Giving Kids a Head Start: The Impact of Early Commitment of Financial Aid on Poor Students in Rural China

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On behalf of REAP

REAP
Rural Education Action Project

Chinese Academy of Sciences

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Northwest University of China

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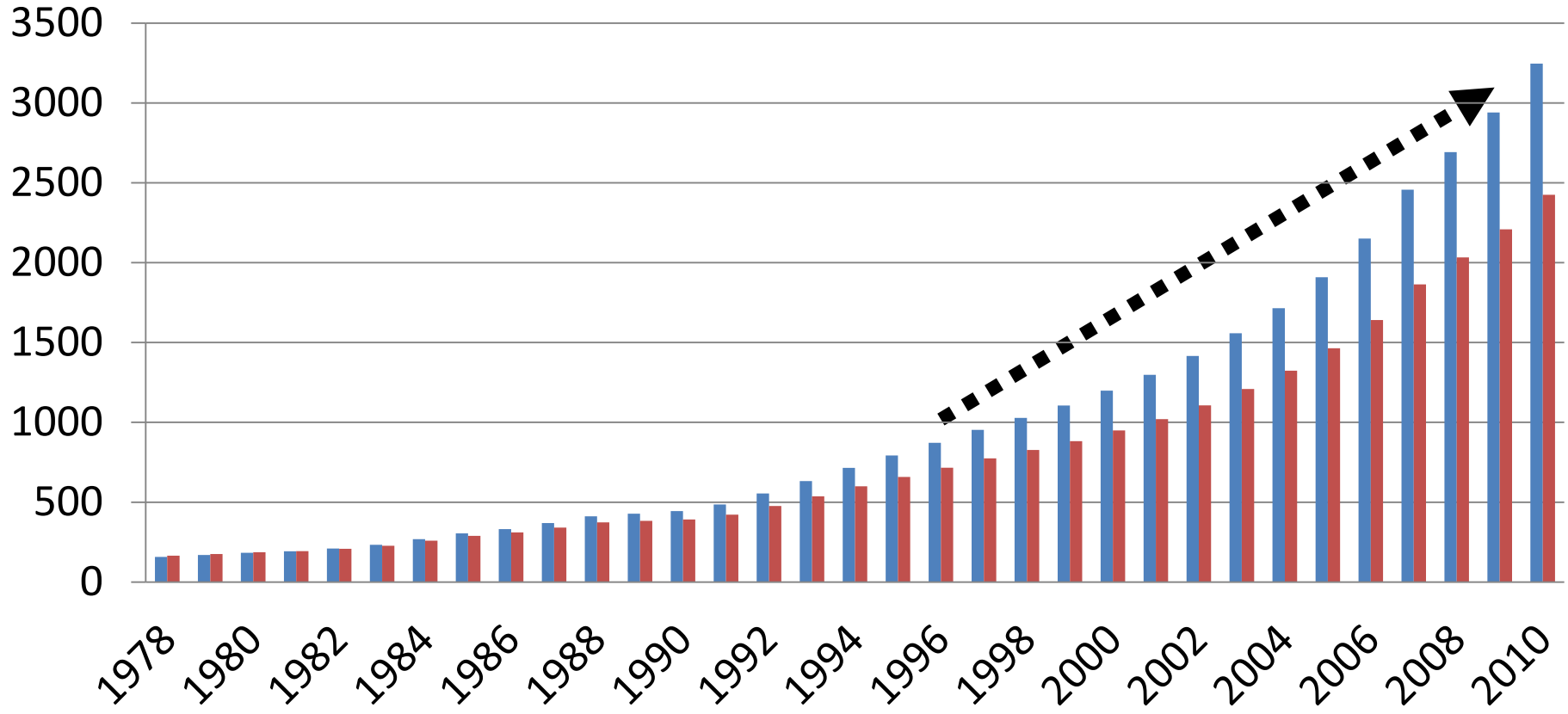
Making Impact Evaluation Matter

Manila, Sept 5, 2014

China's economy grew by more than 20 times from 1978 to 2010

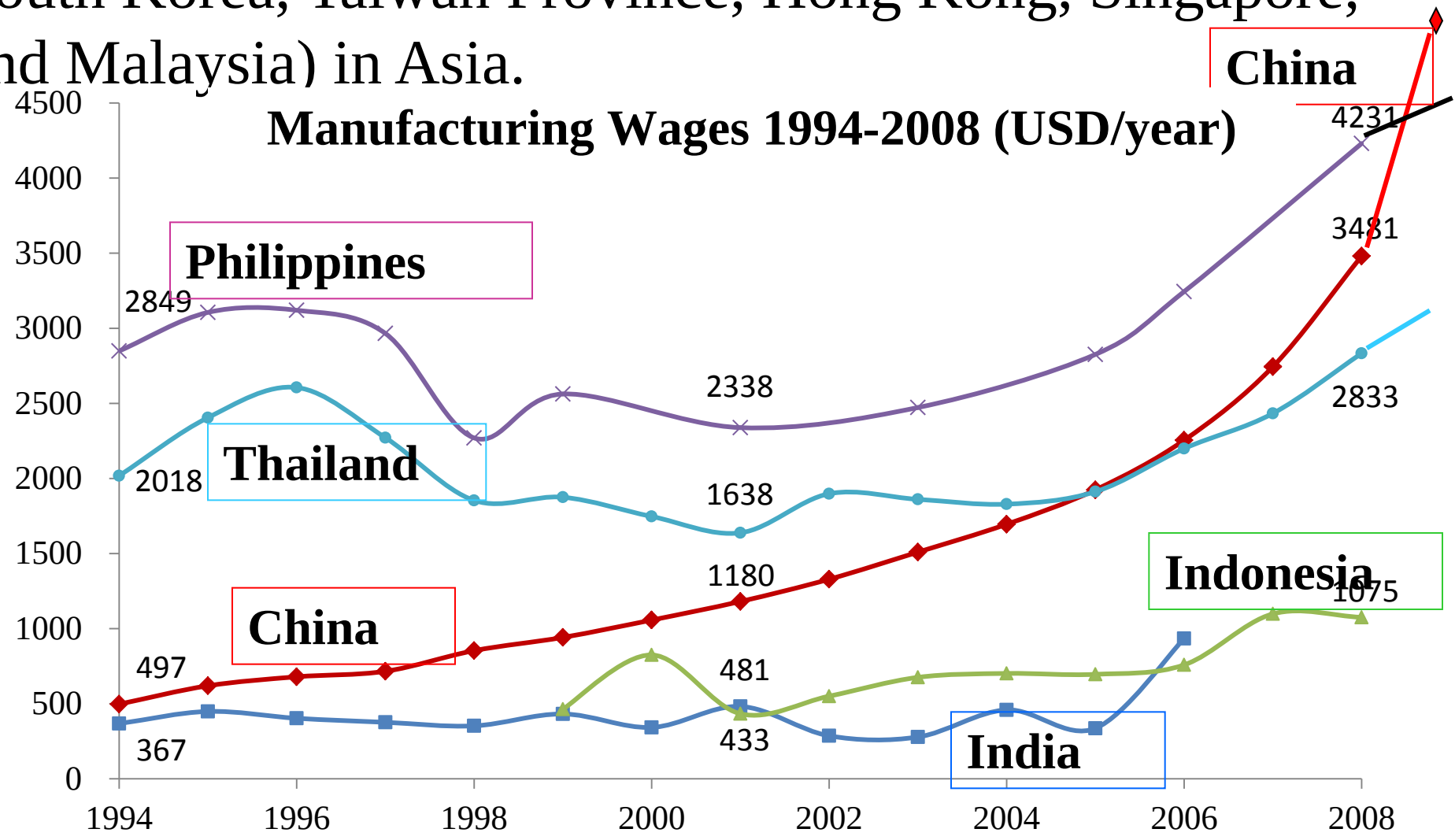


Source: World Bank, World Development Indicators

In 2000 US$

This Growth was mainly fueled by the movement of cheap, unskilled, rural labor into low-cost, labor-intensive industries

However, the wage rate in China is rising rapidly and are quickly surpassing many other countries (except Japan, South Korea, Taiwan Province, Hong Kong, Singapore, and Malaysia) in Asia.



Source: International Labor Organization LABORSTA Database

Today young people can get jobs in manufacturing like their parents did

However, China begins to lost its comparative advantage in low-cost and labor-intensive manufacturing with rising wage. And ten years or twenty years from now these jobs will be gone…

Instead, people should work like this ‘textile worker’ in a high wage country.. He makes $17/h.. *how is he worth $17 /h?* ***He has to be graduated from high school***.. Be competent in math, language, English and computers …

Can textile workers in China today do this type of job? …**NO**!

No employer would ever hire them for $10/h … Most of them do not read or write. they don't have the skills that merit such a wage . Although now is ok, how about twenty years later?

One of the biggest challenges in China today

- China is still growing fast…
- Labor is going to be in even shorter supply…
- China has to diversify and move into higher productivity industries…

Is China ready to move up the productivity ladder?

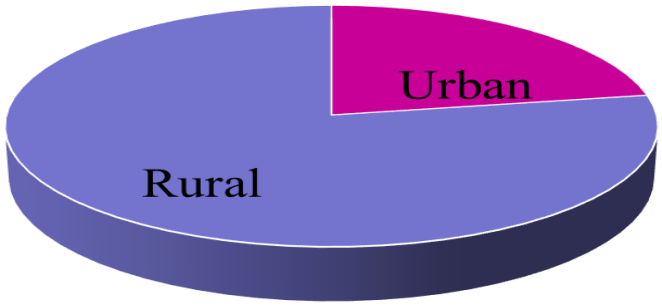
Expanding higher productivity industries will require more highly skilled labor

If an individual wants to hold a stable and high wage job in the coming decades, he/she will need to acquire math, language, English, computer skills taught at a high school level or higher.

In China, most of this potential skilled labor is in rural areas, and are the core driver of future rural/China development

- Roughly 172 million children (0-14) grow up in China's rural areas (NBS, 2010)

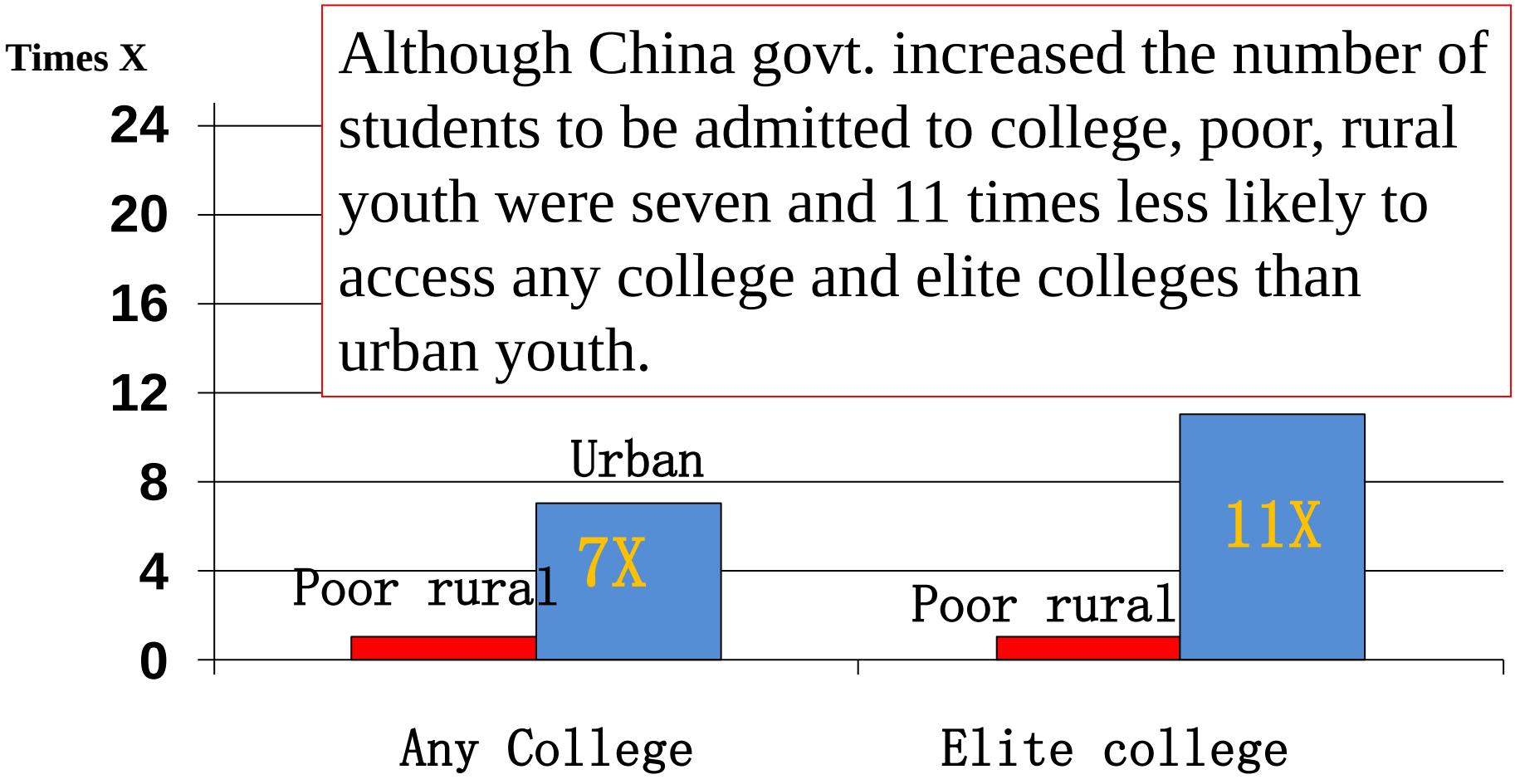
- They are tomorrow's future workforce, and make up 78% of all school-aged children in China



Data source: 2010 population census.
*0-14 children.

Unfortunately, students in poor, rural areas are not gaining the skills they need to be ready for China's new economy

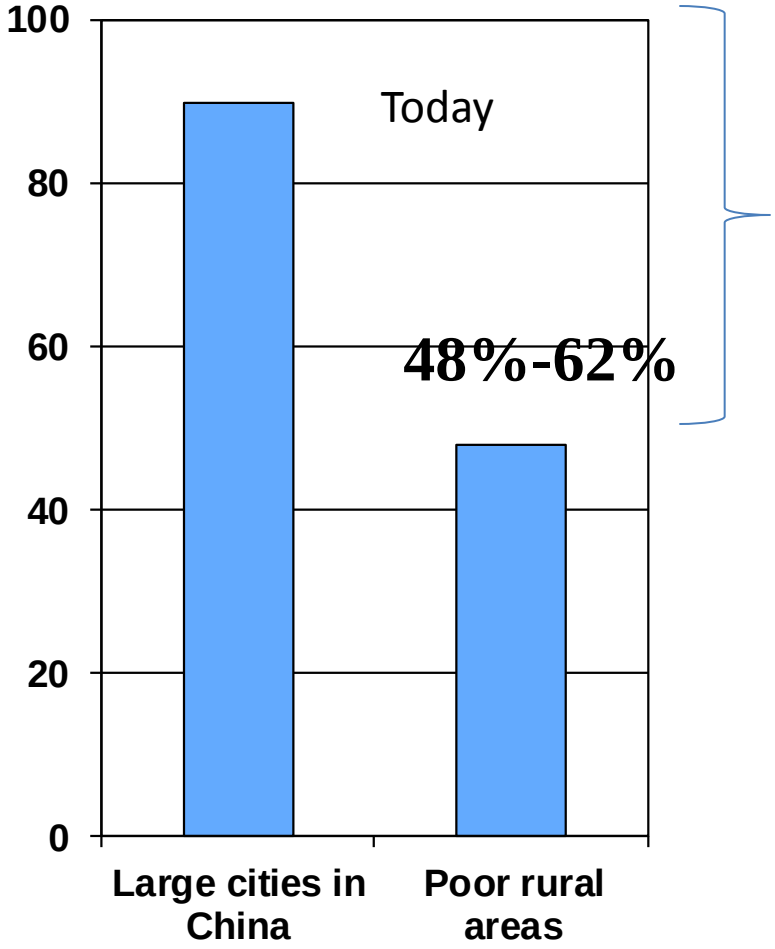
Probability of a child from a poor rural area going to **college** (relative to child from the city)



Li et al.(2013), REAP working paper

Perhaps even more serious: The High School Gap

% of students that go to high school (vocational high & academic high)



Millions of poor, rural kids not going on to high school to get basic skills for workforce 20 years from now!

What will happen if rural children are not educated?

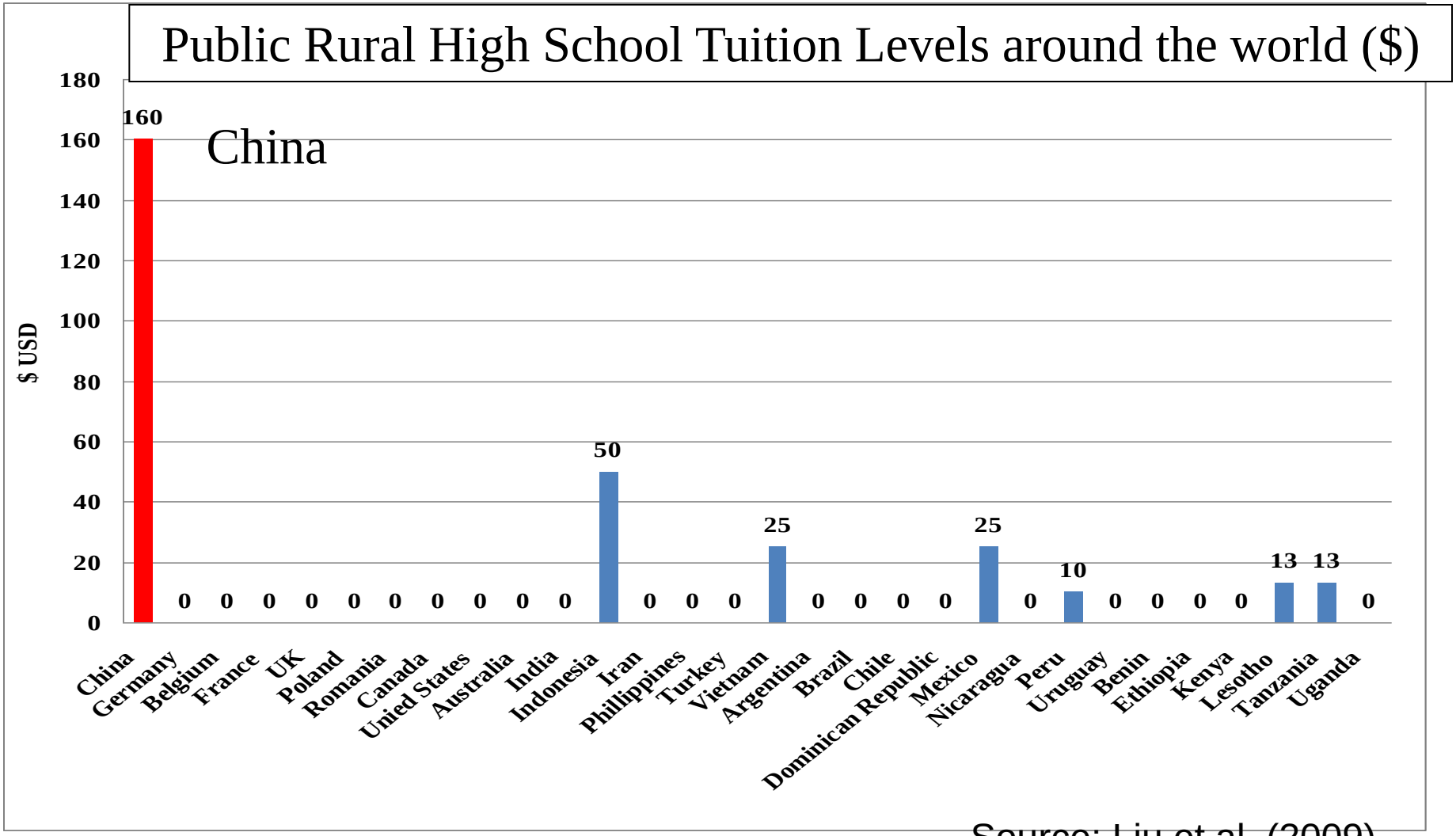
- For individuals, they cannot participate in future high-wage economy
  - Serve in very low-income job
  - Unemployed
  - Social exclusion

What will happen if rural children are not educated?

- Most of the worst, if 78% of workforce is poorly equipped, it will
  - hinder China's economic development
  - Result in Social instability and unrest

What causes poor, rural students NOT to attend high school?

While there are many reasons, one very likely reason is that the high school tuition fee in China is the highest among the world.

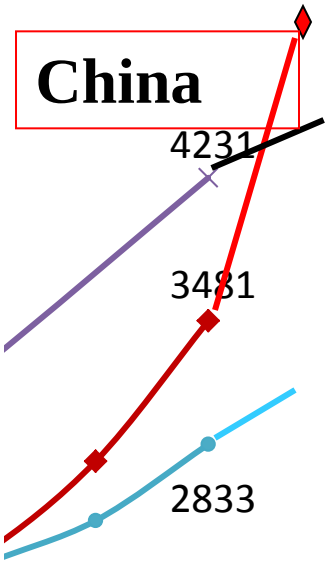


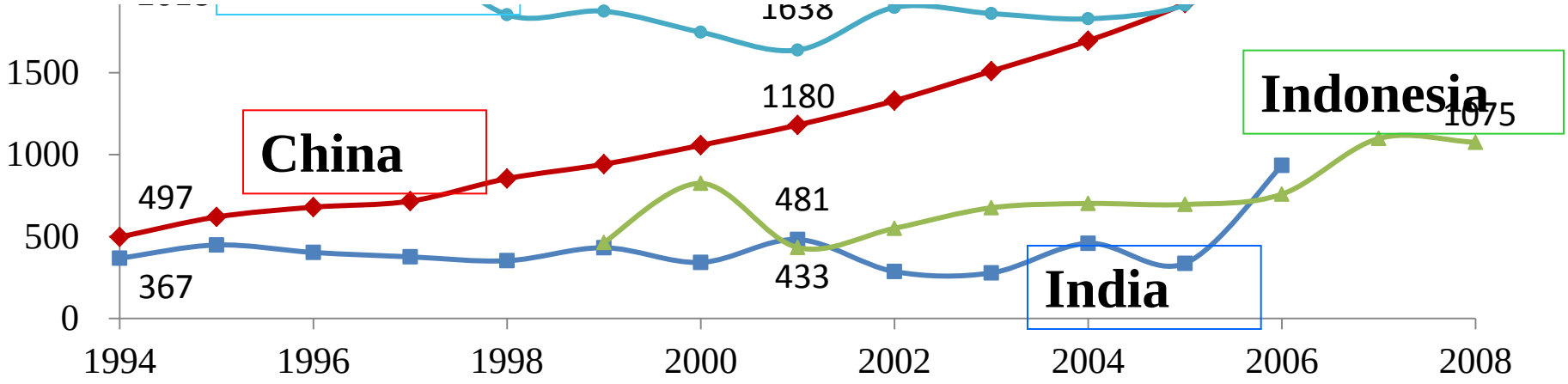
Source: Liu et al. (2009)

Another possible reason is that

Opportunity costs are rising

International studies suggest that when wage rates rise, students tend to reduce their targeted levels of educational attainment even when schooling is free (Angrist&Lavy, 2009; Fiszbein&Shady, 2009).





Source: International Labor Organization LABORSTA Database

How high is opportunity cost in poor rural China?

- In 2013, monthly wages of rural-to-urban migrant workers reaches 2600+ yuan ($435). (NBSC, 2014).
- Is this a big money for children in poor rural China?

YES! This is equivalent to the amount that their parents earn for half year of work in those poor rural areas!

China's government has recognized high costs as a barrier and has begun to address the issue of financial assistance for students

- Financial aid programs for poor students to attend high school are currently available.

However, current programs may not change student decisions

- In China financial aid is not given until students have been admitted into high school…
- Most of junior high students (73%) reported having no understanding of the financial aid program in high schools (Liu et al., 2012).
- The literature is clear that having such information is important
  - First, if they do not have enough financial aid, they may decide to forego high school (e.g., Singell, 2004)
  - Second, if students do not know how much aid they will get, their choices will be distorted (Avery and Hoxby, 2004; Dynarski, 2004; Long, 2004) …

Practices of ECFA in other countries

- Almost all of countries have struggled with the question about how best to give out financial aid [e.g., France (Cheng, 2008); Spain (Li, 2007); UK (Pang and Lan, 2007)]

- Idea of Early Commitment of Financial Aid (ECFA): if students are informed about their financial aid AHEAD OF TIME, they will be less likely to dropout due to financial constraints, make more informed plans, and work harder …

- ECFA has been tried in some countries as a way to deal with this problem.
  - For example, a Girls Scholarship Program with an ECFA to Grade 6 girls in Kenya led to greater student learning and enrollment rate in secondary schools (IPA website, 2014)

However, little is known about

- Would ECFA increase enrollment of poor rural students to high school in China where education system is extremely competitive?

Goal and Objectives

- **Goal**: to evaluate the impact and mechanism of ECFA in competitive education system

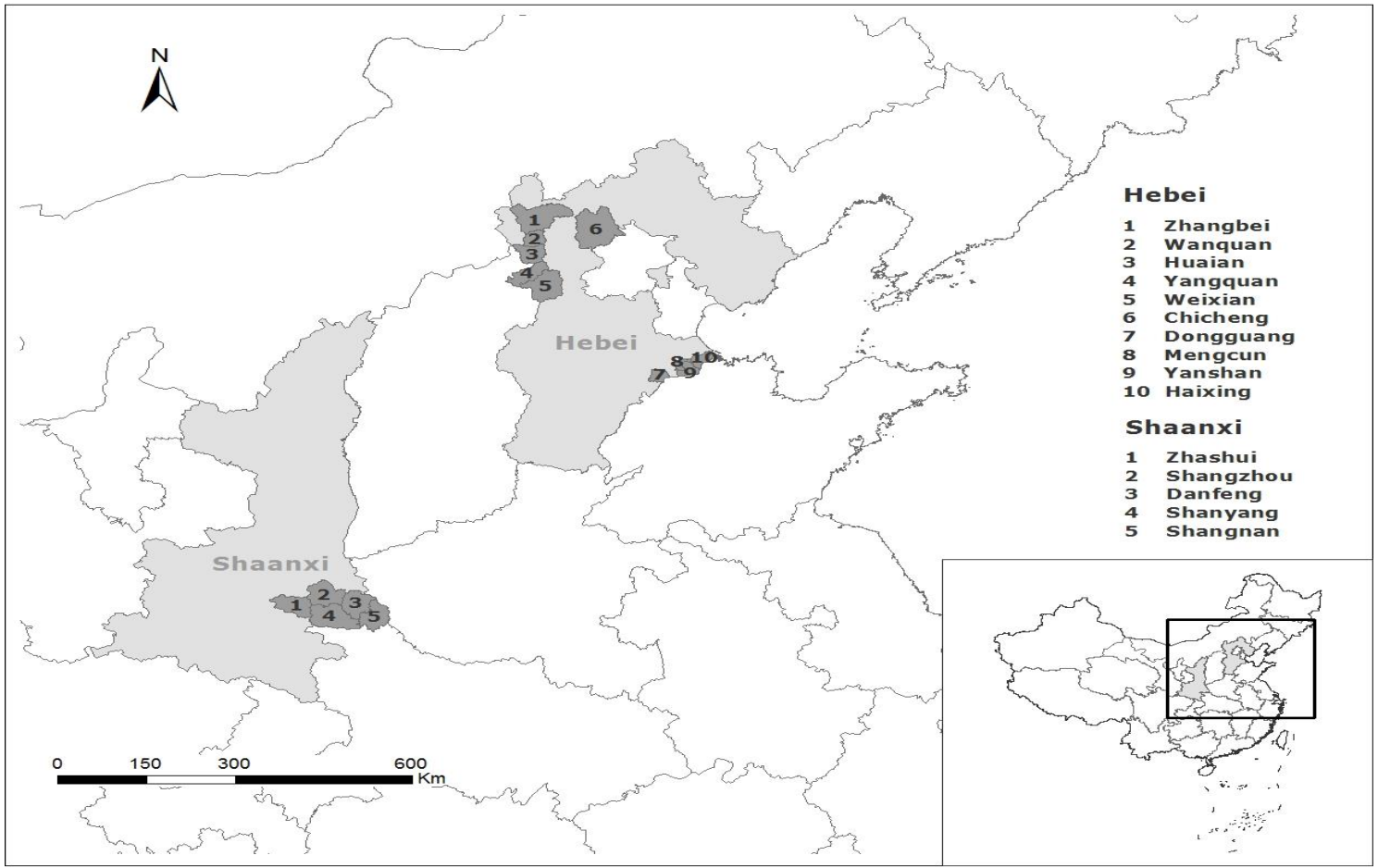
- **Specific Objectives:**
  1. Examine the extent to which poor students perceive financial constraints to future schooling
  2. Estimate the impact of an ECFA on poor, rural students' dropout rates, plans for future schooling (acad. High, Voc. high, no plan, labor market), and math achievement.
  3. Identify whether the ECFA has spillover effects on their counterparts in the same class

Plan for the Rest of the Presentation

- Experimental Design
- Results
- Conclusion and Discussion

Choosing the sampling frame

- 15 poor counties were selected from one western province (Shaanxi) and one northern province (Hebei) in China
- 132 rural junior high schools in which 7th grade enrollment exceeded 50 students were enrolled
- All 7th grade students in these schools were surveyed (a total of 20 000 students in 473 classes)



Approach: Randomized Control Trials (RCT)

Step 1: Baseline Survey (200.10)

Identify the poorest 4 students from each class

Baseline Survey to Identify Poor Students

- **Standardized math test**

- **Student survey**
  - –Family assets;
  - –Plans for schooling after junior hi.
    - – **academic hi. (Competitive track)**
    - – **vocational high (non-competitive track)**
    - – **having no plan**
    - – **work**;
  - –Basic student/family characteristics

- **Homeroom teacher survey**
  - – list of 5 poorest students in the class

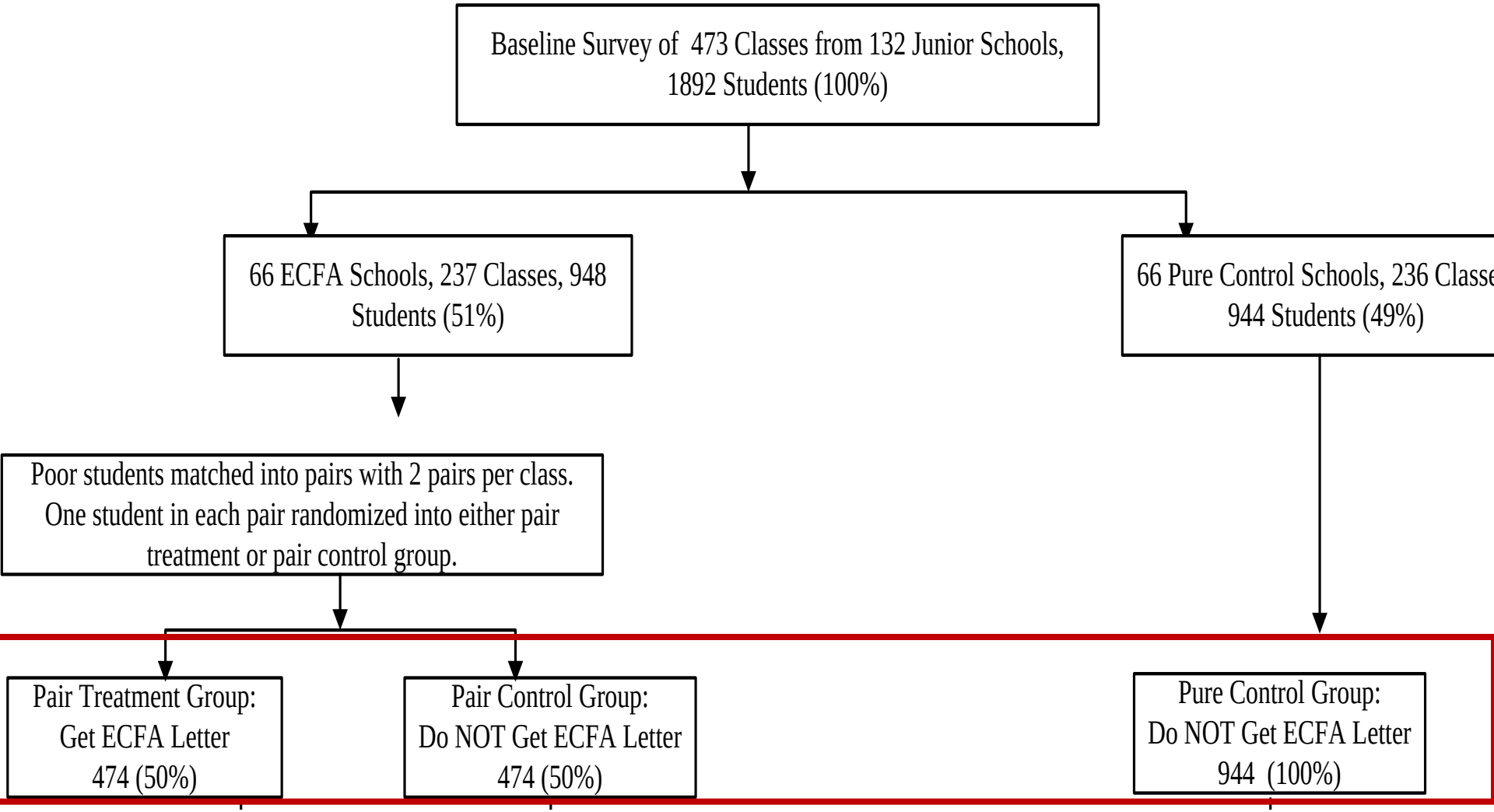
Approach: Randomized Control Trials (RCT)

Step 1: Baseline Survey (200.10)

Identify the poorest 4 students from each class

Step 2: Radom assignment (2010.12)

Randomly assign the poor students into treatment & control groups



We randomize poor student into three groups: pair treatment group, pair control group, and pure control group. Of which, pair treatment group and pair control group students are in the same class/school.

Our procedure allows us to test for spillovers

- Random assignment created a sample that was balanced across a large number of variable
- By comparing pair control group with pair treatment group, we can evaluate the impact of ECFA
- By including a pure control group, where students have no plausible interaction with treatment students, we can test for spillovers by comparing pair control with pure control

Approach: Randomized Control Trials (RCT)

Step 1: Baseline Survey (200.10)

Identify the poorest 4 students from each class

Step 2: Radom assignment (2010.12)

Randomly assign the poor students into treatment & control groups

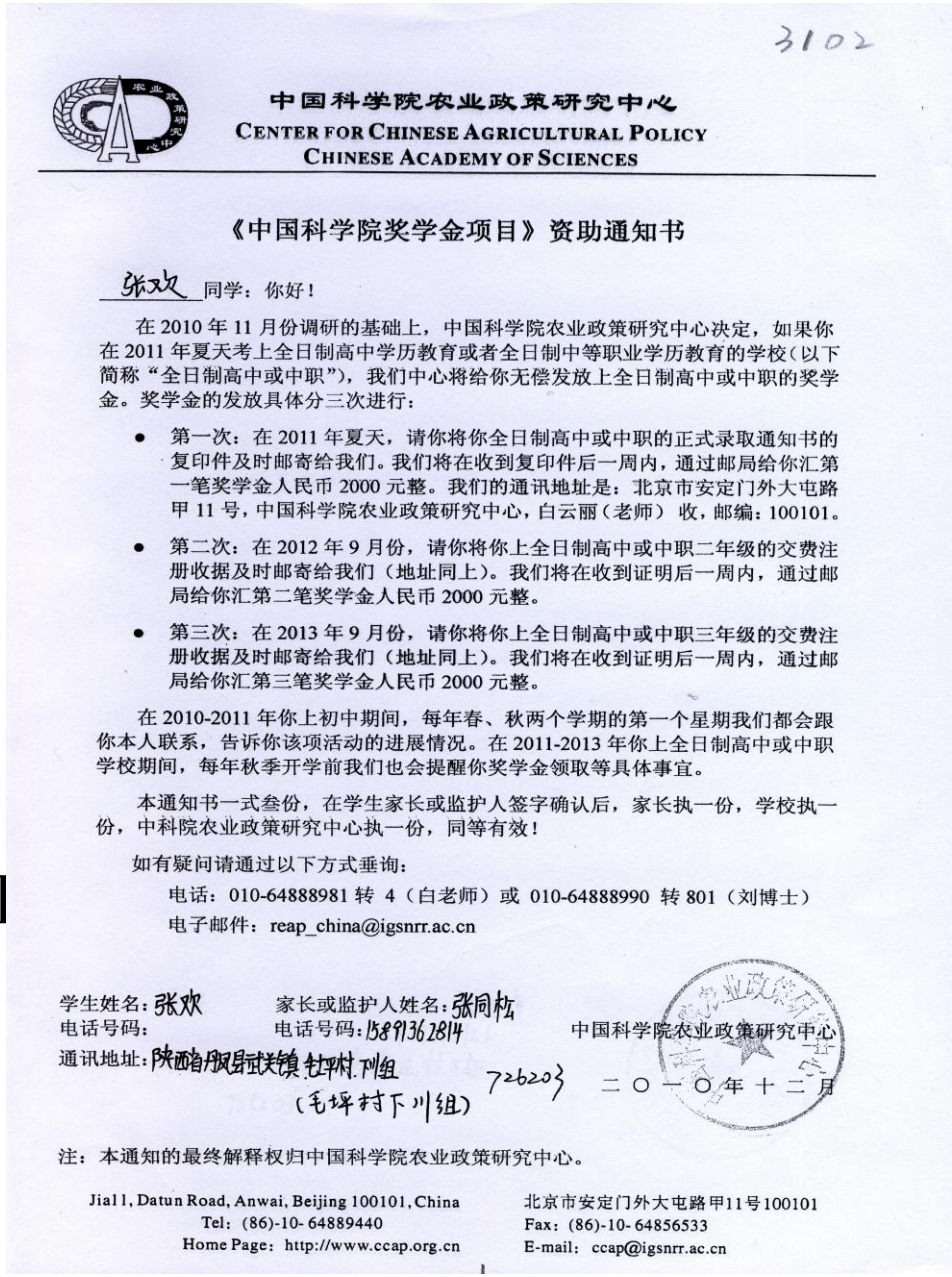
Step 3: Intervention:

Pass out ECFA letter to students in pair treatment group

Intervention: Pass out an ECFA letter

- The ECFA letters were passed out to 474 students in pair treatment group in Dec 2010..

- The letters stipulated that CAS would provide **1500 yuan/year ($250)** in financial aid to roughly cover the costs of **three years** of high school tuition if the student was **actively enrolled** in a vocational or academic high school in 2013..



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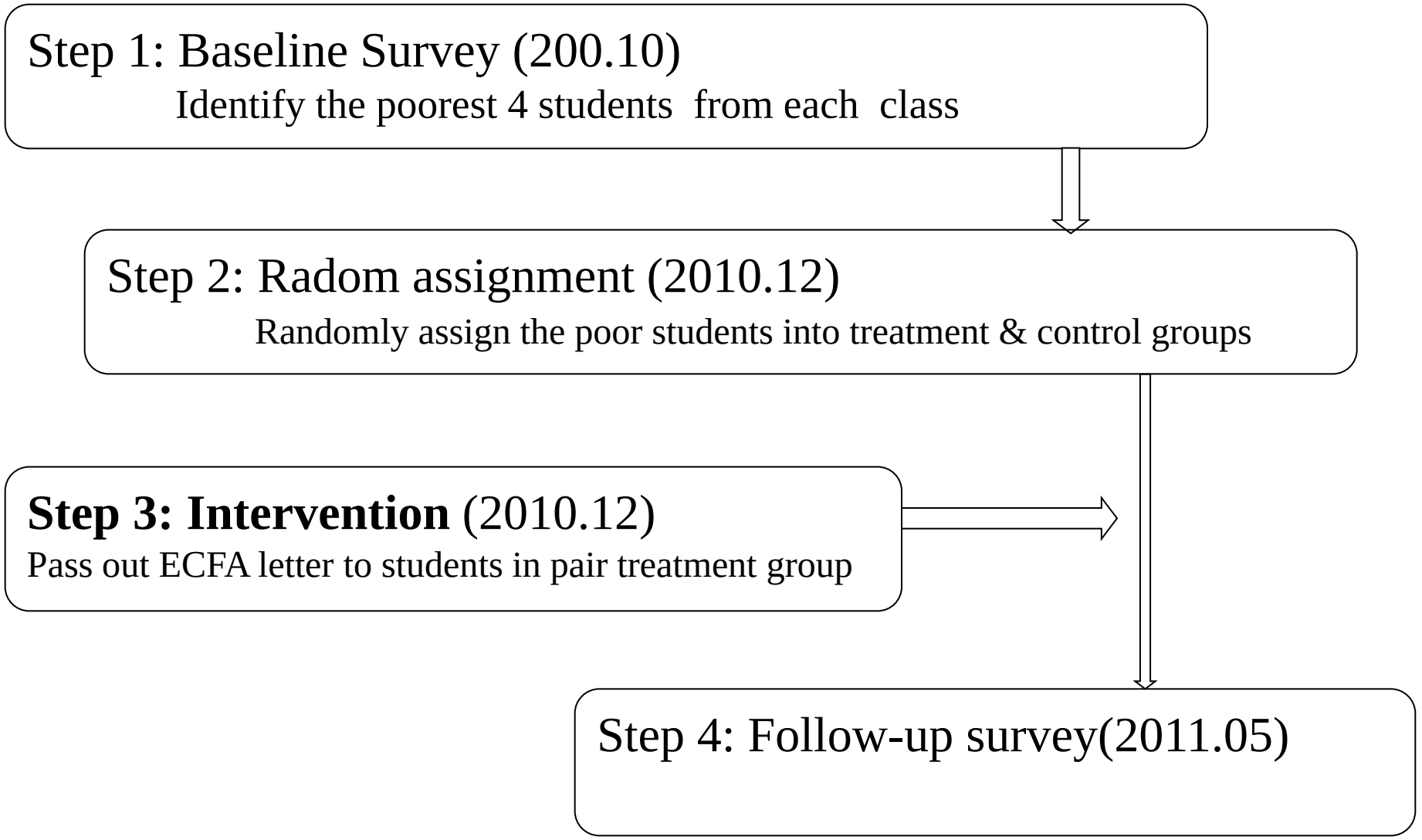
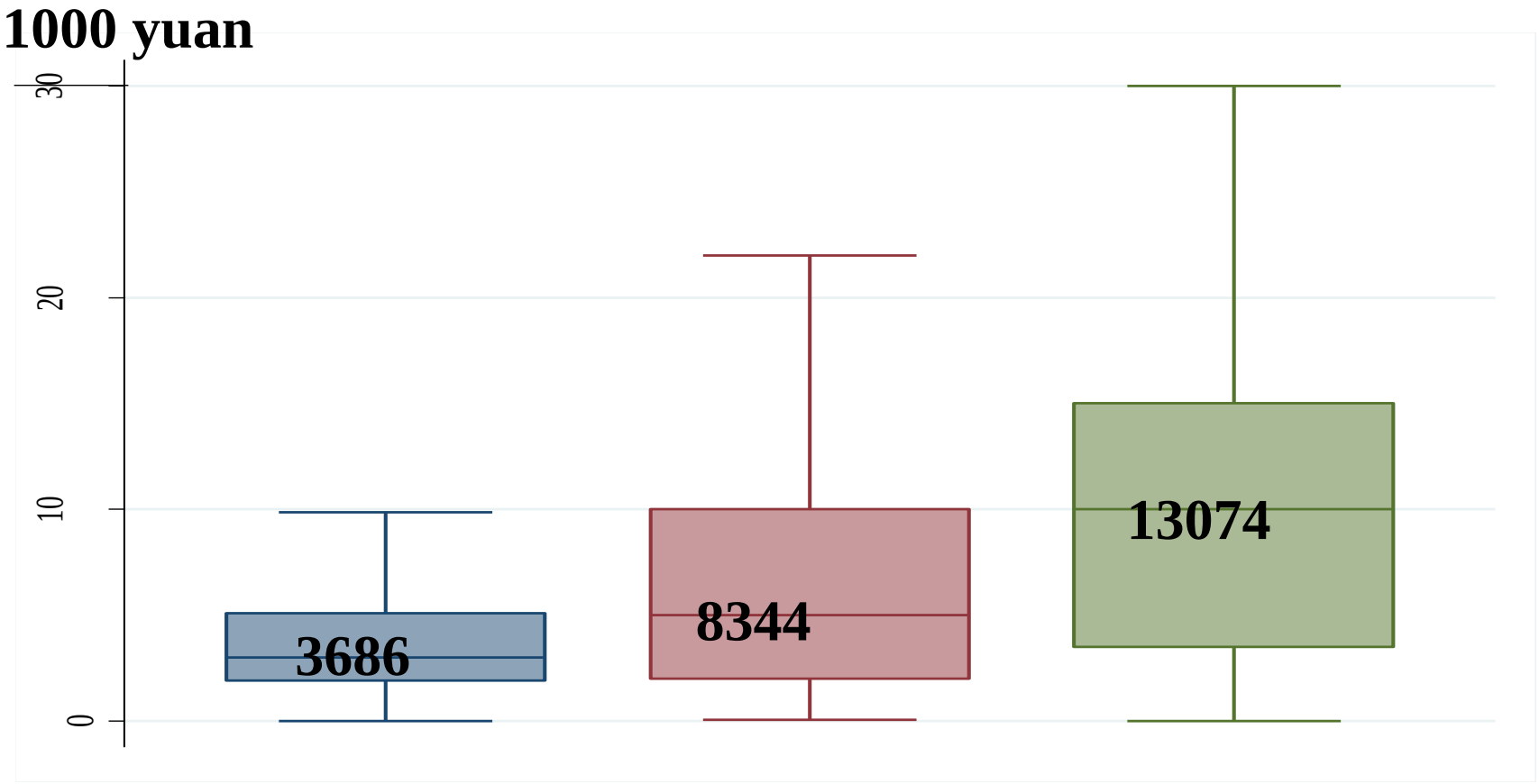
Approach: Randomized Control Trials (RCT)



Plan for the Rest of the Paper

- Experimental Design
- Results
- Conclusion and Discussion

Students perceive prohibitive costs to going to high school



Family Asset Value

Perceived Annual Expenses of Attending Voc. HS

Perceived Annual Expenses of Attending Acad. HS

The effect of the ECFA intervention on dropout is not statistically significant.

	Dropped Out	
	(1) Unadj.	(2) Adj.
Pair treatment group, 1=yes	**2.0**	**3.0**
	(2.0)	**(2.0)**
Pair control group,1=yes	1.0	1.0
	(2.0)	(2.0)
Constant	9.1***	-5.3***
	(1.0)	(14.1)
Observations	1,892	1,892
R-squared	0.00	0.10

Student characteristics, parents' characteristics, and family characteristics are controlled in adjusted models.

However, when we look at the effect of ECFA on students plans, we found that ECFA significantly increases the proportion of students planning to attend acad. high school

	Plans to go to acad. high schools at follow-up survey	
	(1) Unadj.	(2) Adj.
Pair treatment group, 1=yes	**17.0*** **	**15.0*** **
	(3.8)	**(3.0)**
Pair control group,1=yes	6.0	5.0
	(3.9)	(3.0)
Constant	0.46***	0.68***
	(0.024)	(0.179)
Observations	1,672	1,672
R-squared	0.018	0.278

Student characteristics, parents' characteristics, and family characteristics are controlled in adjusted models.

ECFA also significantly reduces the proportion of students who have no plans for future schooling.

	Having no plan for future schooling at follow-up survey	
	(5) Unadj.	(6) Adj.
Pair treatment group, 1=yes	**-14.0*** **	**-14.0*** **
	(2.9)	**(2.6)**
Pair control group,1=yes	-3.0	-3.0
	(3.4)	(2.9)
Constant	0.30***	0.26*
	(0.019)	(0.159)
Observations	1,672	1,672
R-squared	0.017	0.123

Student characteristics, parents' characteristics, and family characteristics are controlled in adjusted models.

But ECFA has no impact on student plans to attend voc. high school

	Plans to go to voc. high schools at follow-up survey	
	(3) Unadj.	(4) Adj.
Pair treatment group, 1=yes	**0.00**	**1.0**
	(2.4)	**(2.3)**
Pair control group,1=yes	-2.0	-1.0
	(2.0)	(2.0)
Constant	0.15***	-0.13
	(0.013)	(0.144)
Observations	1,672	1,672
R-squared	0.001	0.104

Student characteristics, parents' characteristics, and family characteristics are controlled in adjusted models.

We found that ECFA increased the proportion of students planning to attend academic high, and academic high school is a very competitive track in China, you might wonder whether ECFA had a significant effect on students' achievement.

Two educational tracks in China high school

Although the ECFA intervention increased student plans to attend academic high school, it had no discernible Impact on math achievement.

	Math Achievement	
	(7) Unadj.	(8) Adj.
Pair treatment group, 1=yes	**0.07**	**-0.02**
	(0.079)	**(0.056)**
Pair control group,1=yes	0.03	-0.01
	(0.086)	(0.056)
Constant	-0.12**	0.32
	(0.052)	(0.302)
Observations	1,672	1,672
R-squared	0.001	0.391

Student characteristics, parents' characteristics, and family characteristics are controlled in adjusted models.

The ECFA has no spillover effects

	Dropout		Plans to go to acad. HS at follow-up survey		Plans to go to voc. HS at follow-up survey		Having no plan for future schooling at follow-up survey		Math achievement	
	(1) Unadj.	(2) Adj.	(1) Unadj.	(2) Adj.	(3) Unadj.	(4) Adj.	(5) Unadj.	(6) Adj.	(7) Unadj.	(8) Adj.
Pair treatment group, 1=yes	**2.0**	**3.0**	**17.0*** **	**15.0*** **	**0.00**	**1.0**	**-14.0*** **	**-14.0*** **	**0.07**	**-0.02**
	(2.0)	**(2.0)**	**(3.8)**	**(3.0)**	**(2.4)**	**(2.3)**	**(2.9)**	**(2.6)**	**(0.079)**	**(0.056)**
Pair control group,1=yes	**1.0**	**1.0**	**6.0**	**5.0**	**-2.0**	**-1.0**	**-3.0**	**-3.0**	**0.03**	**-0.01**
	(2.0)	**(2.0)**	**(3.9)**	**(3.0)**	**(2.0)**	**(2.0)**	**(3.4)**	**(2.9)**	**(0.09)**	**(0.06)**
Constant	9.1***	-5.3***	**0.46*** **	**0.68*** **	**0.15*** **	**-0.13**	**0.30*** **	**0.26***	-0.12**	0.32
	(1.0)	(14.1)	(0.024)	(0.179)	(0.013)	(0.144)	(0.019)	(0.159)	(0.052)	(0.302)
Obs	1,892	1,892	1,672	1,672	1,672	1,672	1,672	1,672	1,672	1,672
R-squared	0.00	0.10	0.018	0.278	0.001	0.104	0.017	0.123	0.001	0.391

Student characteristics, parents' characteristics, and family characteristics are controlled in adjusted models.

Summary

- ECFA has significant Impact on
  - The proportion of students planning to attend academic high school (+)
  - The proportion of students who have no plan (-)
- ECFA has no impact on
  - Dropout
  - The proportion of students planning to attend voc. high school
  - math achievement
- ECFA has no spillover effects.

What can we conclude from these results ?

Is the ECFA likely to accomplish its intended impact of increasing enrollment to high school?

- China has limited seats & highly competitive entrance exams for academic high schools.
- One would have to wonder if these students would ever be able to make it into academic high school despite their stated intentions

We split students into four subgroups based on their baseline plans, and examined the impact of ECFA on the follow-up survey plans of each rank separately.

	Students with Plans to go to Acad. HS in the Baseline			Students with No Plans in the Baseline		
	(1) planacad HS	(2) no plan	(3) plan VET	(4) planacad HS	(5) no plan	(6) plan VET
ECFA, yes =1	0.087**	-0.061**	-0.012	0.219***	-0.238***	0.035
	(0.033)	(0.025)	(0.021)	(0.045)	(0.047)	(0.041)

	Students with Plans to go to Voc. HS in the Baseline			Students with Plans to go to Labor Mkt. in Baseline		
	(7) planacad HS	(8) no plan	(9) plan VET	(10) planacad HS	(11) no plan	(12) plan VET
ECFA,	0.096	-0.112*	0.024	0.126	-0.132	0.123

We found that ECFA induced students who were originally planning on attending acad. And voc. high school to keep those plans.

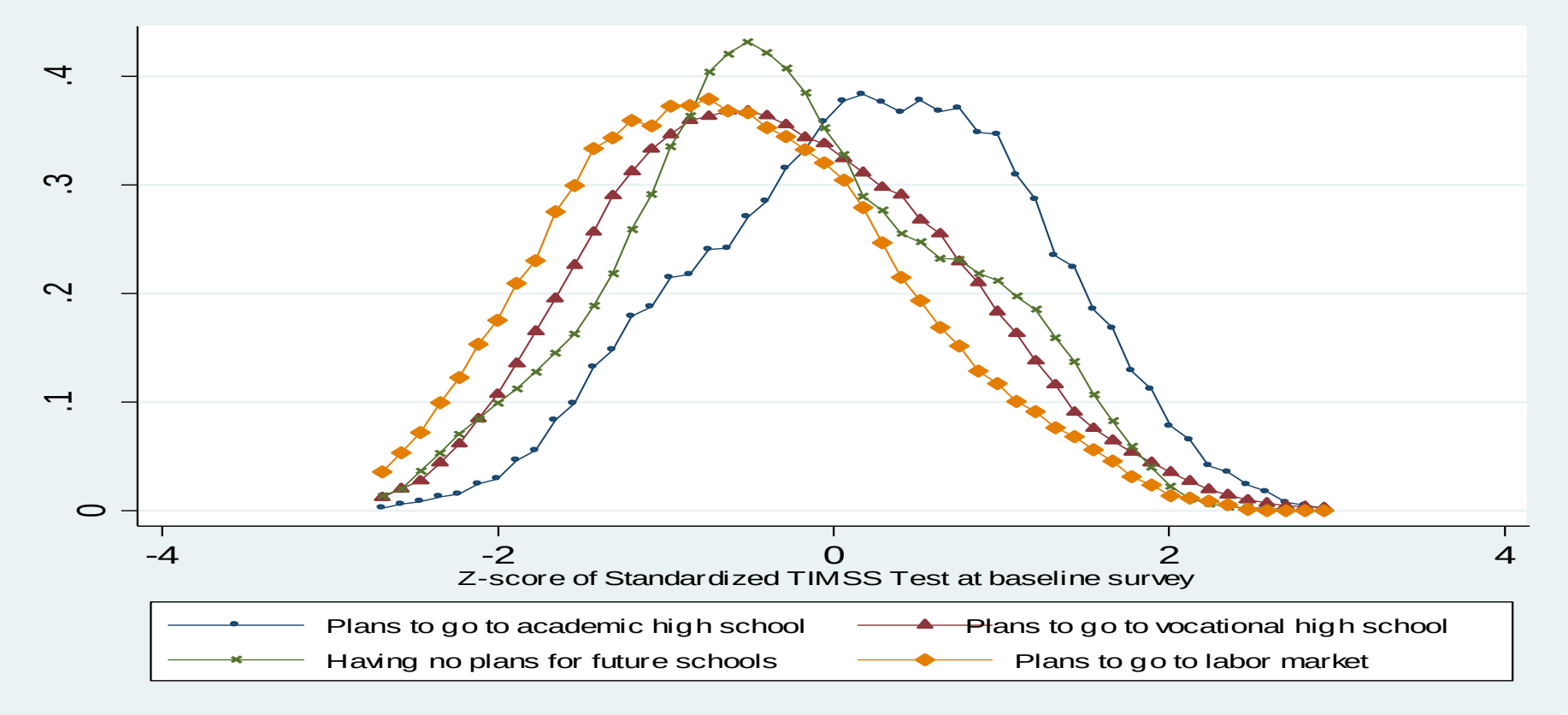
	Students with Plans to go to Acad. HS in the Baseline			Students with No Plans in the Baseline		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	planacad HS	no plan	plan VET	planacad HS	no plan	plan VET
ECFA, yes =1	0.087**	-0.061**	-0.012	0.219***	-0.238***	0.035
	(0.033)	(0.025)	(0.021)	(0.045)	(0.047)	(0.041)

	Students with Plans to go to Voc. HS in the Baseline			Students with Plans to go to Labor Mkt. in Baseline		
	(7)	(8)	(9)	(10)	(11)	(12)
	planacad HS	no plan	plan VET	planacad HS	no plan	plan VET
ECFA, yes =1	0.096	-0.112*	0.024	0.126	-0.132	0.123
	(0.074)	(0.060)	(0.082)	(0.101)	(0.096)	(0.104)

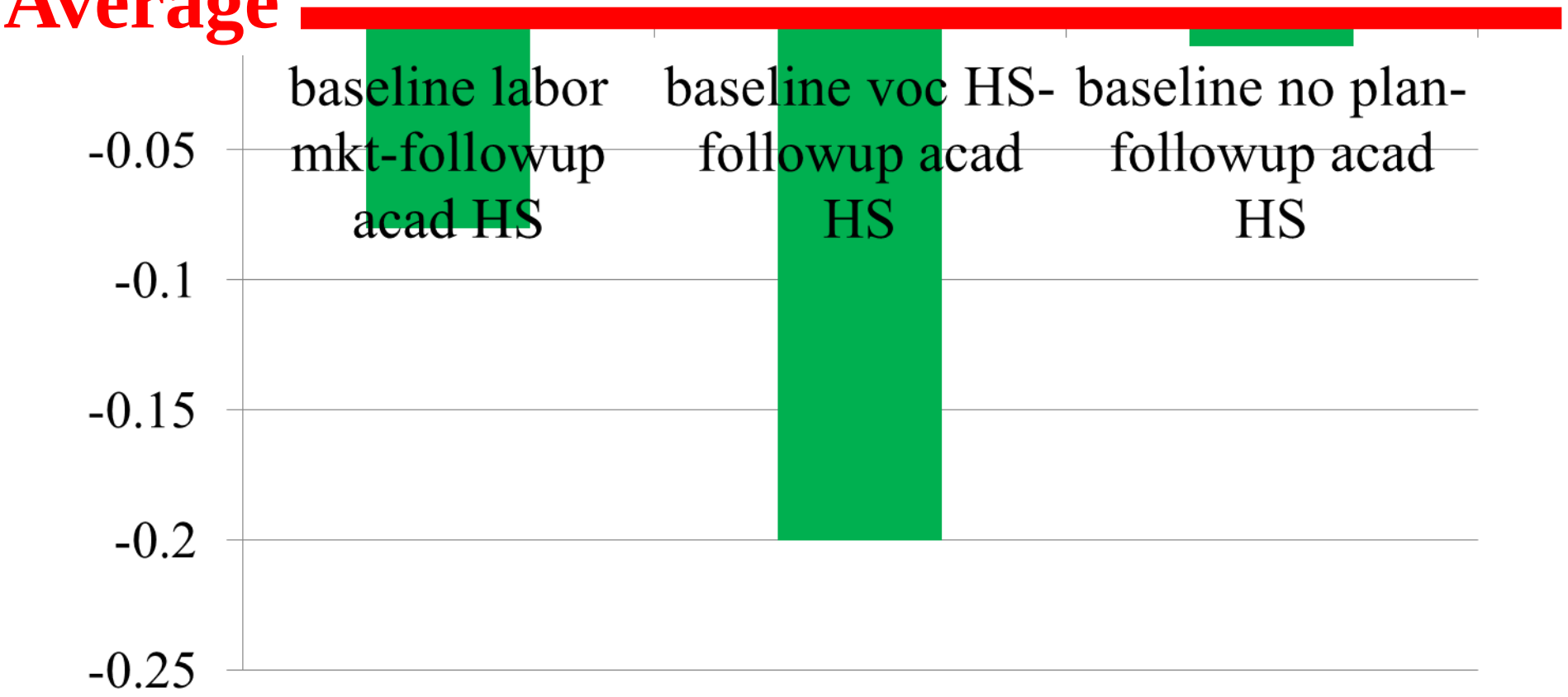
We found that ECFA also induced students with no plans to plan for academic high school

	Students with Plans to go to Acad. HS in the Baseline			**Students with No Plans in the Baseline**		
VARIABLES	(1) planacad HS	(2) no plan	(3) plan VET	(4) planacad HS	(5) no plan	(6) plan VET
ECFA, yes =1	0.087**	-0.061**	-0.012	0.219***	-0.238***	0.035
	(0.033)	(0.025)	(0.021)	(0.045)	(0.047)	(0.041)
	Students with Plans to go to Voc. HS in the Baseline			Students with Plans to go to Labor Mkt. in Baseline		
	(7) planacad HS	(8) no plan	(9) plan VET	(10) planacad HS	(11) no plan	(12) plan VET
ECFA, yes =1	0.096	-0.112*	0.024	0.126	-0.132	0.123
	(0.074)	(0.060)	(0.082)	(0.101)	(0.096)	(0.104)

It is reasonable because students with no plans at the baseline demonstrate higher math achievement (on average) than students planning for voc. High schools at the baseline.



However, all ECFA recipients who changed their plans to attend academic high school had scores that were below average at the follow-up survey



Math Achievement in the follow-up Survey for ECFA Recipients who changed plans to Academic High School

In conclusion, we suggest that the ECFA is unlikely to accomplish its intended impact of increasing enrollment to high school because it changed students plan but did not change their behavior (without regard to their ability to actually attend)

Implications of our research

- If the government is interested in providing poor students opportunities to go to high school, the interventions to get them to go to high school need to be more creative and focus on other activities rather than offering ECFA-like funding during junior high school. E.g., Actions that might make poor rural students more competitive in junior high school might be more effective in competitive systems such as those in China

- More researches is needed before the effectiveness of such programs can be validated. E.g., higher payment?

Thank you!

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