Causes of Changing Income Distribution in Vietnam

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Vietnam in 1990
- Poor, agrarian country
- 100 years war & turmoil
- Failure of collectivization
- Closed to world

Đ ị M ị (Renovation) 1990
- Central planning markets
- 3rd fastest growth in world

Consequences for inequality?
Two Surprising Inequality Patterns

- Inequality stable in most countries, high or low
- Rapid growth
  equally rapid income growth for poor
Figure 6.7 Is Growth Good for the Poor?

\[ y = 1.20x - 0.01 \]
\[ R^2 = 0.54 \]
Does Vietnam fit these patterns?

Relatively equal distribution in 1990
- Land reform in north, 1956
- Collectivization of ag in South, 1975

China vs. South Korea
Russia Taiwan

Poor Grew Slower in Vietnam

Expenditure per Capita Growth by Quintile
1993-2006

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Average Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorest 20%</td>
<td>4.2</td>
</tr>
<tr>
<td>Quintile 2</td>
<td>5.2</td>
</tr>
<tr>
<td>Quintile 3</td>
<td>5.6</td>
</tr>
<tr>
<td>Quintile 4</td>
<td>5.8</td>
</tr>
<tr>
<td>Richest 20%</td>
<td>5.6</td>
</tr>
</tbody>
</table>
Fall of absolute poverty in Vietnam

Proportion of people living with less than 1 PPP $ per day

Income Inequality Statistics

Two measurement problems
- Measurement errors
- Transitory income
Biased estimates of inequality
Measurement Error in Income

\[ y = y^* + e \]

- \( y \) - observed income
- \( y^* \) - actual income
- \( e \) - measurement error

\( y^* \) has mean \( y^* \) & variance \( \sigma_{y^*}^2 \)

\( e \) has mean 0 & variance \( \sigma_e^2 \)

Biased Inequality Statistics

Average observed income, \( \bar{y} \), is unbiased estimate of \( y^* \)

\[ E \bar{y} = y^* \]

Sample variance, \( s_{y^*}^2 \), is biased estimate of \( y^* \)

\[ s_{y^*}^2 = p \cdot y^* + e \]
Biased Inequality Statistics

Inequality index ($I_2$) is biased and inconsistent.

$$I_2 = \frac{s_y^2}{y^2}$$
Estimated inequality is biased

Average observed income, $\bar{y}$, is an unbiased estimate of the mean of actual income, $y^*$.

$$E \bar{y} = y^*$$

The sample variance of observed income, $s_y^2$, is a biased and inconsistent estimate of the variance of $y^*$, $\sigma_y^2$.

$$s_y^2 = \frac{\sigma_y^2}{n-1}$$

$$I_2 = \frac{s_y^2}{y^*}$$

Permanent vs. Transitory Income

$$y = y_P + y_T$$

$y$ - income

$y_P$ - permanent income

$y_T$ - transitory income, mean=0

Measure distribution of

$$y_P = y - y_T$$
Relationship to Consumption

Lifetime budget constraint:
\[ \sum \text{consumption} = \sum \text{income} \]
- smooth consumption over time

Robust hypothesis:
\[ \text{consumption} = \text{share of permanent income} \]
\[ c = \theta y_p \]

Instrumented \( I_2 \) is consistent

\[\begin{align*}
\lim_{n \to \infty} I_2 &= \lim_{n \to \infty} \frac{s_{yc}^p}{yc^2} = \frac{2}{2}
\end{align*}\]
Accuracy of source of income inequality estimates

Comparison of consistent and simple estimates.