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Broadening the Social Protection in an Aging Thailand

Direk Patmasiriwat
Faculty of Economics, Thammasat University, Bangkok, Thailand
Corresponding author: direk@econ.tu.ac.th

Abstract

This article is a based on a policy study that explores alternative schemes to broaden the social safety net to cover the whole population in Thailand: It is well known fact that the social security system as presently existing covers mainly two broad groups, namely, the public employees and the formally-employed workers; together their protection coverage accounts for about one-third of the adult population.

Keywords: Protection, Aging, Thailand

Introduction

This social arrangement for mutual help and risk-pooling is meritorious. The merits are, in deed, greater than the fund: There are merits from "social capital" and joint activities that help bonding community members the collective actions that yield positive externalities to local environment, to cultural- and institutional-development. There might, however, be inherent weaknesses in the community-arranged saving and welfare groups.[3] Of noted are: First, the contribution rate is, in general, too low and, hence, the accumulated fund over the working period (15-30 years) may be too small and inadequate to match the obligatory of the fund when a portion of members reach the retirement period; secondly, there may be imbalance structure of group membership in the sense that the young members (20-40 year of age) tends to be underrepresented and the older members (in mid-fifties) overrepresented. These may pose the problem of financial unsustainability of the community-arranged social security. In this connection there may be appropriate and necessary to set a guideline for smooth operation of the community-arranged fund and that the government will have to intervene. Two theses of this paper are: a) the mini-social security arrangement by community has merits and is instrumental to induce long-term saving which are socially desirable – yet it run the risk of financial collapse in the future; b) with assistance from government in the form of matching grant and through the empowerment budgeting, the community saving groups may be able to operate the welfare program on healthy basis.

In this paper the author reviews ideas from economic models that cover social security, life-cycle theory of earning and saving, and the overlapping generations transfer; and later uses household data and the quantile regression to estimate income earning for the informal workers. The author performs a simulated scenario in which group members will save and contribute to the fund over the working years and estimate how long the accumulated fund (a mini-social security) will last. Later the author analyzes a new scenario in which a matching grant from government will supplement to the community-operated fund and test whether the fund could operate sustainably.

[3] Based on the author's observation from few case studies in the North, Eastern and Southern regions over the past few years.

This paper is organized into 4 parts: The first part reviews economic models related to life-cycle savings and the overlapping-generations transfer which are the basis for social security. The notion that social security may be beneficial for the economy is discussed.[4] Sustainability of social security is reminded and this should be useful for the management of the 'saving groups' and the 'occupation pension groups'. The second part draws upon the experiences of the social protection in other countries with special reference to the old-age pension scheme, their fiscal problems, and policy reform over the past decades. The third part takes an empirical study of household earnings and their ability to save based on two surveys (one is a large-scale survey conducted by the National Statistical Office's survey of household, another the medium-sized scale survey that focused on saving behavior of household in which the author involved). The fourth part discusses the pros and cons of the extending social safety net to cover the whole population and the political drive to.

Lessons from Economic Theories: Saving and Transfer in Overlapping Generations Model

Many eminent economists have thought over the aging issue and they have contributed analytical models as tool for policy considerations. The life-cycle model of saving, introduced by Modigliani and Brumberg (1954), illustrated that a rational economic agent should anticipate earnings and savings over his/her life-time and that amount of accumulated savings at retirement age should be adequate for consumption in retirement. The life-cycle model provides a tool to analyze wealth accumulation and the bequest motives. The notion that people should save enough money for retirement motive is simple—yet, the application of this notion can be highly complex due to uncertainty and imperfect foresight. One never know how long one will live, nor their future earning, and whether or not one will live a healthy life, etc. Later researches relaxed the assumptions of perfect foresight and introduced the bounded rationality concept. George Akerlof (197..) analyzes procrastination as a behavior commonly observed by any person and suggested that this concept is particularly relevant for saving. For instance, a representative person today determines to save an x% of his/her earning today in saving for the future–yet by tomorrow he/she may break his/her own rule for many personal reasons, *"I need to spend this money now for special reasons,"* or *"I can double the saving amount by the day after tomorrow"*. This illustrates time-inconsistency in human behavior and these errors (the failure to save) which is seemingly small, could be large when they are accumulated over life-time.

A *contractual saving scheme* is a term used for an arrangement that one commit to save on daily or monthly basis a fixed amount of saving or in a fixed percentage of his/her income and accumulate for their own use in the future, in cases of uncertain

[4] Based on Jean Hindricks and Gareth D. Myles 2006 *Intermediate Public Economics*. Here we take Some.

events and in their retirement. This saving can serve a function of precautionary or an insurance to cover against bad outcomes, such as unemployment or ill health which are probabilistic. The core function of contractual saving is mainly for the purpose of old-age pension. Hindricks and Myles (2006) illustrated that pensions are the potential transfers of resources between generations and this should be analyzed in intertemporal framework. In a *pay-as-you-go* social security program, the current contributions through taxation of those in employment and the benefits given to those who retired. The system must satisfies the equality:

Benefits received by retired = Contributions of workers

In a *fully funded system*, each worker must contribute into the social security system he/she belong to; and the fund from members' contribution are invested by the social security management team. Such a program must satisfy the equality:

Pensions = Social security tax plus interest
(or the annual earning of the fund from contractual saving)

An *overlapping generation model (OLG)* seems to be an appropriate tool to analyze how the social security system works as it allows for intertemporal and intergenerational analysis. According to this model, the population may be classified into 3 groups, the young (Y), the working population (V) and the old (O). One may imagine that, for simplicity, every member of society is to live 3 periods -- being young on the first period; actively working in the second period; and during the last period he/she becomes an elderly member of the society before leaving this world. The elderly members would live on either pension (an accumulated saving) or from transfer from the working population or the mixture of both.

In this connection the working group (V), in aggregate term, would bear the responsibility to support for the young (Y) and at the same time to save some portion of their for themselves to be used in retirement period (O). This setting is a "fair" game in the sense that there will be no exploitation and everyone are expected to behave according to this rule of the game. Two notions of dependency are discussed in this model, i.e., the young dependency ratio (Y/V) and the old-age dependency ratio (O/V).

The model will be sophisticated and complex when we consider the facts that: A) the relative sizes of Y-V-O can change over time. An increase in the old-age dependency ratio, which is presently evidently in many countries, has already posed fiscal crisis in some European countries that has undergone the social welfare for many decades. B) "the working life time" and "the retirement period" are not static and constant over time--we have seen that life-expectancy has increased in many countries and Thai people will follow similar patterns; with respect to working life, it is influenced by many institutional factors including social norm and retirement rules that are endogeneous and institutional created. C) "productivity" dimension – i.e., labor productivity has a tendency to increase over time due to technological

progress but it is uncertain and it could be disrupted by economic fluctuations. D) the cost of living and inflation rate can fluctuate over time.

Here we employ a simple model that represents the flow of income – saving – and consumption of the each generation and their relationships through transfer as follows:

The young:

consumption = income transfer (support) from the working age

The working group:

income = (own) consumption + saving + pensions + support

The elderly:

consumption = saving withdraw + pension benefit

Two kinds of dependency ratio plays an important role in this model, namely, DP1 = Y/V and DP2 = O/V. According to one interpretation, dependency ratios are the "shadow prices" of a social insurance scheme. In our model, there are 6 endogeneous variables of policy relevant:

(1)----- $C^y = D_2$	Young
(2)----- $L_2 w_2 = C^v_2 + (1\text{-}r)\, A^v_2 + p_{b1}\, B_1 + p_{d3}\, D_3$	Working age
(3)----- $C^o_2 = A^v_2 + B_2$	Old-age

subscript y, v, o refers to young, working age, and old-age respectively; subscript 1,2,3 refers to time. Notations:

A = asset
C = consumption
B = pension benefits
D = income transfer
L = labor
w = wage rate
r = interest rates

Review of Social Security and Old-Age Pension: Lessons from Developed Countries

A number of analytical and empirical researches about aging society has been written and well documented the western countries that have undergone the long-experience in the social welfare system; there are many lessons that Thais can learn from those researches. Here we shall take a brief review of previous literature on a selective basis that the author feel useful for our purpose.

According to a study by Halter and Hemming (1987) that based on four industrial countries (the Federal Republic of Germany, Japan, the United Kingdom, and the United States) the share of elderly population will rise from the average of 12.5 to 20.5 percent during 1980 and 2025, this will raise the financial burden for

working population in the pay-as-you-go financing system. Many analysts raised worry that workers might walk away from the obligation and that the pay-as-you-go security system will run the risk of collapse. And there has been suggestion that the pension benefits should be automatically adjusted over time along the population structural change. Cutler, Poterba, Sheiner and Summers (1990) have different view as they considered that an aging society may offer an opportunity in the sense that a slowing population growth would permit a smaller share of national output to be devoted to investment and that the working population ratio might rise due to the fall of children population. There might be positive effects from demographic change and when take into consideration technical change in response to an increasing scarcity of labor; this can be interpreted as dividends rather than a fiscal burden to society. They considered that the demographic change provides the opportunities as well as the challenges.

A quote from Attanasio and Violante (2001) "…The issue of pension reform has recently received a considerable amount of attention both in developed countries and in developing ones. In most developed countries, the debate was stimulated by the fact that the current demographic trends, which project a dramatic increase in dependency ratios in the next 20-30 years, make the unfunded pay-as-you-go (PAYG) systems, that are in place in most of these countries, simply unsustainable…. Some countries in Latin America, on the other hand, have pioneered the move towards pension systems that are funded and privately operated. In the USA, the Social Security Fund, which will soon run a current deficit and will exhausted, according to the most recent projections, before 2030, has stimulated a vigorous debate among US academic and policy makers alike. In European countries, such as Germany, France, and Italy, the problem is even more serious…"

Broadening the Social Safety Net to Cover the Underprivileged Thais

In this section we analyze the public policy that are attempt to broaden the social safety net to cover underprivileged population in Thailand. The past few years we have witnessed an emergence of the micro-credit groups arranged by communities in every regions, mostly taken placed in rural area, and the formation of the groups of informal workers in urban- or peri-urban area, such as the subcontracted workers that raise their concerns about a lack of social safety net and the risk associated with production and work. The micro-credit groups could collect saving from members to form a sizeable fund and provide credit for the needy members with reasonable interest rates on easy terms. The fund provides an opportunity for both saving members and the borrowing members although the borrowed amount is generally small. Later, some community leaders invented a new scheme called the "contractual saving" in the sense the members are obliged to save a fixed amount money on monthly basis; this fund is expected to grow over time and part of this fund is to be spent for welfare provisions that include sickness payment,

accidents, pensions and others. Such schemes are commonly found in rural communities with the specific rules how the fund will be managed. We shall refer this as the contractual and community operated welfare.

Three hypotheses are proposed and to be discussed and illustrated (with policy simulation exercises):

Hypothesis A: The contractual saving and welfare groups operated in communities (a mini-social security scheme), as existing now, are social desirable but they may run the risk of financial collapse in the future. Either these saving groups must adjust the contribution rate, in higher direction, or they must revise the rule over the pension benefit, in lower direction, or they need an income transfer from public sector (government- or local governments).

Explanation: This will be illustrated later by numerical exercise that are based on an empirical study (SES2004) and the simulated situation in which informal workers are assumed to be members of the mini-social security operated by community. A life-time earning of informal workers group are estimated that based on the quantile regression (evaluated at the median income level) and these members are assume to contribute, in a fixed percent of his/her earnings over life-time. The accumulated fund shall be provided for elderly members after retirement; the fund amount will be gradually depleted over time. Different assumptions regarding the working span, life-expectancy, interest rate, and the capability to save shall be employed in our simulation exercise.

Hypothesis B: Following from hypothesis A that indicates a high chance of financially unsustainability, it may be necessary for the government to intervene; specifically, to provide a matching grant as supplementary to the saving compiled by the community-arranged social security or the occupational pension groups. With financial assistance from government, the mini-social security program operated by community or the occupational pension funds may be able to pass the test of financial sustainability.

Explanation: The matching fund from government is assumed and to be illustrated by the simulation exercise; this will enable the fund management and convert the situation from unsustainable- to sustainable fund operation.

Hypothesis C: There are normative reasons for the government to provide grant to broaden the social safety net to include all Thais. Yet it is important to weigh the benefit and the fiscal cost of government intervention. If the fiscal cost of government in fulfilling the gap of social safety net is not prohibitively high, there is a good chance that the policy to broaden the social safety net will be adopted by political parties as this policy is consistent with the Constitution B.E. 2550.

Empirical Analysis: Ability to Earn and to Contribute to the Mini-Social Security over Life-Time

The author makes use of the household socio-economic survey (to be shortly referred as SES) to project income earning for the informal workers by age-cohorts. The simulation analysis that will be discussed at length later makes use of these projected income earning and the assumed contribution rates to the mini-social security fund. Specifically the author took SES2004 (record#2) to estimate income earning by household member. The dataset provides useful information of household members such as work status, industry in which he/she belong to, and socio-economic characteristic of each household members. Income is reported by sources, namely, 1) wage and salaries; 2) farm income; 3) nonfarm income; 4) property income; 5) transfer income; and 6) the total income. A quantile regression is employed as tool to estimate earning ability by the percentile groups (specifically 10% 25% 50% 75% and 90%). Angus Deaton (1994) suggests that the quantile regression technique can be very useful to analyze cross-sectional data which tends to be heteroscedastic in error terms.

A brief description of SES2004: The dataset contains information of 34,843 households and 116,444 household members. Since our objective is to analyze earning capability, we exclude the samples of children under 15 years of age and those who are in school or colleges, so reduced version of the dataset contain information of 81,066 individuals. Within this group, 61,962 individuals reported that they earned positive income. Table 2 shows statistics of average income by age-cohorts. Figure 1 shows a hump-shaped patterns of earning capacity for an average Thai worker that increases over age and reaches a peak level at 50/54 years of age before a decline.

Table 1: Distribution of Sampled Household Members by Regions and by Community Types, 2004

Region	**Urban**	**Rural**	**Total**	
1 Bangkok & vicinities	4,948	0	4,948	n
	100	0	100	%, row
	9.98	0	6.1	%, column
2 Central	13,915	10,570	24,485	n
	56.83	43.17	100	%, row
	28.06	33.58	30.2	%, column
3 North	10,630	7,615	18,245	n
	58.26	41.74	100	%, row
	21.44	24.19	22.51	%, column
4 Northeast	13,507	7,550	21,057	n
	64.14	35.86	100	%, row
	27.24	23.99	25.98	%, column
5 South	6,590	5,741	12,331	n
	53.44	46.56	100	%, row
	13.29	18.24	15.21	%, column
Total	**49,590**	**31,476**	**81,066**	n
	61.17	38.83	100	%, row
	100	100	100	%, column

Source: National Statistical Office, SES2004
Note: Children under 15 years of age and those in school are excluded.

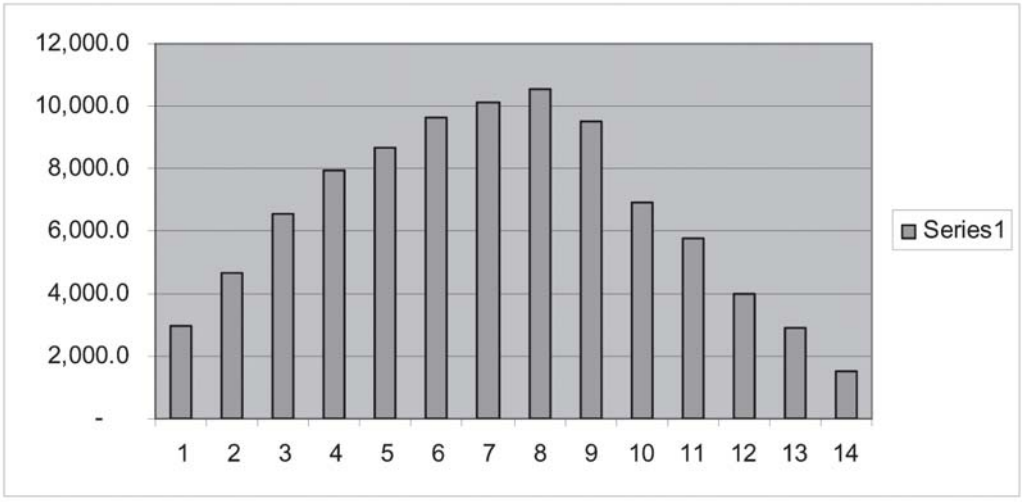
Table 2: Average Earned Income by Age-Groups (Income>0)

Unit: baht / month

	Age Groups	Mean Income	Std. Dev.	Freq.	Percentage
1:	15-19	2,953.1	2,317.3	1,217	2.0%
2:	20-24	4,687.6	4,267.8	3,590	5.8%
3:	25-29	6,527.9	7,226.1	5,968	9.6%
4:	30-34	7,940.5	11,730.0	6,971	11.3%
5:	35-39	8,661.8	12,859.7	8,043	13.0%
6:	40-44	9,640.2	14,954.7	8,068	13.0%
7:	45-49	10,122.3	15,961.3	7,570	12.2%
8:	50-54	10,536.1	20,129.6	5,984	9.7%
9:	55-59	9,533.7	18,687.6	4,223	6.8%
10:	60-64	6,917.0	13,240.8	3,437	5.5%
11:	65-69	5,733.8	14,007.6	2,675	4.3%
12:	70-79	3,974.3	8,297.4	3,232	5.2%
13:	80-89	2,882.4	5,943.5	884	1.4%
14:	90-99	1,497.6	2,704.3	100	0.2%
	Total	**8,017.3**	**13,901.3**	**61,962**	**100.0%**

Source: SES2004
Note: Exclude those who did not work and earn no income.

Figure 1: Average Monthly Income by Age-Cohorts



Source: SES2004
Note: The vertical axis refers to the average monthly income, baht/month.

The horizontal axis refers to the age-groups. The codes for age-groups are indicated in the first column of Table 2.

Table 3: Distribution of Informal Workers by Work Status and by Productive Sector

Unit: number of persons

Productive Sector	Looking for Job	Employer	Own-account Worker	Family Worker	Total
1 agriculture	0	3,916	5,579	7,922	17,417
2 fishery	0	97	195	181	473
3 mining	0	2	3	2	7
4 manufacturing	0	316	1,226	579	2,121
5 public utilities	0	2	3	2	7
6 construction	0	186	56	48	290
7 commerce	0	816	4,550	2,559	7,925
8 hotel & restaurant	0	369	2,189	1,256	3,814
9 transport	0	47	892	36	975
10 finance	0	3	14	8	25
11 real estate	0	65	188	65	318
12 public admin	0	1	4	2	7
13 teachers	0	4	16	5	25
14 medical employment	0	6	44	10	60
15 social services	0	115	772	123	1,010
16 unidentified	0	1	54	11	66
99 not working	997	1	6	9	1,013
Total	**997**	**5,947**	**15,791**	**12,818**	**35,553**

Table 3 shows the distribution by work status and by productive of 35,553 informal workers in SES2004. Of note is that the informal works accounted for a significant portion of total work in Thailand. For comparison purpose Table 3A is added here to show the whole distribution of adult individuals by work status.[5]

Next, we run the quantile regressions for different percentile groups, viz., the 10th, 25th, 50th, 75th, and 90th respectively to infer about earning ability. The dependent variable refers to total individual income[6] which is assumed to be explained by variables such as sex, age, community type (urban / rural), work status, and productive sector in which the person is working. Table 4 shows the estimated coefficients of the quantile regressions, which will be used later in our simulation exercise (Note: The full report of estimates are in the Appendix).

[5] **Table 3A:** Distribution of Sampled Individuals by Work Status, Formal and Informal Works

Work Status	Freq.	Percent	Cum.	Meaning
0	997	1.23	1.23	Looking for job
1	5,947	7.34	8.57	Employer
2	15,791	19.48	28.05	Own-account worker
3	12,818	15.81	43.86	Family workers
4	7,052	8.7	52.56	Government employed
5	576	0.71	53.27	State enterprise
6	21,394	26.39	79.66	Private employment
7	19	0.02	79.68	Cooperatives
8	15,701	19.37	99.05	Inactive
9	771	0.95	100	No occupation
Total	**81,066**	**100**		

Source: SES2004

[6] SES2004 refers to the total income as the sum of income from different sources. In fact a significant portion of people earns more the two sources of income, for instances, farm income and nonfarm income, wage income and property income, farm income and transferred income.

Table 4: Results of Quantile Regression Estimates for Individual Income by the Percentile Groups

Explanatory Variable	q10	q25	q50	q75	q90
Age	0.07448	0.06621	0.06122	0.06236	0.07532
Agesq	-0.00083	-0.00076	-0.00069	-0.00067	-0.00077
Female	-0.40172	-0.28604	-0.23216	-0.22029	-0.23517
Rural	-0.16478	-0.17625	-0.18284	-0.19654	-0.21712
Productive sector:					
2 fishery	0.50779	0.52162	0.49926	0.37394	0.36477
3 mining	1.10486	0.97198	1.06344	1.15599	1.49067
4 manufacturing	0.91966	0.90078	0.84140	0.79412	0.79985
5 public utilities	0.74944	0.62653	0.99717	0.88616	0.71990
6 construction	0.57525	0.47226	0.40139	0.29744	0.19719
7 commerce	1.05540	0.95600	0.85883	0.81884	0.80222
8 hotel & restaurant	1.18839	1.01391	0.87336	0.73175	0.62878
9 transport	0.98351	0.79704	0.71762	0.66443	0.71146
10 finance	1.68313	1.40011	1.49904	1.64129	1.66341
11 real estate	1.26605	1.11786	1.00581	1.04464	1.18124
12 public admin	0.90047	0.73620	0.77563	0.68979	0.64821
13 teachers	1.47915	1.36136	1.28774	1.08357	0.90009
14 medical employment	1.35583	1.16905	1.07208	0.97992	0.92801
15 social services	0.65149	0.57444	0.52773	0.45118	0.40155
16 unidentified	0.60849	0.52843	0.56232	0.58046	0.49573
17 working abroad	1.54920	1.15651	1.75463	2.00852	1.94803
99 no occupation	0.03115	0.98654	1.05251	0.88051	0.67286
Work status					
Employer	1.54986	1.84101	1.45949	1.22592	0.93914
Own-account worker	1.02675	1.34100	0.94590	0.61281	0.23098
Family workers	-1.44764	-0.45492	-0.42328	-0.47920	-0.73600
Govt employed	1.62288	1.86901	1.40649	0.98535	0.44896
State enterprise	1.87966	2.18902	1.67172	1.37913	0.87953
Private employment	1.08987	1.30180	0.78149	0.35345	-0.05938
Cooperatives	0.43115	0.70103	0.26297	-0.22518	-0.72600
Inactive	0.04516	-0.14261	-0.16286	-0.11116	0.02280
No occupation	0.55406	0.28912	-0.05572	-0.19140	-0.27927
Constant term	4.29504	4.83827	5.92380	6.74761	7.31918

Source: SES2004, the estimation and calculation by the author.
Note: only the estimated coefficients are reported here, see more details in tables in Appendix.
q10, q25, q50, q75 and q90 refer to the percentile groups.

Policy Simulation Exercises:

We shall assume that all informal workers will be interested to join either the 'contractual saving groups' or the 'occupational pension scheme' for the reasons that these people want to have social protection after retirement from work. From the *fully-funded security concept*, all individual members are obligated to contribute to the fund while he/she are in the working period (15-60 years of age); the monthly contribution will be accumulated and invested in financial assets or in some venture. After the retirement, the members will receive the pension benefit from the fund according to the agreed terms. For simplicity, we shall assume that the fund earns an interest rate of 3% per annum. We assume that all informal workers start working and earn income from 15 years of age until 60 years old when he/she will retire; the contribution rate is 3 percent of monthly earning. Under the fully-funded system there will be no need for government transfer nor from intergenerational transfer. The accumulated savings while working must be sufficient to cover for pension payment in the retirement period. Our simulation exercise tries to analyze whether the fully-funded security, based on different conditions, will be financially sustainable?

Assumptions:

A1: All informal workers are assumed to join the membership of a 'mini-social security scheme' of the type 'contractual saving groups' or the 'occupational pension scheme'.

A2: The informal workers start working at 15 years old until 60 years old and will live 20 years in retirement.

A3: The ability to earn income are different from individual to another and that depends on factors such as age (or experience), sex, work status and their productive sectors in which he/she belong to. Specifically we shall employ the median income group (50% quantile regression estimate) as a basis to project a life-time earning for male- and female-workers. We assume, for simplicity, that the percentage of working people by sex are 50:50 but this is not crucial assumption and can be easily revised in later stage.

A4: We assume that the monthly contribution rate is 3% of the member income—this again can be revised upward or downward in later stage.

A5: The accumulated social security fund will be invested in the financial assets that yield a 3% per annum rate of return.

A6: We assume there will be no inflation, in other words, all variables in this model are in real terms including the contribution rate and the pension benefits.

Findings:

Simulation A: The accumulated savings from monthly contribution over working years (a 45 years span, from 15-59 years of age) will amount to 192,021 baht for male-worker and 152,238 baht for female-worker at 60 years of age (as indicated in the last row of Table 5). We consider, for simplicity, an average amount of saving which amount to 172,129 baht assuming the equal share of male- and female-members 50:50

Table 6 illustrates the use of fund in the retirement period. We assume that the pension benefit in this scheme is 1,300 baht/month which is approximately 23% of the monthly income of male worker at 60th years of age (an exact figure is 1,305 baht). This figure represents an initial nonhuman wealth when retire, assuming that there shall be no other source of income. This sum will be invested in a form of financial wealth that earn an interest of 3% per annum; however, there will be money withdrawal from the fund to pay for the pension benefit at 1,300 baht/month/person. Figures in column A refer to the stock of wealth at the beginning of the year. In column B represents the stock of saving plus an earned interest income. Column C shows the stock of wealth at end of the year after the withdrawal of pension benefits. It is quite interesting to note that the stock of wealth will run into deficit at 74 years of age. This indicates that the scheme (the fully-funded type) is likely to be financially unsustainable when the fund members turn to be 74 years old.

Table 5: The Projected Contribution Amount to the Fund over the Working Life-Time by an Informal Worker, Evaluated at 60 Years of Age

Unit: baht/month

Q50	Male		Female	
(A) Years of Age	(B) Earning	(C) 3%y^(60-i)	(D) Earning	(E) 3%y^(60-i)
15	3,689.7	5,023.0	2,925.3	3,982.4
16	3,839.8	5,075.1	3,044.2	4,023.6
17	3,990.5	5,120.7	3,163.7	4,059.8
18	4,141.4	5,159.5	3,283.3	4,090.6
19	4,292.0	5,191.5	3,402.8	4,115.9
20	4,442.1	5,216.5	3,521.8	4,135.7
21	4,591.0	5,234.4	3,639.9	4,149.9
22	4,738.5	5,245.1	3,756.7	4,158.4
23	4,883.9	5,248.6	3,872.0	4,161.2
24	5,026.8	5,244.9	3,985.4	4,158.3
25	5,166.9	5,234.0	4,096.4	4,149.6
26	5,303.5	5,215.9	4,204.7	4,135.2
27	5,436.2	5,190.7	4,309.9	4,115.3

Table 5: The Projected Contribution Amount to the Fund over the Working Life-Time by an Informal Worker, Evaluated at 60 Years of Age (continued)

Unit: baht/month

Q50	Male		Female	
(A) Years of Age	(B) Earning	(C) 3%y^(60-i)	(D) Earning	(E) 3%y^(60-i)
28	5,564.6	5,158.5	4,411.7	4,089.8
29	5,688.1	5,119.5	4,509.7	4,058.8
30	5,806.4	5,073.7	4,603.4	4,022.6
31	5,919.0	5,021.5	4,692.7	3,981.1
32	6,025.5	4,962.9	4,777.1	3,934.7
33	6,125.5	4,898.3	4,856.4	3,883.5
34	6,218.5	4,827.9	4,930.2	3,827.6
35	6,304.3	4,751.9	4,998.1	3,767.4
36	6,382.4	4,670.7	5,060.1	3,703.0
37	6,452.6	4,584.5	5,115.8	3,634.7
38	6,514.6	4,493.8	5,164.9	3,562.8
39	6,568.2	4,398.8	5,207.4	3,487.4
40	6,613.1	4,299.8	5,243.0	3,409.0
41	6,649.1	4,197.3	5,271.5	3,327.7
42	6,676.1	4,091.6	5,292.9	3,243.9
43	6,694.0	3,983.1	5,307.1	3,157.9
44	6,702.7	3,872.1	5,314.0	3,069.9
45	6,702.2	3,759.0	5,313.6	2,980.2
46	6,692.4	3,644.2	5,305.9	2,889.2
47	6,673.5	3,528.1	5,290.9	2,797.1
48	6,645.4	3,410.9	5,268.6	2,704.2
49	6,608.4	3,293.1	5,239.2	2,610.8
50	6,562.5	3,175.0	5,202.9	2,517.2
51	6,508.0	3,056.9	5,159.6	2,423.6
52	6,445.0	2,939.2	5,109.7	2,330.2
53	6,373.9	2,822.1	5,053.3	2,237.4
54	6,294.8	2,705.9	4,990.7	2,145.3
55	6,208.2	2,590.9	4,922.0	2,054.1
56	6,114.4	2,477.4	4,847.6	1,964.2
57	6,013.6	2,365.7	4,767.7	1,875.5
58	5,906.4	2,255.8	4,682.7	1,788.4
59	5,793.2	2,148.1	4,592.9	1,703.1
60	5,674.2	2,042.7	4,498.6	1,619.5
		192,020.9		**152,237.8**

Source: The calculation is based on the 50th quantile regression estimates by the author.
Note: i) A representative person here is an own-account operator; he/she is working on farm in rural area.
ii) Columns B and D refer to the monthly earning of a representative male- and female-worker respectively. It is noted that the peaked income is observed at 45 years of age, at 6,702 baht/month. This tantamounts to saying that the contribution will range from 110 baht/month at 15 years of age, and will rise to its peak at 201 baht/month at 45 years of age and, later, will gradually decline until 60 years of age.
iii) Columns C and E refer to the yearly contribution amount, ***evaluated at 60th years of age.*** The saving amount earns a 3% compound interest rate. The sum values reflect, in bold figure in the last row, are the accumulated amount of contribution by male- and female-worker respectively over the working period.

Table 6: Stock of Fund after Retirement

Unit: baht

	Without Government Supplementary Saving				With Government Supplementary Saving		
Age	**A**	**B**	**C**	**Age**	**D**	**E**	**F**
61	172,129.3	177,293.2	161,693.2	***61***	311,091.4	320,424.2	304,824.2
62	161,693.2	166,544.0	150,944.0	***62***	304,824.2	313,968.9	289,224.2
63	150,944.0	155,472.3	139,872.3	***63***	289,224.2	297,900.9	273,624.2
64	139,872.3	144,068.5	128,468.5	***64***	273,624.2	281,832.9	258,024.2
65	128,468.5	132,322.6	116,722.6	***65***	258,024.2	265,764.9	242,424.2
66	116,722.6	120,224.2	104,624.2	***66***	242,424.2	249,696.9	226,824.2
67	104,624.2	107,763.0	92,163.0	***67***	226,824.2	233,628.9	211,224.2
68	92,163.0	94,927.9	79,327.9	***68***	211,224.2	217,560.9	195,624.2
69	79,327.9	81,707.7	66,107.7	***69***	195,624.2	201,492.9	180,024.2
70	66,107.7	68,090.9	52,490.9	***70***	180,024.2	185,424.9	164,424.2
71	52,490.9	54,065.7	38,465.7	***71***	164,424.2	169,356.9	148,824.2
72	38,465.7	39,619.6	24,019.6	***72***	148,824.2	153,288.9	133,224.2
73	24,019.6	24,740.2	9,140.2	***73***	133,224.2	137,220.9	117,624.2
74	9,140.2	9,414.4	(6,185.6)	***74***	117,624.2	121,152.9	102,024.2
75	(6,185.6)	(6,371.1)	(21,971.1)	***75***	102,024.2	105,084.9	86,424.2
76	(21,971.1)	(22,630.3)	(38,230.3)	***76***	86,424.2	89,016.9	70,824.2
77	(38,230.3)	(39,377.2)	(54,977.2)	***77***	70,824.2	72,948.9	55,224.2
78	(54,977.2)	(56,626.5)	(72,226.5)	***78***	55,224.2	56,880.9	39,624.2
79	(72,226.5)	(74,393.3)	(89,993.3)	***79***	39,624.2	40,812.9	24,024.2
80	(89,993.3)	(92,693.1)	(108,293.1)	***80***	24,024.2	24,744.9	8,424.2

Source: The calculation by the author based on Table 5 and the assumptions regarding the pension benefits (a monthly stipend of 1,300 baht, approximately 23% of the earn income before retirement).

Simulation B: Here we illustrate a different setting from A, it is assumed now that there shall be a government transfer in the form of matching fund at the monthly rate of 120 baht for each member of the saving group or occupational pension group. With the government support, the initial wealth of each member when he/she turn to be 60 years old will amount to 311,091 baht (the first row at Column D in Table 6). This means that the government transfer accounts for approximately 81% of the amount saved by the mini-social security fund member. Column E is the stock of wealth with an interest earned from fund investment. Column F is the stock of wealth after pension benefit payment for the member. From this analysis, the stock of saving will gradually depleted over the retirement years, at 80 years old the fund amount is still positive—in other words, the scheme is financially sustainable under these conditions.

Simulation C: Here we present another simulated scenario. A 45 years member's contribution is a long time and one may cast doubt that this may be unrealistic, as many peoples start working later, that is, at 25 or 30 years old. So in this case we assume that there will be a 30 years contribution for the fund, in other words, a representative person starts working at 30 years old. The contribution rate is upwardly adjusted to 5% of the monthly earned income. The results, as presented in Table 7, indicate that the initial nonhuman wealth at 60 years of age will start at 170,830.3 without the government transfer. This sum amount will generate interest but at the same time there will be a withdrawal to pay for pension benefit. It is interesting to note the fund will run into deficit at about 74 years of age (column C) which implies unsustainable situation. However with supplementary saving by the government at 120 baht per month (as shown in columns D, E, and F) the fund can be financially sustainable.

Table 7: Simulated Scenario in Case of 30 Years Contribution at 5 Percent of Earned Income

	Without Government Supplementary Saving			With Government Supplementary Saving		
Age	**A**	**B**	**C**	**D**	**E**	**F**
61	170,830.3	175,955.2	160,355.2	242,834.2	250,119.2	234,519.2
62	160,355.2	165,165.9	149,565.9	234,519.2	241,554.8	225,954.8
63	149,565.9	154,052.9	138,452.9	225,954.8	232,733.4	217,133.4
64	138,452.9	142,606.5	127,006.5	217,133.4	223,647.4	208,047.4
65	127,006.5	130,816.7	115,216.7	208,047.4	214,288.9	198,688.9
66	115,216.7	118,673.2	103,073.2	198,688.9	204,649.5	189,049.5
67	103,073.2	106,165.3	90,565.3	189,049.5	194,721.0	179,121.0
68	90,565.3	93,282.3	77,682.3	179,121.0	184,494.6	168,894.6
69	77,682.3	80,012.8	64,412.8	168,894.6	173,961.5	158,361.5
70	64,412.8	66,345.2	50,745.2	158,361.5	163,112.3	147,512.3
71	50,745.2	52,267.5	36,667.5	147,512.3	151,937.7	136,337.7
72	36,667.5	37,767.5	22,167.5	136,337.7	140,427.8	124,827.8
73	22,167.5	22,832.6	7,232.6	124,827.8	128,572.7	112,972.7
74	7,232.6	7,449.5	(8,150.5)	112,972.7	116,361.8	100,761.8
75	(8,150.5)	(8,395.0)	(23,995.0)	100,761.8	103,784.7	88,184.7
76	(23,995.0)	(24,714.8)	(40,314.8)	88,184.7	90,830.2	75,230.2
77	(40,314.8)	(41,524.3)	(57,124.3)	75,230.2	77,487.1	61,887.1
78	(57,124.3)	(58,838.0)	(74,438.0)	61,887.1	63,743.8	48,143.8
79	(74,438.0)	(76,671.1)	(92,271.1)	48,143.8	49,588.1	33,988.1
80	(92,271.1)	(95,039.3)	(110,639.3)	33,988.1	35,007.7	19,407.7

Policy Implication and Discussion

The simulation exercises as illustrated above indicate that if the government shall adopt an idea of empowerment by providing a matching grant to supplement the saving of the informal workers who join membership of either community-operated saving groups or the occupational pension groups, the mini-social security arrangement will be able to pass the test of financial sustainability. There shall be a cost for the government, at 1,440 baht per capita per year, which tantamount to an annual cost of 31,392 million baht to help 21.8 million informal workers having a social safety net that will cover age pension in their retirement years. The budget amount of 31,392

million baht is not trivial but in terms of the percentage of government annual budget, it accounts for only 1.96 percent. This represents the fiscal cost of broadening the social safety net to cover the whole population. It may be too earlier to forecast when and how the political parties will adopt this idea and transform into some active program; yet, the idea seems to fit the notion of the role of government as stated in the Constitution BE2550.

By comparison to the previous government policies (Taksin government) such as the universal health coverage commonly referred as the "30 baht cures all diseases" and the 'village fund', this scheme is less costly. The village fund has been severely criticized and populism and had induced people at grassroot spent more; the scheme here is different in the sense that it induces people at the grassroot to save in advance and through joining the membership of the saving groups or the occupational pensions, their saving will be supplemented by the matching fund from government. In practical term, the community operated saving groups and the occupational pension groups will hold their fund amount in their saving accounts I; yet, there will be the saving account II in addition which is supplemented by the government according to the set of rule (from our calculation a crude ratio of 5:4). This may be interpreted as an empowerment budget.

From institutional aspect, the government transfer to empower the informal workers who will join the contractual saving groups or the occupational pension groups should have social effects desirable should be stimulate One of the issue of policy concern is to raise awareness among Thai people to save more and that everyone will be well prepare to live decent life after retirement from work. Next and high on policy agenda is about the fiscal policy formulation. Two important issues naturally emerges: First, to what extent one can hope to increase the saving rates on the national scale and by groups, considering the fact that there are poor peoples (the bottom 3 decile groups whose are unable to save). The second issue concerns the social welfare program and the fiscal burden on part of government sector (local governments included).

Conclusion

This paper applies idea from economic models to investigate the public policy issue that aims at broadening the social safety net to cover the underprivileged groups of people—the informal workers. It is important that everyone should save a portion of earned income during the working period and the saving amount is carefully managed in the fund that yields fair a rate of return; and the fund shall then be paid, in pension benefit, to fund members in the retirement period. The author makes use of the dataset from SES2004 and the quantile regression technique to estimate the income earning of the informal workers. The median income is used in our simulation and a 3% monthly contribution of earned income is assumed over the working period (45 years span, 15-60 years of age). Our analysis adopts the fully-funded concept to test financial

sustainability. Alternative simulated scenarios are taken. Results of our simulations indicate that the accumulated saving will be depleted in the year 14 after retirement which indicates a financially unsustainable situation. However with the government transfer, at 120 baht per month as matching grant, then the fund will be able to pay for pension benefit that cover the 20-years in retirement. This study performs another simulation in which the working life starts late, at 30 years old, but higher contribution rate, at 5% of earned income. The result is similar, that is, the fund is likely to deplete at 74 years old; however, with government transfer the fund could be operated sustainably.

There, namely, a hat at millions of the Thais is paper investigates the public issues may be interpreted as a fiscal cost of public policy to broaden the social safety net to cover the whole population which is social desirable and consistent with the principle of the Constitution 2007 and the notion of "Sufficient Economy" that recommend every household to save enough as immunity to cope with future risks.

It is timely to take serious study on the issues of aging and saving inadequacy in Thailand. As in other countries our demographic structure will change dramatically and the age-dependency ratios will be increasing rapidly in the coming decades. The fiscal burden from aging society cannot be ignored as in many developed countries already indicated the heavy fiscal burden on part of government. In less developing countries like Thailand, the fiscal burden for the elderly may be little—this is mainly to the limited social welfare and lack of social safety nets. But the social concerns for the poor elderly living miserably is beyond question.

In this paper the author reviews the aging and discusses the issues of saving inadequacy and enhancing the social safety nets in Thailand. First, the overlapping generations model is used as model for analytical purpose—one of the topic is the fiscal implication for the society to provide financial assistance to the elderly and the increased needs for saving from the working population. Second, later we take a close look at empirical drawn from the household survey conducted (SES2000) by the National Statistical Office and this part we estimate fiscal need of government and the target to raise saving while working to meet the societal need to care for the elderly using the assumptions that are, in our opinion, plausible. A campaign to raise awareness to save more and for retirement savings is quite important in our opinions. On policy side, there is the need to think more about establishing the "third pillar" – a retirement saving program which is based on voluntary basis to supplement the existing 2-pillar schemes. Third, we draw upon the recent household survey (that focuses on saving behavior, the saving-and-micro credit groups, and the welfare scheme by community, conducted by 4 teams of Thai universities in late 2005). Some of interesting findings are: the low saving rates (about 13.5% of household income) and the high percentage of household indebtedness; the nontrivial role of the saving groups to mobilize contractual saving from their members; and the progress of the welfare provision provided by these saving groups that pioneered by some leading saving groups.

The notion of social security and the pension funds are not new in Thailand, but so far the social safety nets is still limited and cover only the minority of peoples, specifically, the government officials and those employed in the formal employment sector. Two-thirds of people are still deprived of the safety net and this issue is becoming more serious as the elderly groups is definitely increasing over time. Needless to say that the policy drive to raise awareness among Thai to save more and to prepare in advance to live comfortably and decent life in the retirement period. The Ministry of Finance has planned to introduce a new scheme based on idea of "personal retirement accounts" (PRAs) which is expected to passed into law by 2007 and this will cover approximately 13 million adult population—largely in the formal employment sector. As for the informal sector, the proposal for the "partnership saving" deserve serious policy consideration, i.e., the government will take part to supplement the "contractual saving" by the saving groups that are now spreaded all over the countries. Based on idea of empowerment, the contribution on part of government, similarly to the government official pension fund and the social security funds, will motivate people at grassroot to save even more and the accumulated savings be properly channeled into the national financial system which should be viewed a positive sign. And by encouraging these saving groups to follow the broaden scope of activities to include welfare provisions and aged pensions, there might be marked improvement in the social safety net in Thailand and this is quite a challenging issue to follow—certainly this needs more careful studies on the issues such as how Thai households will respond to the campaign for retirement saving, necessary tax privileges to facilitate and to motivate higher savings, and the management issues for elderly care and others. The author is of an opinion that by empowering people at the grassroot will be advantageous and a right way to broaden the safety nets to cover the whole population.

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Appendix

Simultaneous Quantile Regression							
bootstrap(30) SEs							
Number of obs	=	61962					
.10 Pseudo R2	=	0.3032					
.25 Pseudo R2	=	0.2665					
.50 Pseudo R2	=	0.2308					
.75 Pseudo R2	=	0.2213					
.90 Pseudo R2	=	0.1935					
q10							
age	0.0745	0.0044	16.79	0	***	0.0658	0.0832
agesq	-0.0008	0.0000	-17.45	0	***	-0.0009	-0.0007
female	-0.4017	0.0169	-23.73	0	***	-0.4349	-0.3685
rural	-0.1648	0.0165	-10.02	0	***	-0.1970	-0.1325
_Iindus_2	0.5078	0.0839	6.05	0	***	0.3433	0.6723
_Iindus_3	1.1049	0.1579	7	0	***	0.7953	1.4144
_Iindus_4	0.9197	0.0322	28.55	0	***	0.8565	0.9828
_Iindus_5	0.7494	0.0743	10.09	0	***	0.6038	0.8951
_Iindus_6	0.5753	0.0385	14.92	0	***	0.4997	0.6508
_Iindus_7	1.0554	0.0364	28.99	0	***	0.9840	1.1268
_Iindus_8	1.1884	0.0379	31.38	0	***	1.1142	1.2626
_Iindus_9	0.9835	0.0368	26.75	0	***	0.9114	1.0556
_Iindus_10	1.6831	0.0666	25.29	0	***	1.5527	1.8136
_Iindus_11	1.2661	0.0590	21.45	0	***	1.1504	1.3817
_Iindus_12	0.9005	0.0653	13.78	0	***	0.7724	1.0285
_Iindus_13	1.4791	0.0689	21.48	0	***	1.3442	1.6141
_Iindus_14	1.3558	0.0785	17.26	0	***	1.2019	1.5098
_Iindus_15	0.6515	0.0502	12.98	0	***	0.5531	0.7498
_Iindus_16	0.6085	0.1053	5.78	0	***	0.4021	0.8149
_Iindus_17	1.5492	0.4530	3.42	0.001	***	0.6612	2.4372
_Iindus_99	0.0312	0.7326	0.04	0.966		-1.4047	1.4670
_Iworkstat_1	1.5499	1.1206	1.38	0.167		-0.6465	3.7462
_Iworkstat_2	1.0268	1.1164	0.92	0.358		-1.1615	3.2150
_Iworkstat_3	-1.4476	1.1301	-1.28	0.2		-3.6626	0.7673

_Iworkstat_4	1.6229	1.1034	1.47	0.141		-0.5397	3.7855
_Iworkstat_5	1.8797	1.1082	1.7	0.09	*	-0.2925	4.0518
_Iworkstat_6	1.0899	1.1228	0.97	0.332		-1.1108	3.2906
_Iworkstat_7	0.4312	1.1197	0.39	0.7		-1.7635	2.6258
_Iworkstat_8	0.0452	0.7216	0.06	0.95		-1.3692	1.4595
_Iworkstat_9	0.5541	0.7308	0.76	0.448		-0.8783	1.9864
_cons	4.2950	1.1422	3.76	0	***	2.0562	6.5338
q25							
age	0.0662	0.0023	29.39	0	***	0.0618	0.0706
agesq	-0.0008	0.0000	-31.04	0	***	-0.0008	-0.0007
female	-0.2860	0.0091	-31.36	0	***	-0.3039	-0.2682
rural	-0.1762	0.0133	-13.25	0	***	-0.2023	-0.1502
_Iindus_2	0.5216	0.0565	9.24	0	***	0.4110	0.6323
_Iindus_3	0.9720	0.0585	16.62	0	***	0.8573	1.0866
_Iindus_4	0.9008	0.0154	58.36	0	***	0.8705	0.9310
_Iindus_5	0.6265	0.1334	4.7	0	***	0.3651	0.8880
_Iindus_6	0.4723	0.0187	25.31	0	***	0.4357	0.5088
_Iindus_7	0.9560	0.0233	41.09	0	***	0.9104	1.0016
_Iindus_8	1.0139	0.0216	46.92	0	***	0.9716	1.0563
_Iindus_9	0.7970	0.0301	26.47	0	***	0.7380	0.8561
_Iindus_10	1.4001	0.0510	27.45	0	***	1.3001	1.5001
_Iindus_11	1.1179	0.0375	29.85	0	***	1.0444	1.1913
_Iindus_12	0.7362	0.0381	19.33	0	***	0.6616	0.8108
_Iindus_13	1.3614	0.0325	41.9	0	***	1.2977	1.4250
_Iindus_14	1.1691	0.0467	25.05	0	***	1.0776	1.2605
_Iindus_15	0.5744	0.0342	16.8	0	***	0.5074	0.6415
_Iindus_16	0.5284	0.0529	9.98	0	***	0.4247	0.6322
_Iindus_17	1.1565	0.5674	2.04	0.042	**	0.0444	2.2686
_Iindus_99	0.9865	0.6456	1.53	0.126		-0.2788	2.2519
_Iworkstat_1	1.8410	0.7064	2.61	0.009	***	0.4565	3.2255
_Iworkstat_2	1.3410	0.7022	1.91	0.056	*	-0.0352	2.7172
_Iworkstat_3	-0.4549	0.7087	-0.64	0.521		-1.8441	0.9342
_Iworkstat_4	1.8690	0.7092	2.64	0.008	***	0.4789	3.2591
_Iworkstat_5	2.1890	0.7095	3.09	0.002	***	0.7984	3.5796

_Iworkstat_6	1.3018	0.7054	1.85	0.065	*	-0.0807	2.6843
_Iworkstat_7	0.7010	0.7536	0.93	0.352		-0.7759	2.1780
_Iworkstat_8	-0.1426	0.1547	-0.92	0.357		-0.4458	0.1606
_Iworkstat_9	0.2891	0.1909	1.51	0.13		-0.0851	0.6633
_cons	4.8383	0.7215	6.71	0	***	3.4242	6.2523
q50							
age	0.0612	0.0016	37.84	0	***	0.0581	0.0644
agesq	-0.0007	0.0000	-36.15	0	***	-0.0007	-0.0007
female	-0.2322	0.0077	-30.2	0	***	-0.2472	-0.2171
rural	-0.1828	0.0121	-15.16	0	***	-0.2065	-0.1592
_Iindus_2	0.4993	0.0263	18.96	0	***	0.4477	0.5509
_Iindus_3	1.0634	0.1863	5.71	0	***	0.6983	1.4286
_Iindus_4	0.8414	0.0142	59.32	0	***	0.8136	0.8692
_Iindus_5	0.9972	0.0888	11.24	0	***	0.8232	1.1711
_Iindus_6	0.4014	0.0152	26.33	0	***	0.3715	0.4313
_Iindus_7	0.8588	0.0163	52.75	0	***	0.8269	0.8907
_Iindus_8	0.8734	0.0208	41.94	0	***	0.8325	0.9142
_Iindus_9	0.7176	0.0237	30.25	0	***	0.6711	0.7641
_Iindus_10	1.4990	0.0588	25.48	0	***	1.3837	1.6143
_Iindus_11	1.0058	0.0443	22.69	0	***	0.9189	1.0927
_Iindus_12	0.7756	0.0343	22.6	0	***	0.7084	0.8429
_Iindus_13	1.2877	0.0309	41.67	0	***	1.2272	1.3483
_Iindus_14	1.0721	0.0388	27.6	0	***	0.9959	1.1482
_Iindus_15	0.5277	0.0237	22.3	0	***	0.4813	0.5741
_Iindus_16	0.5623	0.0421	13.35	0	***	0.4797	0.6449
_Iindus_17	1.7546	0.5278	3.32	0.001	***	0.7202	2.7890
_Iindus_99	1.0525	0.1778	5.92	0	***	0.7041	1.4009
_Iworkstat_1	1.4595	0.2072	7.04	0	***	1.0533	1.8656
_Iworkstat_2	0.9459	0.2013	4.7	0	***	0.5514	1.3404
_Iworkstat_3	-0.4233	0.2021	-2.09	0.036	**	-0.8193	-0.0272
_Iworkstat_4	1.4065	0.1913	7.35	0	***	1.0316	1.7814
_Iworkstat_5	1.6717	0.2114	7.91	0	***	1.2574	2.0860
_Iworkstat_6	0.7815	0.1989	3.93	0	***	0.3916	1.1714
_Iworkstat_7	0.2630	0.2984	0.88	0.378		-0.3219	0.8478
_Iworkstat_8	-0.1629	0.0820	-1.99	0.047	**	-0.3235	-0.0022

_Iworkstat_9	-0.0557	0.1171	-0.48	0.634		-0.2852	0.1738
_cons	5.9238	0.2060	28.75	0	***	5.5200	6.3276
q75							
age	0.0624	0.0018	34.38	0	***	0.0588	0.0659
agesq	-0.0007	0.0000	-32.55	0	***	-0.0007	-0.0006
female	-0.2203	0.0088	-24.94	0	***	-0.2376	-0.2030
rural	-0.1965	0.0112	-17.59	0	***	-0.2184	-0.1746
_Iindus_2	0.3739	0.0386	9.69	0	***	0.2983	0.4496
_Iindus_3	1.1560	0.1636	7.07	0	***	0.8353	1.4766
_Iindus_4	0.7941	0.0115	69.1	0	***	0.7716	0.8166
_Iindus_5	0.8862	0.0625	14.17	0	***	0.7636	1.0087
_Iindus_6	0.2974	0.0161	18.46	0	***	0.2659	0.3290
_Iindus_7	0.8188	0.0157	52.31	0	***	0.7882	0.8495
_Iindus_8	0.7318	0.0207	35.39	0	***	0.6912	0.7723
_Iindus_9	0.6644	0.0335	19.82	0	***	0.5987	0.7301
_Iindus_10	1.6413	0.0439	37.35	0	***	1.5552	1.7274
_Iindus_11	1.0446	0.0399	26.19	0	***	0.9664	1.1228
_Iindus_12	0.6898	0.0284	24.3	0	***	0.6342	0.7454
_Iindus_13	1.0836	0.0233	46.52	0	***	1.0379	1.1292
_Iindus_14	0.9799	0.0324	30.28	0	***	0.9165	1.0434
_Iindus_15	0.4512	0.0153	29.48	0	***	0.4212	0.4812
_Iindus_16	0.5805	0.0338	17.16	0	***	0.5141	0.6468
_Iindus_17	2.0085	0.2848	7.05	0	***	1.4502	2.5668
_Iindus_99	0.8805	0.1534	5.74	0	***	0.5798	1.1812
_Iworkstat_1	1.2259	0.2280	5.38	0	***	0.7791	1.6728
_Iworkstat_2	0.6128	0.2210	2.77	0.006	***	0.1796	1.0460
_Iworkstat_3	-0.4792	0.2095	-2.29	0.022	**	-0.8898	-0.0687
_Iworkstat_4	0.9853	0.2163	4.56	0	***	0.5614	1.4093
_Iworkstat_5	1.3791	0.2118	6.51	0	***	0.9639	1.7943
_Iworkstat_6	0.3534	0.2178	1.62	0.105		-0.0735	0.7804
_Iworkstat_7	-0.2252	0.2482	-0.91	0.364		-0.7117	0.2614
_Iworkstat_8	-0.1112	0.1612	-0.69	0.49		-0.4271	0.2048
_Iworkstat_9	-0.1914	0.1352	-1.42	0.157		-0.4563	0.0735
_cons	6.7476	0.2068	32.63	0	***	6.3422	7.1530

q90							
age	0.0753	0.0025	29.87	0	***	0.0704	0.0803
agesq	-0.0008	0.0000	-27.65	0	***	-0.0008	-0.0007
female	-0.2352	0.0101	-23.24	0	***	-0.2550	-0.2153
rural	-0.2171	0.0135	-16.07	0	***	-0.2436	-0.1906
_Iindus_2	0.3648	0.0593	6.15	0	***	0.2486	0.4809
_Iindus_3	1.4907	0.2722	5.48	0	***	0.9572	2.0241
_Iindus_4	0.7999	0.0227	35.29	0	***	0.7554	0.8443
_Iindus_5	0.7199	0.0946	7.61	0	***	0.5345	0.9053
_Iindus_6	0.1972	0.0312	6.33	0	***	0.1361	0.2583
_Iindus_7	0.8022	0.0212	37.87	0	***	0.7607	0.8437
_Iindus_8	0.6288	0.0295	21.31	0	***	0.5710	0.6866
_Iindus_9	0.7115	0.0444	16.01	0	***	0.6244	0.7985
_Iindus_10	1.6634	0.0614	27.08	0	***	1.5430	1.7838
_Iindus_11	1.1812	0.0437	27.03	0	***	1.0956	1.2669
_Iindus_12	0.6482	0.0399	16.25	0	***	0.5700	0.7264
_Iindus_13	0.9001	0.0358	25.15	0	***	0.8299	0.9702
_Iindus_14	0.9280	0.0474	19.6	0	***	0.8352	1.0208
_Iindus_15	0.4016	0.0272	14.78	0	***	0.3483	0.4548
_Iindus_16	0.4957	0.0470	10.56	0	***	0.4037	0.5878
_Iindus_17	1.9480	0.1255	15.52	0	***	1.7020	2.1941
_Iindus_99	0.6729	0.1272	5.29	0	***	0.4235	0.9222
_Iworkstat_1	0.9391	0.2444	3.84	0	***	0.4601	1.4182
_Iworkstat_2	0.2310	0.2423	0.95	0.34		-0.2439	0.7059
_Iworkstat_3	-0.7360	0.2420	-3.04	0.002	***	-1.2103	-0.2617
_Iworkstat_4	0.4490	0.2242	2	0.045		0.0096	0.8883
_Iworkstat_5	0.8795	0.2540	3.46	0.001	***	0.3817	1.3773
_Iworkstat_6	-0.0594	0.2375	-0.25	0.803		-0.5249	0.4062
_Iworkstat_7	-0.7260	0.7215	-1.01	0.314		-2.1401	0.6881
_Iworkstat_8	0.0228	0.2083	0.11	0.913		-0.3855	0.4311
_Iworkstat_9	-0.2793	0.2211	-1.26	0.206		-0.7126	0.1540
_cons	7.3192	0.2308	31.71	0	***	6.8668	7.7715

More Empirical Evidence from the New Household Survey (late 2005 on saving and welfare provided by the saving groups)

logistic regression estimate for the ability to save of households (saveyes : 0/1 types)

Logistic regression	Number of obs	=	4775			
	LR chi2(16)	=	503.79			
	Prob > chi2	=	0			
	Pseudo R2	=	0.077			
Dependent: ability to save (0,1)						
Saveyes	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
Age	0.035945	0.013611	2.64	0.008	0.00927	0.06262
Agesq	-0.000520	0.000148	-3.53	0	-0.00081	-0.00023
Incap	0.000057	0.000008	7.54	0	0.00004	0.00007
_Iedu_2	0.441644	0.097779	4.52	0	0.25000	0.63329
_Iedu_3	0.756550	0.102882	7.35	0	0.55491	0.95819
_Iedu_4	0.703393	0.145002	4.85	0	0.41920	0.98759
_Iedu_5	0.810541	0.133373	6.08	0	0.54914	1.07195
_Iedu_6	1.107737	0.113150	9.79	0	0.88597	1.32951
_Iedu_7	0.978129	0.292246	3.35	0.001	0.40534	1.55092
_Iedu_8	-0.293414	0.210958	-1.39	0.164	-0.70688	0.12006
_Iedu_9	0.911443	0.627821	1.45	0.147	-0.31906	2.14195
Rural	0.300230	0.067148	4.47	0	0.16862	0.43184
Female	-0.020219	0.063910	-0.32	0.752	-0.14548	0.10504
_Iregion_2	0.135050	0.089309	1.51	0.13	-0.03999	0.31009
_Iregion_3	0.180329	0.090944	1.98	0.047	0.00208	0.35858
_Iregion_4	-0.222581	0.088318	-2.52	0.012	-0.39568	-0.04948
_cons	-1.145253	0.324929	-3.52	0	-1.78210	-0.50840

logistic regression estimate of the household ability to save

Logistic	Number of obs	=	4775			
	LR chi2(18)	=	518.59			
	Prob > chi2	=	0			
	Pseudo R2	=	0.0793			
saveyes	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
age	0.03635	0.01365	2.66	0.01	0.0096	0.0631
agesq	-0.00051	0.00015	-3.42	0.00	-0.0008	-0.0002
incap	0.00006	0.00001	7.59	0.00	0.0000	0.0001
_Iedu_2	0.43736	0.09800	4.46	0.00	0.2453	0.6294
_Iedu_3	0.75865	0.10305	7.36	0.00	0.5567	0.9606
_Iedu_4	0.70277	0.14520	4.84	0.00	0.4182	0.9874
_Iedu_5	0.80540	0.13358	6.03	0.00	0.5436	1.0672
_Iedu_6	1.10498	0.11352	9.73	0.00	0.8825	1.3275
_Iedu_7	0.96359	0.29265	3.29	0.00	0.3900	1.5372
_Iedu_8	-0.27991	0.21130	-1.32	0.19	-0.6941	0.1342
_Iedu_9	0.91428	0.62894	1.45	0.15	-0.3184	2.1470
rural	0.30788	0.06731	4.57	0.00	0.1760	0.4398
female	-0.01270	0.06411	-0.20	0.84	-0.1383	0.1129
_Iregion_2	0.13683	0.08947	1.53	0.13	-0.0385	0.3122
_Iregion_3	0.20156	0.09130	2.21	0.03	0.0226	0.3805
_Iregion_4	-0.22466	0.08845	-2.54	0.01	-0.3980	-0.0513
member	0.04641	0.01945	2.39	0.02	0.0083	0.0845
illness	-0.22436	0.06879	-3.26	0.00	-0.3592	-0.0895
_cons	-1.33531	0.34231	-3.90	0.00	-2.0062	-0.6644

logistic regression estimate for the household indebtedness

logit regression:

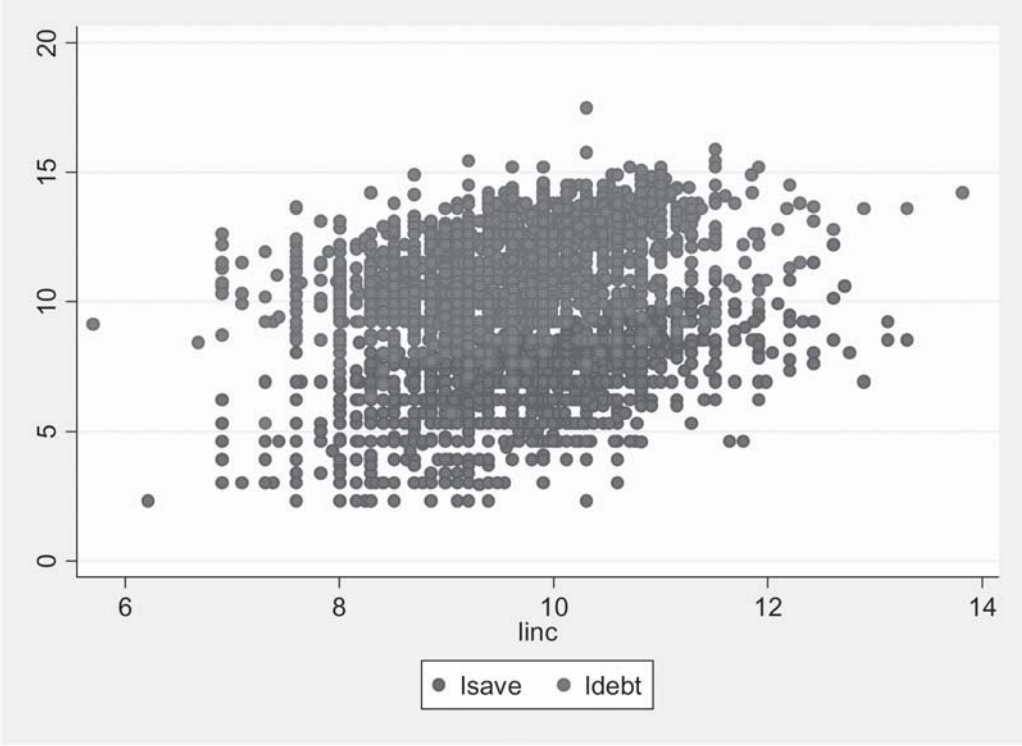
dependent var: indebt (1,0)

Logistic	Number of obs	=	4768
	LR chi2(18)	=	383.67
	Prob > chi2	=	0
	Pseudo R2	=	0.0594

Indebt	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Age	0.23832	0.01460	16.32	0.00	0.20971	0.26694
Agesq	-0.00263	0.00016	-16.36	0.00	-0.00295	-0.00232
Incap	-1.88E-06	4.10E-06	-0.46	0.65	-0.00001	0.00001
_Iedu_2	0.00806	0.10136	0.08	0.94	-0.19060	0.20672
_Iedu_3	0.22735	0.10499	2.17	0.03	0.02158	0.43313
_Iedu_4	-0.08845	0.14410	-0.61	0.54	-0.37088	0.19398
_Iedu_5	0.01145	0.13067	0.09	0.93	-0.24467	0.26756
_Iedu_6	-0.08553	0.10249	-0.83	0.40	-0.28640	0.11534
_Iedu_7	0.20182	0.25300	0.80	0.43	-0.29404	0.69769
_Iedu_8	-0.48019	0.21005	-2.29	0.02	-0.89188	-0.06849
_Iedu_9	0.23017	0.63605	0.36	0.72	-1.01647	1.47681
Rural	0.20521	0.06602	3.11	0.00	0.07582	0.33460
Female	0.02274	0.06361	0.36	0.72	-0.10193	0.14742
_Iregion_2	0.23810	0.08829	2.70	0.01	0.06505	0.41115
_Iregion_3	0.25246	0.09103	2.77	0.01	0.07404	0.43088
_Iregion_4	-0.10396	0.08733	-1.19	0.23	-0.27513	0.06721
member	0.07287	0.01930	3.78	0.00	0.03504	0.11071
Illness	0.23084	0.06994	3.30	0.00	0.09376	0.36792
_cons	-5.16198	0.35730	-14.45	0.00	-5.86228	-4.46169

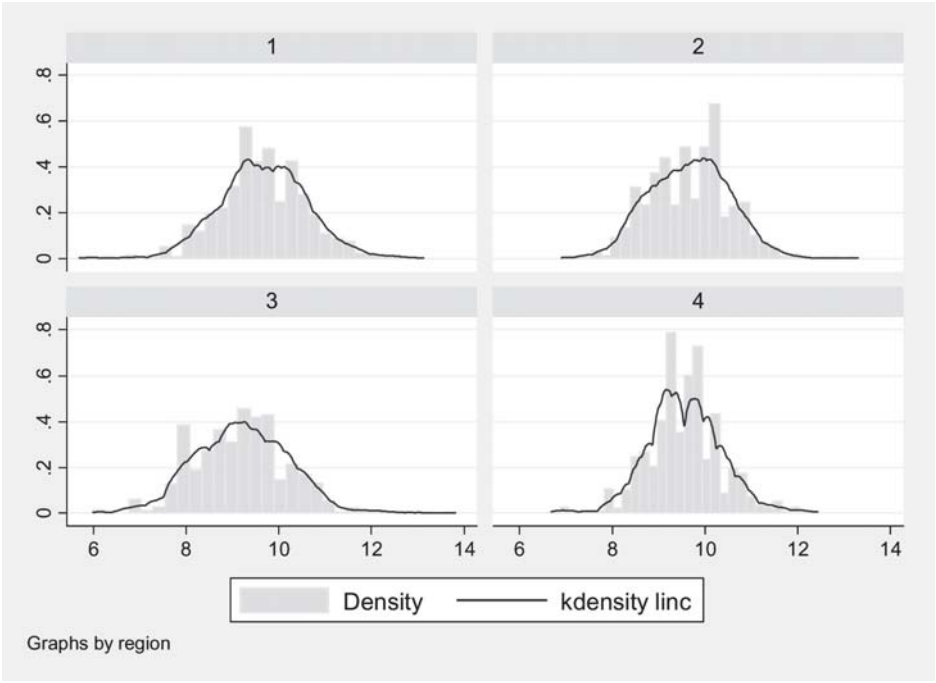
Household Income, Saving, and Indebtedness, by region and by urban/rural (2005 survey)

	Income		Save		debt	
	Urban	rural	Urban	Rural	Urban	rural
Central	26,092.1	23,826.8	4,586.8	3,341.0	139,553.4	246,961.8
Northeast	29,529.3	16,710.5	3,072.8	1,458.3	212,588.9	103,544.7
North	23,246.0	15,345.7	3,973.4	1,942.2	144,426.9	117,029.7
South	22,808.5	18,664.3	2,527.8	2,847.4	164,685.1	106,238.1

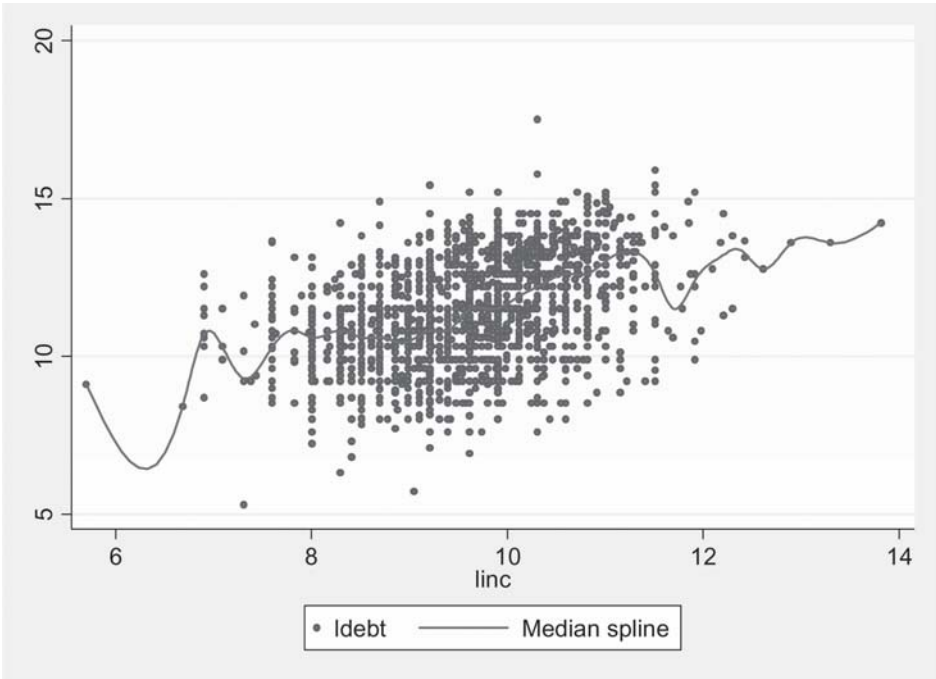


Scatter plot:

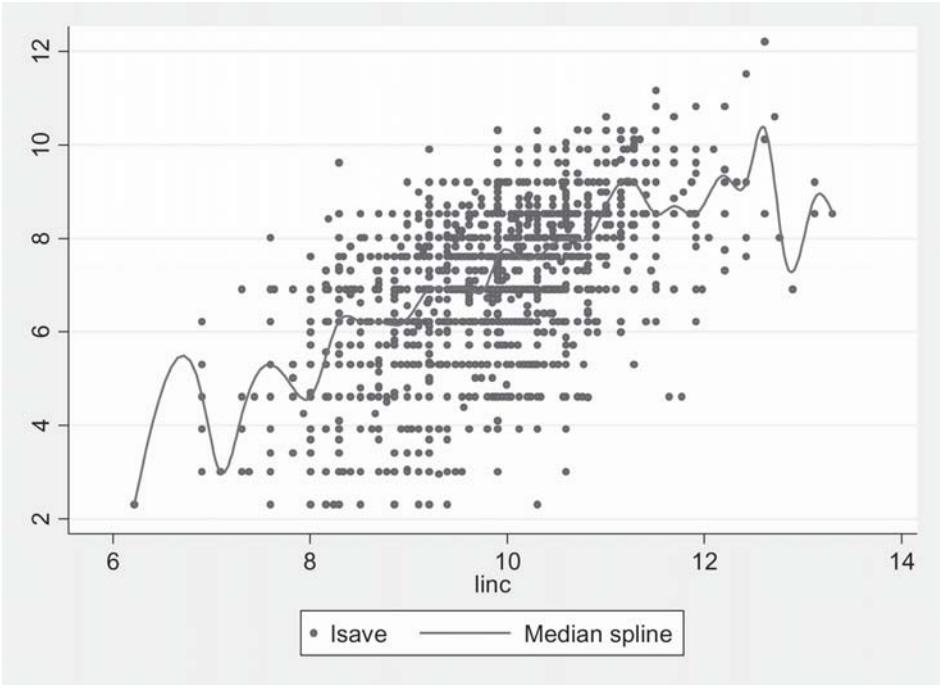
- ln(save) vs ln(income)
- ln(debt) vs ln(income)



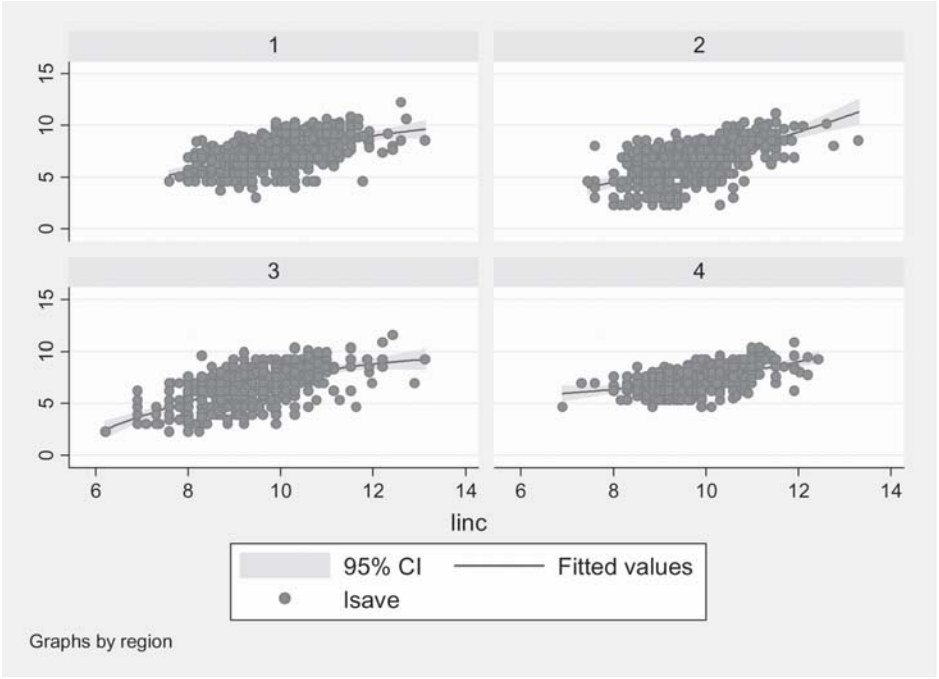
Household income (histogram, and spine curve fitting) by regions (in log)
1 = central, 2 = northeast, 3 = north, 4 = south



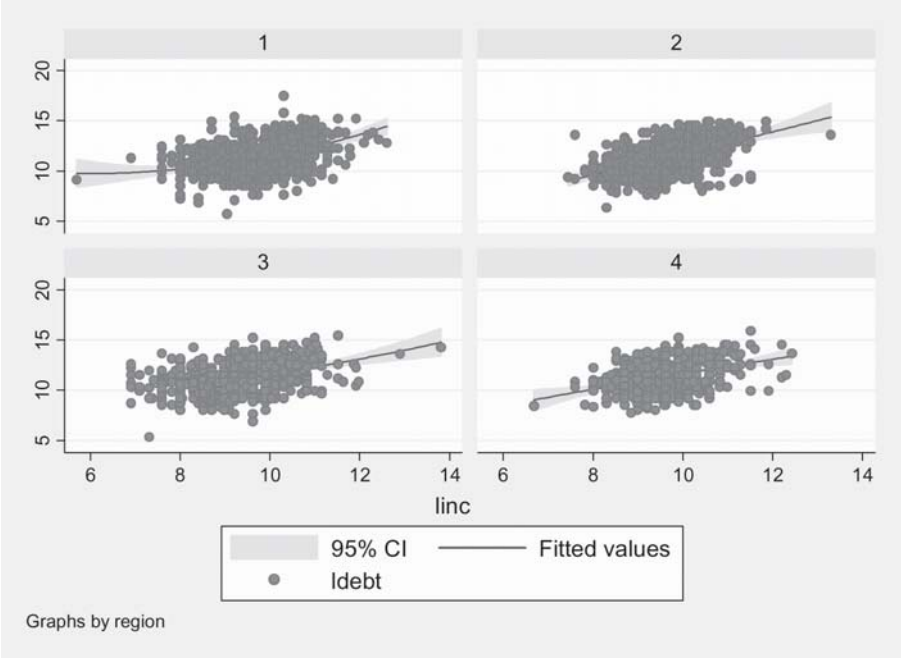
scatter plot: แสดงความสัมพันธ์ระหว่างยอดหนี้ กับ รายได้ครัวเรือน (log)



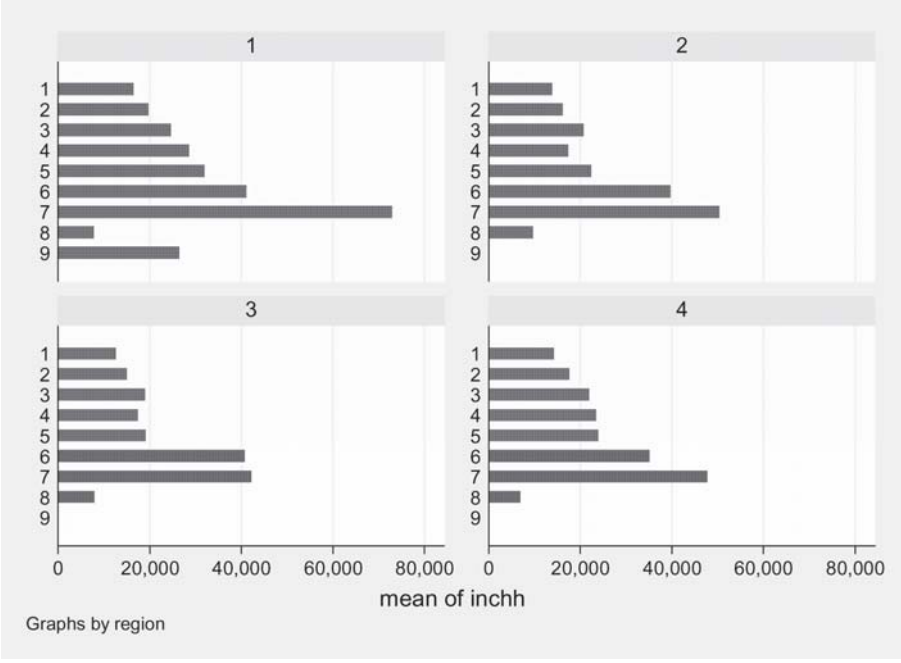
scatter plot: household saving and household income (in log)



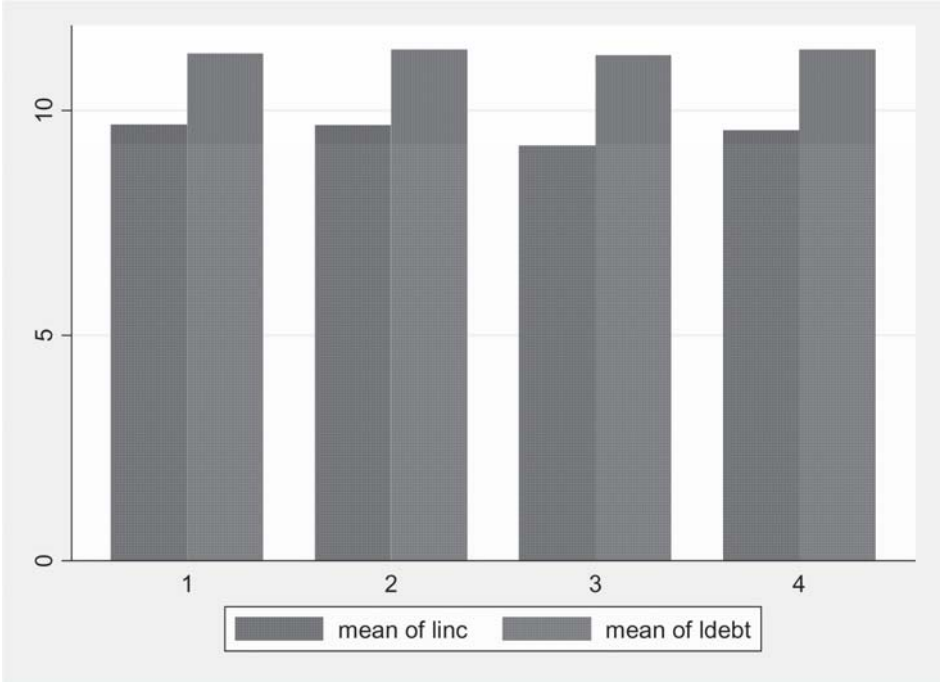
scatter plot: household saving and household income by regions



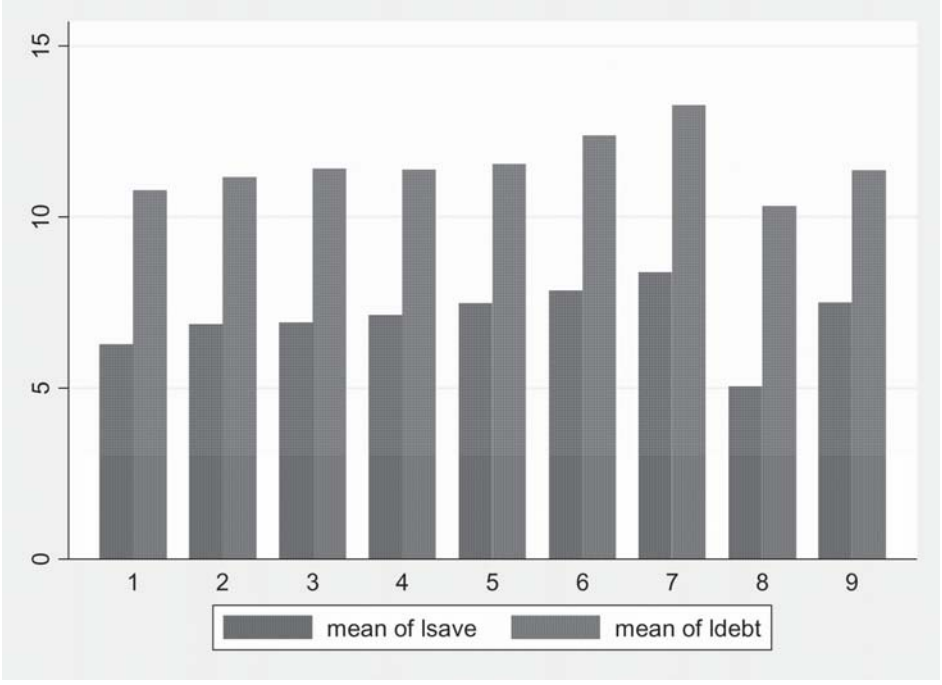
scatter plot: household indebtedness and household income by region (in log)



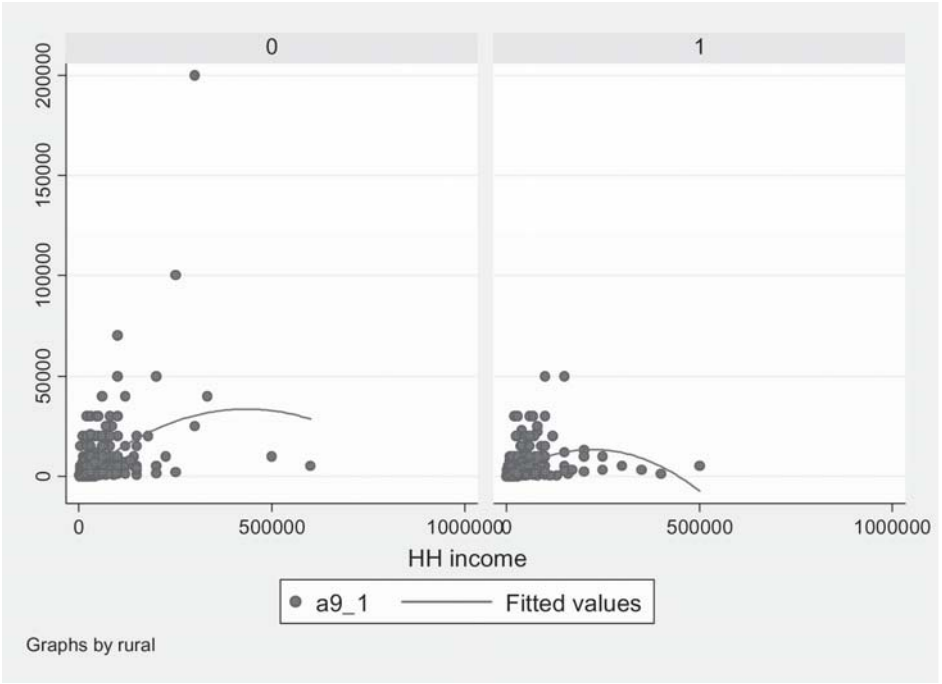
bar chart hh income and educational attainment of HH head;
1 = central
2 = northeast
3 = north
4 = south



bar chart that compares indebtedness and income by region (in log)



กราฟแท่ง การออม กับ หนี้ (log) เปรียบเทียบตามระดับการศึกษา



scatter plot: saving and income by urban and rural and their propensities to save

HH income

HH income				
	Percentiles	Smallest		
1%	1500	300		
5%	3000	300		
10%	4350	400	Obs	4780
25%	8000	500	Sum of Wgt.	4780
50%	15000		Mean	21519.44
		Largest	Std. Dev.	31886.92
75%	25000	500000		
90%	43250	500000	Variance	1.02E+09
95%	60000	600000	Skewness	11.33063
99%	140000	1000000	Kurtosis	248.6454

Hh saving

a9_1 save				
	Percentiles	Smallest		
1%	20	10		
5%	50	10		
10%	100	10	Obs	2739
25%	500	10	Sum of Wgt.	2739
50%	1000		Mean	2896.607
		Largest	Std. Dev.	6337.279
75%	3000	50000		
90%	5500	70000	Variance	4.02E+07
95%	10000	100000	Skewness	14.50749
99%	25000	200000	Kurtosis	376.2629

Hh indebtedness

a12_1 Debt				
	Percentiles	Smallest		
1%	0	0		
5%	0	0		
10%	0	0	Obs	4984
25%	0	0	Sum of Wgt.	4984
50%	15000		Mean	147737.8
		Largest	Std. Dev.	682227.3
75%	100000	5000000		
90%	400000	7000000	Variance	4.65E+11
95%	800000	8000000	Skewness	41.293
99%	1800000	4.00E+07	Kurtosis	2346.289

	paydebt monthly			
age_g	urban	rural	urban	rural
	Baht	baht	n =	n =
<29	4,405.2	3,306.3	158	182
30-39	6,777.8	4,505.9	318	469
40-49	6,781.0	4,980.7	417	579
50-59	5,401.9	4,155.1	212	330
60-69	4,015.0	3,025.7	63	127
70-79	2,431.7	3,253.8	13	33
>80		5,683.3		3
	6,047.6	*4,360.1*	*1,046*	*1,210*
total		***5,142.5***	***2,256***	

bivariate probit regression: 2 dependent variables are saving and indebtedness

Bivariate probit	regression	Number of obs	=	4768		
		Wald chi2(36)	=	817.34		
Log likelihood =	-6052.705	Prob > chi2	=	0		
	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Saveyes						
Age	0.02200	0.00819	2.68	0.007	0.00594	0.03805
Agesq	-0.00030	0.00009	-3.41	0.001	-0.00048	-0.00013
Incap	0.00002	0.00000	7.24	0	0.00002	0.00003
_Iedu_2	0.28815	0.06071	4.75	0	0.16916	0.40714
_Iedu_3	0.50140	0.06315	7.94	0	0.37763	0.62517
_Iedu_4	0.46467	0.08874	5.24	0	0.29074	0.63860
_Iedu_5	0.53937	0.08084	6.67	0	0.38093	0.69781
_Iedu_6	0.74988	0.06558	11.43	0	0.62134	0.87841
_Iedu_7	0.72068	0.16672	4.32	0	0.39391	1.04745
_Iedu_8	-0.18675	0.12828	-1.46	0.145	-0.43818	0.06468
_Iedu_9	0.60875	0.38661	1.57	0.115	-0.14900	1.36650

Rural	0.17347	0.04086	4.25	0	0.09338	0.25356
Female	-0.01100	0.03911	-0.28	0.778	-0.08766	0.06565
_Iregion_2	0.06836	0.05440	1.26	0.209	-0.03827	0.17498
_Iregion_3	0.10318	0.05579	1.85	0.064	-0.00616	0.21252
_Iregion_4	-0.14555	0.05437	-2.68	0.007	-0.25210	-0.03899
Member	0.02209	0.01176	1.88	0.06	-0.00096	0.04515
Illness	-0.14406	0.04211	-3.42	0.001	-0.22660	-0.06153
_cons	-0.72753	0.20629	-3.53	0	-1.13185	-0.32322
Indebt						
Age	0.14215	0.00850	16.73	0	0.12550	0.15880
Agesq	-0.00156	0.00009	-16.9	0	-0.00174	-0.00138
Incap	0.00000	0.00000	-0.4	0.691	-0.00001	0.00000
_Iedu_2	0.00930	0.06196	0.15	0.881	-0.11215	0.13074
_Iedu_3	0.14145	0.06384	2.22	0.027	0.01633	0.26657
_Iedu_4	-0.05311	0.08850	-0.6	0.548	-0.22657	0.12036
_Iedu_5	0.00586	0.08019	0.07	0.942	-0.15131	0.16303
_Iedu_6	-0.05209	0.06308	-0.83	0.409	-0.17572	0.07154
_Iedu_7	0.13045	0.15496	0.84	0.4	-0.17327	0.43416
_Iedu_8	-0.30786	0.12845	-2.4	0.017	-0.55962	-0.05610
_Iedu_9	0.13877	0.39474	0.35	0.725	-0.63491	0.91245
Rural	0.12737	0.04043	3.15	0.002	0.04812	0.20662
Female	0.01502	0.03891	0.39	0.699	-0.06124	0.09128
_Iregion_2	0.14417	0.05405	2.67	0.008	0.03823	0.25010
_Iregion_3	0.15211	0.05556	2.74	0.006	0.04321	0.26101
_Iregion_4	-0.06826	0.05363	-1.27	0.203	-0.17337	0.03685
Member	0.04417	0.01160	3.81	0	0.02143	0.06691
Illness	0.14003	0.04258	3.29	0.001	0.05657	0.22348
_cons	-3.08821	0.21138	-14.61	0	-3.50251	-2.67392
/athrho	-0.05758	0.02448	-2.35	0.019	-0.10555	-0.00961
Rho	-0.05752	0.02439			-0.10516	-0.00961

Test: H0 rho = 0; Chi2 = 5.54, prob > Chi2 = .0186

The amount of saving installment with the contractual saving groups, by region and urban - rural

	payin saving group (baht/month)			
central	655.0	437.4	521.5	Mean
	1458.8	1514.8	1494.9	std.dev
	124	197	321	N
northeast	364.1	231.0	286.0	Mean
	1144.8	768.0	943.6	std.dev
	271	385	656	N
north	759.0	311.8	398.3	Mean
	1894.9	1159.0	1342.9	std.dev
	105	438	543	N
south	736.9	339.5	428.3	Mean
	1141.2	368.4	649.5	std.dev
	110	382	492	N
Total	558.5	314.8	388.7	Mean
	1374.2	971.0	1114.1	std.dev
	610	1402	2012	N

Jean Hindricks and Gareth D. Myles 2006 Intermediate Public Economics:

"if a social security program has the formed of forced saving, so that consumers are provided with greater second-period income than they would naturally choose, then the program will raise the capital stock through the increased savings it generates. This will be beneficial in an undercapitalized economy. Conversely, if the program simply transfers earnings from those who are working to those who are retired, savings will fall and hence the level of capital" (p. 632)

In *a fully funded* system each workers makes contributions toward social security via the social security tax, and the contributions are invested by the social security program. The program therefore builds up a pension fund for each worker. (p. 633)

In a pay-as-you-go social security program the current contributions through taxation of those in employment provide the pensions of those who are retired. (p. 632)

Social security may be beneficial for the economy… autha

This part draws In this connection, it may be reasonable to broaden the social safety net to cover farmers, landless laborers and small-scale operators the informal workers, , e.g., policy he notion that the contractual saving and pensions organized by the community is however quite interesting and worth serious study. We see this as an alternative option to spread the social safety net to cover the majority of Thai people who are working in informal labor market. The community-operated pension funds is quite attractive in the sense that they can be efficient and the welfare provision role can be supplemented with other social activities that are already in place and based on the 'mutual trust' of group members. Another advantage is that they can operate on rather low cost as the fund managers are mostly working on voluntary basis without pay. The credit risks should also assumed to be minimal as the managers know their client borrowers very well and could monitor the use of money wisely.

This to provide welfare or the financial assistances to cases of sickness, accident, children scholarship, the funeral expense and old-age pensions. Recently the Institute for Developmental Organizations with the financial support from government budget has a plan to spend 30 million of baht in the form of grant to the 'pilot communities' to promote the scheme of contractual saving and welfare provision (an amount of 100,000 baht for each fund as the seeded money). The author has met and discussed with some community leaders who have pioneered in setting up the 'contractual saving' and welfare scheme and the aged pensions. The saving group leaders propose that if their scheme were to received a support from the government fiscal policy then the saving groups could play an important role to boost national saving and to extend social safety net to the majority of population who are outside the presently established safety net. Specifically, they are proposing that the government should contribute to the 'contractual saving scheme' on equal basis, i.e., if their members save 365 baht per year (1 baht per day), the government contribute the same amount to the fund similarly to the contribution in the SSS and the Government Employee Pension Fund. The author is of an opinion that this new proposal is quite interesting as new policy options. We may expect to see the benefits to this kind of social innovation to society in the forms of: a) an incentive and a motivation to expand the 'contractual savings'and a sense of 'partnership saving' in which the government took part to empower people at the grassroots; b) the savings by the saving groups nationwide shall be mobilized and channeled into the financial system in which commercial banks the major institutions and part of the funds may used to buy long-term government bonds that, finally, results in the financial development as a whole, and c) an expansion of the safety net to cover the majority of our people who are not part of the formal labor market.

The National Health Foundation (NHF) together with academicians have initiated the public policy forum on the theme of "The New Perspective of Fiscal Policy

to Redress Social Problems". The objective of this forum is mainly to explore using the fiscal policy measures such as taxes, tax credit, and government spending to redress worsening income distribution and to enhance the quality of living of people at the grassroot. Among the policy issues of interest of the group are: a) the campaign to raise peoples' awareness of saving; b) the role of the community saving group in mobilize saving and in social safety net; and c) alternative ways that the government may promote the saving groups.