness.

Some researchers also argue that favorable tax treatment for owner-occupied housing would decrease non-housing investment, especially the equipment and R&D. However, Broadbent and Kremer (2001) demonstrates that if people are heterogeneous in their propensity to save, and if there are constraints on borrowing, favorable tax treatment of owner-occupied housing up to a certain value can increase non-housing investment. This is because low housing taxes encourage renters to become owner-occupiers, leading existing owner-occupiers to shift their portfolio of other assets from rental housing to non-housing capital.

Some studies analyze the possible impacts of eliminating favorable tax treatments on owner-occupied housing. For example, Englund et al. (1995) argued that a reduction of mortgage interest deduction or mortgage interest subsidy in housing tax reform will reduce housing demand and housing price, rent and vacancy rate will rise, and the supply of new construction will decrease. Capozza et al. (1996) estimated the price impact of eliminating the mortgage interest and property tax deduction. They found that the average house price decline across the MSAs is 13%. The price effects vary dramatically depending on income and property tax rates and rent-to-price ratios, with higher priced cities having greater price effect. Bourassa and Yin (2008) also estimated the price effect of removal of mortgage interest and property tax deductions. They found the average price decline is 10% and impacts range from 4% to 16%, and being greater in localities with high prices and incomes.

Poterba and Sinai (2011) analyze how changes in the income tax deduction for home mortgage interest would affect loan-to-value ratios on owner-occupied homes, the distribution of income tax liabilities, and the consumption of housing services. They estimate that repealing the mortgage interest deduction in 2003 would have raised federal and state income tax revenues by \$72.4 billion in the absence of any household portfolio adjustments, but by only \$58.5 billion if homeowners drew down financial assets to pay down their mortgage debt.

Some studies suggest the provision of favorable tax treatments for owner-occupied housing should be very careful because they may not achieve their goals but causing some other side effects. For example, Berger et al. (2000) argued that the benefits of mortgage interest deduction will capitalize into the house price and the households end up benefit nothing. Bourassa et al. (2013) review the international evidence on the impacts of mortgage interest deductions on homeownership rates. They found that the deduction generally does not increase the ownership rate. This result is likely due to the fact that the MID is capitalized into house prices, especially where housing supply is inelastic. Hilber and Turner (2014) examines the impact of

the combined U.S. state and federal mortgage interest deduction on homeownership attainment. They find that the MID boosts homeownership attainment only of higher-income households in less tightly regulated housing markets. In more restrictive places, an adverse effect exists. The MID is an ineffective policy to promote homeownership and improve social welfare.

Eerola and Maattanen (2006) build a simple dynamic general equilibrium model where households vote over the tax treatment of housing and business capital. They found that the median voter has a large share of his wealth in the form of housing and most of his income is wage earnings. The key trade-off he faces is that lowering the tax burden on business capital while increasing the tax burden on housing leads to higher wages but also increases his own share of the overall tax burden.

Poterba and Sinai (2008) found that mortgage debt is concentrated among younger homeowners, and many older homeowners do not even have a mortgage. Consequently, many homeowners would face only a modest tax increase, if any at all, if the mortgage interest deduction were disallowed. In contrast, virtually all homeowners except those in the lowest income categories claim property tax deductions. Including imputed rental income in the definition of taxable income would also affect all homeowners. This suggests that the distribution of burdens from eliminating the property tax deduction is closer to that associated with taxing imputed rent than to that for reducing the mortgage interest deduction, although the property tax deduction accounts for only one-quarter the revenue loss of the exclusion of imputed rent.

As to the equality of favorable tax treatments, Cho and Francis (2011) show that in terms of distributional effects, removing all the preferential tax treatments results in an aggregate increase in welfare. However, they do not find any reduction in inequality. While some re-allocation toward financial assets occurs, households primarily increase their consumption when imputed housing rents are taxed and the property tax deduction is removed. Housing tax policy may be effective at encouraging more overall saving through housing assets.

From the above studies, we consider there is still no consensus for the tax treatments of owner-occupied housing. One thing for sure is that, when measuring the tax burden of owner-occupied housing, taking all the taxes and fees in different stages (such as land development, holding and selling) into account instead of judging by single tax is important and necessary. Second, the mortgage interest deduction can reduce owning cost, but it also provides investment incentive to attract more housing

demand and push house price up. This would end up with no effect on promoting ownership rate. Oppositely, eliminating the mortgage interest deduction would cause house price to drop, but the ownership rate will rise.

Third, the costs and benefits of each favorable tax treatment is quite different. The conclusions of previous studies are not consistent either, which means there still need further clarification.

### 3. Costs and Benefits Analysis

#### 3.1 Favorable Tax Treatments for Owner-Occupied Housing

In this study, we summarize the favorable tax treatments for owner-occupied housing as follows:

1. Preferential Property Tax Rate (PPTR)
2. Property Tax Deduction in Income Tax (PTD)
3. No/Preferential Capital Gain Tax Rate (PCGTR)
4. Mortgage Interest Deduction in Income Tax (MID)
5. Exempt of Imputed Rent (EIR)
6. Tax Refund of Capital Gain Tax for Buying Higher Value Housing Unit (TRCGT)

According to the Table 1, among other countries, Taiwan is the one which provides almost all the favorable tax treatments for owner-occupied housing except the property tax deduction in income tax.

Table 1 Favorable Tax Treatments for Owner-Occupied Housing in Selected Countries

Country	Ownership Rate	PPTR	PTD	PCGTR	MID	EIR	TRCGT
Singapore	87.2	⊙					
Taiwan	83.9	⊙		⊙	⊙	⊙	⊙
Spain	82.1				⊙	⊙	
Ireland	76.9				⊙	⊙	
Norway	76.7				⊙	⊙	
Portugal	74.8				⊙	⊙	
Greece	71.7				⊙	⊙	
Italy	71.2				⊙	⊙	
Australia	70.2			⊙		⊙	

Canada	68.4			⊙		⊙	
England	68.3			⊙		⊙	
New Zealand	66.9			⊙		⊙	
U.S.	65.1		⊙	⊙	⊙	⊙	
Finland	63.5				⊙	⊙	
Belgium	63.1				⊙	⊙	
Japan	61.0					⊙	
Sweden	59.9				⊙	⊙	
Poland	58.9						
France	54.7					⊙	
Korea	54.2					⊙	
Netherlands	50.4				⊙	⊙	
Austria	48.7				⊙	⊙	
Germany	41.6					⊙	
Switzerland	34.6				⊙		

Note: Based on Bourassa et al. (2013) and revised.

### 3.2 Cost Analysis

#### 3.2.1 Preferential Property Tax Rate

The preferential tax rate for owner-occupied housing is 0.2%, which is only 1/5 of the tax rate of general land. As shown in Figure 1, land value tax increased over time, from 1.45 billion N.T. dollars in 1974 to 93.89 billion N.T. dollars in 2016. The average land value tax revenue is 63.25 billion N.T. dollars during 2003 and 2016, the recovery stage of last housing cycle. The tax revenue of owner-occupied housing is 5.5 to 6.5% of total land value tax. The subsidy of land value tax for owner-occupied housing can be measured just the current land value tax from owner-occupied housing times 4.

For example, the number of land owners which paid land value tax is 8.09 million, the assessed land value is 8.71 trillion N.T. dollars, and the revenue for land value tax is 9.41 billion N.T. dollars in 2016. The average tax rate for land value tax is 1.08%.<sup>2</sup> The number of land owners which apply the preferential tax rate of owner-occupied housing is 4.64 million, or 57.41% of total land owners. The land value tax revenue of owner-occupied housing is 6.05 billion, or 6.44 of total revenue

<sup>2</sup> The average land value tax rate is 1.05% during 2009 and 2016. The tax base of land value tax is government's assessed land value, which is only 15 to 20% of market value.

of land value tax. The average land value tax bill is 1,304 N.T. dollar. The land value tax subsidy is about 24.22 billion N.T. dollars, which is 1/4 of the total land value tax revenue. The total land value tax subsidy is 219.70 billion N.T. dollars or 15.69 billion N.T. dollars annually.

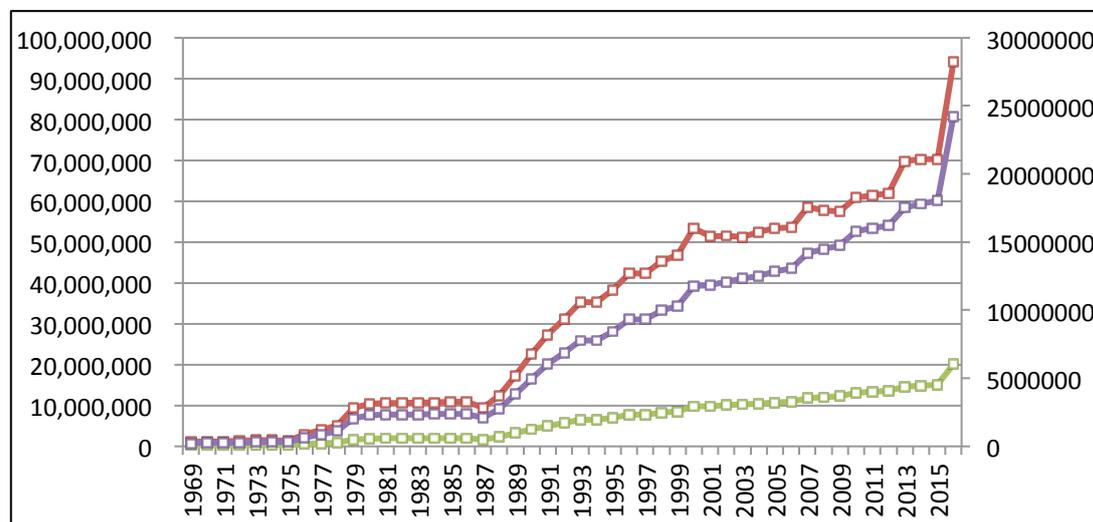


Figure 1 Land Value Tax and Government's Subsidy

### 3.2.2 Mortgage Interest Deduction

The annual deduction of mortgage interest is 300 thousand N.T. dollars, but the actual deduction should minus the annual special deduction of saving and investment (270 thousand N.T. dollars) to avoid repeated subsidy. The amount of MID decreased as the mortgage interest rate decreased, from the peak 8.54 billion N.T. dollars in 2000 to the trough 2.51 billion N.T. dollars in 2009. The amount of MID in the last five years is about 35 to 40 billion N.T. dollars. By using the average income tax rate 12.84% in 2015, we measure the income tax subsidy for MID during last five years is around 4.5 to 5.0 billion N.T. dollars.

By using 2015 data as an example, the number of total income taxpayers is 6.13 million, total income is 5.71 trillion N.T. dollars, the net taxable income is 2.48 trillion N.T. dollars, the revenue of income tax is 318.7 billion N.T. dollars, the average income tax rate is 12.84% and the effective income tax rate is 5.58%.<sup>3</sup> Among the income taxpayers, 84.37% taxpayers use the standard deduction, only 15.63% taxpayers adopt itemized deduction. The share of taxpayers which adopts itemized deduction is decreasing over time because of the amount of standard

<sup>3</sup> Average income tax rate is income tax revenue divide by taxable income, and effective income tax rate is income tax revenue divide by total income.

deduction increases based on consumer price index.

In 2014, the number of taxpayers which adopted itemized deduction is 958.6 thousand, and the number which declared a mortgage deduction is 403.5 thousand, or 42.09% of itemized taxpayers, 6.58 of total taxpayers. The total deduction of MID is 39.83 billion N.T. dollars and average MID is 99 thousand. By minus the special deduction for saving and investment, the actual average tax saving per taxpayer is 6,200 NT dollars. According to the budget of central government during last ten years, the actual tax subsid of MID is 2.67 billion N.T. dollars, and it decreased to 23.7 billion NT dollars in last three years. Furthermore, the average tax subsidy of rent deduction is 0.39 billion NT dollars in last ten years and it also decreased to 0.30 billion N.T. dollars in last three years.

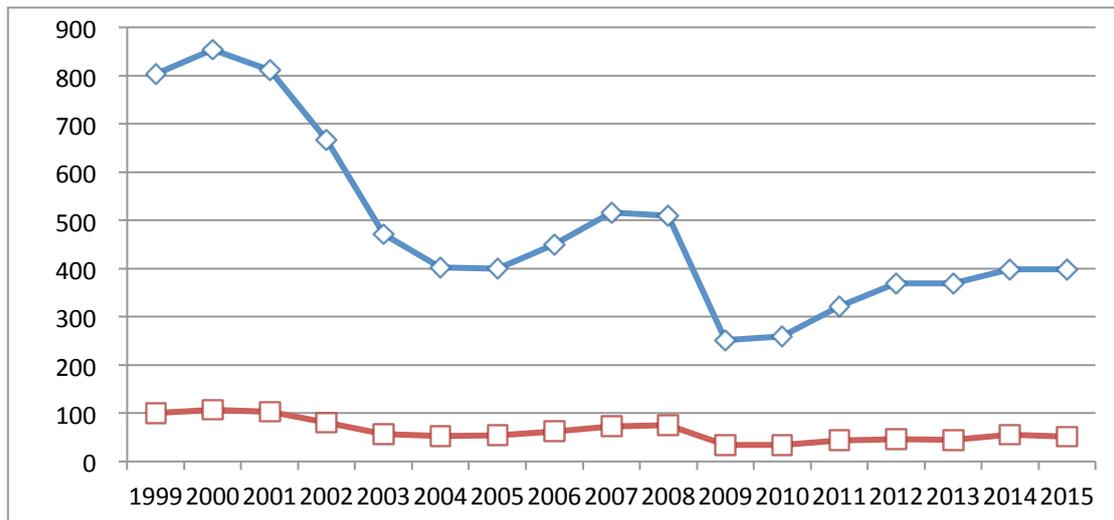


Figure 2 Mortgage Interest Deduction and Government's Subsidy

According to the income tax statistics in last ten years, the number or share of taxpayers who apply itemized deductions is decreasing, and most of these taxpayers are high income. As to the distribution of applicants for mortgage interest deduction, the shares of first and the tenth quantile are increasing over time. It implies that the taxpayers who enjoy the benefits of mortgage interest deduction are very unequal.

### 3.2.3 No/Favorable Capital Gain Tax and Refund

The preferential land value incremental tax rate is 10% for owner-occupied housing, comparing to the general tax rate, 20%, 30%, and 40%. Furthermore, if the taxpayers buy another higher value housing unit within two years, they can enjoy a tax refund.

The tax revenue of land value incremental tax is around 55 to 120 billion N.T. dollars during 2003 and 2016. The land value incremental tax revenue of owner-occupied housing is around 5 to 10 billion NT dollars, which comprises 8 to 10% of total land value incremental tax revenue. By using the average regressive tax rate, 30%, it implies the government subsidizes about around 10 to 20 billion N.T. dollars per year.

For example, the total number of land value incremental taxpayers is 1.01 million, and the total revenue is 90.65 billion N.T. dollars in 2015. The number of taxpayers which qualified to adopt preferential tax rate is 66.1 thousand, or 6.55% of the total taxpayers. The land value incremental tax revenue of owner-occupied housing is 8.66 billion N.T. dollars, about 9.55% of total land value incremental tax. It implies that the government subsidizes 17.31 billion N.T. dollars or 261.8 thousand per taxpayer. Furthermore, the number of taxpayers which apply a refund of land value incremental tax is increasing due to the rising housing price in recent years. According to the Budget of Central Government, the tax refund of land value incremental tax is about 0.75 million N.T. dollars in recent year.

In summary, the governments subsidize around 34 to 44 billion N.T. dollars per year, which comprises 1.5 to 2.0% of total tax revenue (2.2 trillion N.T. dollars). The tax loss is not that much for the central government because of the amount of mortgage interest deduction is decreasing over time. However, the tax loss of land value tax and land value incremental tax for owner-occupied housing is very huge for local governments, and has great negative impact on their fiscal condition.

### ***3.3 Benefit Analysis***

Figure 3 shows the ownership rates of Taiwan and U.S. during 1960 to 2015. Taiwan' ownership rates increased since 67.36% in 1975 and reached historical high 89.47% in 2015.<sup>4</sup> There are four dramatic housing cycles during this period, however, ownership rates seems increased very steady. For example, 1990 to 2002 was the recession stage of housing cycle, and ownership rate increased from 80.4% to 85.11%, an increase of 4.71 percent points. On the contrary, 2003 to 2015 is the recovery stage, ownership rate increased from 85.11% to 89.47%, an increase of 4.38 percent points. The impact of housing cycle on ownership rate seems not very clear.

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<sup>4</sup> The value of ownership rate in Household Income and Expenditure Survey is a little higher than the Housing Census. In the 2010 Household Income and Expenditure Survey, it distinguishes the home ownership belong to spouse, parents or children which do not live together. It is about 4 percent points lower than previous definition. For consistency, we keep the same definition as 2010 before.

We can also observe the change of ownership rates of U.S. during 1960 to 2015. Although the U.S. government tried very hard to promote its ownership rate, the result seemed to be limited. It fluctuated around 60 to 70% during last four decades, ownership rate in 2015 was almost back to its starting point in 1960.

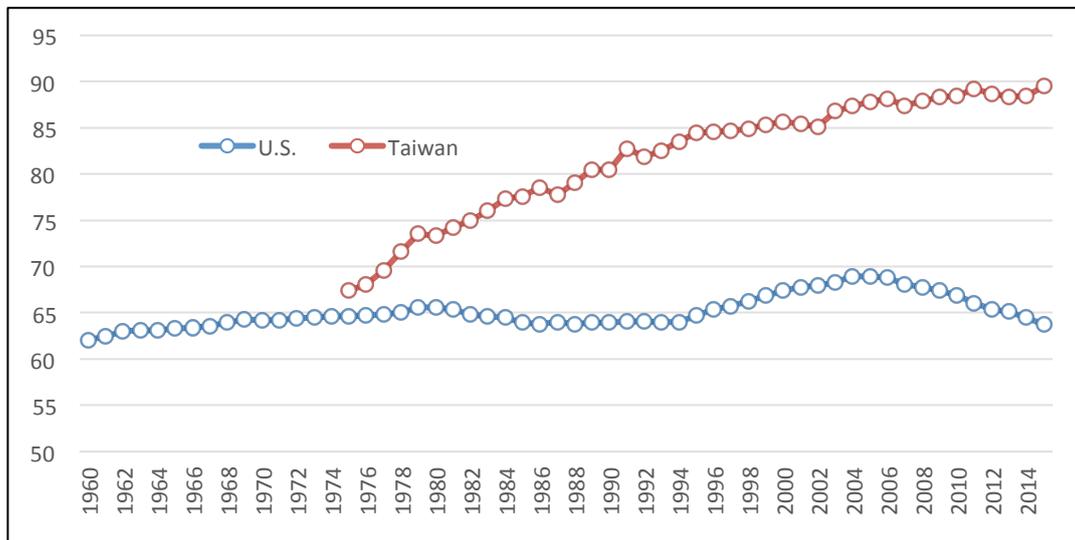


Figure 3 Homeownership Rate in Taiwan and U.S.:1960~2016

Furthermore, we examined the correlation between ownership rate and other related variables, such as number of households (0.9629), household disposal income (0.9730), average household consumption (0.9756), average household saving (0.9063), land value tax (0.9339), house tax (0.9615), land value incremental tax (-0.3718) and deed tax (0.8564). We found that ownership rate was highly correlated with these variables except land value incremental tax. However, high correlations between ownership rate and these variables did not represent there exists a causal relationship. It still need further serious examination of causal relationships among these variables.

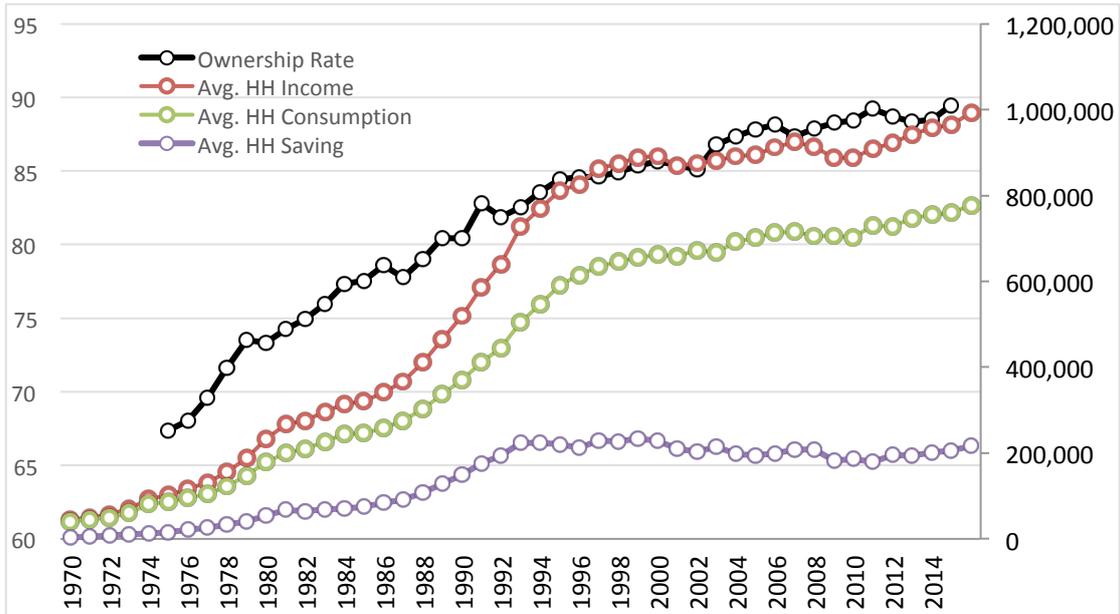


Figure 4 Homeownership Rate, Household's Disposal Income, Consumption, and Saving

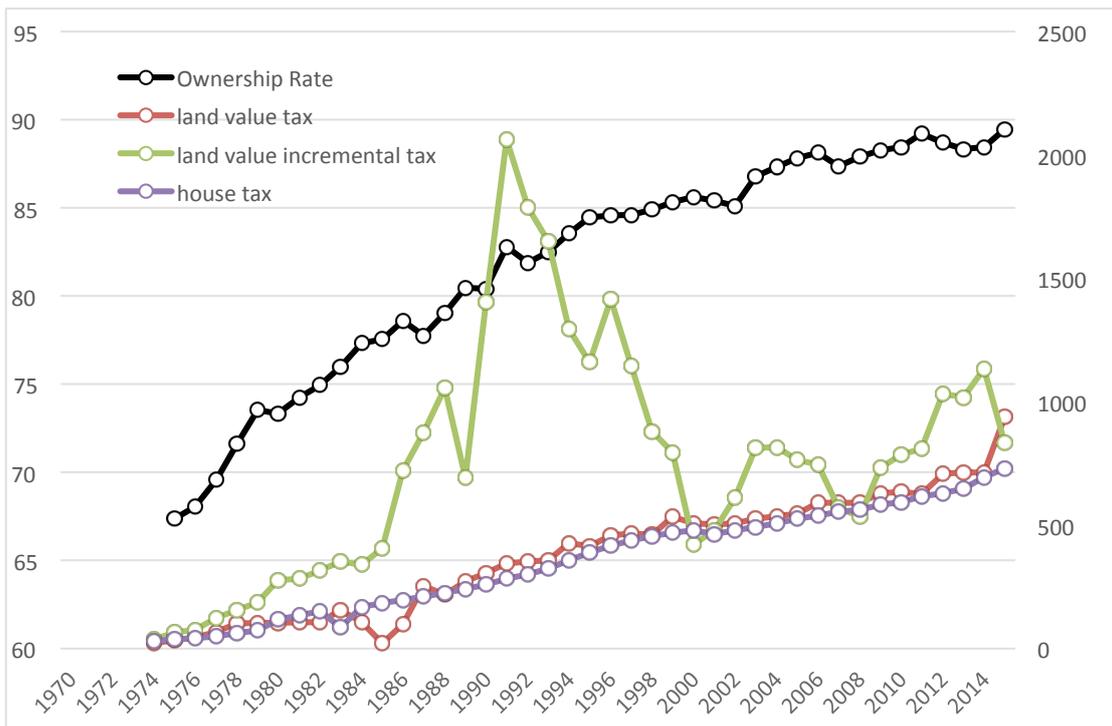


Figure 5 Homeownership Rate, Land Value Tax, House Tax and Land Value Incremental Tax

#### 4. Discussion

According to the costs and benefits analysis in section 3, we would suggest the current favorable tax treatments for owner-occupied housing to be reconsidered and cancel gradually. Our main reasons are as follows:

### ***Promoting ownership rate produces both external benefits and costs***

Many studies argued the external benefits of homeownership in the U.S. However, the external benefits of ownership can find little evidence from Taiwan's housing experience. We observed that ownership rate increased from 67.36% in 1975 to 89.47% in 2015. The only paper which supports the external benefit of ownership is Lien et al. (2008). They found children of owners had better school achievement than renters. We argue that the empirical results of Lien et al. (2008) might due to the unsound rental housing environment in Taiwan, which cannot provide longer spell of residence just as the argument of Aaronson (2000), Barker and Miller (2009), and Holupka and Newman (2012).

Furthermore, high ownership rates also cause many external costs. Lo (2011) found that high ownership rate is one important which contributes Taiwan's declining fertility rate. Many young households choose to buy a housing unit instead to give birth and raise a child. There is a significant trad-off relationship between owning a house and fertility. However, Peng and Tsai (2012) revealed that fertility rates are co-integrated with homeownership rates, household income, proportion of married couples, and percentage of higher educated females. In the short-term, the influence of lagging homeownership rates on fertility rate was not significant.

### ***Favorable tax treatments may not promote ownership rate***

Although Taiwan's ownership rate increases over time, the contribution of favorable tax treatments for owner-occupied housing on ownership rate is not clear. Bourassa and Peng (2011) found that the main reasons for Taiwan's high ownership rate are household income and high house price growth rate which reduce the relative cost of owning versus renting. The influence of mortgage subsidy and mortgage interest deduction on ownership are not significant. They expect that an increase of effective tax rate on property tax will reduce the expected house price growth rate and the ownership rate.

Peng and Tsai (2012) showed that a long-run equilibrium relationship exists between homeownership rates and household income, percentage of married couples, percentage of elderly people, and mobility rates. Furthermore, the results of cointegration vectors showed that the influence of the percentage of elderly people and the percentage of married couples on homeownership rates was more significant than that of house prices and household income. It revealed that the favor tax treatments for owner-occupied housing cause great tax loss for both central and local

governments. However, its contribution on promoting ownership rate is not significant.

### ***Housing right should be prior to investment right***

To encourage households to own a housing unit, Taiwan government allocate most of its limited housing subsidy resources to help household to buy through many kinds of housing purchase programs. On the contrary, the housing subsidy for disadvantaged groups, such as rent subsidy, social rented housing, and rent deduction from income tax is relatively not enough. The number of households which gets the rent subsidy is increased from original 20,000 to 60,000 during last five years. However, it covers only 0.75% of the total 8.02 million households. The current stock of social housing is 8,947 units, which is only 0.103% of total housing stock. The number of households which claim a rent deduction in income tax is about 48 thousand. It comprises only 0.75% of the 613.3 million income taxpayers. The current allocation of housing resources is extremely not equal. We suggest that the governments should build a sound private rental housing market and maintain the tax neutrality of owning versus renting. The government should also allocate more resources to those disadvantages households.

### ***Inefficient and Unequal***

Land owners which enjoy the preferential tax rate of land value tax are about 60% of total land owners, and each pay the tax bill around 1000~1300 N.T. dollars. Comparing with the rising housing price, the effective tax rate for land value tax is less than 0.1%. It also implies the governments subsidize each owner-occupied land owner about 4000~5200 N.T. dollars. The annual tax loss from land value tax is 15.7 billion N.T. dollars which is about 25% of total land value tax revenue. It had great impact on tax revenue of local governments. Furthermore, there is no tax for imputed rent and the owners can deduct the mortgage interest from income tax. There are about 403.5 thousand households apply the mortgage interest deduction, which comprise 6.58% of total income taxpayers. The average income tax saving of these applicants is 6,200 N.T. dollars. The tax loss for this deduction is about 2.5 billion N.T. dollars. Although, the amount of tax loss for mortgage interest deduction is not so much, and less than that of land value tax and land incremental tax. The households who get benefit from this deduction are mostly high income.

Since the owner-occupied housing can enjoy many tax benefits and the definition of owner-occupied housing is not very serious as expected. Sometimes, it is hardly to

distinguish the consumers from investors. The low holding and transfer cost for owner-occupied housing cause not just a tax loss, but also very low utilization of the housing stock. Housing vacancy was 19.4%, and the number of vacant housing units was 1.56 million in 2010. It is a very serious misallocation of limited social resource.

Yang (2016) found that 20.3% of total households own more than one housing unit, and 2.1% of the households own more than four housing units. To our surprise, there are 23 people own more than 100 housing units. Furthermore, the income of 20% homebuyers are less than the starting point. It implies these homebuyers have some other income sources which excludes from the current taxable income. These phenomena reflect that income tax burden and the distribution of housing ownership are not very equal and reasonable in Taiwan.

### ***Ownership rate is already high enough***

The aim of providing favorable tax treatments for owner-occupied is to promote ownership by reducing the holding and transfer cost of homeowners. However, Taiwan's ownership rate was above 80% in 1990, and near 90% in 2015. Comparing with other countries, Taiwan's ownership rate is only behind Singapore and much higher than other developed countries. So, there is no need for the government to promote ownership rate through favorable tax treatments for owner-occupied housing any more.

## **5. Conclusions**

From the tax revenue perspective, Taiwan government spend about 34~44 billion N.T. dollars through tax subsidy for owner-occupied housing. It accounts for only 1.5~2.0% of total the government's tax revenue, 2.2 trillion N.T. dollars. However, housing related taxes account for 65~75% of local governments' tax revenue. No wonder, the favorable tax treatments for owner-occupied housing has great impact on fiscal development of local governments. Based on the above analysis, we draw some conclusions.

First, ownership rate increased very steadily during last four decades in Taiwan. According to the previous studies, the main causes are the growth of household income and housing price which reduces the relative cost of owning. The contribution of tax saving for owner-occupied housing is relatively low and not significant, which cannot attract the marginal households changing from renters to owners.

Second, the current studies are actively to examine the efficiency and equality of

favorable tax treatments for owner-occupied housing. Most of the empirical studies revealed that these arrangements have no significant effect on promoting ownership rate or their benefits are less than the costs. Furthermore, ownership rate is near 90% in Taiwan. In the high housing price areas, the six special municipalities, homeownership rates are also above 80%. There is no need for the Taiwan government to promote ownership rate in near future. We would say that the current tax treatments for owner-occupied housing are too loose and distort households housing tenure choice.

Third, the high ownership rate in Taiwan is due mainly to the growth of household income. However, the unsound rental housing market which pushes households with no choice but to own is also one important cause. We would say that the high ownership rate in Taiwan is a serious distortion of limited housing subsidy resources. Unfortunately, the favorable tax treatments for owner-occupied housing is one important reason of this distortion. Under high ownership rate, Taiwanese households suffering from low housing quality, increasing gap between rich and poor, and the lowest-low fertility rate. The costs of promoting ownership rate are higher than the external benefits.

Finally, the over emphasizing on the promoting ownership rate through tax incentives for owner-occupied housing is not just causing housing price bubble, but also exclude the opportunity for better care of the disadvantaged groups. Those disadvantaged households live in a poor environment and facing housing discrimination problem. We suggest the governments to reduce the tax subsidy for owner-occupied housing gradually. Protecting the consumption instead of investment right for all households, especially the disadvantaged households should be the priority.

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