Online Appendix for "Do IT Service Centers Promote School Enrollment"

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Appendix Tables

Appendix Table 1: ***Enrollment Effects by Demographic Group, State***

	Dependent Variable:	*Log Enrollment*		
		Number of ITES Centers	Standard Error	Observations
(1)	Boy Enrollment	.048**	.018	896,078
(2)	Girl Enrollment	.046***	.014	900,899
(3)	Grades 1-2 Enroll.	.032	.024	822,569
(4)	Grades 3-4 Enroll.	.034	.021	810,926
(5)	Grades 5-6 Enroll.	.046**	.020	851,483
(6)	Grades 7-8 Enroll.	.063**	.028	338,995
(7)	Andra Pradesh	.023	.042	358,934
(8)	Karnataka	.078**	.038	311,704
(9)	Tamil Nadu	.048***	.013	240,861

Notes: This table shows coefficients on number of ITES centers from regression of the form in Column 1 of Table 4 but with variation in the left hand side variable. All regressions include the standard controls: School fixed effects, time-varying school plant characteristics, year dummies interacted with dummies for state, urban, school language of instruction and English language school in village. Standard errors in parentheses, clustered at the neighborhood level. *significant at 10% **significant at 5% ***significant at 1%.

Appendix Table 2: *Robustness Checks for Main Results*

Panel A: First Differences in Number of ITES Centers				
Sample:	All Schools		In PIN Code with any English-Language Schools	Ever Had an ITES Center
Controls:	*Standard*	*District Trends*	*Standard*	*Standard*
Change in # ITES Centers	.037*	.037**	.042*	.074**
	(.021)	(.018)	(.023)	(.029)
Panel B: District Trends in All Specifications				
Sample:			In PIN Code with any English-Language Schools	Ever Had an ITES Center
Controls:			*District Trends*	*District Trends*
# ITES Centers			.027*	.054***
			(.014)	(.017)
Panel C: Levels of Enrollment				
Sample:	All Schools		In PIN Code with any English-Language Schools	Ever Had an ITES Center
Controls:	*Standard*	*District Trends*	*Standard*	*Standard*
# ITES Centers	22.0**	19.0***	21.9*	38.4***
	(10.7)	(3.5)	(11.4)	(12.7)
Panel D: Effect of Any ITES Center				
Sample:	All Schools		In PIN Code with any English-Language Schools	Ever Had an ITES Center
Controls:	*Standard*	*District Trends*	*Standard*	*Standard*
Any ITES Center	.029	.005	.032	.030
	(.024)	(.014)	(.027)	(.034)
Panel E: Limit to PIN Codes with ITES Centers Added in 2005/2006				
Sample:			PIN Codes Which Added ITES Centers in 2005 or 2006 only	
Controls:			*Standard*	
# ITES Centers			.090**	
			(.041)	

Notes: This table shows several robustness checks for our main specification in Table 3. Panel A shows the effect of first differences in the number of ITES centers on log enrollment. Panel B shows the effect of the number of ITES centers on log enrollment, with district trends included for all specifications. Panel C shows the effect of the number of ITES centers on total enrollment. Panel D shows the effect of any ITES center in the PIN code on log enrollment. Panel E shows the effect of the number of ITES centers on log enrollment for those PIN codes which added call centers in 2005 and 2006. Standard errors in parentheses, clustered at the PIN code level. *significant at 10% **significant at 5% ***significant at 1%.

Appendix Table 3: ***Trends Leading Up to ITES Center Entry***

Dependent Variable:			*Log Enrollment*	
Sample:	All Schools		In PIN Code with Any English Schools	Ever Had an ITES Center
Controls:	*Standard*	*District Trends*	*Standard*	*Standard*
	(1)	(2)	(3)	(4)
ITES Centers	.070***	.056**	.070***	.080***
	(.026)	(.019)	(.025)	(.029)
Years To Entry	.008	.008	.008	.003
	(.007)	(.005)	(.008)	(.010)
Observations	911,499	911,499	314,476	2,121

Standard controls: School fixed effects, time-varying school plant characteristics, year dummies interacted with dummies for state, urban, school language, and English language school in PIN code.
District Trend Controls: Standard controls plus district-specific trends.

Notes: This table provides a second test for pretrends in enrollment. The independent variable measures the number of ITES centers in the same PIN code as the school, along with the linear trend in enrollment leading up to the entry of an ITES center. Columns 1-2 include all schools. Column 3 is limited to PIN codes with any English schools. Column 4 is limited to schools which ever have an ITES center in their PIN code (either always have the same number or change during the sample). Standard errors (in parentheses) are clustered at the PIN code level in Columns 1, 3 and 4; clustered errors could not be estimated when district trends are included in Column 2. *significant at 10% **significant at 5% ***significant at 1%. All regressions are weighted by initial school enrollment level.

Appendix Table 4: **_Effects on Enrollment with Population Controls_**

Dependent Variable:			Log Enrollment	
Panel A: Restricted Sample, No Population Control				
Sample:	All Schools		In PIN Code with Any English-Language Schools	Ever Had an ITES Center
Controls:	Standard	District Trends	Standard	Standard
	(1)	(2)	(3)	(4)
Number of ITES Centers	.061**	.053***	.073**	.094**
	(.029)	(.013)	(.033)	(.042)
Observations	327,144	327,144	127,911	1,073
Panel B: Restricted Sample, with Population Control				
Sample:	All Schools		In PIN Code with Any English-Language Schools	Ever Had an ITES Center
Controls:	Standard	District Trends	Standard	Standard
	(1)	(2)	(3)	(4)
Number of ITES Centers	.060**	.053***	.071**	.093**
	(.029)	(.013)	(.032)	(.038)
Log Village Population	.003	.003***	.003	-.013
	(.002)	(.0007)	(.004)	(.011)
Observations	327,144	327,144	127,911	1,073

Standard controls: School fixed effects, time-varying school plant characteristics, year dummies interacted with dummies for state, urban, school language, and English language school in village. District Trend controls: Standard controls plus district-specific trends.

Notes: This table shows the impact of ITES centers controlling for population. Population is reported by a subset of school-years, and is reported by the school as the village population. In cases where the school does not report population but other schools in the village do report population, we use the average population among reporter schools as population for all schools in the village. Panel A does not control for population but limits the sample to school-years in which population is observed. Standard errors (in parentheses) are clustered at the village level. *significant at 10% **significant at 5% ***significant at 1%.

Appendix Table 5: ***Robustness: Effect of ITES Centers on Schools***

Panel A: Number of Schools				
Dependent Variable:	*Count of Schools in Village*			
Sample:	All Schools		In PIN Code with Any English-Language Schools	Ever Had an ITES Center
Controls:	*Standard*	*District Trends*	*Standard*	*Standard*
Number of ITES Centers	-.013	-.007	-.019	-.049
	(.048)	(.019)	(.100)	(.080)
Observations	356,796	356,796	41,901	477
Panel B: Medium of Instruction				
Dependent Variable:	*Number of Schools with English Instruction*			
Sample:	All Schools		In PIN Code with Any English-Language Schools	Ever Had an ITES Center
Controls:	*Standard*	*District Trends*	*Standard*	*Standard*
Number of ITES Centers	.001	.001	.001	-.001
	(.003)	(.003)	(.004)	(.002)
Observations	977,543	977,543	338,022	2,416
Panel C: School Infrastructure				
Dependent Variable:	*Composite Infrastructure Measure*			
Sample:	All Schools		In PIN Code with Any English-Language Schools	Ever Had an ITES Center
Controls:	*Standard*	*District Trends*	*Standard*	*Standard*
Number of ITES Centers	-.022	-.044	-.049	-.145***
	(.052)	(.028)	(.049)	(.045)
Observations	990,540	990,540	344,479	2,416

Standard controls: Village fixed effects, time-varying school plant characteristics,
year dummies interacted with dummies for state, urban, and English language school in village.
*District Trend controls: Standard controls plus district-specific trends.*

Notes: This table shows the effect of ITES centers on schools in the PIN Code. Panel A shows the effect of ITES centers on the number of schools in a village. Panel B shows the effect of ITES centers on the number of schools with English instruction. Panel C shows the effect of ITES centers on a composite measure of school infrastructure (the first principle component of an index of electricity, toilets, classroom quality and boundary wall). Columns 1-2 include all schools. Column 3 is limited to villages with any English schools. Column 4 is limited to schools which ever have an ITES center in their PIN code (either always have the same number or change during the sample). Standard errors (in parentheses) are clustered at the village level in Columns 1, 3 and 4; clustered errors could not be estimated when district trends are included in Column 2. *significant at 10% **significant at 5% ***significant at 1%.
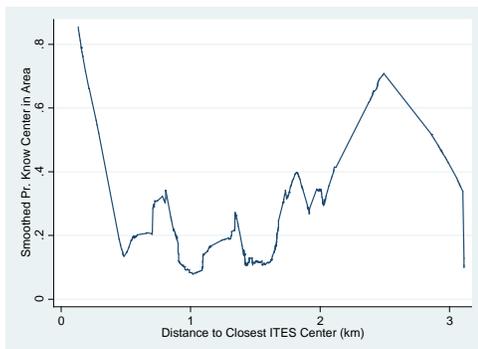
Appendix Figures

Appendix Figure 1:
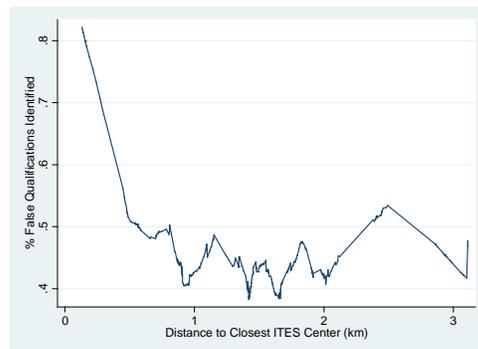**Distance to Nearest ITES Center and Knowing Someone who Works In One**
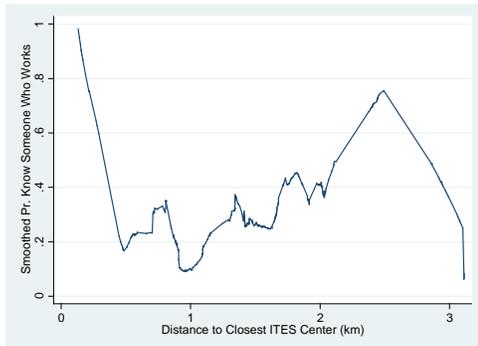
Appendix Figure 4:
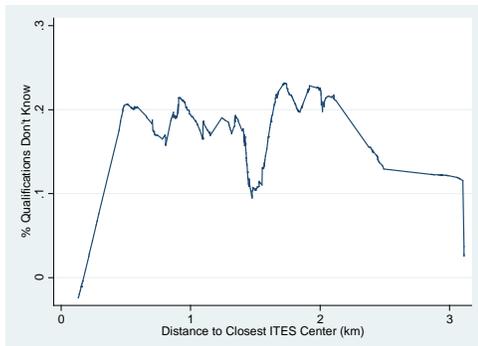**Distance to Nearest ITES Center and % of Correct Qualifications Identified**
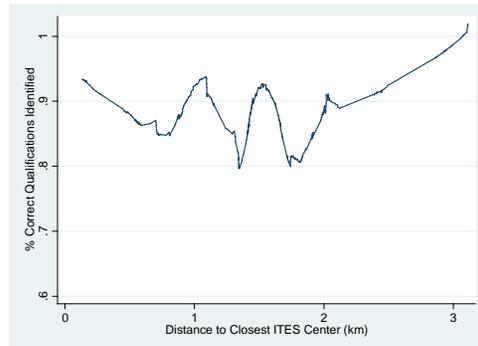
Appendix Figure 2:
Distance to Nearest ITES Center and Knowing Center in Local Area

Appendix Figure 5
Distance to Nearest ITES Center and % of False Qualifications Identified as False

Appendix Figure 3:
Distance to Nearest ITES Center and % of Qualifications Report "Don't Know"

Appendix: Not for Publication

Appendix A: Calculating ITES Center Impact on Income

In the text we report an estimated percentage increase in income due to ITES centers. We use a simple back-of-the-envelope calculation to generate this number. Although this is very unlikely to be perfectly accurate, we argue it is an upper bound on what the impact might be. To generate this number, we focus on the median PIN code and the median ITES center (in terms of size). We observe the number of children enrolled in school in the median PIN code; this number is roughly 10,000. We use this number to estimate the average number of people in the median PIN code. To do this, we note that the Indian census indicates children aged 6-12 make up roughly 15% of the overall population, and from the National Family and Health Survey (which is consistent with other sources) we observe that roughly 85% of children in this age range are enrolled in school. Combining these figures we argue that roughly 12.75% of individuals are children enrolled in school, so we expect the median PIN code to have roughly 78,000 people.

The median per capita income in these states is US$659. Applying this value to the population, we estimate total income of the median PIN code at about US$51 million.

The median ITES center in our sample has 80 employees and based on a survey of a sub-sample of ITES centers, pays roughly US$2100 per year in starting wages. This is more than twice the median per capita income. We calculate the increase in income due to ITES centers assuming that the income from ITES center employees is simply added to total income in the PIN code; we note this is likely to be an *overestimate,* since these individuals probably substitute into ITES center jobs away from some lower paying job, not from doing nothing.

We calculate the increased income, and then calculate the percentage increase implied by this; the resulting figure is 0.57% as reported.

Appendix B: Madurai Survey

We conducted a survey of approximately 1,000 households in Madurai district in Tamil Nadu. Of these, 500 households were in the city of Madurai, 250 were in Thirumangalam, a town approximately 20 kilometers away, and 250 were in Peraiyur, a town approximately 50 kilometers away. We surveyed households in groups of 10: at the start, 100 households were randomly selected from election rolls. These 100 households were each surveyed along with their 9 closest neighbors.

The survey included a household roster, with the names of each member of the household (including those who did not live at home), along with age, highest grade completed, enrollment status, employment status, job, and distance to work. In addition, we asked the household questions about assets, language, and how long they have lived in the area. We also asked questions about earnings for individuals with primary school and secondary school in the area, as well as a series of questions about ITES centers. This latter set of questions included information on whether the individual knew anyone who worked at one of these centers, whether they knew of any of these businesses in the local area and a series of questions about what qualifications were required for this job. If households reported knowing of a BPO in the local area, we included an open response question about whether they had made any changes because of the ITES center.

If the household included at least one child between the ages of 5 and 15 and enrolled in school, we randomly selected one of the children for more detailed questions about schooling and future job and marriage. These included questions on type of school attended (e.g. public, private) and language of instruction. We asked parents to choose the three most likely jobs for their child to have from a list of 15. We asked these questions before any mention of BPOs or ITES centers, in order to avoid leading the respondents in any way. All schooling (and other) questions were asked of the head of household, typically the father.

In addition to this, we recorded the GPS location of each household surveyed, as well as the GPS locations of BPOs in the local area in order to accurately calculate distance from the nearest ITES center. Since all of the BPOs in the district were located in Madurai city, the households in Peraiyur and Thirumangalam were necessarily at least 20 kilometers away from any ITES center, but within the city of Madurai there was significant variance in distance to the nearest BPO.

Madurai Survey Summary Statistics

	Mean	Std. Dev.	Observations
Information:			
Heard of someone who has worked at an ITES (share)	.207	.405	995
Knows of an ITES center in the local area (share)	.137	.344	996
% ITES Ques. "Don't Know"	.172	.246	1000
% True Qual. Answer Correct	.894	.239	1000
% False Qual. Answer Correct	.411	.316	1000
Expectations:			
BPO listed as first job for child	.045	.208	398
Estimated return to secondary school	818.15	1911.2	1000