

HUMAN DEVELOPMENT  
PERSPECTIVES

# Making Schools Work

New Evidence on Accountability Reforms



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# Parental Empowerment in Mexico

## Randomized Experiment of the *Apoyo a la Gestion Escolar (AGE)* Program in Mexico

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# Overview

- Global evidence
- Mexican education context
- School-based management in Mexico
- AGE impact evaluation design
- Results to date

# School Autonomy: Global Experience

1.

- **Can** improve school performance by empowering parents, giving communities voice, making participation more effective

2.

- **Inexpensive** and cost-effective

3.

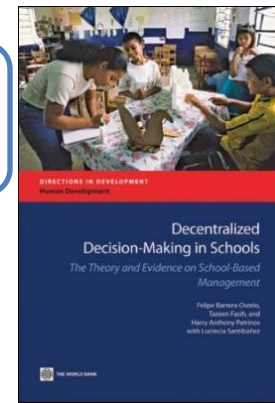
- **But** models with low levels of autonomy and weak accountability not likely to produce large gains, especially in learning outcomes

4.

- **Design matters**

5.

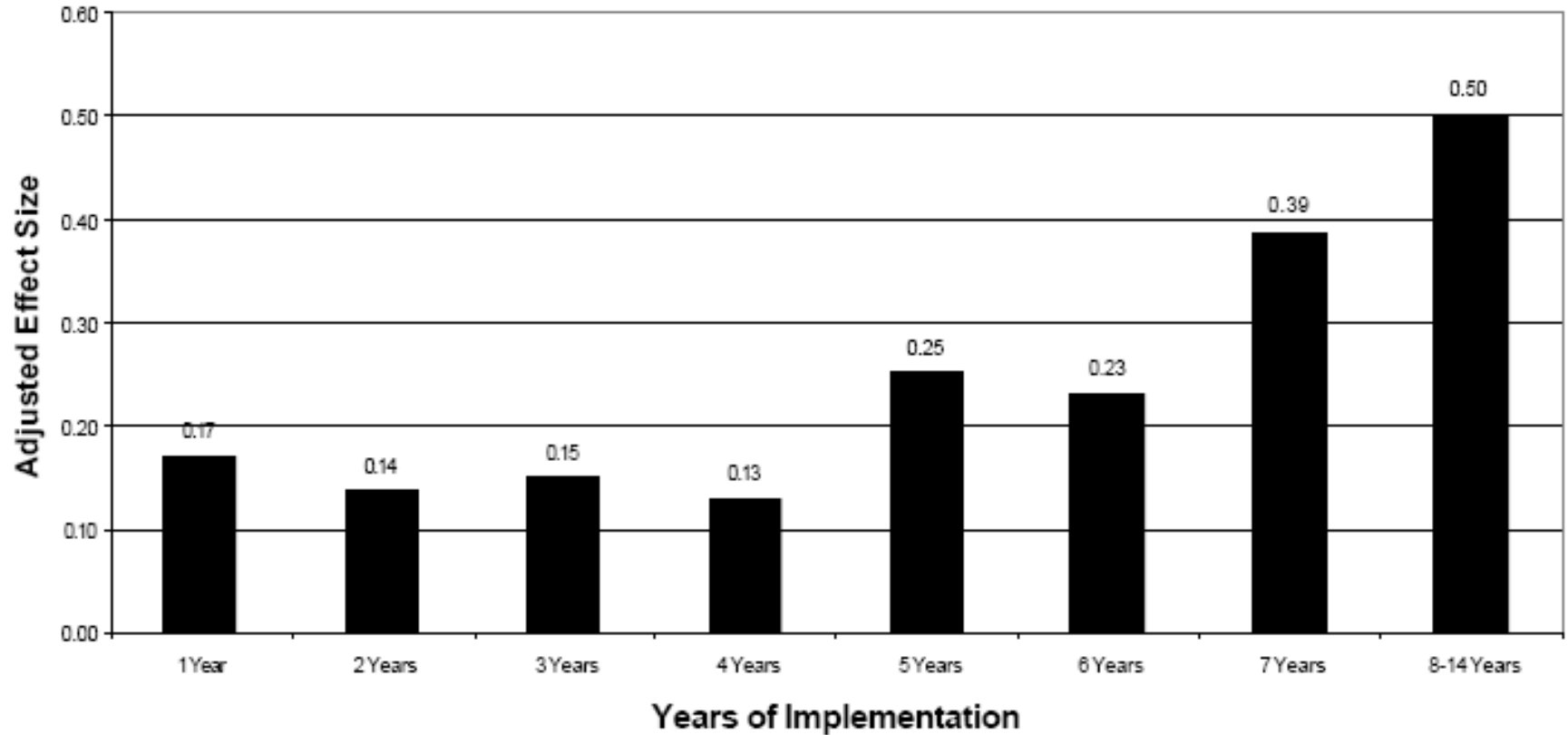
- **Need** better information, higher levels of autonomy, strong accountability; most importantly, need to affect teacher hiring/firing



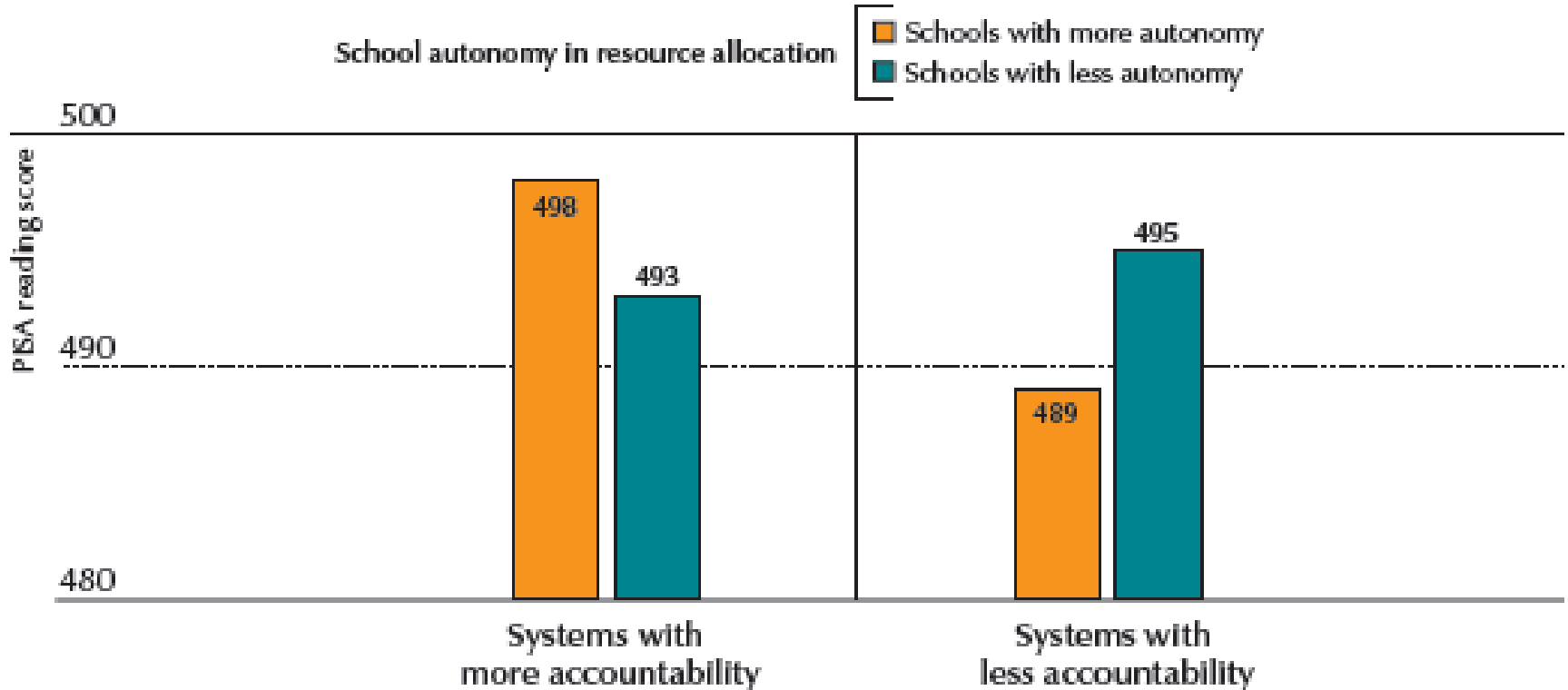
# Evidence on School Autonomy

Country	Authors	Intervention	Methodology	Findings
NEPAL	Chaudhury 2011	Communities express desire to take over management of schools (receive 1-time incentive grant)	Quasi-experimental randomization approach (IV & DD)	Reduction in out of school children; reduction in repetition; increased progression; equity (disadvantaged caste perform better)
KENYA	Duflo, Dupas & Kremer 2007	Training of school committees to monitor teachers on performance & committee-based hiring of teachers (versus headmaster hiring of new teachers)	Randomized trial	Higher student test scores, lower teacher absenteeism, small change in student dropout
INDONESIA	Pradhan et al. 2010	School-based management	Randomized trail	Positive effect on learning outcomes; strongest for elections in combination with linkage, increases scores in language by 0.51 standard deviations, math by 0.46

# Evidence from the USA



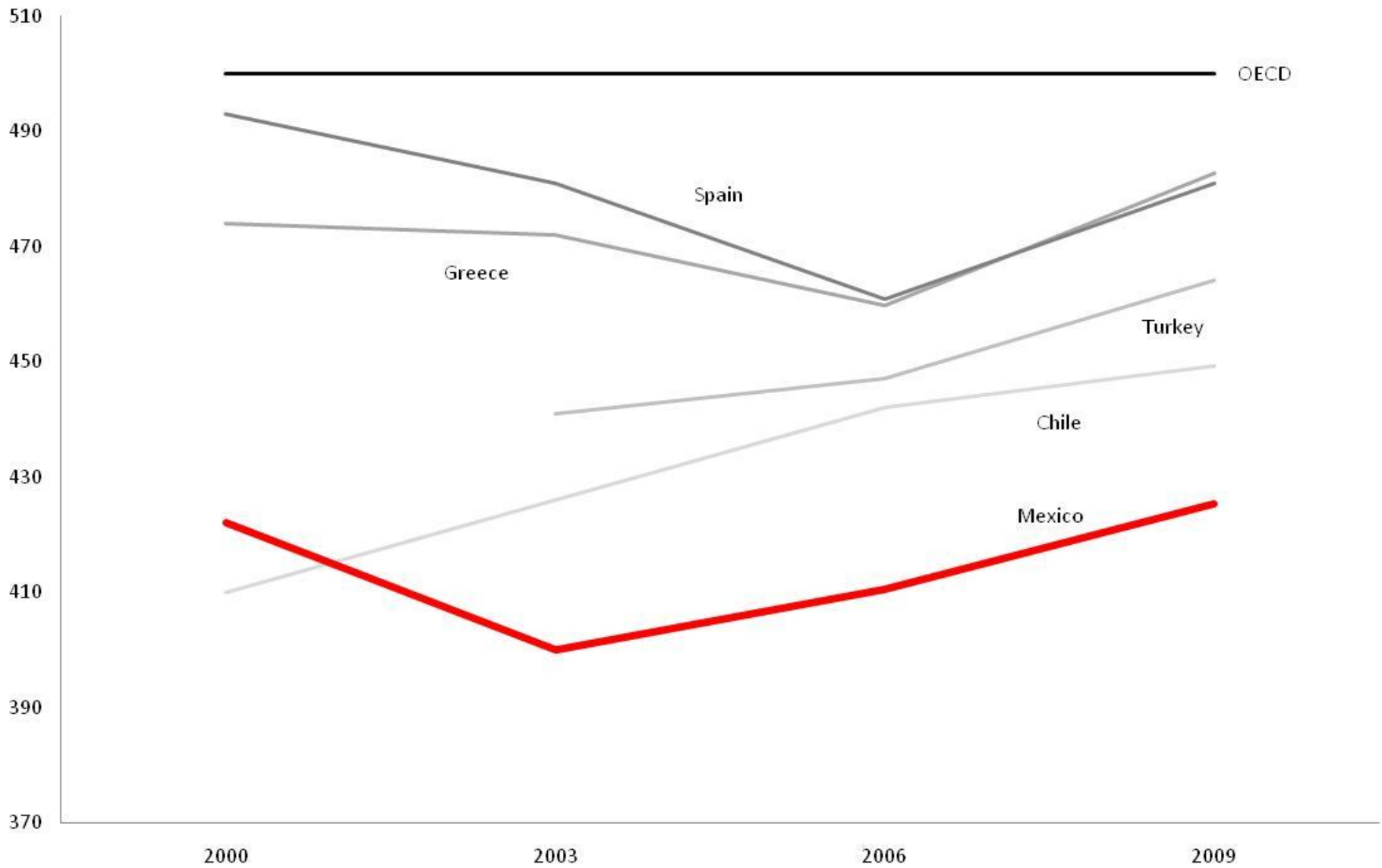
## The complex relationship between policies and performance



# Mexican Education Context

- Federal system, 1992 decentralization
- Universal primary & gender equality
- OECD, PISA
- **Challenges:**
  - Quantity & quality of upper secondary, higher
  - Quality – high for Latin America; low for OECD
  - Teacher quality
- **Approach:**
- Assessment & evaluation
- Community participation
- Compensatory education

# PISA Reading





# AGE (Support to School Management)

- Part of broader school reform: Compensatory education program
- Monetary support & training to parents:
  - Parents receive \$500-\$700/year
- Training on participatory skills



# Previous Research

Country	Authors	Intervention	Methodology	Findings
MEXICO	Gertler, Patrinos and Rodriguez 2010	Doubling of school grant (AGE)	Randomized trial	Increased participation in first year; reduced dropout, improved reading scores Improved test scores, 3rd grade cohort 0.25 SD increase
MEXICO	Gertler, Patrinos, Rubio & Garcia 2010	SBM grants in Colima (PEC)	Randomized trial	Improved learning outcomes for all, especially grade 3 cohort in program longest, 0.16 SD increase

# Experiment

- **Double-AGE Group** *AGE schools provided with double the resources*
  - **AGE Group** *Schools participating in the government's compensatory program where the parent associations are provided training and a cash grant of about \$600 a year to develop a school improvement plan*
- 
- **Training Group** *Schools not participating in the program are provided the training that AGE schools usually receive, but no cash subsidy*
  - **Comparison Group** *Not involved in program, no subsidy, no training*

*NB: The two groups of schools are not comparable*

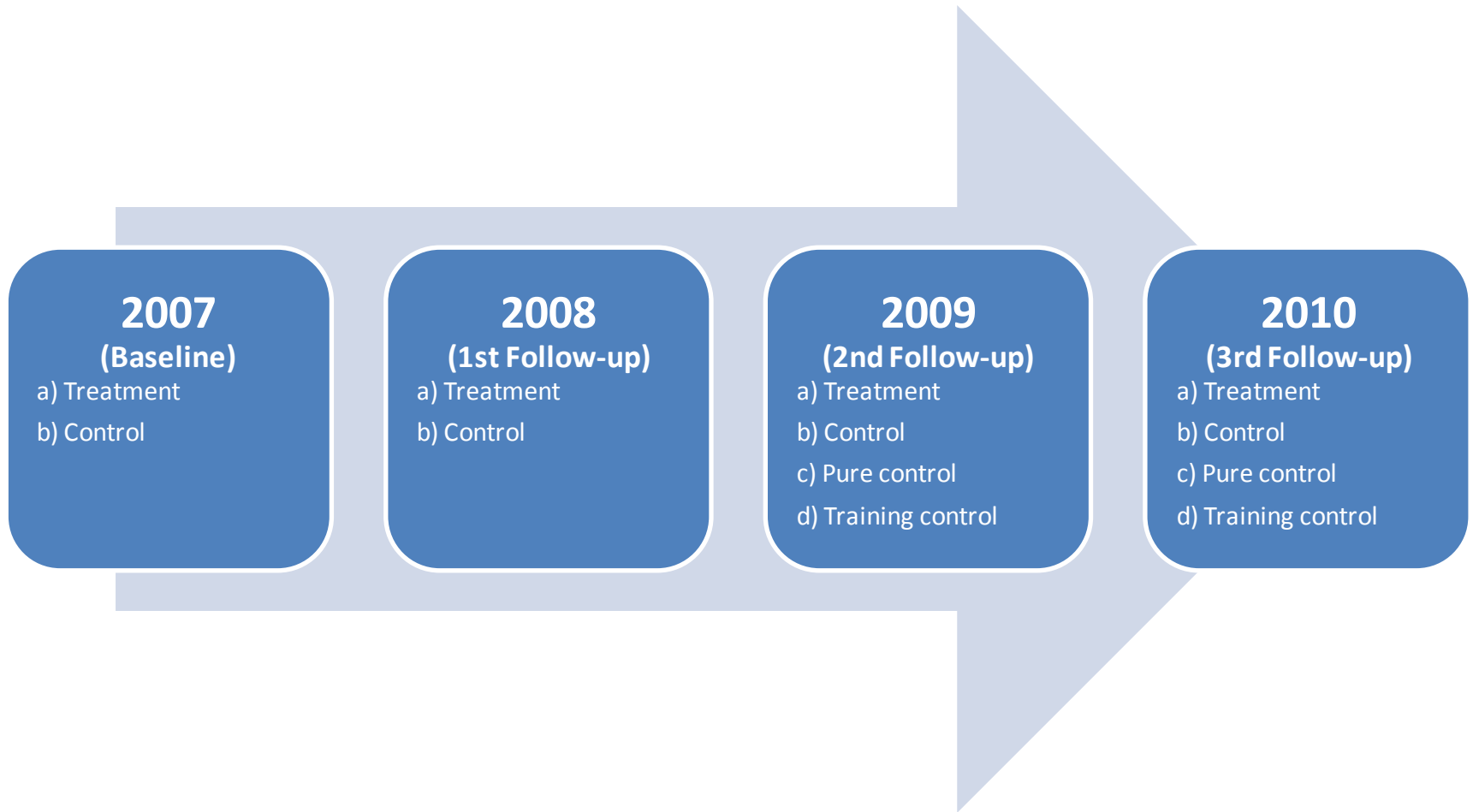
# Treatment and Control Schools

	Indigenous		General		Total	
	Treatment	Control	Treatment	Control	Treatment	Control
Chiapas	38	28	22	23	60	51
Guerrero	12	10	23	35	35	45
Puebla	9	6	16	12	25	18
Yucatán	4	6	1	5	5	11
<i>Total</i>	63	50	62	75	125	125

# Training Only and Pure Control Schools (all general)

	Training	Pure Control
Chiapas	42	66
Guerrero	18	8
Puebla	18	21
Yucatán	2	5
<i>Total</i>	80	100

# Timeline



# Empirical Strategy

Our model:

$$y_{ij} = aT_j + X_{ij}b + e_{ij}$$

$y_{ij}$  is the endline outcome (test score) of student  $i$  in school  $j$  (expressed in standard deviations of the distribution of scores in the AGE control schools; or pure control schools)

$T_j$  is a dummy equal to 1 if school  $j$  was double-AGE

$X_{ij}$  is a vector including a constant and child and school control variables

# Balance

- Experiment is balanced on key characteristics
- Of 106 variables (same as for baseline) in 2007 and 2008, 95% are similar in treatment & control (at 5%)



# Results

# **Parent, Teacher, Director Surveys**

# Intermediate Outcomes

# Intermediate Outcomes

Effect on intermediate outcomes of double-AGE vs AGE							
Dropout							
	1 year		2 years		3 years		
	No controls	With controls	No controls	With control	No controls	With controls	
Overall	-1.49*** (0.26)	-1.60*** (0.34)	-0.63** (0.31)	-0.58* (0.30)	-0.68** (0.30)	-0.64** (0.29)	
1st	-0.11 (1.34)	-0.47 (0.89)	0.31 (0.54)	0.31 (0.58)	0.24 (0.18)	0.29 (0.25)	
2nd	0.17 (0.99)	-0.03 (0.92)	1.33* (0.47)	1.19* (0.63)	2.08*** (0.65)	1.85** (0.75)	
3rd	-2.37*** (0.88)	-2.65* (1.48)	-0.94* (0.53)	-0.96* (0.51)	-0.42 (0.55)	-0.28 (0.67)	
4th	-1.31 (1.51)	-1.16 (1.34)	0.14 (0.93)	0.36 (0.87)	-0.73 (1.30)	-0.60 (1.39)	
5th	-1.55 (1.13)	-1.65 (1.23)	-0.92 (2.17)	-0.95 (2.16)	-2.06 (1.70)	-2.14 (1.64)	
6th	-1.43 (1.07)	-1.57 (1.39)	-1.34* (0.72)	-1.27* (0.68)	-1.22 (0.76)	-1.13 (0.76)	
N	496	496	744	744	991	991	

Notes: Standard errors clustered at the state level in parentheses.

Additional controls are: indigenous schools, years with AGE, teacher speaking, indigenous language, indigenous school, teachers and directors years of experience, sex of teacher, director and president of parents association.

All outcomes are 2007-10

# Intermediate Outcomes

Effect on intermediate outcomes of double-AGE vs AGE						
Failure						
	1 year		2 years		3 years	
	No controls	With controls	No controls	With control	No controls	With controls
Overall	-0.66 (0.46)	-0.64* (0.37)	0.16 (0.46)	0.17 (0.46)	0.08 (0.48)	0.05 (0.42)
1st	-3.71** (1.85)	-3.60* (1.87)	-3.87*** (0.73)	-3.79*** (0.72)	-3.18* (0.45)	-3.14*** (0.38)
2nd	-0.17 (3.24)	-0.25 (3.48)	3.65* (1.98)	3.39 (2.17)	3.10* (1.80)	2.52 (2.24)
3rd	3.15*** (1.00)	2.99*** (1.11)	3.01** (1.22)	2.86** (1.25)	2.17* (1.20)	2.06* (1.12)
4th	-1.51 (1.72)	-1.46 (1.64)	0.17 (0.86)	0.26 (0.97)	-0.01 (1.26)	0.01 (1.26)
5th	-1.34 (1.87)	-1.38 (1.87)	0.06 (1.23)	0.18 (1.28)	-0.38 (1.21)	-0.28 (1.31)
6th	-0.23 (0.34)	-0.21 (0.35)	-0.10 (0.35)	-0.06 (0.34)	0.07 (0.26)	0.09 (0.30)
N	496	496	744	744	991	991

Notes: Standard errors clustered at the state level in parentheses.

Additional controls are: indigenous schools, years with AGE, teacher speaking, indigenous language, indigenous school, teachers and directors years of experience, sex of teacher, director and president of parents association.

All outcomes are 2007-10

# Effect of Double-AGE vs AGE

Effect on test scores of double-AGE vs AGE						
(School Level)						
Total score (Spanish + mathematics)						
	1 year		2 years		3 years	
	No controls	With controls	No controls	With control	No controls	With controls
Overall	0.29 <sup>***</sup>	0.28 <sup>***</sup>	0.24 <sup>*</sup>	0.23 <sup>*</sup>	0.21 <sup>*</sup>	0.21 <sup>*</sup>
	(0.10)	(0.10)	(0.13)	(0.14)	(0.12)	(0.13)
N	466	466	668	668	893	893

Notes: Standard errors clustered at the state level in parentheses.

Additional controls are: indigenous schools, years with AGE, teacher speaking, indigenous language, indigenous school, teachers and directors years of experience, sex of teacher, director and president of parents association.

All outcomes are 2007-10

# Effect of Double-AGE vs AGE

Effect on test scores of double-AGE vs AGE												
(School Level)												
	Spanish						Mathematics					
	1 year		2 years		3 years		1 year		2 years		3 years	
	No controls	With controls	No controls	With control	No controls	With controls	No controls	With controls	No controls	With controls	No controls	With controls
Overall	0.28 <sup>***</sup>	0.26 <sup>***</sup>	0.23 <sup>**</sup>	0.22 <sup>*</sup>	0.22 <sup>*</sup>	0.22 <sup>*</sup>	0.25 <sup>***</sup>	0.24 <sup>***</sup>	0.21 <sup>**</sup>	0.20 <sup>*</sup>	0.20 <sup>*</sup>	0.20 <sup>*</sup>
	(0.09)	(0.09)	(0.12)	(0.12)	(0.13)	(0.13)	(0.08)	(0.09)	(0.10)	(0.11)	(0.12)	(0.12)
3rd	0.24 <sup>*</sup>	0.23 <sup>*</sup>	0.32 <sup>***</sup>	0.32 <sup>***</sup>	0.24 <sup>***</sup>	0.25 <sup>***</sup>	0.22	0.21	0.31 <sup>**</sup>	0.32 <sup>**</sup>	0.22 <sup>**</sup>	0.23 <sup>**</sup>
	(0.14)	(0.13)	(0.09)	(0.09)	(0.07)	(0.08)	(0.16)	(0.15)	(0.14)	(0.13)	(0.10)	(0.11)
4th	0.04	0.01	0.06	0.03	0.08	0.06	0.11	0.09	0.07	0.05	0.09	0.07
	(0.13)	(0.12)	(0.07)	(0.07)	(0.06)	(0.06)	(0.31)	(0.30)	(0.22)	(0.20)	(0.21)	(0.22)
5th	0.31	0.29	0.25	0.24	0.28	0.28	0.22	0.20	0.17	0.16	0.17	0.17
	(0.21)	(0.24)	(0.18)	(0.20)	(0.23)	(0.24)	(0.19)	(0.22)	(0.17)	(0.20)	(0.21)	(0.22)
6th	0.27	0.25	0.25	0.24	0.20	0.20	0.33 <sup>***</sup>	0.32 <sup>***</sup>	0.28 <sup>***</sup>	0.28 <sup>***</sup>	0.20 <sup>***</sup>	0.19 <sup>**</sup>
	(0.20)	(0.22)	(0.19)	(0.19)	(0.20)	(0.21)	(0.07)	(0.07)	(0.05)	(0.06)	(0.08)	(0.08)
N	466	466	668	668	893	893	466	466	668	668	893	893

Notes: Standard errors clustered at the state level in parentheses.

Additional controls are: indigenous schools, years with AGE, teacher speaking, indigenous language, indigenous school, teachers and directors years of experience, sex of teacher, director and president of parents association.

All outcomes are 2007-10

# Effect of Training Only vs Pure Control

Effect on test scores of training only vs pure control				
(School Level)				
Total score (spanish + mathematics)				
	AGE's Training			
	No controls		With controls	
Overall	0.43	**	0.43	**
	^(0.19)		^(0.20)	
N	662		662	

Notes: Standard errors clustered at the state level in parentheses.

Additional controls are: indigenous schools, years with AGE, teacher speaking, indigenous language, indigenous school, teachers and directors years of experience, sex of teacher, director and president of parents association.

All outcomes are 2007-10



# Effect of Training Only vs Pure Control

Progress of 3rd grade students only.				
(School Level)				
	AGE's Training			
	No controls		With controls	
Total score	0.33	***	0.29	***
	^(0.04)		^(0.04)	
Spanish	0.27	***	0.25	***
	^(0.03)		^(0.04)	
Mathematics	0.34	***	0.31	***
	^(0.05)		^(0.04)	
N	683		683	

Notes:

Standard errors clustered at the state level in parentheses.

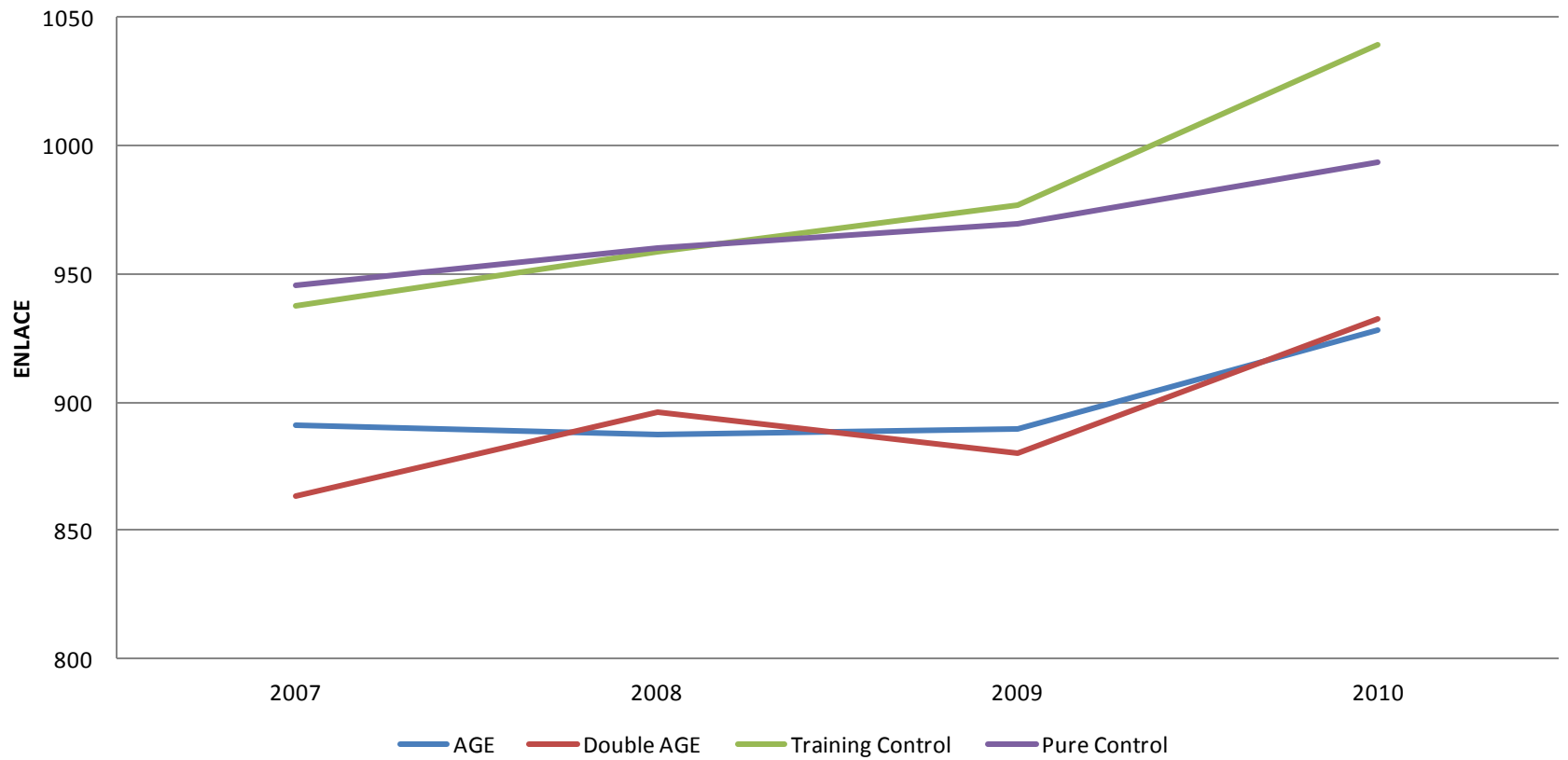
Additional controls are: indigenous schools, years with AGE, teacher speaking, indigenous language, indigenous school, teachers and directors years of experience, sex of teacher, director and president of parents association.

All outcomes are 2007-10.

Total score = Spanish score + mathematics score.

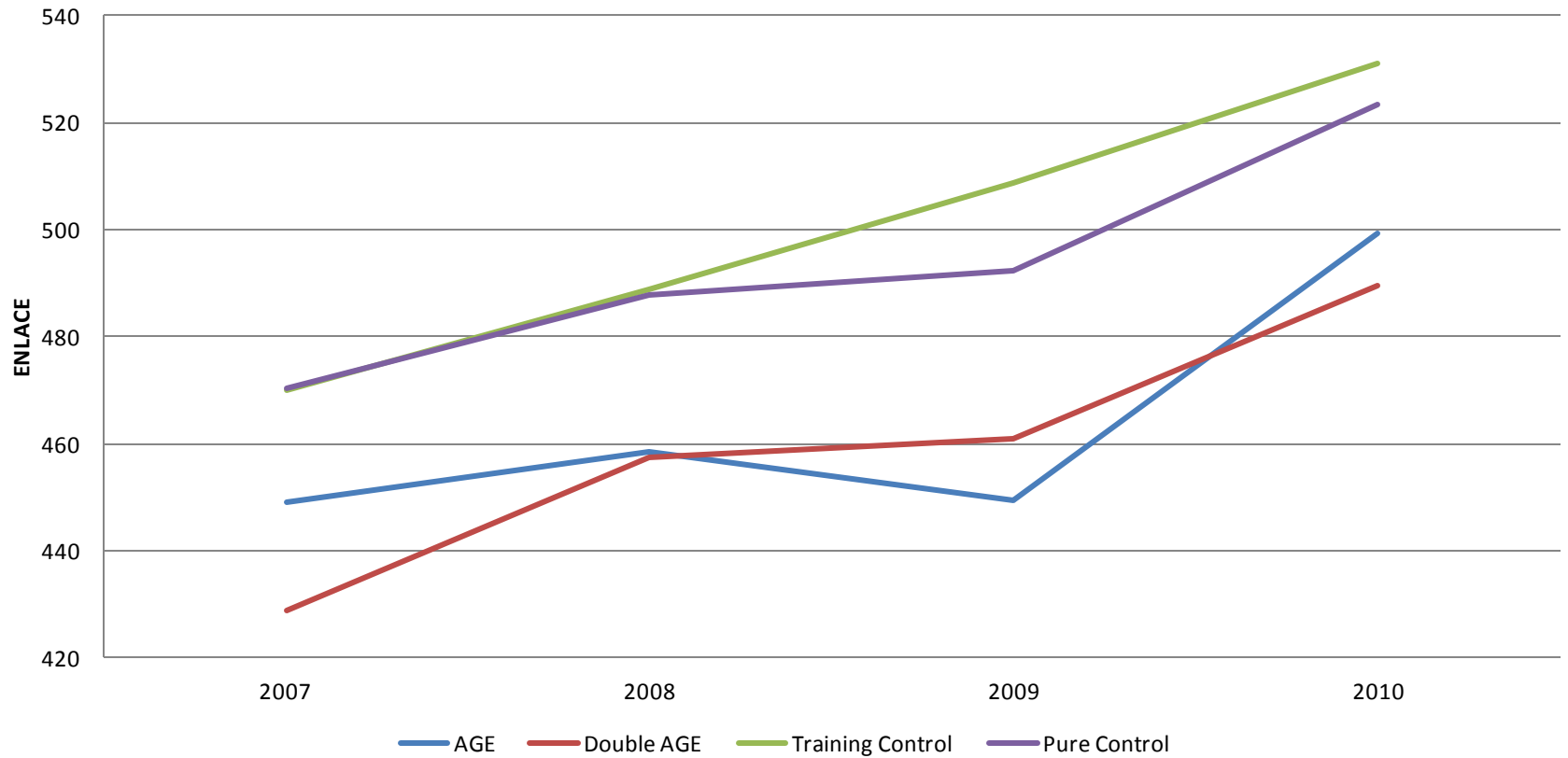
# Graphs

## Total Score (Spanish & Math)



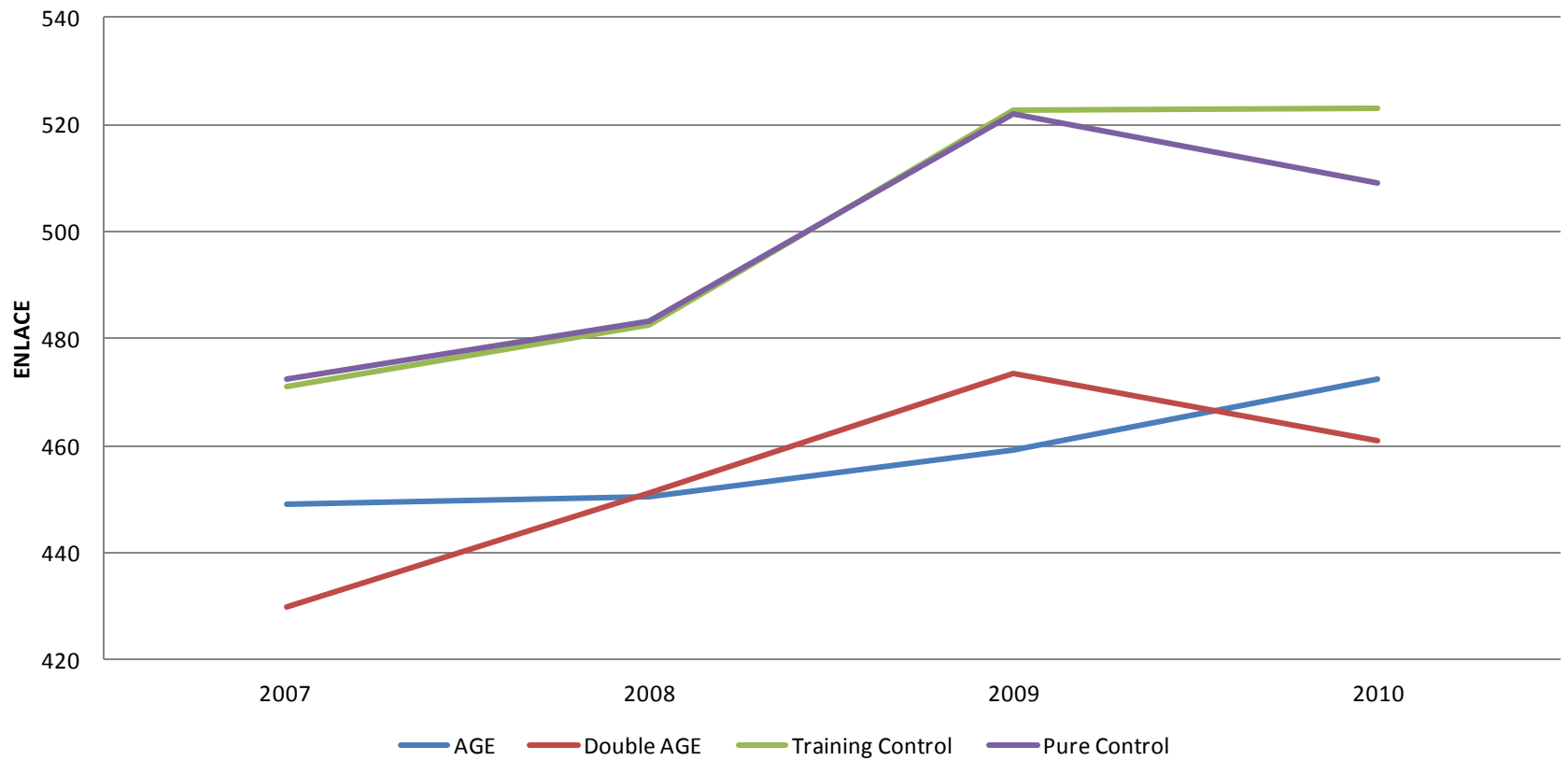
# Graphs

## Spanish 3<sup>rd</sup> Grade



# Graphs

## Math 3<sup>rd</sup> Grade



# Summary

- **Doubling cash grant** to parents improves learning for young children more than 0.20 SD
- **Subsidy generates commitment** and increased participation of parents
- **But training parents improves outcomes**, even after 1 year implementation, at levels comparable to impact of doubling AGE grant
- **Parental empowerment a useful tool** for generating interest in education in poor, rural, isolated communities

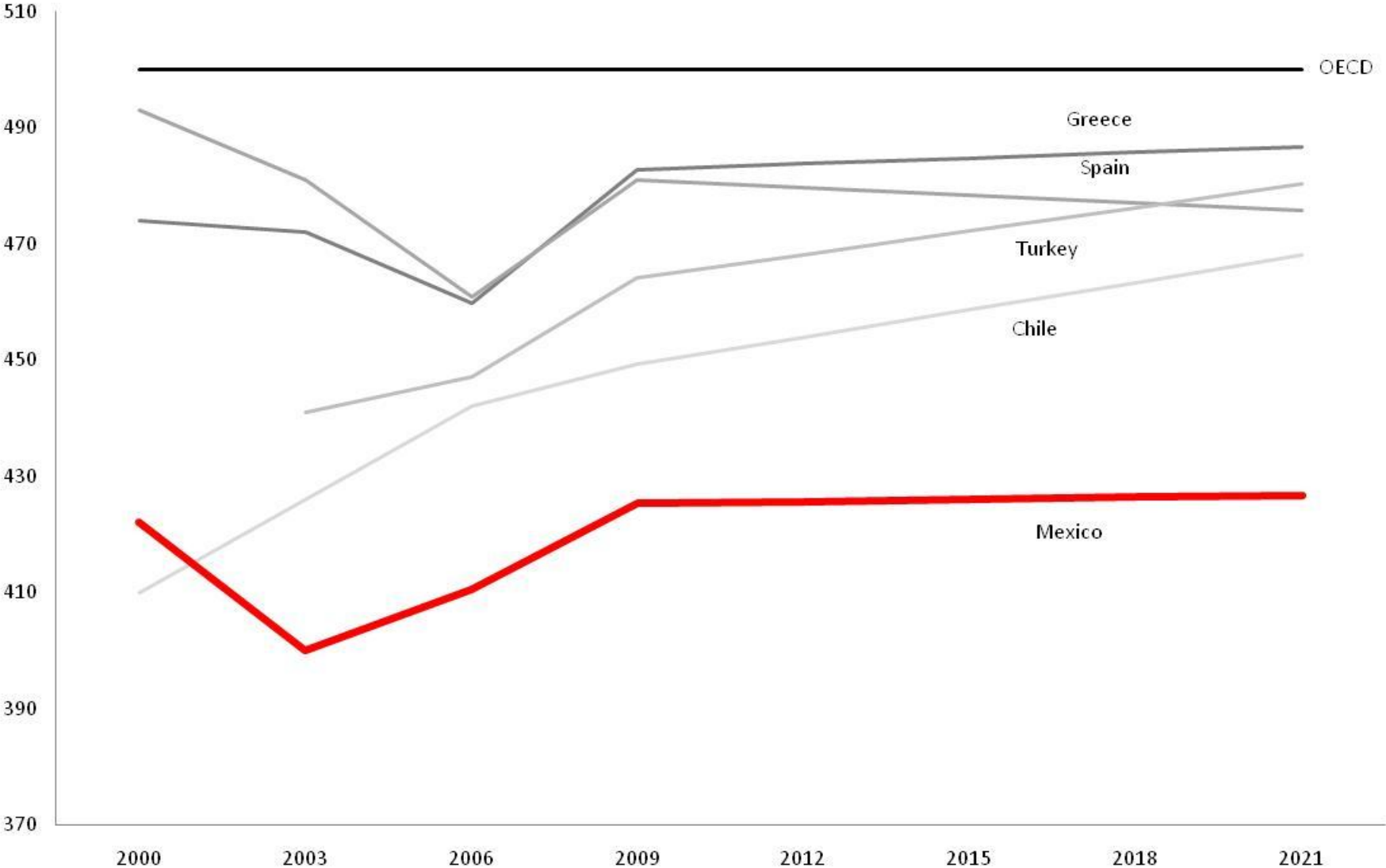
# Confirms results of other experiments

- **CONAFE** *Compensatory Program has positive effects (Shapiro, Skoufias, Moreno)*
- **AGE retrospective** *Decreases repetition & failure (Gertler, Patrinos, Rubio-Codina)*
- **PEC** *Colima: improves learning outcomes, but only for 3<sup>rd</sup> grade (Gertler, Garcia, Patrinos, Rubio-Codina)*

# Limited form of School-based management

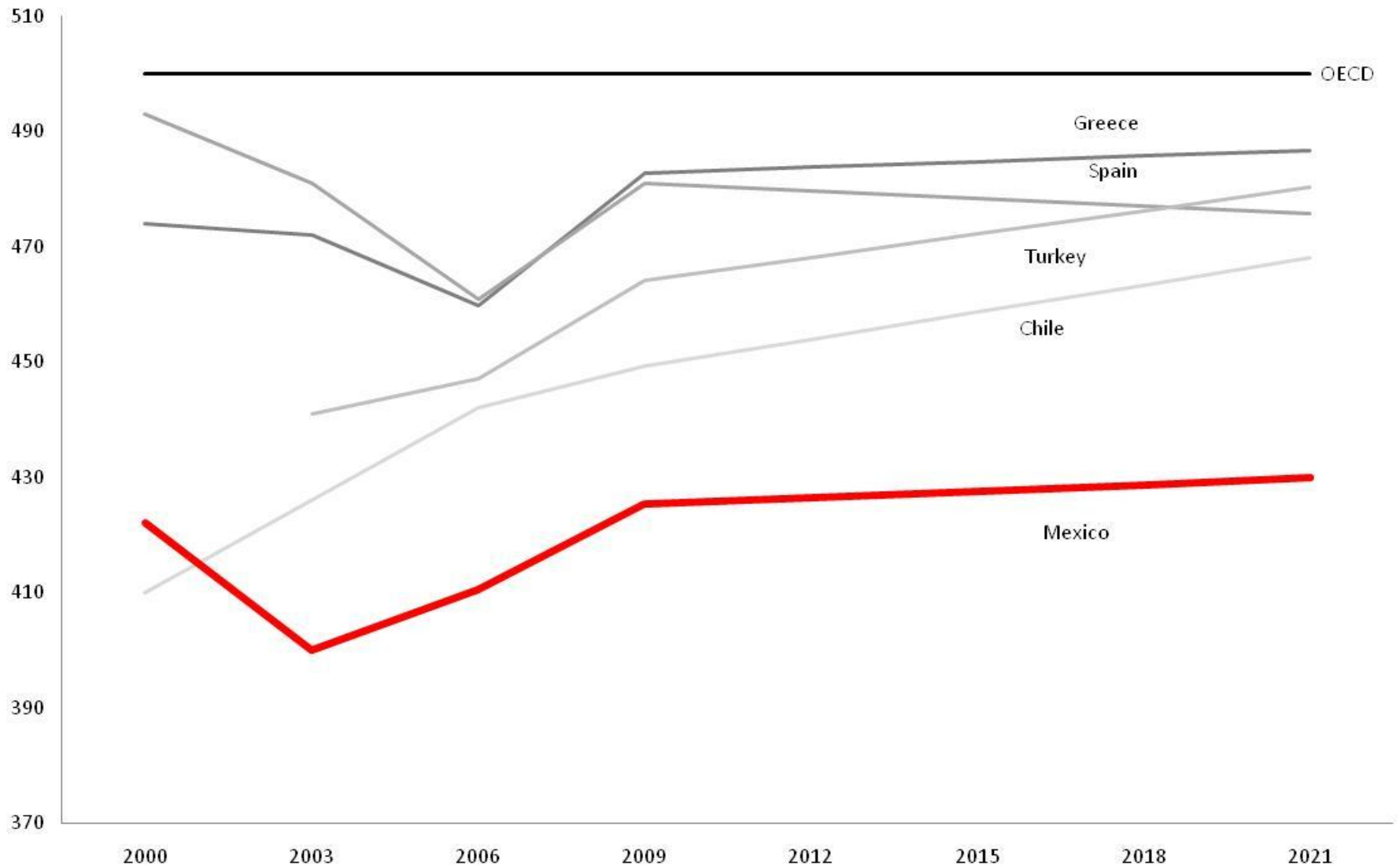
- Little autonomy
- Little accountability
- Positive results for disadvantaged
- Not enough to transform Mexican education

# PISA Reading Forecast

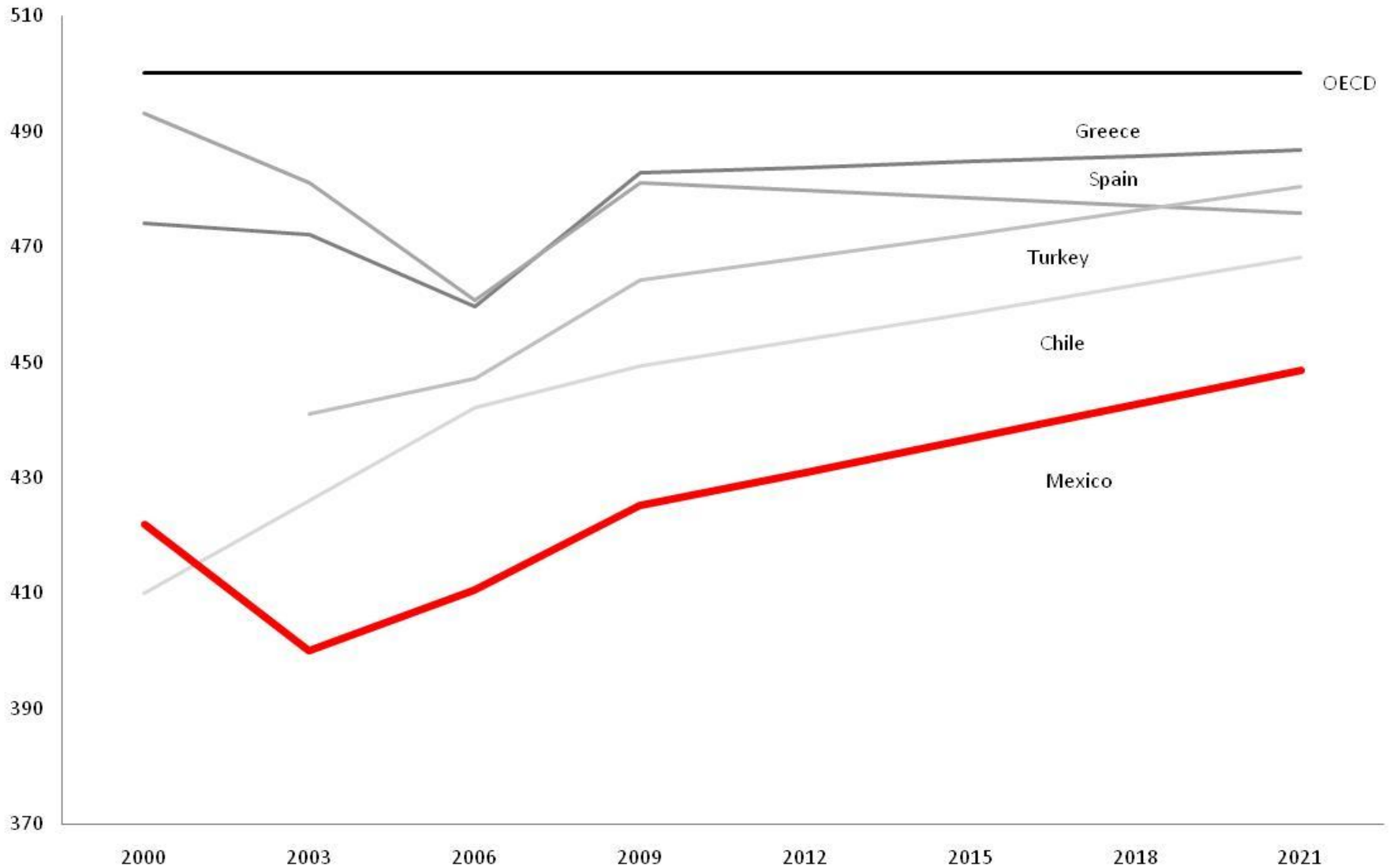




## PISA Reading Forecast 1: Urban Scores



## PISA Reading Forecast 2: Top States



## PISA Reading Growth Needed to Catch Up

