# Welfare Analysis of the Fiscal Policy Package in Thailand*

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## *Abstract*

*This paper presents an analysis of the simulated fiscal reform package for Thailand on household welfare. Our model assumes that Thai government will introduce two new policy instruments, i.e., property tax to be levied on land, residential and commercial properties and government spending that targeted for poor households and informal workers. The redistributive effects from this scheme is calculated based on household surveys conducted by the National Statistical Office in 2006. The major findings are noted: first, the property tax package will yield an additional revenue of 91.3 billion baht to local governments; secondly, the tax revenue is earmarked for government spending in the form of social assistances that benefit low-income households, own-account workers and informal workers; thirdly, there will be a net welfare gain for households with an assumption of aversion to income inequality of 0.3, 0.5, and 0.8 respectively.*


**Key terms:** *Property Tax; Tax Burden from Property; Taxation Benefit Incidence Social Welfare Function*

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# วิเคราะห์ผลต่อสวัสดิการสังคมจากนโยบายการคลังรัฐบาลไทย

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***บทคัดย่อ***

*บทความนี้เสนอการวิเคราะห์สวัสดิการสังคม ซึ่งเกี่ยวข้องกับนโยบายการคลังในอนาคต (เชิงสมมติ) แบบจำลองสันนิษฐานว่ามีเครื่องมือการคลัง 2 เครื่องมือ คือ ภาษีทรัพย์สินซึ่งจัดเก็บจากที่ดิน บ้านเรือน และอาคารที่มีใช้ประโยชน์เชิงพาณิชย์ การจัดสรรรายจ่ายภาครัฐเพื่อช่วยเหลือประชาชนสองกลุ่ม ได้แก่ ครัวเรือนที่มีรายได้น้อย ผู้ประกอบอาชีพอิสระหรือผู้ใช้แรงงานไม่เป็นทางการ ต่อจากนั้นวิเคราะห์ผลกระทบการถ่ายโอนรายได้โดยอิงข้อมูลครัวเรือน ที่สำรวจโดยสำนักงานสถิติแห่งชาติในปี พ.ศ. 2549 ผลการศึกษาสรุปได้ว่า หนึ่ง รายได้จากภาษีทรัพย์สินมีมูลค่า 91.3 พันล้านบาทโดยประมาณ สอง รายได้ภาษีถูกนำไปจัดสรรเป็นเงินโอนเพื่อครัวเรือนคนจน ผู้ประกอบอาชีพอิสระ และผู้ใช้แรงงานที่ไม่เป็นทางการ สาม ผลการศึกษาโดยอิงฟังก์ชั่นสวัสดิการพบว่า สวัสดิการสุทธิมีความเปลี่ยนแปลงทางบวก ทั้งนี้โดยอิงข้อสมมติว่าการลดความเหลื่อมล้ำของรายได้เป็นสิ่งที่สังคมพอใจ โดยกำหนดค่าพารามิเตอร์ an aversion to income inequality เท่ากับ 0.3, 0.5 และ 0.8 ตามลำดับ*

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## Introduction

There is an increasingly pressure for Thai government to expand social welfare programs and simultaneously to raise tax revenues for the following reasons: first, the demand for government spending for entitlement programs which is high on national agenda and consistent with the will of Constitution; secondly, the Thai government has committed to advance a fiscal decentralization, and, as such, there must be an amendment of revenue assignment between central- and local-governments (the new tax sharing rules are already included in the drafted version of the Local Revene Act). It is generally agreed that total revenue of local governments should be raised from 25 percent of the central government revenue at present to the target of 35 percent in the near future.[1] In the process, the Ministry of Finance has prepared a drafted law entitled "the Land and Construction Act", which is essentially a new form of property taxation to be levied on agricultural land, residential dwellings, and commercial properties. This paper takes the case study a fiscal policy package that assume property tax were in place and assumes that the revenue will be utilized as income transfer program with a clear objective to assist poor households, informal workers, and own-account operators.

Property tax has caught intense public attention in 2009 when the Abhisit Government announced the plan to propose a new law entitled "*the land and*

[1] The Decentralization 1999 stipulated that the revenue assignment to local governments be raised to 20 percent by 2001 and 35 percent by 2006. The targeted figure of 35 percent has, since then, been taken as benchmark. This target is commonly held by all supporters for decentralization and the National Decentralization Committee.

*construction tax act*" (กฎหมายภาษีที่ดินและสิ่งปลูกสร้าง). In essence, the new act would drastically change the ways of taxation on land and building—at present, owners of land and building are required by law to pay tax based on the rental income. As such the majority of land and home owners are exempted for the reasons that their properties do not generate cash income. Under the property tax, it is expected that the revenue from property tax will be increased by multifolds and there will be an income redistribution from rich families to poor families. In this connection the author analyzes the fiscal consequence and welfare effect using household data of 2006 to calculate the revenue collection, who will bear tax burden, and who are among the beneficiary of government spendings.

The paper is organized as follows: The first section explains a model in which the household sector is the unit of property tax would replace the currently tax practice. Every land plots and constructions will be subjected to taxation based on their property values; and these revenues be earmarked to finance new entitlement programs; cost of tax collection and cost of administering income transfer are considered in this model. The second section explains the database and highlight household characteristics regarding distribution of home ownership and the estimated property value by different types of assets. Later, the author performs tax burden and the benefit incidence analyses. Distribution of tax liability and benefit incidence by income decile groups are reported. The last section discusses policy implications, the shortcomings of this research, a suggestion for further study, and conclusion.

## The Model

The present model is conceived as a tool to analyze welfare effects from the fiscal policy package that is deemed pertinent and relavant for Thailand. Let's begin with basic description of the model: First, the fiscal policy package will

comprise: a) the taxation to be levied on agricultural lands, land and buildings that are differentiated by residential use and commercial use, b) the government spending in the forms of transfer income targeted for poor households and a matching grant as incentive for informal workers to save and to create new form of social safety net. Households as taxpayers include those who own agricultural lands, residential dwellings, and commercially used buildings. The property tax which is still in drafted form (formally will be referred as the *land and construction act*) will specify how tax will be levied on property value, the tax rates (expected to be 3 different rates), the condition that the vacant land be taxed at higher rates for purpose of discouraging land speculation, and the involved agencies that include municipalities, Tambon Administrative Organizations, and the Central Estate Valuation Authority, etc. In this paper we use the "household sector" in a broad sense that includes ordinary households, and legal entities (including corporations) that possess farm land, residential dwelling, shophouse, hotel and restaurant, factory and others. Remind also that ordinary households may own more than one type of property.

Government spending, according to this model, will be exclusively in the form of transfer income with two primary objectives: First, the transfer income is to assist informal workers, who are at present deprived of social safety net and considered underprivileged. To promote social equity, a new scheme of social security program will be initiated and every informal workers are invited to join the membership; two possible forms of organizations are the contractual saving groups (expected to be largely taken in rural area) and the occupational pension groups (expected to be largely taken in urban area). Members are obliged to pay the defined contribution (DC) on monthly or quarterly, or yearly basis and they are entitled to receive the defined benefits (DB) that include old-age pensions and others according

to the rules. And the government will contribute into the fund on an agreed terms on behalf of every members—this may be interpreted as a "partnership saving" a demogrant to encourage forced savings while working for the benefit of entitlement to receive old-age pension.[2] Second, the transfer income from government to a fund that is targeted to assist poor households with mean-tests commonly practices in many countries. The transfer can be either in cash or in-kind depending on the discretion of the poverty-reduction management fund which is not yet decided at this stage. The author assumes there will be the steering board of this program in which representation from government agencies, local governments, communities, and non-profit organizations.

Under this scheme there shall be redistribution of income from taxpayers and recipients of income transfer. It is interesting to investigate the distribution of tax burden and the benefit from government spending and to perform social welfare analysis. The author follows the suggestion by Louis Kaplow (2008) who stresses the importance of being comprehensive in the sense that public analysis should take into consideration the tax effects, the expenditure effects, behavioral responses, the revenue constraint of government, and explicitly stated social welfare function (SWF).

*Households as taxpayers and beneficiaries from government spending:*

The property tax is a levy on assets (A) according to their property values and the relevant tax rates, which will be differentiated for 3 categories, i.e., $\tau_1$ for agricultural land, $\tau_2$ for residential dwelling, and $\tau_3$ for commercially utilized land and building.

[2] The term "partnership saving" is used in Julian Le Grand (2004)

(1)---- $A = \{A_1, A_2, A_3\}$;

Where $A_1$, $A_2$, $A_3$ denotes for agricultural land, residential dwelling, and commercially utilized properties respectively. Households will be the beneficiaries from government income transfer according to rules that will shortly described.

*Government role and revenue constraint:*

The tax revenue (T) as earlier described will be channeled into two funds under the government supervision and the fiscal resouces will be allocated for: a) the social security system which will be a newly created institution; b) the poverty reduction fund that will mainly assist poor families according to some targeting rules. For simplicity we shall assume a monetary transfer that varies according to degree of poverty and assume we can rank households by income deciles, from poorest to riches. The low-income deciles (1, 2, and 3) are considered poor and deserve to get financial assistance from government: specifically, we shall assume 900 baht per month for all household members in the 1st decile class, 700 baht per month for those ranked in the 2nd decile, and 500 baht per month for those in 3rd decile.

Government spending is classified into $G_1$ and $G_2$, i.e.,

(2)----- $G = \text{transfer income} = G_1 + G_2$

It is important to keep in mind that there will be the cost of tax collection and the cost of administration in transferring income to the targeted groups. For simplicity we assume there shall be the cost of 5% for tax collection and 5% cost of transfer administration. And the net revenue shall be allocated for $G_1$ and $G_2$, in other word

(3)----- $(1-\theta)\, T = G.$

where T = $\{\tau_1 A_1, \tau_2 A_2, \tau_3 A_3\}$ and $\theta$ the costs incurred in tax collection and transfer administration which is approximately 0.1 or 10% of the tax liability—this parameter can be adjusted later when more information can be available. $G_1$ stands for government income transfer to household members who are working informally and join the membership of the newly created social security scheme (SSS2). SSS2 members are obliged to contribute according to the rule, for instance, 3% of monthly or quarterly or yearly income to the fund. We assume the Treasury and local governments will contribute on top a "partnership saving" on behalf of members at flat rate as long as the members are actively working. The second scheme, $G_2$, an income transfer from the central government for poverty-reduction and targeted for those households that ranked in the first 3 deciles (i.e., deciles 1, 2, and 3).

*Social welfare analysis*

This paper adopts the social welfare function (SWF) of the isoelastic reduced form pioneered by Atkinson (1970), Kolm (1969) and Sen (1973). In symbol,

$$SW(x) = \int \frac{1}{1-\gamma} y^{1-\gamma} f(y)\, dy \quad \text{for} \quad \gamma \neq 1$$

Where y, in our case, is household income, and $\gamma$ indicates the degree of aversion to inequality. Three policy instruments will comprise of T, $G_1$ and $G_2$. These instruments would basically affect every households. The redistributive effects and the social welfare effects from the scheme are particularly of interest and these will be discussed in the next section.

## Empirical Evidences and Tax Simulation Analysis

This section first describes the database and sources of information that are crucial for our simulation exercise. The National Statistical Office for the year 2006 (SES2006) contains 44,918 sampled households and 146,513 household members. The dataset provides valuable information in many dimensions, e.g., occupation and earning, possession of land, building, vehicles, financial assets, and detail information about housing characteristics such as construction materials of house, number of rooms in the house, and tenureship.

Remind that the major focus of this study is how the fiscal package would affect social welfare of household: In this connection we need to investigate how properties are distributed. Household's ownership of properties are broadly grouped into 3 categories; namely, agricultural land, land and house for residential purpose, and the land and building that is commercially utilized. The three items will be subject to taxation based on their property values. In fact, there may be other items of property that might be subject to taxation as well such as the high-value objects like gold, diamond, antiques, jewelry collections, etc. However, we do not have these information and they are not included in our study at this stage.

Table 1 presents the distribution of property by tenureship which may be summarized as follows: 69% of households live on their own land and house, 14.6% on the rented house, and nearly 10% of households reside without pay and do not possess the property.

Table 1: Distribution of home-ownership by tenureship

Unit: number of households and %

| Code | Frequency | Percent | Remark |
|---|---|---|---|
| 1 | 31,045 | 69.11 | Own land and house |
| 2 | 1,439 | 3.2 | Own house on rented land |
| 3 | 945 | 2.1 | Own house on public land |
| 4 | 658 | 1.46 | Hired purchase |
| 5 | 6,558 | 14.6 | Rented |
| 6 | 492 | 1.1 | Rented by others |
| 7 | 3,781 | 8.42 | Freely use of house |
| **Total** | **44,918** | **100** | |

Table 2 indicates the distribution of dwelling by types of which 75.1% are single house, follows by row house (16.2%), town house (5.2%), and others. And Table 3 reports statistical distribution of dwelling by types of construction of which 46.4% are made of cement or brick, 28.1% wood, and 23.5% a mixture of brick, cement and wood materials. NSO's survey also contains information about the number of rooms as well which provides indicator (although imperfectly) of the size of dwelling but does not report an exact figure of space (i.e., how many square meters of dwelling space).

Table 2: Distribution of home property

Unit: number of households and %

| Type of housing | Frequency | Percent | Remark |
|---|---|---|---|
| 1 | 33,732 | 75.1 | Single house |
| 2 | 7,280 | 16.21 | Row house |
| 3 | 2,328 | 5.18 | Town house |
| 4 | 1,042 | 2.32 | Flat / apartment |
| 5 | 319 | 0.71 | Room |
| 6 | 159 | 0.35 | Slum |
| 7 | 58 | 0.13 | Others |
| **Total** | **44,918** | **100** | |

Table 3: Distribution of dwelling by types of construction material

Unit: number of households and %

| Code | Frequency | Percent | Remark |
|---|---|---|---|
| 1 | 20,854 | 46.43 | Cement / brick |
| 2 | 12,642 | 28.14 | Wood |
| 3 | 10,570 | 23.53 | Wood and brick |
| 4 | 561 | 1.25 | Local materials |
| 5 | 105 | 0.23 | Used materials |
| 6 | 186 | 0.41 | Others |
| **Total** | **44,918** | **100** | |

Another aspect of interest is a possession of property by age-cohorts. According to the life-cycle model, we anticipate a hump-shaped pattern of earned income that normally peaks at about 50-55 year of age of household head. Statistics in Table 4 confirm that home ownership tends to increase over age, but does not exactly

follow the hump-shaped pattern. That the home ownership in urban area is significantly lower than rural counterpart is expectable as land and house prices in the cities are much higher than the rural area. Accordingly it took more years to accumulate enough money to purchase or to hire-purchase land and house in the cities.

Table 4: Distribution of homeownership by age of HH head and urban / rural

| Age of HH head (year old) | Units | % ownership, urban | Units | % ownership, rural |
|---|---|---|---|---|
| <=25 | 1272 | 0.131 | 449 | 0.412 |
| 26-30 | 1769 | 0.224 | 722 | 0.540 |
| 31-35 | 2338 | 0.387 | 1269 | 0.733 |
| 36-40 | 3174 | 0.514 | 1973 | 0.814 |
| 41-45 | 3564 | 0.616 | 2148 | 0.859 |
| 46-50 | 3744 | 0.694 | 2259 | 0.895 |
| 51-55 | 3200 | 0.745 | 1976 | 0.914 |
| 56-60 | 2624 | 0.792 | 1694 | 0.933 |
| 61-70 | 3672 | 0.865 | 2487 | 0.944 |
| 71-80 | 2045 | 0.904 | 1590 | 0.950 |
| 81-99 | 537 | 0.909 | 412 | 0.944 |
| **Total** | **27939** | **0.640** | **16979** | **0.861** |

To calculate tax liability we need data on the valuation of properties. The NSO's survey does not report data on property values, anyhow, they can be inferred from the rental value of dwellings. Statistics in Table 5 report the rental values of dwellings or the imputed values, differentiated by urban and rural and by different percentiles. Dwelling rents were averaged to 1,435 baht per month and the imputed rental values 1,858 baht per month. In Table 6 presents the rental values of house by income deciles. The author is of an opinion that these figures might be underestimated to a certain extent.

Table 5: The rental values of dwellings, urban and rural compared

Unit: baht per month

| | House rent | Assessed value of house rent | |
|---|---|---|---|
| Urban | 6810 | 22204 | N |
| | 1463.1 | 2256.1 | Mean |
| | 200 | 600 | p10 |
| | 800 | 1000 | p25 |
| | 1300 | 1800 | p50 |
| | 2000 | 3000 | p75 |
| | 3000 | 4000 | p90 |
| Rural | 1018 | 16186 | N |
| | 1242.8 | 1310.8 | Mean |
| | 83 | 500 | p10 |
| | 500 | 600 | p25 |
| | 1100 | 1000 | p50 |
| | 1500 | 1500 | p75 |
| | 2500 | 2500 | p90 |
| **Total** | **7828** | **38390** | **N** |
| | **1434.5** | **1857.5** | **Mean** |
| | **167** | **500** | **p10** |
| | **800** | **800** | **p25** |
| | **1200** | **1500** | **p50** |
| | **2000** | **2000** | **p75** |
| | **2800** | **3500** | **p90** |

Note: N = number of sampled dwellings

{p10,p25,p50,p75,p90} refer to the percentile values 10, 25, 50, 75, 90

Table 6: Average rental values of dwellings by income deciles

| Income decile | Rental value of dwelling (baht/month) |
|---|---|
| 1 | 840.9 |
| 2 | 1,005.1 |
| 3 | 1,203.4 |
| 4 | 1,387.7 |
| 5 | 1,599.4 |
| 6 | 1,833.6 |
| 7 | 2.,48.3 |
| 8 | 2,351.0 |
| 9 | 2,867.9 |
| 10 | 4,098.3 |

In our exercise, it is crucial to distinguish the use of house for residential and commercial purposes: Table 7 presents comparative statistics of the commercially utilized properties, in urban area, the rate of commercially-used properties was found to be 24.7%, compared with 16.2% in the rural area.

Table 7: Percentages of properties that are commercially utilized, urban and rural compared

| | residential dwelling | commercial & residential utilized | Percent |
|---|---|---|---|
| o Urban | 21,045 | 6,894 | 24.7% |
| o Rural | 14,230 | 2,749 | 16.2% |
| Total | 35,275 | 9,643 | |

Note: figures refer to unit.

Land plots without building on (i.e., agricultural land) is subject to taxation but at a much lowered rates. In this connection we need to inquire the possession on agricultural land by household. The NSO's household survey inquired about the households' possession of assets that are grouped under 4 broad headings: i) agricultural lands, ii) land and house, iii) motor vehicles, and iv) financial assets. Earlier the author (Patmasiriwat 2009) made use from these dataset to estimate household wealth and analyzed wealth inequality.[3] Land properties are subject to a lowered tax rate, here we assume the tax rate of 0.0005 (i.e., a landowner of agricultural land plot with an assessed value of 1 million baht would pay 500 baht to the municipality or Tambon Administrative Administration in which the land plot is situated). Statistics in Table 8 are drawn from Table 8 reports a statistical distribution of agricultural land value whose mean value stood at about half a million (to be more precise 566,528 baht). The median value of land plots was found to be 210,000 baht per household. The author is of an opinion that these figures are underestimated: These might be influenced by many factors; a) it might be the case that a large number of households did not keep up with the market value of properties, the majority of them have long inherited the properties with no intention to sell the lands, and did not bother to figure out the "market value" of their properties; b) it is a common practice to many that they intentionally underestimate the property values for fear of taxation.

[3] The questionnaire survey asked respondents to report the value of properties, in interval terms, for instances, the range of 50,000 to 100,000 baht.

Table 8: Statistical distribution of agricultural land values

Unit: baht

| agricultural land value | | | | |
|---|---|---|---|---|
| | Percentiles | Smallest | | |
| 1% | 2000 | 200 | | |
| 5% | 10000 | 200 | | |
| 10% | 30000 | 200 | Observation | 16983 |
| | | | Sum of | |
| 25% | 90000 | 300 | Weight | 16983 |
| 50% | 210000 | | Mean | 566528.3 |
| | | Largest | Std. Dev. | 1706270 |
| 75% | 500000 | 4.00E+07 | | |
| 90% | 1000000 | 4.50E+07 | Variance | 2.91E+12 |
| 95% | 2000000 | 5.00E+07 | Skewness | 20.18 |
| 99% | 6000000 | 1.00E+08 | Kurtosis | 826.40 |

It is also crucial for our exercise to estimate the possession of commercially utilized properties such as factory, apartment, restaurant, hotel, etc., because these properties would be subjected to higher tax rates. SES2006 does not provide information on the possession of commercially utilized properties per se, but there are ways to infer from this dataset. The SES2006 reports *household income by different sources of income* which are broadly grouped under: a) wage income, b) farm income, c) business and non-farm income; d) property income; and e) transfer income. The author assumes that those households that earned income from business and non-farm activities must have own properties as means to operate their

enterprises. It is found that 42.4% of sampled households earned “nonfarm income”, and these households would be subject to taxation at “commercial” tax rate.

To infer the tax effects on the national-scale, we rely on the NSO’s sampling weights to infer the national averages. Specifically the author made use of a sampling weight of 401.8 was used to blow for the population averages. According to NSO, a summation of the number of household would be 18.05 million units, with a multiplication of 44,918 and 401.8.

*Tax Simulation Exercise: I. Agricultural Land Tax.*

We are now ready to undertake the tax simulation exercises. First, an agricultural land tax. The tax rate ($\tau_1$) is assumed to be 0.0005 (or .05%) which is very low by any standards. This rate is multiplied to the agricultural land value which is treated as tax payment from those households that possessed an agricultural plot of land. Not all households paid this tax, only about 37.8% of 18.05 million units were assumed to pay this tax. The author notes that lower ends of the tax liability are unbelievably very low (less than 100 baht per household); for practical reasons we shall assume there would be minimum charge of 100 baht instead if the values of tax liability are less than 100 baht per year—in other words, the tax payment, according to our simulation, would be:

The minimum of {assessed tax value, 100}

The mean value of tax liability is found to be 310 baht per household with the median value of 105 baht—and these values deserve some attention and at least briefly discussion. Our findings suggest that the tax burden on ordinary farm households are, by and large, not high, except the major landlords. The tax revenue

from agricultural land was estimated to be in the vicinity of 2,115 million of baht (according to the 2006 assessed values). These figures should be adjusted upwardly in the future as land prices tend to increase over time, for the past decades, the rate of change in land value outpaced inflation rate. Of note is the suggestion that the idle land should be tax highly (say double) to penalize for inactivity and land speculation. This study does not perform such calculation due to unavailability of data on idle land.

**Table 10: Statistical distribution of agricultural land tax**

Distribution of an agricultural land tax (tax1_agrland)

Unit: baht per household per year

| | Percentiles | Smallest | | |
|---|---|---|---|---|
| 1% | 100 | 100 | | |
| 5% | 100 | 100 | | |
| 10% | 100 | 100 | Obs | |
| | | | Sum of | |
| 25% | 100 | 100 | Wgt. | |
| | | | | 16983 |
| 50% | 105 | | Mean | 310.3 |
| | | Largest | Std. Dev. | 845.7 |
| 75% | 250 | 20000 | | |
| 90% | 500 | 22500 | | |
| 95% | 1000 | 25000 | | |
| 99% | 3000 | 50000 | | |

***Tax Simulation Exercise**: II. Taxes on Dwellings, Residential- and Commercial*

The major sources of property taxation would be generated from dwellings. First, regardless of whether they are residentially or commercially utilized. Inference from the SES2006 survey suggested that there were 18.05 million units of household as of 2006 which would be used as tax base. In addition to dwellings for residential, there might be 7.3 million units of land and building, which is equivalent to 42.8 percent of 18.05 million units, that were used to perform nonfarm businesses in many forms, such as, shophouses, restaurants, food stalls, hotels and factories, etc.

Next on agenda is the calculation of tax revenue: The tax rates to be differentiated by types and by uses of properties, namely, a) residential dwellings; b) dwellings that are used for both residential and commercial purposes, and c) those properties that are primarily used for commercial purposes such as factory, restaurant, hotel, shophouses, etc. Tax liability in the case of ordinary households: on average, the tax burden would amounted to 892 baht per household. The tax revenue for this category would amount to 12,613 million baht from 14.2 million units of household who own residential dwellings.

Tax liability to be levied on dwellings for residential and commercial at the same time at 0.003 tax rate (or 0.3%). This household group accounts for 21.5 percent of the total households, or equivalent to 3.9 million units of household at national scale. The average tax liability was 12,314 baht per year according to the 2006 assessed valuations. The last category of taxation is the levy on land and property that were primarily used for commercial and these accounted for 13.6 percent of the total households (in other words 2.5 million units of household are assumed to pay this taxation (also to local administrative organizations they belong to). On national average the tax liability for each household was 12,314 baht per year. And the tax proceeds from this type of taxation would amounted to 91,318 million baht by the year 2006

as reported in Table 11. In total, the revenue proceeds from 4 types of taxation would amounted to 91,318 million baht as of the year 2006; the major share (46,889 million of baht went to taxation of residentially and commercially used properties due to largely the high tax burden (12,134 baht per year); the next category of major revenue generation was found to be the commercially used properties whose tax due on national average was 12,134 baht per year and to be applied to 13.6 percent of household (2.46 million units) and the sum value of 29,704 million baht; and the majority of household (78.5 percent or equivalent to 14.2 million units of household) would pay 892 baht per year and the national sum value of 12,613 million of baht.

**Table 11: Estimated revenues to be generated from property taxation**

| Type of taxation | frequency Unit | Avg tax due (baht/year) | Percent of 18 million units of HH | Tax revenue (million baht) |
|---|---|---|---|---|
| O Tax1_agrland | 16983 | 310.3 | 37.8% | 2,111.8 |
| O Tax2_resid | 35275 | 892.3 | 78.5% | 12,613.3 |
| O Tax3_com | 9643 | 12134.2 | 21.5% | 46,888.7 |
| O Tax4_busi | 6109 | 12134.2 | 13.6% | 29,704.0 |
| | | | | 91,317.9 |

*Beneficiaries for two schemes of income transfer*

According to our model the proceeds from property tax collection will be channeled into two schemes of income transfer and the money will be targeted to two groups of beneficiaries, the informal workers and the poor households. There shall be

costs of tax collection and the income transfer administration which combines to approximately 10 percent; according we keep in mind that the government spending should be limited to approximately 90% of tax liability.

**Benefit1** refers to an income transfer from government to the supplement the defined contribution which is targeted for 20.2 millions of household at 150 baht per month. This would amount to 36,360 million baht (150 x 12 x 20.2).

**Benefit2** refers to an income transfer from government to the targeted poor households (deciles 1-2-and 3 respectively at 900, 700, and 500 baht per month as supplementary income). This would amount to 45,360 million baht; here we assume that there will be 1.8 million units of household for each decile class.

Total government spending that will be transferred to two beneficiary groups will then amount to 81,720 million baht which will be 89.5 percent of the tax liability (91,318 million baht)

Figures in Table 12 report the distribution of tax liability and benefit and the net benefit by decile classes. The net benefits are positive in the poor households and negative in the medium- and hig-income households. The middle income households will be subject to pay 4-6 thousand baht per year and the net benfit in the range of 3-4 thousand baht. Among the top deciles would be liable to property tax in the range of 8-11 thousand baht.

Table 12: Distribution of Tax Liability and Benefit from Government Income Transfer

Unit: Baht

| Decile groups | Yearly income | Tax payment | Benefit | Net benefit |
|---|---|---|---|---|
| 1 | 44,846.0 | 1,617.1 | 12,388.9 | 10,771.8 |
| 2 | 72,341.5 | 2,271.7 | 9,853.6 | 7,581.9 |
| 3 | 92,834.1 | 3,137.4 | 7,374.5 | 4,237.2 |
| 4 | 113,568.9 | 4,320.5 | 1,291.4 | - 3,029.2 |
| 5 | 137,187.5 | 5,109.4 | 1,257.2 | - 3,852.2 |
| 6 | 167,699.3 | 6,122.9 | 1,231.9 | - 4,891.0 |
| 7 | 198,241.2 | 7,109.3 | 1,156.5 | - 5,952.8 |
| 8 | 244,859.2 | 8,064.1 | 1,026.9 | - 7,037.2 |
| 9 | 332,277.1 | 9,355.9 | 984.5 | - 8,371.4 |
| 10 | 696,230.4 | 11,408.6 | 807.8 | - 10,600.8 |

## Assessment of change in social welfare and policy discussion

It should be obvious from Table 12 that there will be redistributive effects for the fiscal policy package as proposed here with an objective to benefit the lower-income groups while taking from the richer households. Next on an agenda is an assessment in term of social welfare change. In this exercise we shall follow Louis Kaplow (2008) by adopting the social welfare formula $SW(x) = \int \frac{1}{1-\gamma} y^{1-\gamma} f(y)\, dy$ for $\gamma \neq 1$ with a set of parameters for an aversion to inequality, of 0.3, 0.5, and 0.8 respectively.

Table 13: Assessment of change in social welfare with alternative parameters of an aversion to inequality

| | | |
|---|---|---|
| welfare_without policy | gamma = 0.3 | 53.1 |
| welfare_with policy package | | 53.4 |
| welfare_without policy | gamma = 0.5 | 865.6 |
| welfare_with policy package | | 869.3 |
| welfare_without policy | gamma = 0.8 | 92,127.1 |
| welfare_with policy package | | 92,233.0 |

The results as indicated in Table 13 confirm there will be an improvement in the social welfare assessment (although not satisfy Pareto betterment condition) provided that the exists an aversion to inequality (gamma > 0). The interpretation is an income transfer of 1 baht from the rich household to poor household will be a marginal gain in welfare term, provided that the parameter gamma is greater than zero. The higher the parameter gamma ($\gamma$) reflects the high intensity of an aversion to inequality.

**Policy implication**. The fiscal package as proposed here is not novel, in fact, many economists before the author, namely Medhi Kronkaew, Kraiyuth Thiratayakinant, and Kirkkiat Pipatseritham, and others have studied the issues and advocated for tax reform and budgetary reform that aim at empowering low-income people and, simultaneously, perform redistributive function. It's now timely to float an idea for public attention. Obviously there will be proponents and opponents to the proposed scheme. As earlier mentioned, the author assesses that the probability that the government will push for tax reform and to redesign the ways of government

spending to empower low-income people is high. There is strong need for central- and local-governments to find new sources of revenue and the demand for social services is on the rise and in accordance with our constitutions (both 1997 and 2007 versions). The social safety net issue is particularly relevant as Thai society is advancing toward aging, similarly to other countries around the world. It is natural to expect a rising demand for social safety net from informal workers and own-account operators who are at present not entitled to old-age pension. In this regards, economists can play analytical role together with intellectuals in other disciplines and policy advocacy groups to explain the public at large who social protection can work, and most of all how the system can be sustained in the long-run (an overlapping generations model very well fit the task). This simulation exercise is only a crude and modest contribution to better understanding over the issues. There are obviously weaknesses in this analysis as the author is forced to make assumptions about parameters that might be inaccurate due to limited information. The author is of opinion that the estimated revenue rather err on the low-side. The property value as reported in SES2549 tends to be underestimated to a certain extent, but that is natural and understandable. Another source of bias which is commonly known is that it is much difficult to interview rich households than the lower income groups whose houses are normally open for visitors and government officials. An inclination to underreport income and wealth for fear of taxation, and other reasons.

## Summary and Concluding Note

The study performs an analysis of the simulated fiscal policy package that comprises property taxation and a scheme of pro-poor government spending. Household data conducted in 2006 were used to draw inference who would bear the tax burden and who would benefit from the pro-poor scheme of government

spendings. Our findings are summarized: First, the tax revenue would approximately 91 billion baht; secondly, the tax proceeds would then be allocated for the pro-poor scheme and, as such, there would be income redistribution from rich households to poor households; thirdly, there would be social welfare gain provided that the exists an aversion to income inequality (the parameters $\gamma$ of 0.3, 0.5, and 0.8 were applied in our analysis).

Our analysis has caveats and shortcomings: at this stage, the author assumes that the property taxation as proposed by Thai government would have minimal or no impacts on household's possession of wealth. In other words we assume an inelastic demand for property ownership which, in the author's opinion, seems to be commonly observed by a number of previous studies. The case against income transfer for poor household is debatable and it may be true that an incentive to work might be somewhat lessened. There were case studies from western countries that reported nontrivial degree of responsiveness in the labor supply. In our case study, the benefit package is rather small (500-900 baht per month), at best, they can only serve as "supplementary" income support, the recipients of benefit package can hardly survive with only cash transfer from the government. For the time-being, we are assuming that the pro-poor scheme in a form of income transfer does not significantly reduce an incentive to work among poor households.

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# Appendix

**Table A1: The estimated rental value of dwelling**

Unit: baht per month

| *no of room in dwelling* | *mean value Baht/month* | *std_dev Baht/month* | *Frequency Household* |
|---|---|---|---|
| 1 | 1,276.1 | 1,062.6 | 8634 |
| 2 | 1,622.6 | 1,369.2 | 13327 |
| 3 | 2,143.9 | 1,989.8 | 12441 |
| 4 | 2,647.1 | 2,400.7 | 6756 |
| 5 | 3,431.3 | 3,324.5 | 2541 |
| 6 | 4,869.6 | 5,259.6 | 848 |
| 7 | 6,130.9 | 7,810.2 | 247 |
| 8 | 10,532.8 | 13,614.9 | 90 |
| 9 | 12,974.0 | 14,081.4 | 34 |
| Total | 2,069.3 | 2,353.6 | 44918 |

**Table A2: The estimated household wealth based on SES2006**

Unit as stated

| *Type of asset* | *Frequency N* | *Mean value Baht* | *Standard deviation Baht* |
|---|---|---|---|
| Land and house | 35,361 | 636,420 | 1,595,860 |
| Agricultural land | 16,983 | 566,528 | 1,706,270 |
| Vehicle value | 36,840 | 191,120 | 506,464 |
| Financial assets | 44,918 | 164,295 | 977,166 |
| Total value of asset | 44918 | 1,036,255 | 2,667,017 |

Source: Based on Direk Patmasiriwat (2009)