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# Exploiting Information on Distribution of Performance in Monitoring, Target Setting and Performance Improvement

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4<sup>th</sup> Annual Conference LAC M&E Network  
Belo Horizonte, Brazil  
November 25<sup>th</sup>, 2008

# Organization of Presentation

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## Monitoring

- Information on distribution puts change in indicator in context
- Use quantile regressions to compare performance, taking into account characteristics
- Some international comparative data available now, more needed

## Target setting

- Use info on distribution to set reasonable targets

## Performance improvement

- Follow two step approach
  - First, benchmark to identify good and bad performers
  - Second, find out what they do

# Monitoring one social indicator

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- Poverty fell by 5.2 percentage points in Peru in 2007 using national poverty line
- Poverty fell by 3.44 percentage points in Peru in 2007 when measured using a \$3 a day international PPP poverty line
- Is this believable?
- How does one place this in context?

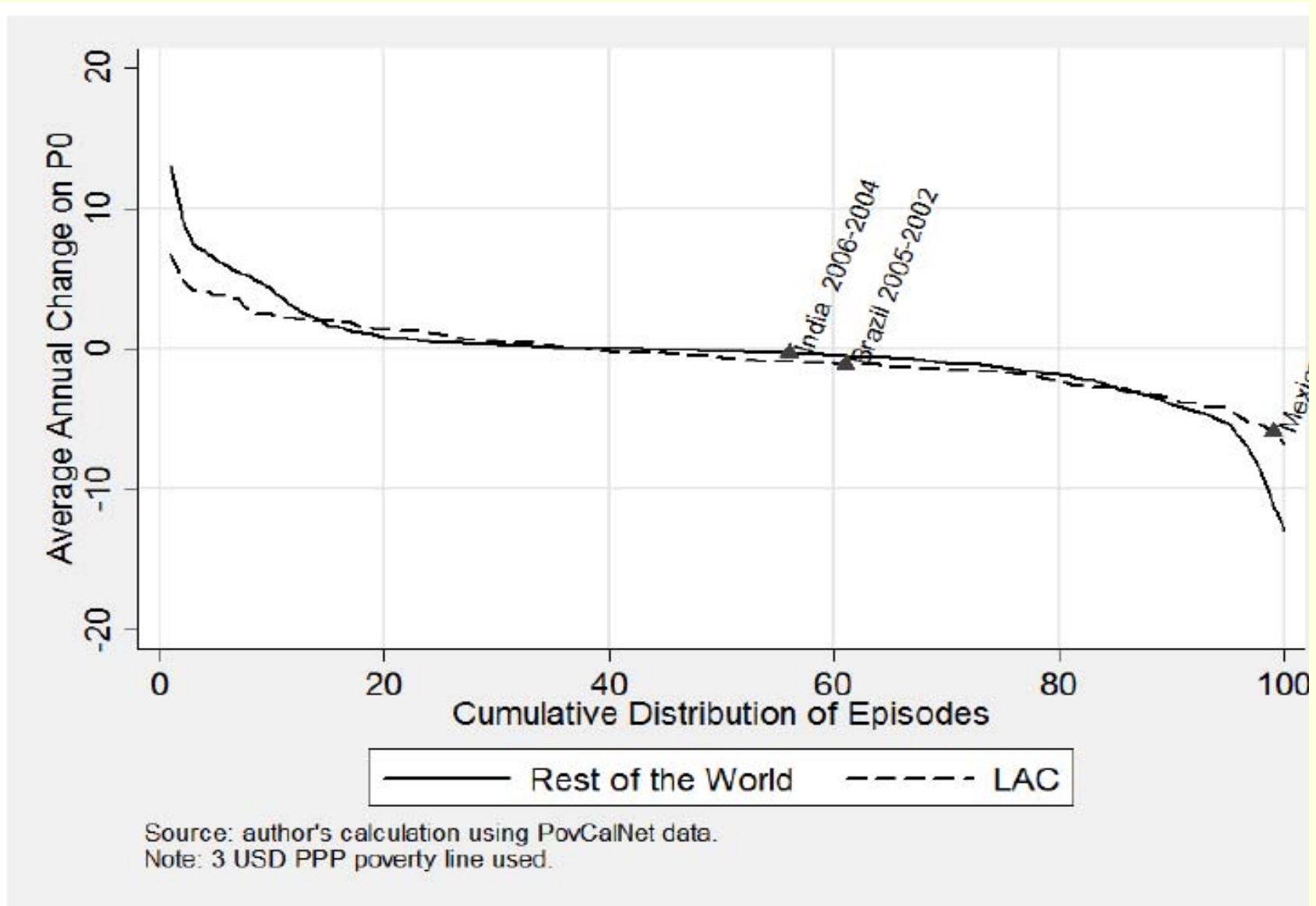


Figure 3: Empirical Distribution of the Average Annual Poverty change using US\$ 3 PP poverty line

# Conditional vs. Empirical Distribution

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- Peru in 2007 was not exactly like other countries.
- How does the result compare to what one might expect given Peru's characteristics?
  
- Use 99 quantile regressions to estimate relation between change in poverty and characteristics at 99 different percentiles
- Create counterfactual distribution for Peru at that time by plugging in Peru's characteristics into the 99 prediction equations

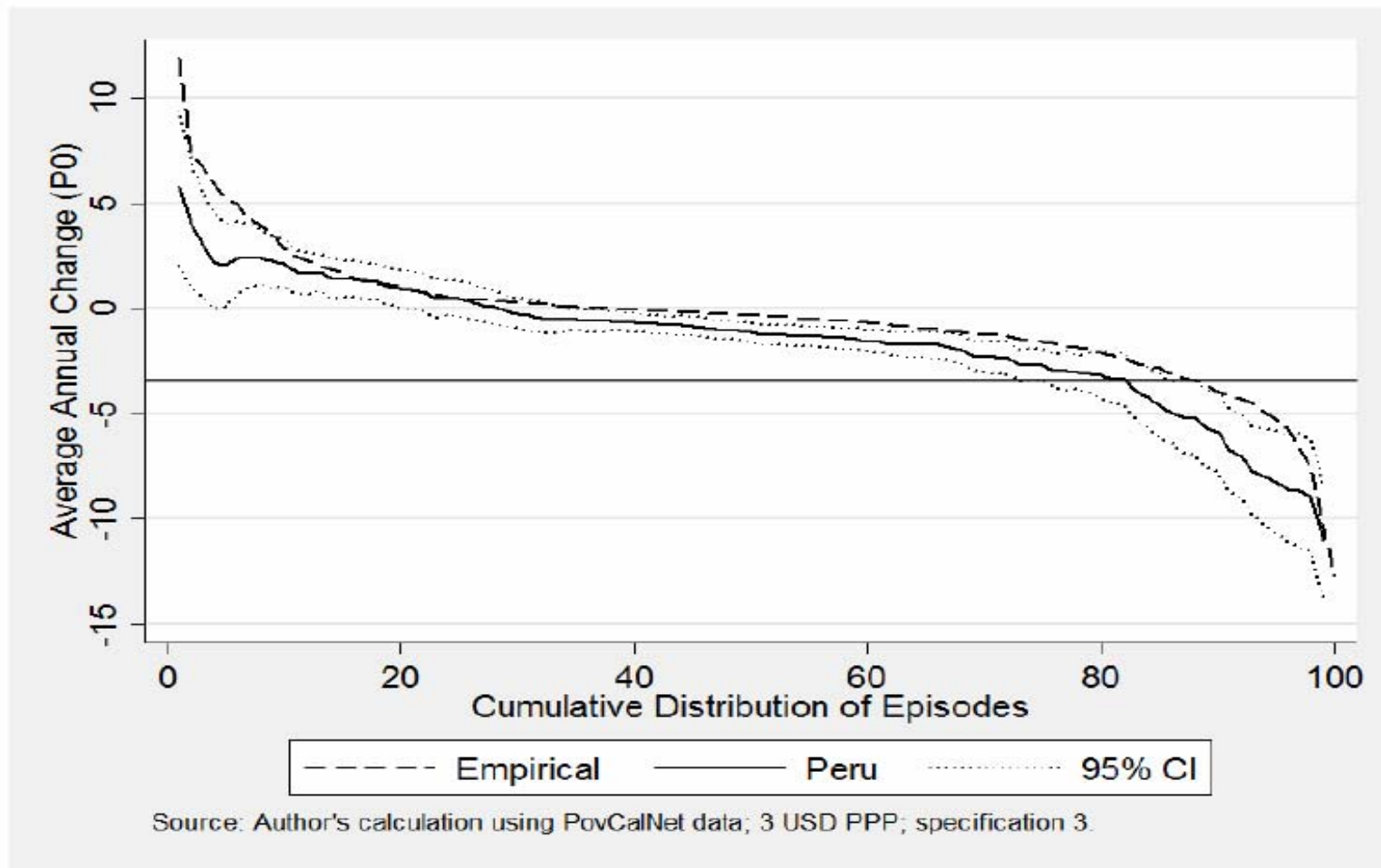


Figure 6: Empirical Distribution and Conditional Distribution of the Poverty Change for Peru using a 3 dollar a pay Poverty Line

# General Approach

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- This approach can be used for all social indicators
- Limited only by the availability of comparable data
- There is more available now than one might think

# Benchmarks for Guatemala's Performance

Indicator	Level		Average Change in Indicator		
	2006 Value	Compared to all countries	Avg. Change From 2000 to 2006	Compared to all countries	Controlling for characteristics
Infant mortality	30.6	40	-1.40	65	95
Persistence to 5 <sup>th</sup> grade – total	68.9*	18	2.62	83	60

# Benchmarks for Guatemala's Performance

Indicator	Level of Indicator		Average Change in Indicator		
	2006 Value	Uncond. Percentile a/	Avg. Change From 2000 to 2006	Uncond. Percentile b/	Cond. Percentile c/
Persistence to 5 <sup>th</sup> grade – total	68.9*	18	2.62***	83	60
Persistence to 5 <sup>th</sup> grade – female	67.6*	15	2.74***	85	60
Persistence to 5 <sup>th</sup> grade-male	70.2*	27	2.54***	82	62
Repetition rate –total	12.09	20	-0.40	92	73
Repetition rate – female	11.14	19	-0.43	92	81
Repetition rate – male	12.96	22	-0.36	88	71
Primary Completion Rate – total	76.5	27	3.14	88	94
Primary Completion Rate – female	72.6	24	3.37	88	92
Primary Completion Rate – male	80.4	29	2,92	88	94
Infant mortality	30.6	40	-1.40	65	95
Under 5 mortality	41	38	-2.00	70	70
Improved water	95	70	1.0	86	76
Improved sanitation	86	68	2.0	97	92

# Conclusions from Guatemala Benchmarking Exercise

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- The exercise, though simple, allowed one to make an important inference
- Guatemala's social indicators are poor because they are starting from a very low point
- Their recent performance is actually quite good
- Not true that government is ineffective
- Government could do better if more resources were devoted to improving social indicators

# Data needs for Benchmarking

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- All countries interested in monitoring social indicators should have easy access to thousands of observations of change over time in social indicators
- Not yet that easy to do. Systems are not yet set up to make this type of benchmarking simple
- Coordinated effort is required

# Benchmarking with Subnational Data

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- Not always necessary to have international data
- Can do a lot with subnational
- Brazil – 5,596 municipalities over 200,000 schools and there is data
- Guatemala – information on every school for the last 6 years
- Highlights importance of having good administrative records

# Target setting

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- Setting targets is a key part of Performance Informed Budgeting
- Many countries and states are going through a process of setting targets
  - Part of medium term planning process
  - Presidential targets
  - State for Results – Minas Gerais
- Millennium Development Goals

# There are risks

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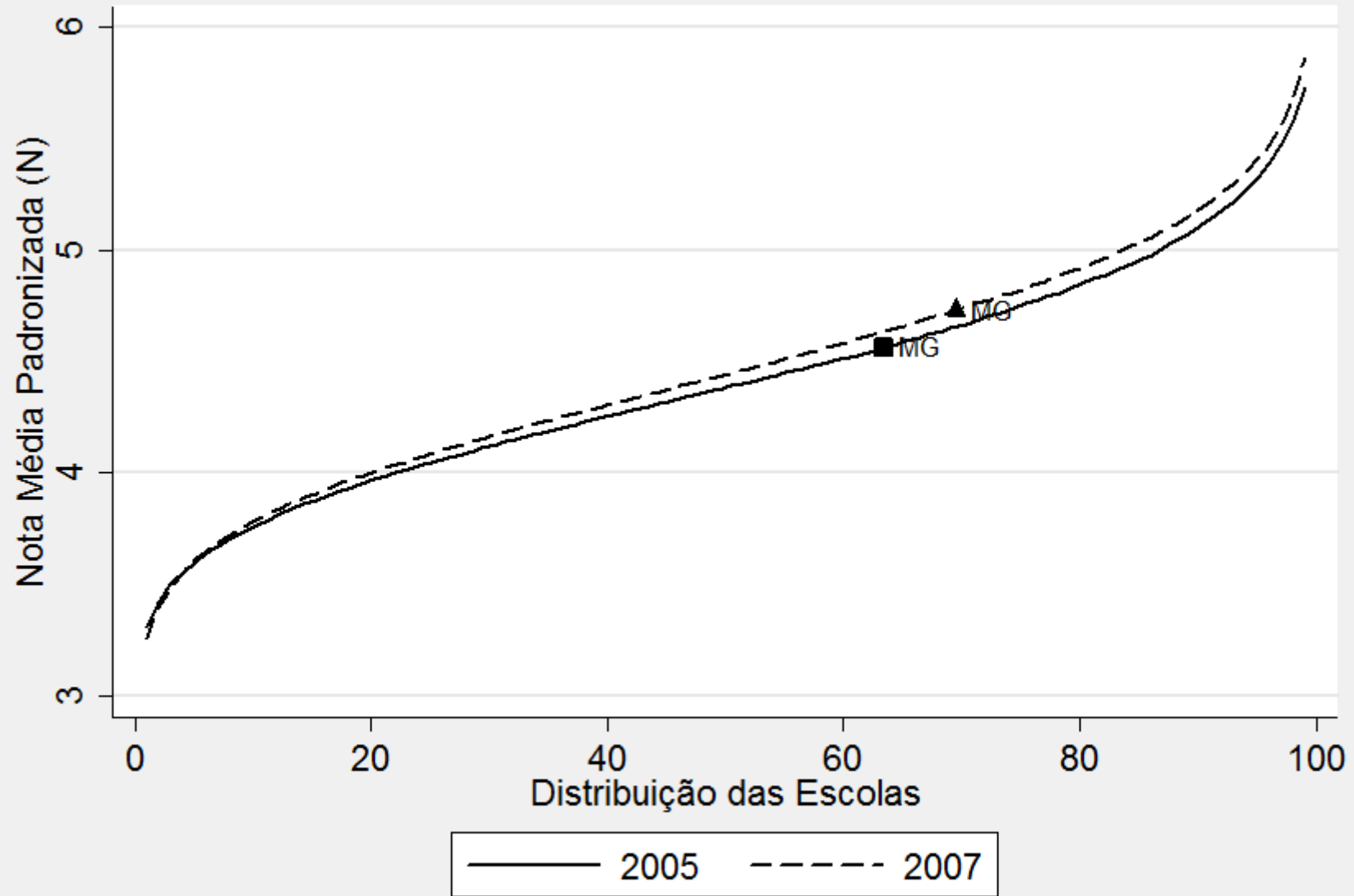
- Target setting can be considered in the context of a principal-agent relation
- If targets are unrealistically high, leads to two options:
  - Principal must hold agent to unrealistic targets; or
  - Principal must tell agent, never mind, the targets were not that serious
- If targets are set too low
  - Agents can meet targets without doing anything special
  - This can be costly
    - Cost of incentives
    - Cost of creating a superstructure (e.g.M&E) that doesn't add value

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- Set stretch targets, but achievable ones

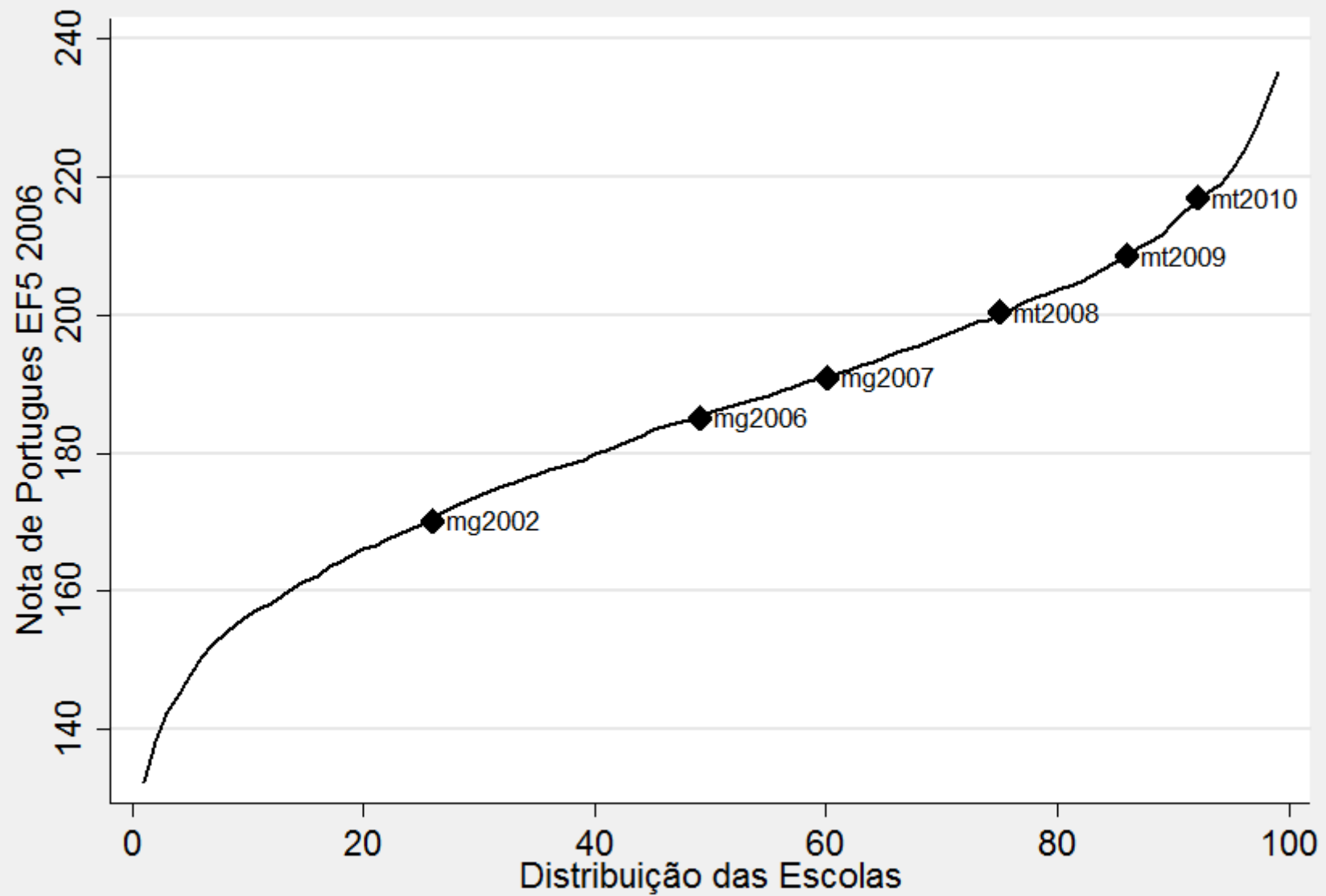
# State for Results in Minas Gerais

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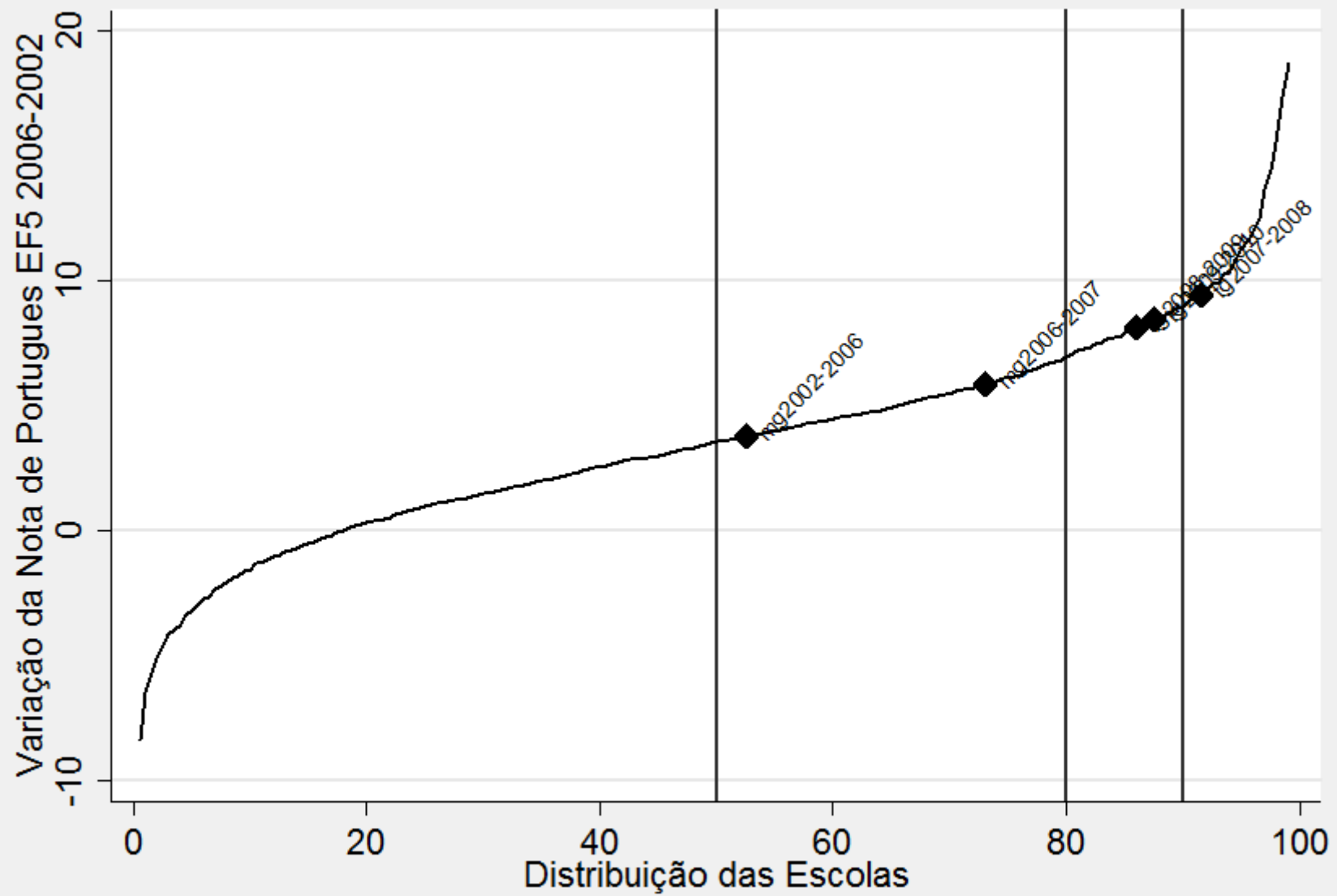
- Using information on empirical and conditional distributions of performance to judge the reasonableness of targets;
- Part of ongoing review of targets during annual review process
- WB is working with the state government of Minas Gerais on this process



Fonte: 9 serie, Estadual/INEP



Fonte: 5 ano, Estadual/CAEd/SEE-MG



Fonte: 5 ano, Estadual/CAEd/SEE-MG

# Performance Improvement

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- Not enough to simply set targets and monitor
- Performance must actually improve
  - Just by making information on performance more publically available, this may create some incentive to improve performance
  - There can be financial incentives for higher performance

# Performance Improvement

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- There are undoubtedly limits to the performance gains that can be had through only these routes;
- At some point a systematic effort must be made to improve performance if targets (correctly set as stretch targets) are to be met;
  - Need agents to take steps to improve performance
  - How do decide what should be done?
  - How to support performance improvement effort?

# Performance Improvement

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- When there is a lot of variation in performance, target might be achieved by ratcheting up
  - 5<sup>th</sup> quintile should strive to reach level of 4<sup>th</sup>
  - 4<sup>th</sup> quintile should strive to reach level of 3<sup>rd</sup>, etc.
  - 1<sup>st</sup> quintile should try to improve by 5-10%

# How to determine what should be done

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- Estimating production functions in a single econometric equation is difficult
  - Suppose good performance is achieved by having district managers monitor variation in performance and ensure that each school has what it needs
  - How could one capture that aspect in an equation?
    - Very difficult, if not impossible

# Two Step Approach

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- Recommend two step approach
- In the first step, identify who are the good and poor performers
  - Positive deviant analysis – run an OLS and select positive and negative errors
    - Focuses on the relation at the mean, but
    - Could alternatively use quantile regressions to make use of more information about the distribution

# Two Step Approach

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- In the second step, try to characterize what the good and poor performers do
  - Several different approaches to this second step
  - Use System Dynamics or Decision Tree analysis to get at what is done;
  - The representations should be validated by checking whether they are able to explain outcomes over time for good and poor performers

# Possible third step

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- Once one identifies a characteristic or a practice that could explain differences in performance, this does not guarantee that introducing an intervention based on this to a different population will generate an impact
- Will often want to evaluate impact, using techniques that will be described in this conference

# Conclusions

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- Information on distribution of performance is underexploited
- Quantile regressions provide a convenient and easy way to take account of different characteristics and thus, provide appropriate comparisons
- Look not just at level, but at the rate of change
- And look not just at the mean value of the change, but at the distribution of rates of change

## Conclusions, cont.

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- Recommend a two step approach rather than focusing on single equation estimation
- Once a promising intervention is identified, consider carrying out an impact evaluation

# Conclusions, cont.

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- A lot more benchmarking could be done using subnational data sets
- Useful data can be found not only in household surveys, but also in administrative records
- Need a coordinated effort to generate accessible international data sets on performance in 20-30 key indicators