

Recent Development in Income Inequality in Thailand

V.Vanitcharearnthum

Chulalongkorn Business School

vimut@cbs.chula.ac.th

September 21, 2015

- Income inequality: measurement
- Literature Review
- Pareto Distribution
- Top income share
 - Evidences from SES
 - Evidences from tax return

Declining Poverty

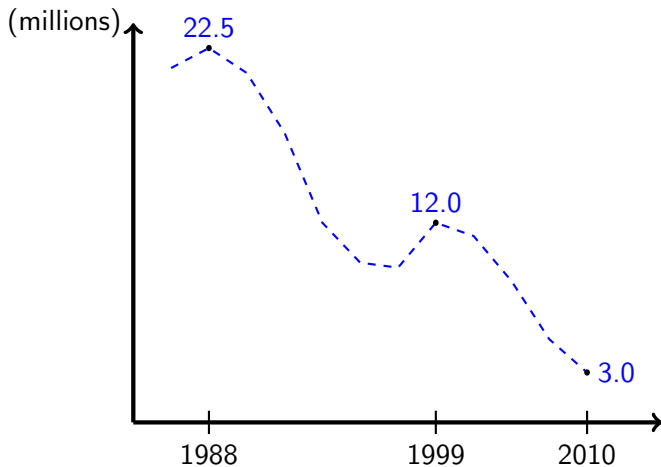


Figure : Number of poor at \$2/day (PPP)

Improving Equality

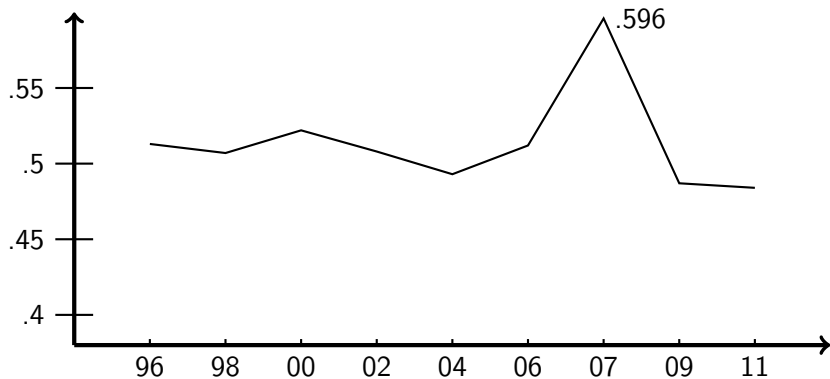


Figure : Gini Coefficient: Whole Kingdom

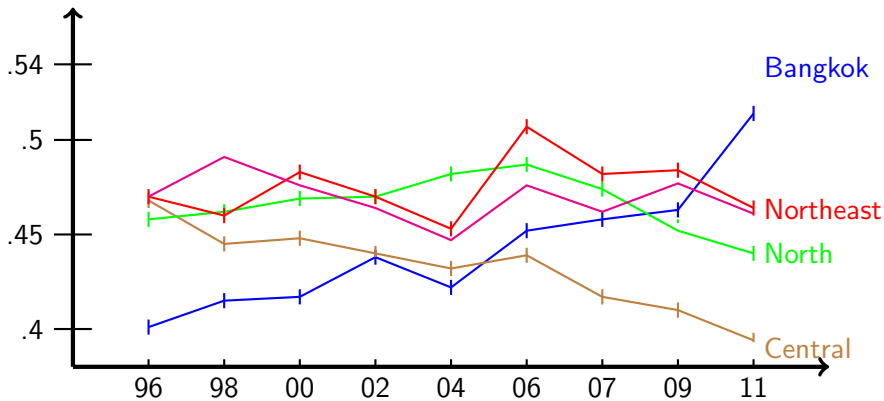


Figure : Gini Coefficients: By Regions

Recent Studies

- Kobsak (2013)
- Kilenthong (2014)

Review Literature

- Feenberg and Poterba (NBER 19)
- Piketty (JPE 2003)
- Atkinson (2005)
- Piketty and Saez (QJE 2003)
- Atkinson, Piketty and Saez (JEL 2011)

Methodology

- Pareto distribution
- SES: HH member data
- Estimating Pareto parameters
- Tax units and national income
- Preliminary result

Pareto(1896, 1897)

- Vilfrado Pareto considered data for England, a number of Italian cities, several German states, Paris and Peru.
- Plotting the cumulative distributions of income for these countries on double logarithmic paper,
- Pareto claimed that in each case the result was a straight line with about the same slope.

$$\log N = A - \alpha \log y$$

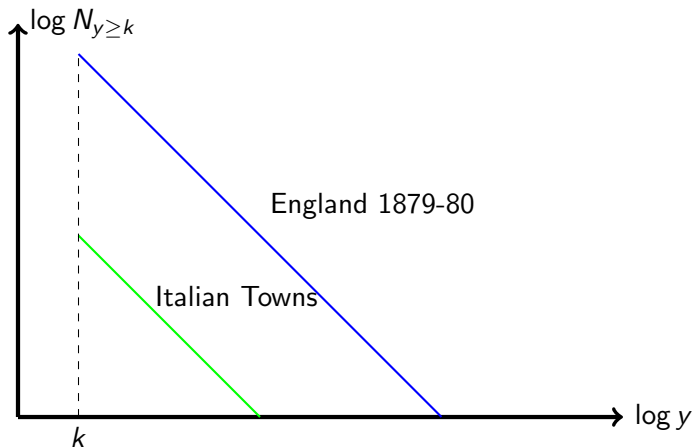


Figure : Pareto's Law

$$\log N = A - \alpha_H \log y$$

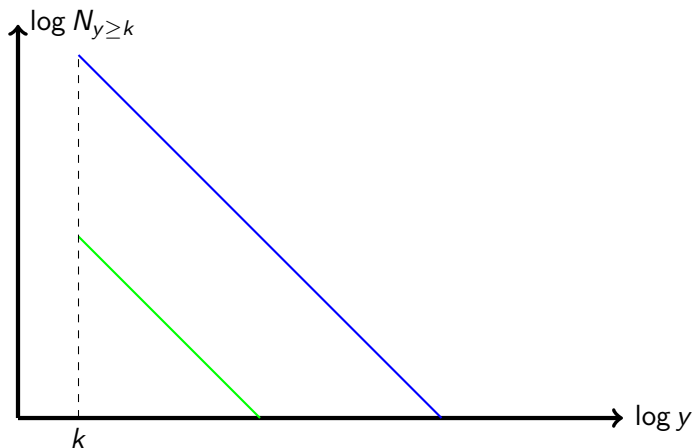


Figure : Pareto's Law

$$\log N = A - \alpha_L \log y$$

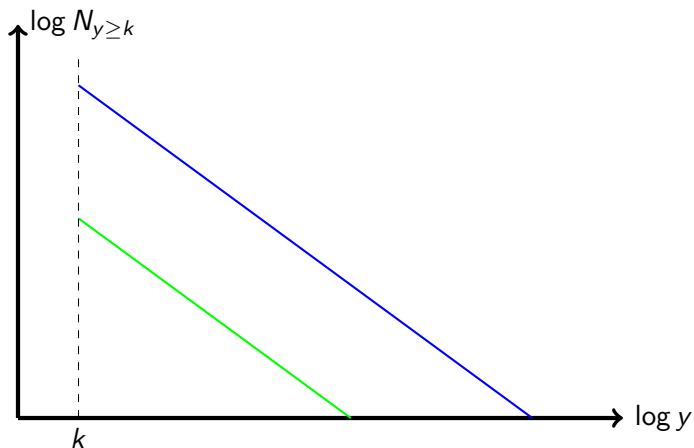


Figure : Pareto's Law

The Pareto law for top incomes is given by the following cumulative distribution function, $F(y)$, that specifies the probability that a randomly chosen taxpayer's income y is greater than x is

$$Pr(y > x) = 1 - F(x) = \left(\frac{k}{x}\right)^\alpha$$

where k is the minimum income that the Pareto distribution applies to, and α is the exponent that determines the shape of the distribution.

β

Let $y^*(y)$ be an average income of individuals with income above y .
Under the Pareto distribution,

$$y^*(y) = \beta \cdot y$$

where $\beta = \frac{\alpha}{\alpha-1}$

- If $\beta = 2$, the average income of individuals with income above 1,000,000 bahts is 2,000,000 bahts.
- A higher β means a fatter upper tail of the distribution

Part I



HH Survey

SES 2004

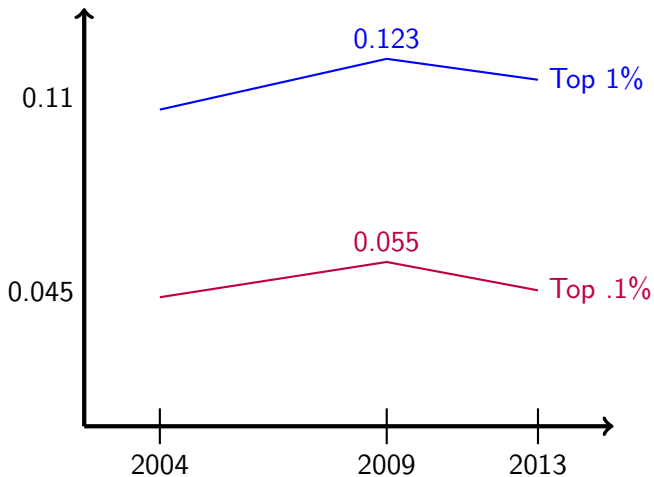
- Use HH member data: in rec 2 (including info about education, work status , etc.)
- Also rec 13-15 (income from various occupations)
- In 2004 survey, there are
 - Wage income
 - Non-farm income
 - Farm income
 - Property income
 - Transfers
 - Other income

SES 2009 & 2013

- Total income of HH member includes
 - Wage income
 - Revenue and operating cost of business
 - Money received from agriculture and cost

	2004	2009	2013
k	.2,530.83	30,728.7	41,984
α	1.647	1.548	1.693
 β	2.55	2.825	2.45
$y^*(y_{p90})$	313,435.8	384,200	401,681
y_{p99}	493,820.52	602,523.53	640,977.1
 $y_{p99.9}$	2,011,255.68	2,679,049.69	2,502,026.2

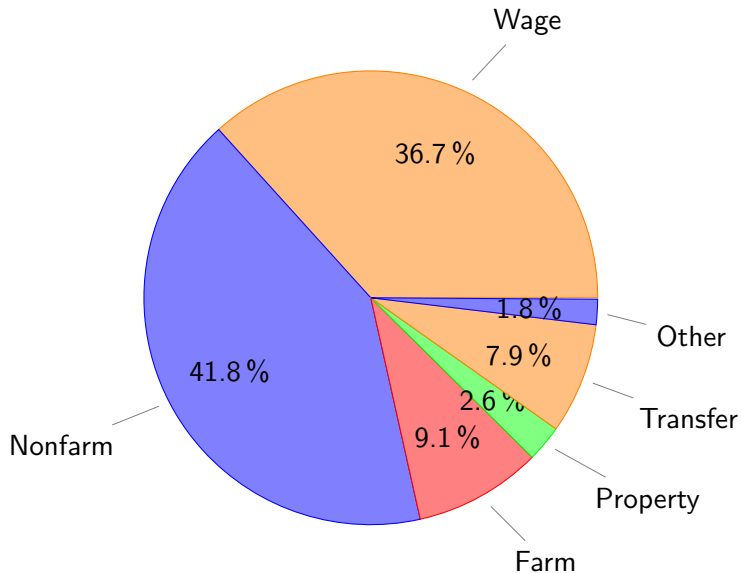
Top income share



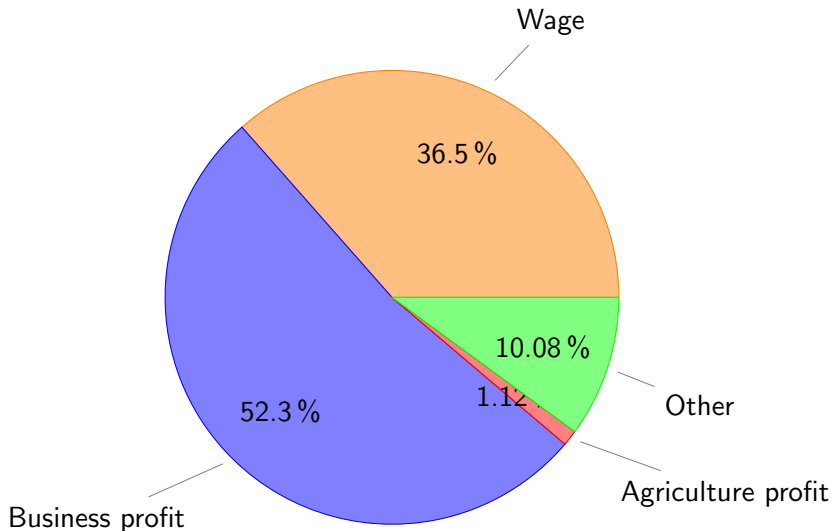
Fraction of BA or Above in Top income



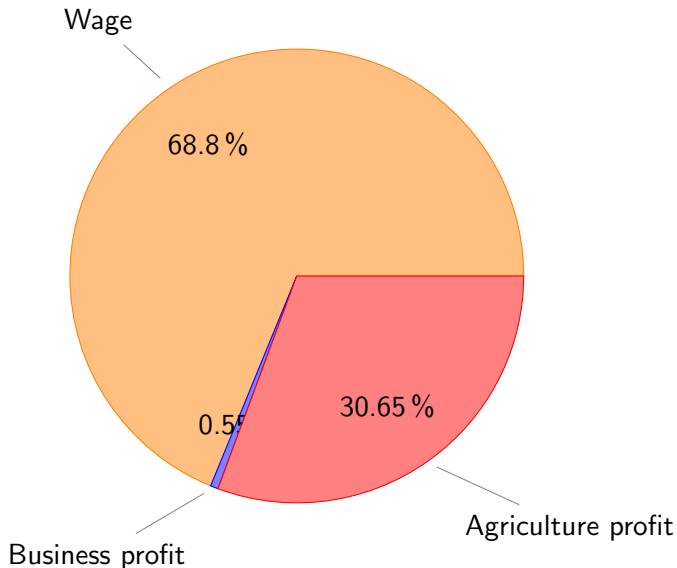
2004: Top 1 % Decomposition



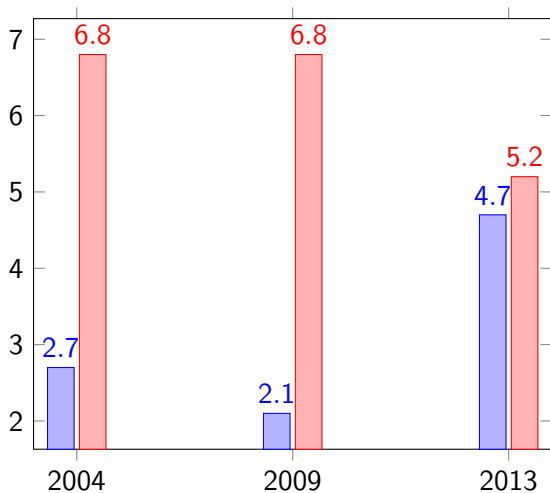
2009: Top 1 % Decomposition



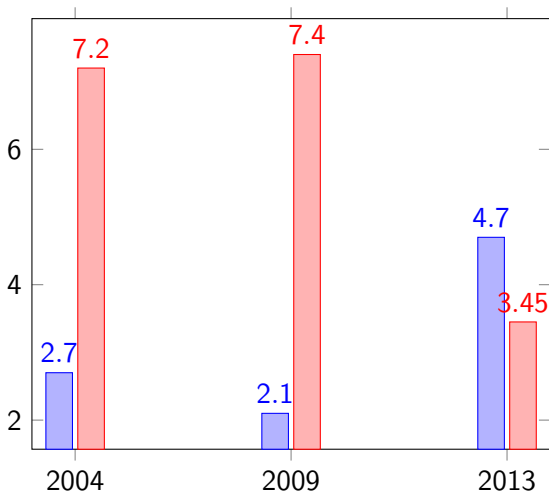
2013: Top 1 % Decomposition



Sectors in Top 1%



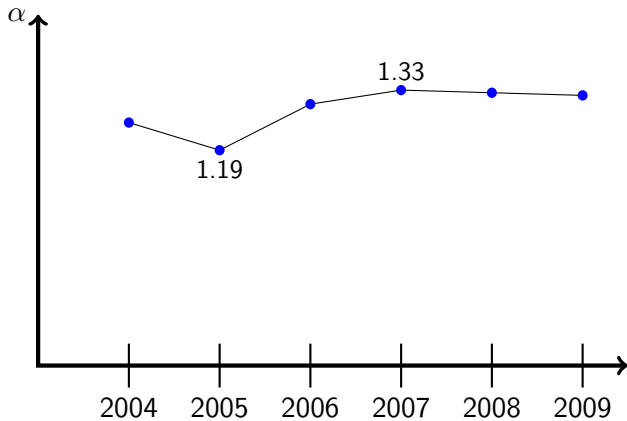
Sectors in Top .1%

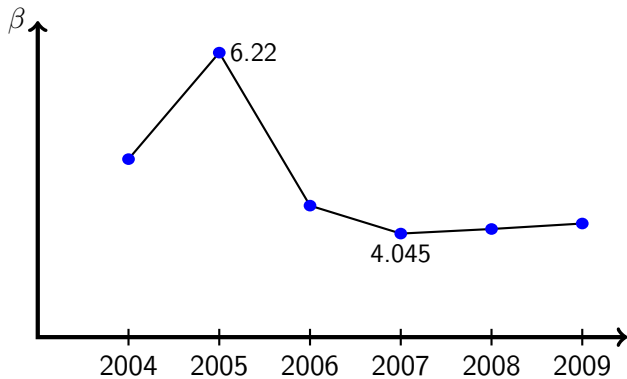


	2009	2013
Highest Income Region	33,666,640	17,123,600
Education	Central	South
Industry	Gen Ed	BA
	Wholesale and retail, repairing motor vehicles motorcycles/HH goods	Growing of oleaginous fruits

Part II

Tax Returns Data

α 

β 

Threshold Income

	Top 1%	Top 0.1%
2004	1,152,089.4	7,228,185.0
2005	1,115,732.9	7,706,655.5
2006	1,314,671.8	7,772,404.1
2007	1,301,830.4	7,367,842.5
2008	1,340,195.0	7,644,198.0
2009	1,341,256.2	7,717,556.8

- Let $y_{x\%}$ be the threshold income at the x th percentile.
- Under Pareto distribution, we know that the average income above $y_{x\%}$ is

$$y^*(y_{x\%}) = \beta \cdot y_{x\%}$$

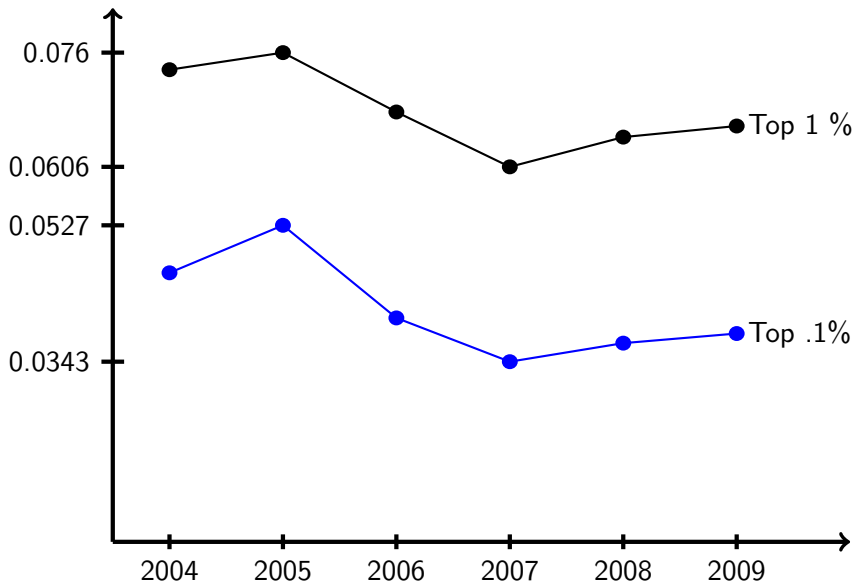
- We computed $y^*(y_{1\%})$ and $y^*(y_{.1\%})$

$$y^*(y_x\%)$$

	Top 1%	Top .1%
2004	5,690,541	35,702,334
2005	6,943,201	47,958,486
2006	5,759,486	34,050,365
2007	5,266,004	29,803,492
2008	5,496,295	31,349,745
2009	5,587,824	32,152,211

Tax Base (I)

- Use 1% and 0.1% of tax filers to multiply with $y^*(y_x\%)$
- in order to get the total income in the top 1% and .1% bracket
- Then divide those numbers by the net national income in the corresponding year



Tax base (II)

- We followed Piketty and Saez (2003) by using tax units instead of tax filers

