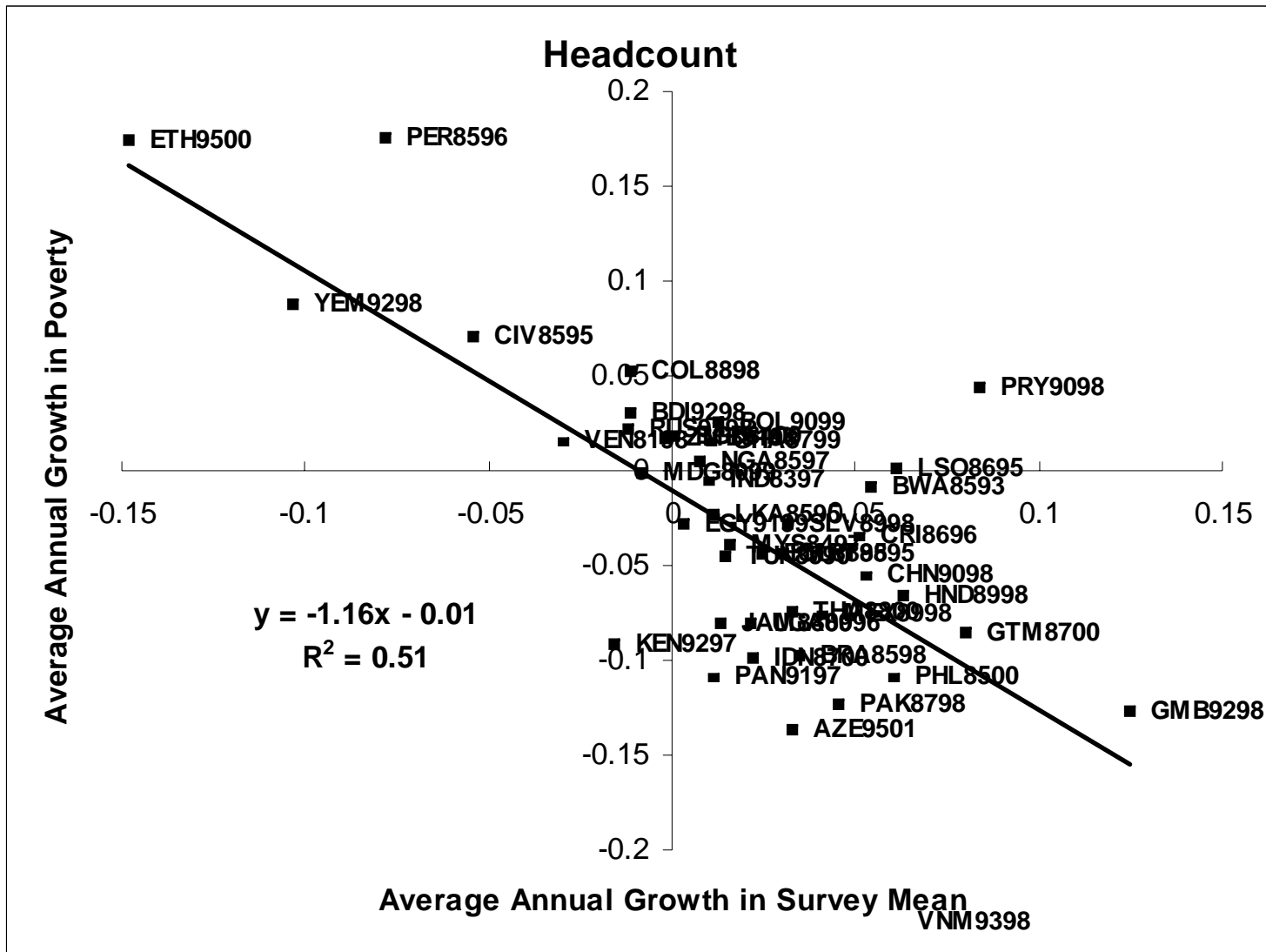


# **When Is Growth Pro-Poor? Cross-Country Evidence**

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“Promoting Economic Growth in a New Era  
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# Growth (Almost) Always Reduces Poverty



## Plan for Presentation

1. Definition: *Growth is pro-poor if poverty falls*
2. Accounting for “Sources” of PPG: *Growth is pro-poor if:*
  - Growth is high
  - The sensitivity of poverty to growth is high
  - Relative incomes change in the “right” way
3. Empirics: *Use cross-country data to answer two questions:*
  - Which of the three sources of PPG matter most?
  - Which of the three sources of PPG can we “explain” with cross-country data?

## Possible Definitions of Pro-Poor Growth

Definition 1: *Growth is pro-poor if the pattern of growth in relative incomes is poverty-reducing (Kakwani and Pernia (2000))*

Definition 2: *Growth is pro-poor if the poverty measure of interest falls (Ravallion and Chen (2003))*

	<u>China 1990-98</u>	<u>Indonesia 1996-99</u>
Income Growth	14%	-9%
Change in Gini	34 – 40	37 – 32
Change in Headcount	51 – 33	8 – 13

*Adopt second broader definition of pro-poor growth*

# Pro-Poor Growth Accounting

Poverty Measure: 
$$P_t = \int_0^1 f(y_t(p)) \cdot dp$$

Change in Poverty: 
$$\frac{dP_t}{dt} = \int_0^1 \eta_t(p) \cdot g_t(p) \cdot dp$$

Sensitivity of poverty measure to growth in income of percentile p

Growth in income of percentile p, i.e. the “Growth Incidence Curve” of Ravallion and Chen (2002)

$$\eta_t(p) \equiv \frac{df(y_t(p))}{dy_t(p)} \cdot y_t(p)$$

$$g_t(p) \equiv \frac{dy_t(p)}{dt} \cdot \frac{1}{y_t(p)}$$

*Average across all percentiles*

## Separating Effects of Average Income Growth

$$\frac{dP_t}{dt} = \left( \frac{d\mu_t}{dt} \cdot \frac{1}{\mu_t} \right) \cdot \int_0^1 \eta_t(p) \cdot dp + \int_0^1 \eta_t(p) \cdot \left( g_t(p) - \left( \frac{d\mu_t}{dt} \cdot \frac{1}{\mu_t} \right) \right) \cdot dp$$

↑  
Average  
Income  
Growth

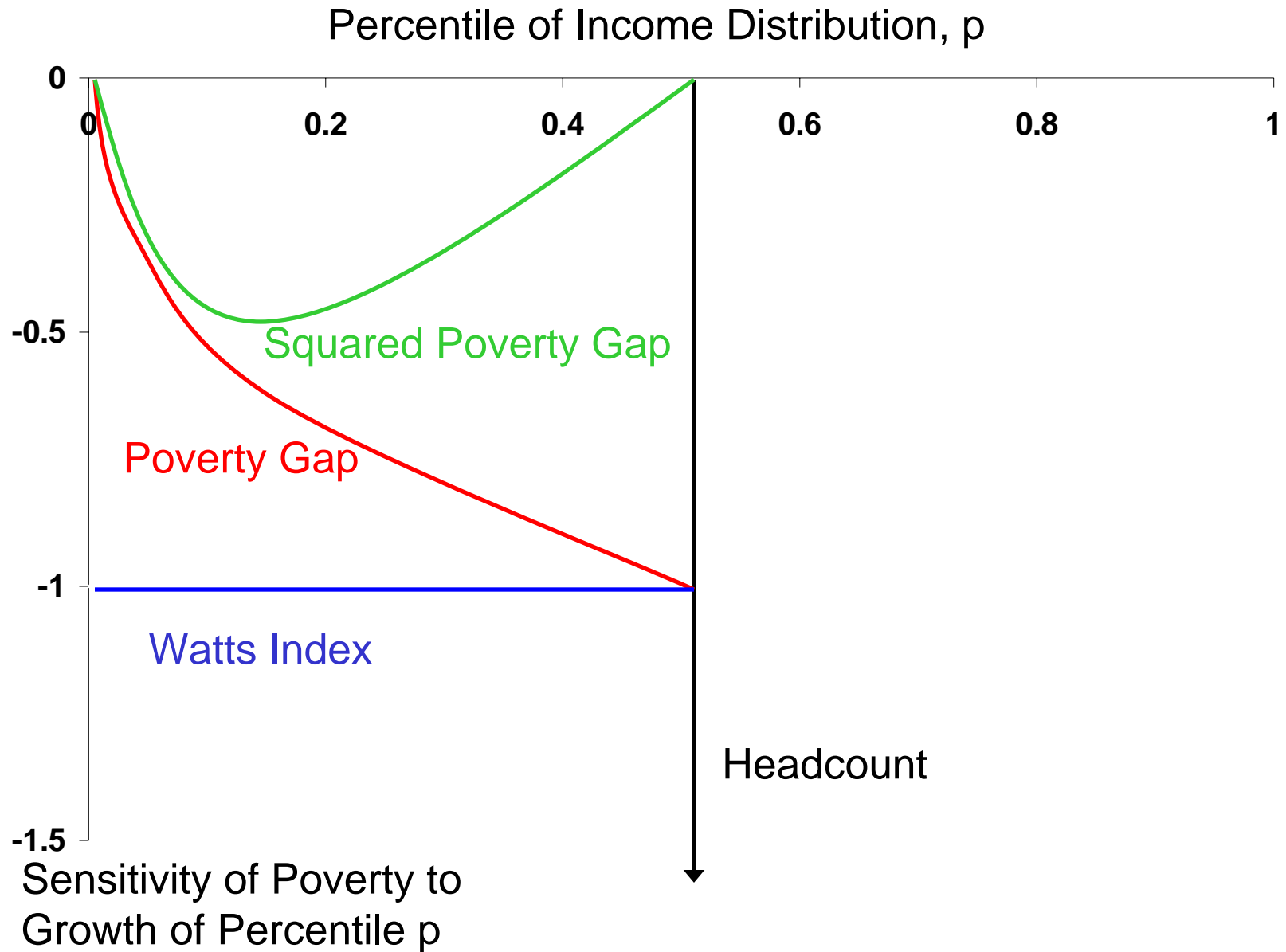
↑  
Average  
(across  
percentiles)  
sensitivity  
of poverty  
to growth in  
 $p^{\text{th}}$   
percentile

↑  
Sensitivity  
of poverty  
to growth in  
 $p^{\text{th}}$   
percentile

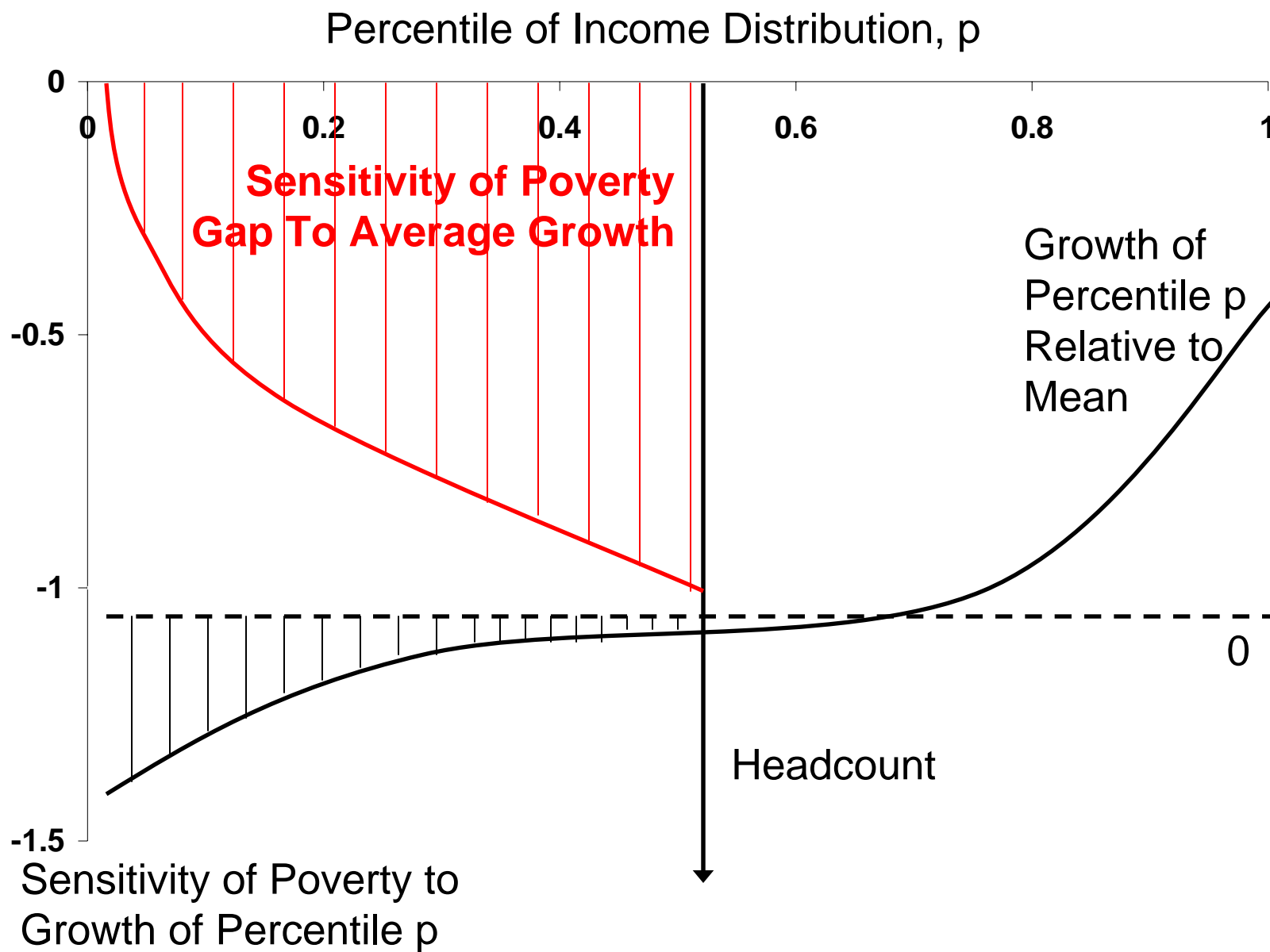
↙  
Growth in  
income of  $p^{\text{th}}$   
percentile  
*relative to  
average*

⏟  
*Average across  
all percentiles*

# Whose Growth Matters for Poverty Reduction?



# Decomposing Changes in Poverty



## Summary of Pro-Poor Growth “Accounting”

- Three *potential* sources of pro-poor growth
  1. Fast growth in average incomes
  2. High sensitivity of poverty to growth
  3. “Right” changes in relative incomes
  
- 1. Growth in mean is self-explanatory
  
- 2. Shape of entire initial distribution of income below poverty line matters for sensitivity of poverty to growth (*except for special cases like the headcount or the Watts*)
  
- 3. Changes in relative incomes that matter most for pro-poor growth depend on poverty measure of interest and shape of entire initial distribution of income below poverty line

## Empirics Using Cross-Country Data

$$\text{Change in Poverty} = \text{Growth in Average Incomes} \times \text{Sensitivity of Poverty to Growth in Average Incomes} + \text{Changes in Relative Incomes}$$

Option 1: Directly construct all three terms in PPG identity:

- » Growth
- » Sensitivity to Growth
- » “Right” weighted average of relative growth

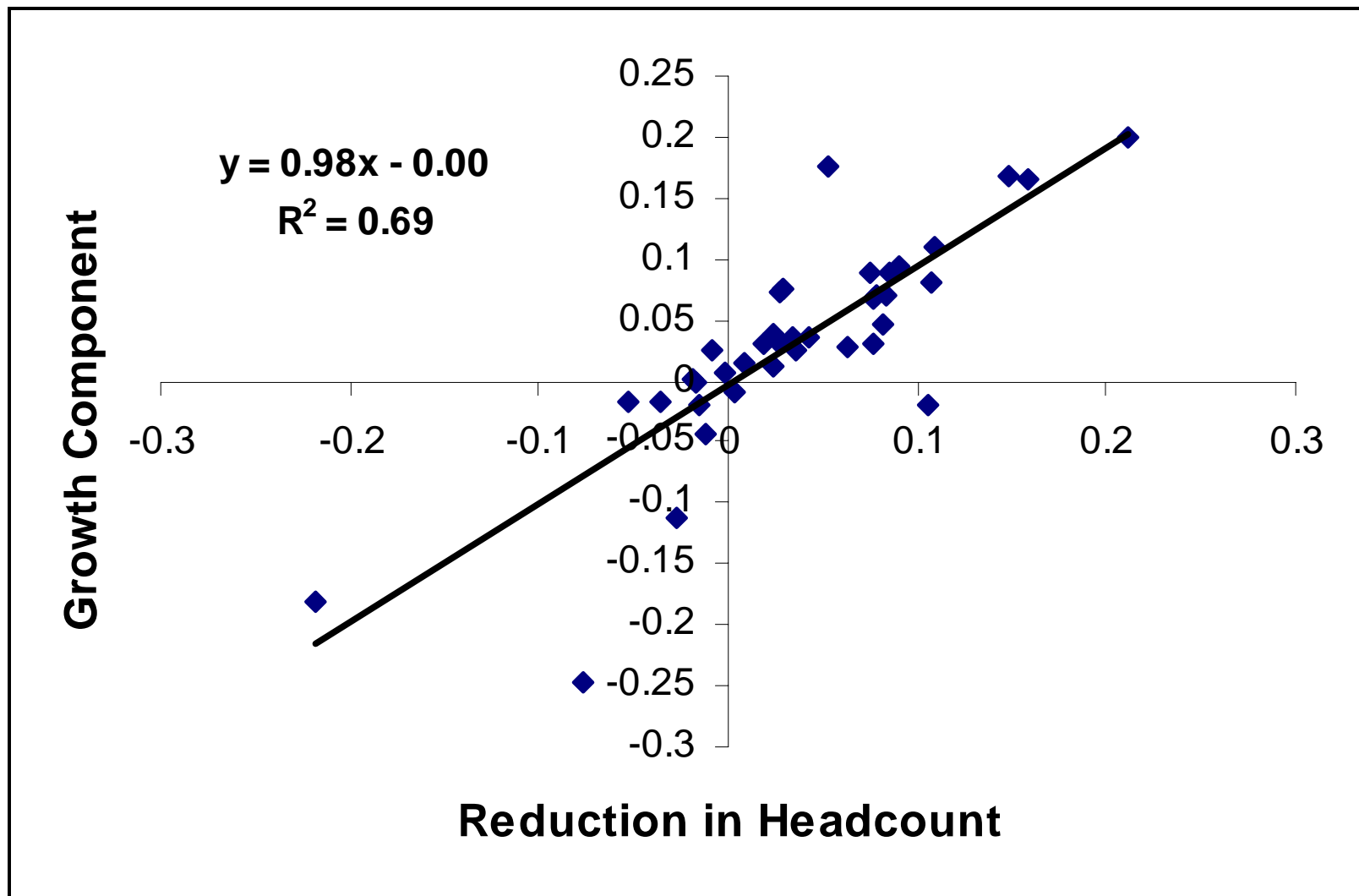
*Use variance decompositions to summarize relative importance of each*

Option 2: Regress change in poverty on:

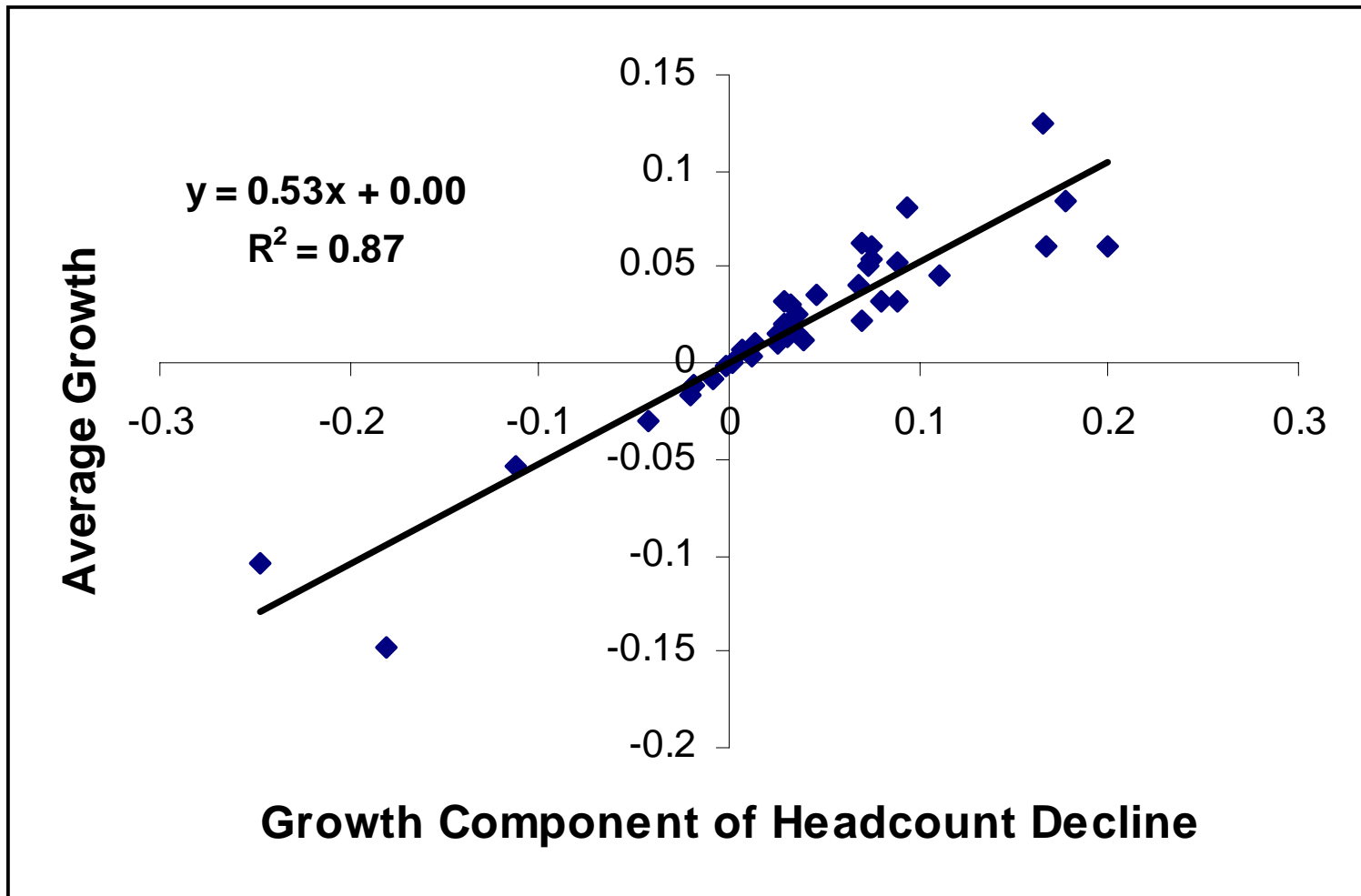
- » Growth
- » Growth Interacted With Initial Gini
- » Change in Gini

*This amounts to estimating a (decent) approximation to an identity*

## Growth (1 & 2) Versus Distributional Change (3)



## Average Growth (1) versus Sensitivity (2)



# Summary of Variance Decompositions

- Three potential sources of pro-poor growth
  1. Growth in Average Incomes
  2. Sensitivity of Poverty to Growth
  3. Change in Relative Incomes
- For the headcount, in the long run:
  - (1) and (2) together account for > 90% of variation
  - (3) accounts for < 10% of variation
  - (2) varies little across countries relative to (1)
- For more bottom-sensitive poverty measures, and over shorter spells, the share of growth is smaller, but > 60% (*difference might be due to measurement error?*)

## Growth-Poverty Regressions

$$d\ln P_i = \beta_0 + (\beta_1 + \beta_2 \cdot G_{0i}) \cdot d\ln y_i + \beta_3 \cdot dG_i + \varepsilon_i$$

$d\ln P$  = Percent change in poverty

$d\ln Y$  = Percent change in mean income/consumption

$dG$  = Change in Gini

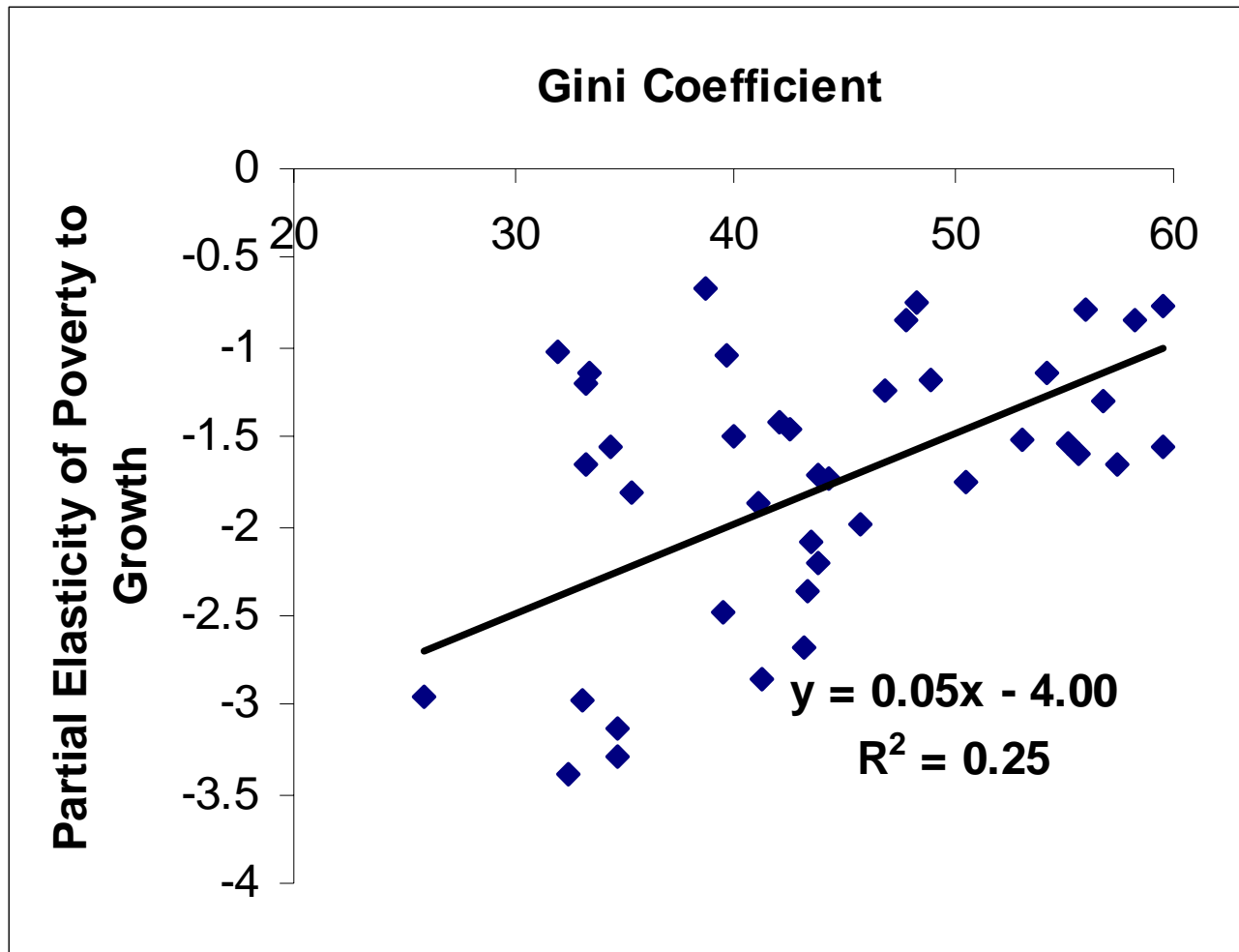
$G_0$  = Initial Gini

$\varepsilon$  = Error term capturing approximation errors

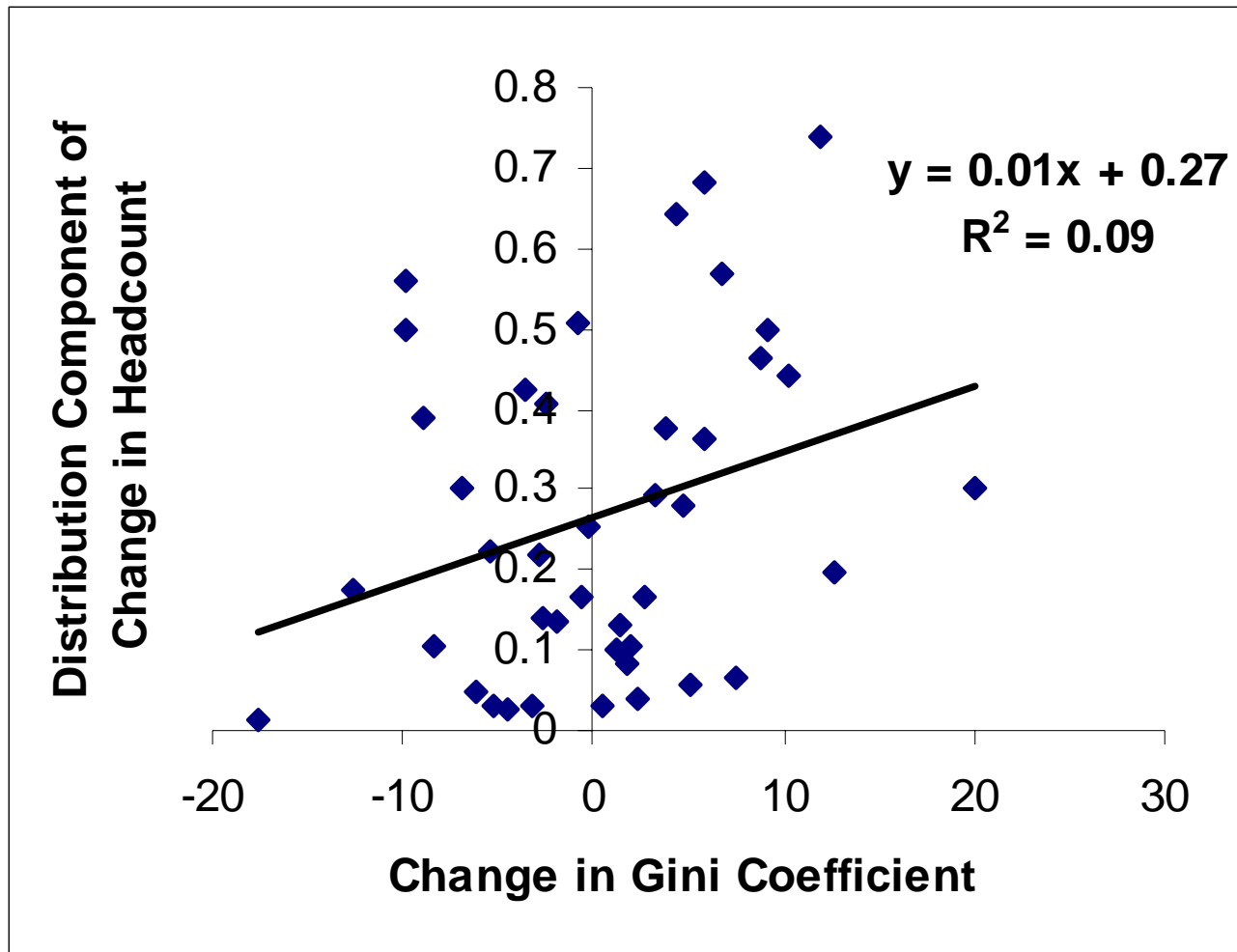
$dG \approx$  Distribution component of changes in poverty

$\beta_1 + \beta_2 \cdot G_0 \approx$  Sensitivity of Poverty to Growth

# Approximation 1: Gini and Sensitivity of Poverty to Growth



## Approximation 2: Change in Gini and Change in Poverty-Relevant Measure of Inequality



# Regression Results

**Table 1: Regressions of Poverty on Growth**  
*Dependent variable is average annual log change in headcount*

Constant ( $\beta_0$ )	-0.01 (0.01)
Growth ( $\beta_1$ )	-3.46 (0.98)
Growth x Initial Gini ( $\beta_2$ )	4.94 (2.00)
Change in Gini ( $\beta_3$ )	3.35 (0.83)
<i>Number of Observations</i>	42
<i>R-Squared</i>	0.70

## Interpreting Regression Results

- Effect of growth on poverty (at median Gini=0.43)
  - Growth = 0.0%, Poverty Reduction = 0.0%
  - Growth = 1.5%, Poverty Reduction = 2.0%
  - Growth = 4.4%, Poverty Reduction = 5.9% } **5.9%**
- Effect of initial inequality on poverty (at median growth = 1.5%)
  - G=0.35, Poverty Reduction = 2.6%
  - G=0.43, Poverty Reduction = 2.0%
  - G=0.50, Poverty Reduction = 1.5% } **1.1%**
- Effect of changes in inequality
  - dG = -0.4%, Poverty Reduction = 1.3%
  - dG = 0.1%, Poverty Reduction = -0.3%
  - dG = 0.6%, Poverty Reduction = -2.0% } **3.3%**

## Determinants of Sources of Pro-Poor Growth?

- Huge empirical literature on determinants of growth in average incomes
- Cross-country evidence on determinants of inequality levels and changes is much more mixed
- In paper, look for determinants of:
  - growth in household survey mean (*OK but not especially impressive results using “standard” growth variables*)
  - changes in “right” measures of inequality (*Very few significant correlates of inequality change*)

## Summary and Conclusions

- Growth matters a lot for poverty reduction
  - *We already knew this!*
- Value-added of “Pro-Poor” prefix to “Growth” depends on:
  - the extent to which growth and poverty reduction diverge (*on average, not that much in the long run*)
  - the extent to which we know how to affect these divergences through policy (*cross-country evidence not very informative*)
- Are debates over relative importance of sources of PPG relevant for policy at the country level?
  - Get macro/growth fundamentals right
  - Do careful analysis of micro data to understand why growth rates differ across individuals
  - Are there really many tradeoffs?