A Teacher Likes Having Me in Class: Are Non-local Students Left Behind?

Jianhao Chen

Department of Economics,
University of Illinois at Chicago

January 5, 2020

Motivation I

- Much have been done on teacher-student demographic matching, like gender, race, ethnic.(Ehrenberg et al. (1995), Dee (2005))
- However, little know about other teacher measurements. For example, teacher expectations (Gershenson et al. (2016)), or bias(Lavy and Sand (2018)).
- Other measure dimensions also matter.

Motivation II

Education for migrated children is a problem in China.

- *Internal migration population is huge*: 35.81 million age from 0 to 17 children are not living in the *hukou* registered place in 2012 (China's Migrant Population Development, 2013), which is 1/8 of nation children population.
- *Education opportunity is limited*: Delay in attending school, limited access to school, have to take college entrance exam at *hukou* locality.
- *Not liked by teachers in school*: 51.75 % of teachers prefer classes with only or at least majority local students(China Education Panel Survey (CEPS), 2014)

Research Question

Therefore, I focus on teacher preference for teaching certain type (Local v.s. Non-local) of students.

- If teachers do not like me in class, how does it affect my performance?
- How does being assigned to teachers who have preference for teaching local students affect non-local students' educational and other outcomes

Literature

- Teacher-student demographic matching raises students' outcomes: Race, gender, ethnic(Ehrenberg et al. (1995), Dee (2005)), gender(Antecol et al. (2015), Gong et al. (2017), Lavy and Sand (2018)), race(Gershenson et al. (2016))
- Migrated students are disadvantaged in achieving education: U.S. (Cortes (2006)), Sweden (Böhlmark (2008), Åslund et al. (2011)), China (Xu and Xie (2015), Liu et al. (2015), Wang et al. (2017))

Data

2014 Chinese Education Panel Survey (CEPS)

- The first and nationwide education survey in China, started in 2014
- Randomly select two classrooms in both 7th grade and 9th grade at two selected schools in 28 selected counties across China
- All selected students, parents, teacher and school principal participate in the survey.

Select Random Assignment School Samples

One of the most advantage to use the data is it has direct information about student-teacher assignment rules in the school. Here, I use criteria that used in Gong et al. (2017) and Wang et al. (2017):

- School principal:
    - Newly admitted 7th grade students are randomly or evenly assigned
    - No reassignment for both 8th and 9th grade students in surveyed semester
- Homeroom teachers:
    - Students were not assigned based on test scores

The sample includes 8858 students, 4887 from 7th grade and 3971 from 9th grade in 209 classrooms of 66 schools at 26 counties.

Define Teacher Preference Variable I

The definition of teacher preference comes from:
"What type of class that would like to teach if you can choose?"
a. Classes that only have local students. 33.65 %
b. Classes with majority local and few non-local students. 19.89 %
c. Classes with more than one third non-local students. 4.02%
d. Do not care. 42.43 %

Teachers who choose *a* and *b* are considered to have preference for teaching local students, or prefer having local students in the classroom.

Define Non-local Students

Use *hukou* information to define student migration status(Afridi et al. (2015), Zhao et al. (2017))

A student is a non-local student, if the *hukou* registered place(county) is different from school located place.

Student Outcome Variables

Student outcome variables:

- Educational outcomes: Math/Chinese/English midterm test score, cognitive test score, self-assessment about the difficulty in learning each subject, evaluation about the subject usefulness
- Non-test score outcomes: emotional controls, school activities, peer relationships, expectations about future

Student baseline variables: demographic information, family background, education history, and self-reported abilities in 6th grade(express opinions clearly, respond questions quickly, learn new stuff fast, and curious about new things).

Model

Basic regression model:

$$Y_{ics} = \alpha_0 + \alpha_1 NS_{ics} + \alpha_2 TP_{cs} + \alpha_3 NS_{ics} * TPcs + \beta SX_{ics} + \gamma TX_{cs} + \eta_{sg} + s_{sub} + \epsilon_{ics}$$

where Y_{ics} are student outcomes, NS_{ics} is a dummy variable for non-local students, TP_{cs} is a dummy variable for teachers prefer local students, SX_{ics} and TX_{cs} are student and teacher control variables, η_{sg} is school by grade fixed effect, s_{sub} is subject fixed effect.

Identification Assumption

- Identification Assumption :
  Student's non-local status and teacher preference for teaching local students are uncorrelated with the error term ϵ_{ics}.
- The assumption holds if students and teachers are randomly assigned.
- Information from school principal and teachers support the random assignment
- Moreover, student baseline characteristics balance test:
  - Run regressions with teacher preference variable on student baseline variables, controlling for school by grade fixed effects.
  - Results: Coefficients are small and insignificant; cannot reject coefficients are jointly insignificant from zero.

Negative Effects on Subject Test Scores

	Test Score (1)	Test Score (2)	Test Score (3)	Test Score (4)
Non-local students	0.025	0.022	0.101**	0.101**
	(0.046)	(0.048)	(0.040)	(0.042)
Teachers with preference for teaching local students	0.062**	0.045	0.053**	0.039
	(0.026)	(0.027)	(0.023)	(0.025)
Interaction	-0.105**	-0.107**	-0.086**	-0.090**
	(0.044)	(0.045)	(0.041)	(0.044)
Student Control	No	No	Yes	Yes
Teacher Control	No	Yes	No	Yes
Observations	25391	23676	23138	21607
R^2	0.001	0.005	0.098	0.101

Table 1: The Effect of Being Assigned to Teachers With Preference for Teaching Local Students on Non-local Student's Subject Test Scores

Negative Effects on Subject Test Scores

How big is the 0.09 of a standard deviation?

- Gong et al. (2017) finds being assigned to female teachers increase girls' test score by 0.198 of a sd, but girls already perform 0.165 of sd better than boys.
- Here, 0.09 of a sd is relatively smaller, but non-local students perform the same, or even better(after controlled) than local students.

Small Negative, but Insignificant Effects on Other Educational Outcomes

	Self-assessment	Self-assessment	Usefulness	Usefulness	Cognitive Test Score	Cognitive Test Score
	(1)	(2)	(3)	(4)	(5)	(6)
Non-local Students	0.040***	0.040***	0.007	0.005	-0.007	-0.001
	(0.014)	(0.014)	(0.012)	(0.012)	(0.032)	(0.033)
Teachers with preference for teaching local students	-0.001	-0.007	0.000	-0.002	-0.006	-0.021
	(0.012)	(0.012)	(0.008)	(0.009)	(0.022)	(0.026)
Interaction	-0.024	-0.028	-0.013	-0.013	-0.033	-0.029
	(0.018)	(0.018)	(0.014)	(0.015)	(0.033)	(0.035)
Student Control	Yes	Yes	Yes	Yes	Yes	Yes
Teacher Control	No	Yes	No	Yes	No	Yes
Observations	23642	22094	23643	22088	23737	22177
R^2	0.114	0.122	0.068	0.068	0.325	0.317

Table 2: The Effects of Teacher Preference on Non-local Students' Subject Self-assessment, Subject Usefulness Evaluation and Cognitive Test Scores

Larger Effects on 9th Grade Non-local Students

	7th Grade Students			9th Grade Students		
	Subject Test Score (1)	Praise from Teachers (2)	Ask Questions in Class (3)	Subject Test Score (4)	Praises from Teachers (5)	Ask Questions in Class (6)
Non-local students	0.048	0.015	0.045**	0.187**	0.002	-0.011
	(0.049)	(0.021)	(0.018)	(0.070)	(0.029)	(0.028)
Teachers with preference for teaching local students	0.054*	-0.004	0.025*	0.022	0.031**	0.004
	(0.030)	(0.013)	(0.014)	(0.041)	(0.015)	(0.017)
Interaction	-0.075	-0.008	0.010	-0.123*	-0.076***	-0.062**
	(0.053)	(0.022)	(0.019)	(0.069)	(0.022)	(0.027)
Student Control	Yes	Yes	Yes	Yes	Yes	Yes
Teacher Control	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11895	12108	12095	9712	9948	9948
R^2	0.116	0.145	0.132	0.094	0.125	0.107

Table 3: The Heterogeneity Effects on Non-local Students' Subject Test Scores by Grades and Student-Teacher Interactions

Non-local Students with Within and Across Province Migration

	Full Sample (1)	7th Grade (2)	9th Grade (3)
Students within province migration	0.093**	0.080	0.111
	(0.046)	(0.049)	(0.087)
Students across province pigration	0.118**	0.051	0.244***
	(0.056)	(0.071)	(0.080)
Teachers with preference for teaching local students	0.037	0.054*	0.020
	(0.024)	(0.029)	(0.041)
Within province Migration × Teacher preference	-0.089*	-0.087	-0.094
	(0.052)	(0.058)	(0.092)
Across province migration × Teacher preference	-0.082	-0.066	-0.126
	(0.058)	(0.073)	(0.081)
Student Control	Yes	Yes	Yes
Teacher Control	Yes	Yes	Yes
Observations	21607	11895	9712
R^2	0.101	0.116	0.094

Table 4: The Effects of Teacher Preference on Non-local Students' Subject Test Score, Separated by Within and Across Province Migration

Not Too Much on Non-test Score Outcomes

	Discouraged (1)	Depressed (2)	Unhappy (3)	Meaninglessness (4)	Pessimistic (5)
Interactions	0.016	0.012	-0.012	0.006	-0.007
	(0.017)	(0.016)	(0.017)	(0.014)	(0.018)
Observations	22177	22177	22177	22177	22177
R^2	0.066	0.058	0.067	0.052	0.059

	Late for School (6)	Skip Classes (7)	Bored at School (8)	Want to Transfer (9)	
Interactions	-0.006	-0.004	-0.040**	-0.024	
	(0.013)	(0.006)	(0.020)	(0.021)	
Observations	22177	22177	22177	22177	
R^2	0.090	0.095	0.110	0.113	

	Classmates are Friendly (10)	Good Classroom Atmosphere (11)	Actively Participate Activities (12)	Confidence about Future (13)	Want to Attend College (14)
Interactions	-0.017	-0.027	-0.026	-0.003	0.007
	(0.015)	(0.018)	(0.019)	(0.013)	(0.013)
Observations	22177	22177	22177	22177	22177
R^2	0.098	0.162	0.138	0.096	0.158

Table 5: The Effects of Teacher Preference on Non-local Students' Non-test Score Outcomes

Robustness Checks

- Use different cut-off: Only consider teachers prefer classrooms with only local students as have preference for teaching local students.
- Add teacher preference and teacher control variables interactions: Only affects through teacher preference variable.
- Use other teacher preference variables: Captures teacher preference for teaching local students accurate.

Robustness Check Sample

	Preferred Classroom (1)	Classroom Management (2)	Teaching Effectivness (3)	Classroom Discipline (4)	Relationships Among Students (5)
Non-local Student	0.101**	0.078**	0.082*	0.080*	0.066
	(0.042)	(0.035)	(0.042)	(0.044)	(0.044)
Teacher Preference	0.042*	0.031	0.008	0.024	0.022
	(0.025)	(0.021)	(0.021)	(0.020)	(0.024)
Interactions	-0.091**	-0.062*	-0.076**	-0.079*	-0.055
	(0.044)	(0.035)	(0.037)	(0.045)	(0.049)
Observations	21607	21564	19873	19873	19873
R^2	0.100	0.099	0.101	0.101	0.101

Table A3: Robustness Check: Using Five Teacher Preference Variables

Conclusion

- Being assigned to teachers with preference for teaching local students reduces non-local students test score by 0.09 of a standard deviation.
- The effects are larger for 9th grade non-local students.
- Small negative, but insignificant effects on subject self-assessment, evaluation, and cognitive test scores.
- No effects on emotional controls or confidence about future, but small effects on sense of belongings at school and classroom.