income inequity and Life Expectancy in Taiwan

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Background -- I

- Life expectancy (LE)

Let Y be the number of years of life remaining. The conditional expectation of Y given age x, is the life expectancy at x, and is denoted as E(Y | X=x).

Life expectancy at age 0 in Taiwan

unit : years

	Both	Male	Female
2009	79.01	76.03	82.34
2010	79.18	76.13	82.55

Life expectancy at age 7 0 in Taiwan

unit : years

	Both	Male	Female
2009	14.48	14.28	16.78
2010	14.49	14.21	16.81

Source: Ministry of the Interior

Background -- II

- Household disposable income

  can be seen as the maximum amount that household can afford to spend on consumption goods or services without having to reduce their financial or non-financial assets or to increase their liabilities.

Outline

- Objectives
- Sources of Data
- Methodology
- Results and Discussion

Objective

- To assess life expectancies at various age groups among five disposable income quintiles.

- To show whether the pattern differs in gender or by year.

Sources of Data

I. Surveys of Family Health Expenditure (SFHE) for 2009 and 2010 (from DOH: 衛生署)
  1. More inpatients and elders (65+) were sampled
    -- two times samples to orignal sampling design for elders
  2. Items to estimate household disposable income
II. Survey of Family Income and Expenditure (SFIE)for 2009 and 2010 (from DGBAS:行政院主計總處)
III. Files of Mortality Registry for 2009 and 2010
    I and III are linked by ID.

Methodology --- set quintiles

1st Step: Use the SFIE data to establish the regression model of disposable income based on saving, expenditure, properties, etc.

2nd Step: Estimate the sample families' disposable income by the above regression model. Acquire the quintiles from the estimated disposable incomes. Then all sample families of SFHE were classified into one of the 5 income classes according to these quintiles.

Methodology --- compile SLT

3rd Step: Based on the linkage between Mortality Registry and SFHE, we estimate the total populations and death populations of 5 income classes for each age group in the Simple Life Table(**SLT**).

4th Step: Compile the Simple life Table for each income class.

Health situation

Survival rate
活存率%

健康程度

A 完全健康
(Full Health)

年齡(age)
C:Death死亡，B:Disability失能
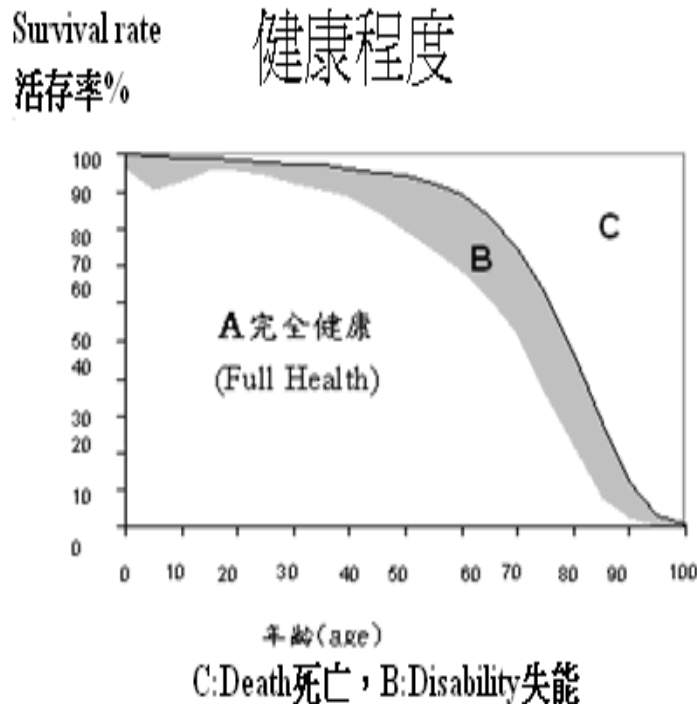
Today

Life expectancy

$\leftarrow$ -- $\rightarrow$ Wealth

C v.s. (A+B)

Next research:

Health $\leftarrow$ -- $\rightarrow$ Wealth

C, B v.s. A

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Results and Discussions

The life expectancy at age 0 in Taiwan

unit: year

	I	II	III	IV	V
Male	70.1	73.3	75.1	79.7	76.3
Female	73.9	79.5	85.8	81.1	82.0

The life expectancy at age 70 in Taiwan

unit: year

	I	II	III	IV	V
Male	14.1	16.9	11.6	12.2	15.5
Female	15.4	14	19.2	13.3	18.3

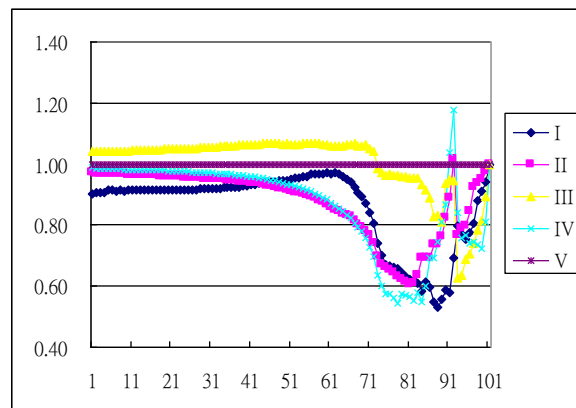# Relative LE by Income Class
in 2009

MALE
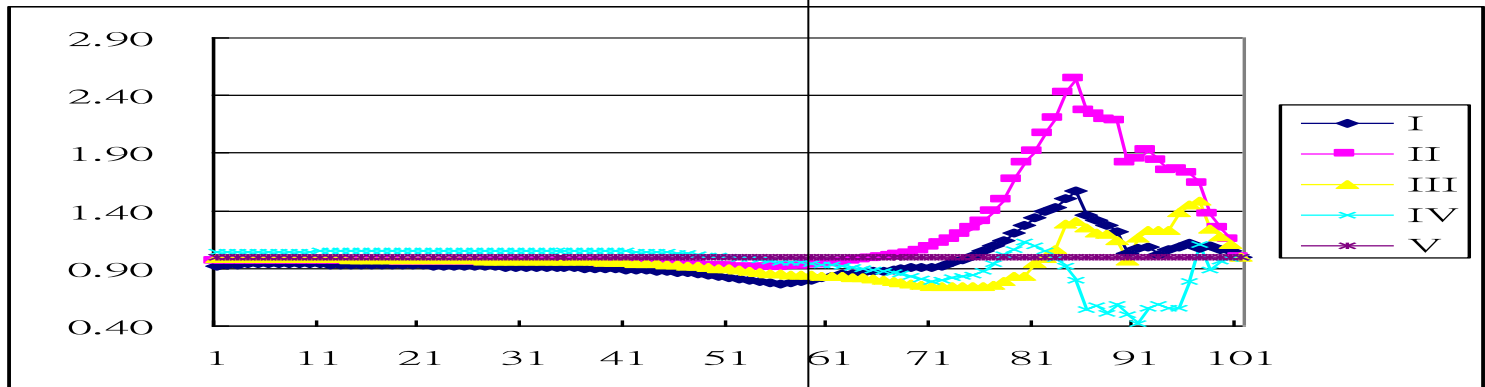
FEMALE
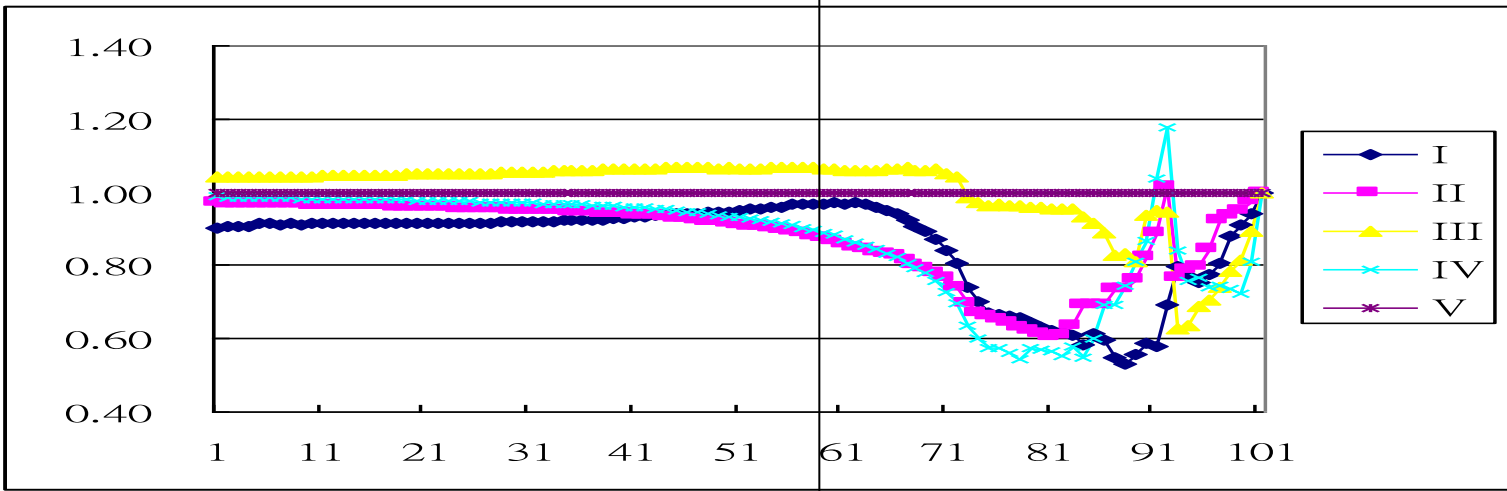
Age 60

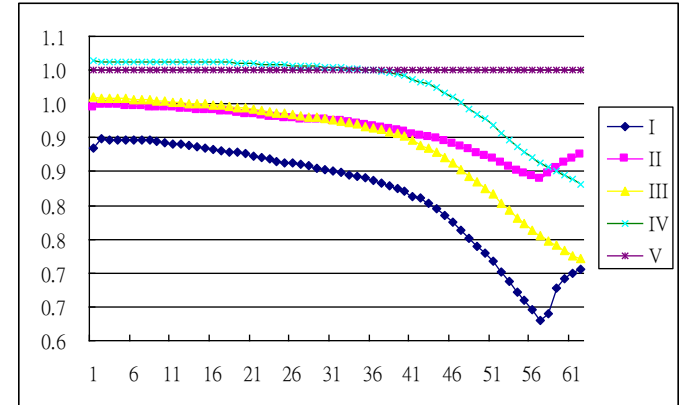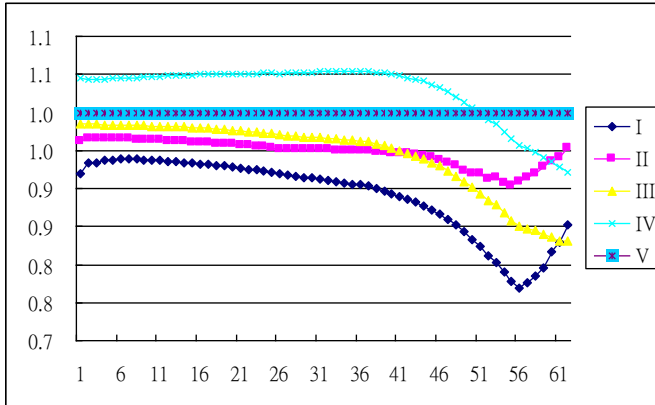# Relative LE of Income Class
by Gender and Year
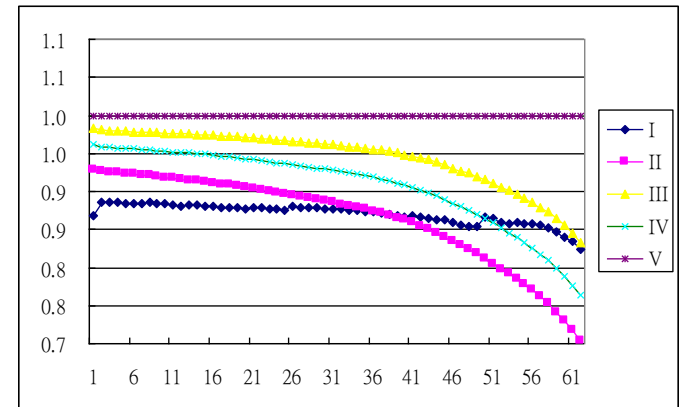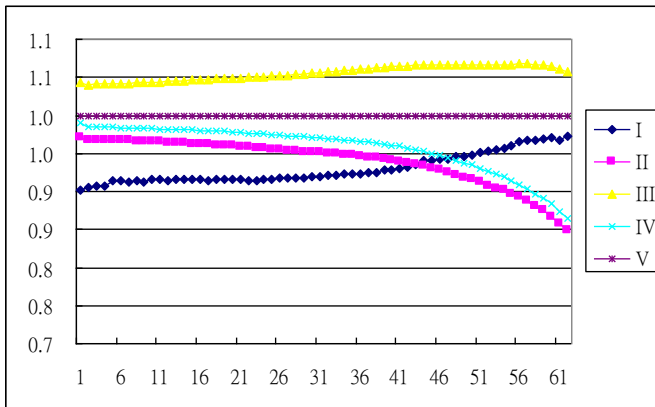
MALE
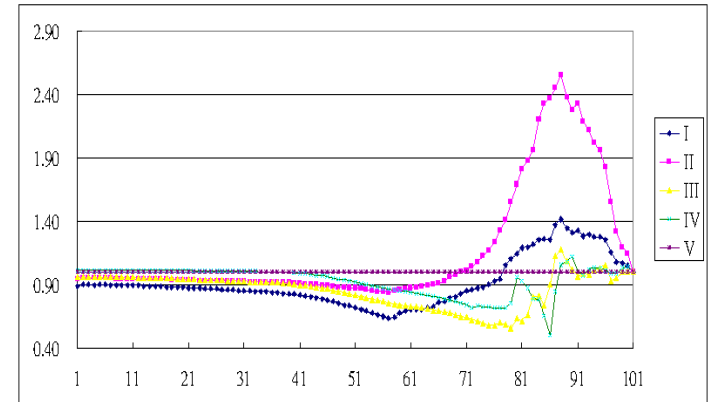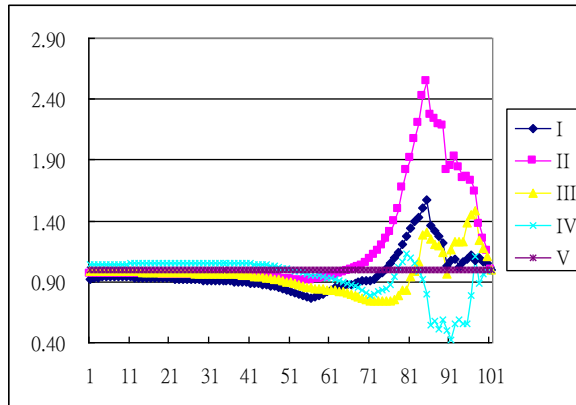
FEMALE
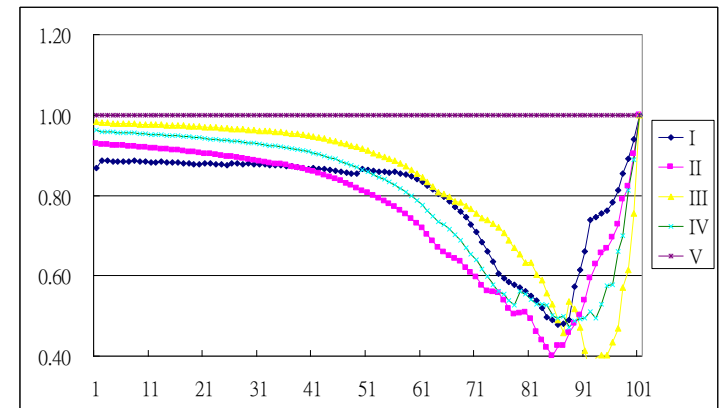
2009

2010

Relative LE by Income Class
from Age 0 to Age 60

Male

Female

2009

2010

Limitation or question

- Since the number of sampled elders at a specified age is still small, larger variations for elders are expected.

- Young immigrants from mainland China to Taiwan during 1948 to 1950 get old now.

Resolution

- Compile simple life table by taking 2-year or 3-year as a age group.

- Add more budget to obtain more samples of elders.

Conclusion

- The relationship between income quintile and life expectancy is non-linear.
- Relative LE of Income Class

  1.Consistent pattern by year.

  2. Male and female have different pattern
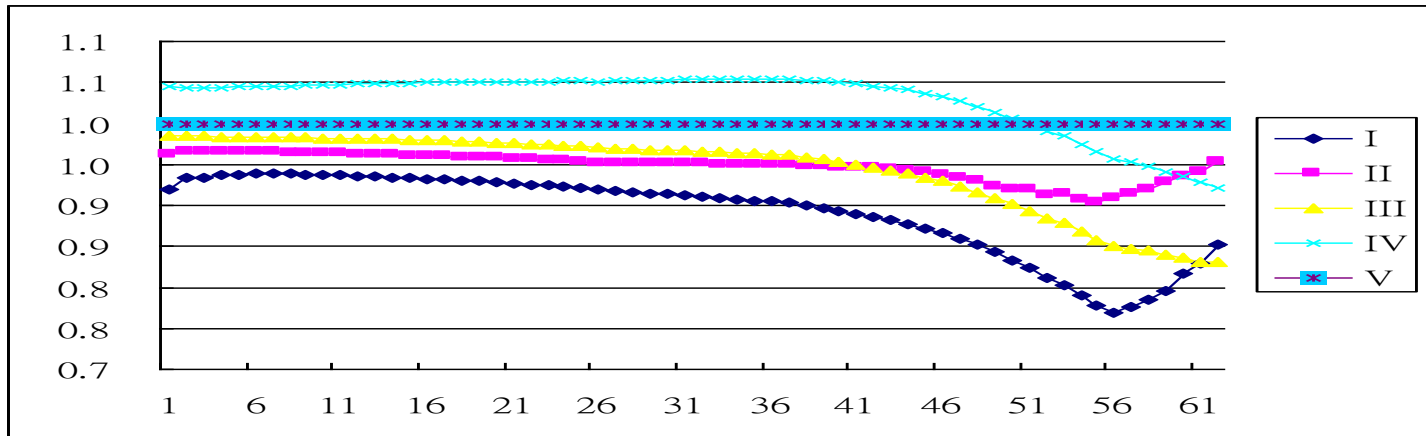- Need more sampes of elders in order to increase accuracy.

Thanks ！ ！ Thanks ！ ！
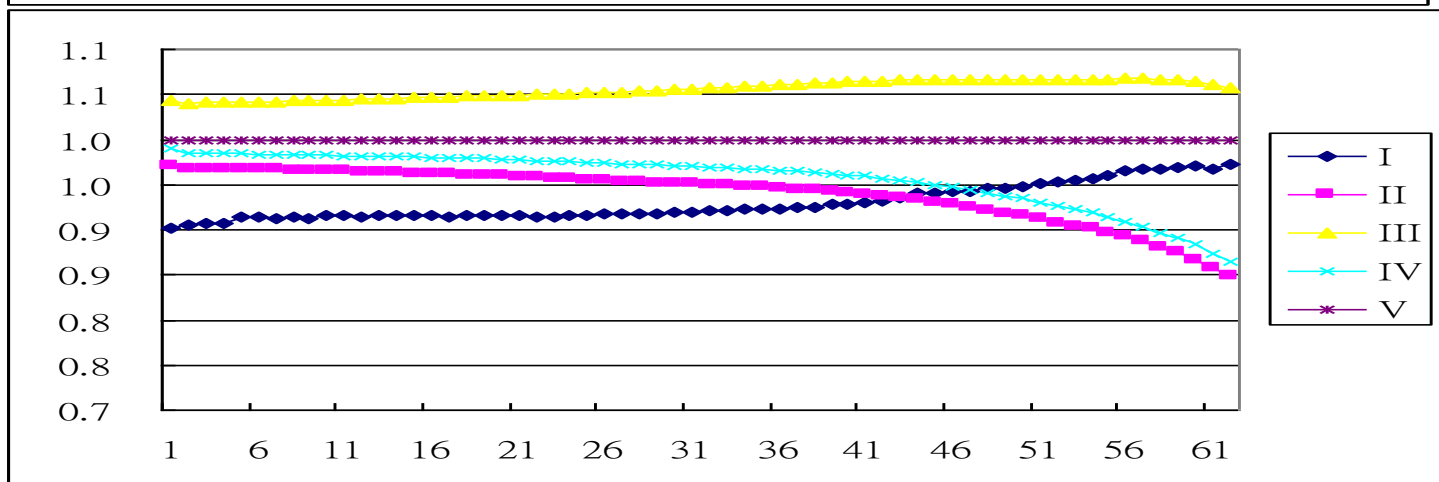Thanks ！ ！ Thanks ！ ！

Relative LE by Income Class (2009)
from Age 0 to Age 60

Male

Female

NHI Benefit/premium by quintiles in Taiwan

Note：NHI Benefit Ratio ＝NHI Benefit／ NHI Premium