

Foreign language skills and labor market outcomes

The case of English in Mexico

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Motivation: Returns to English language abilities

- Language skills are a form of human capital
- English is valuable in the world economy
 - Globalization: trade, technology and information
 - Mobility and better occupations

Related literature has found positive returns in the context of

- English-speaking countries
 - Immigrants: Bleakley and Chin (2004); Chiswick and Miller (2015)
 - Former British colonies: Azam, Chin and Prakash (2013); Eriksson (2014); Chakraborty and Bakshi (2016)
- Non-English-speaking countries: Lang and Siniver (2009); Adamchik et al. (2019); Hahm and Gazzola, (2022)

This paper in a nutshell

Research question

- Can English programs improve labor market outcomes in the context of a non-English-speaking country?

What I do

- Quantify the intention to treat effect of offering English instruction on labor market outcomes in Mexico
 - Exploit state policy changes that give locality-by-cohort variation in exposure to English instruction

What I find

- Acquisition of English skills
- Zero effect on wages (positive point estimate)
- Potential improvements in working conditions

Background

- Importance of English language for Mexico
 - Neighboring country with the US
 - Investment, trade and migration
- Very little is known about English language skills in Mexico
- Very little is known about returns to English skills in Mexico
 - I use the 2014 Subjective Well-being Survey (BIARE)

English speaking ability: a rare skill in Mexico

- BIARE is a nationally representative survey with adult respondents 18 and older (ENIGH supplemental survey)
- I use the response to the following question to form a measure of English ability
 - Do you speak English?
 - I code it as one if the respondent says yes, and zero otherwise
- 7% of Mexicans speak English



Empirical framework

We want to estimate the effect of English skills, Eng_{isc} , on log-wages, ω_{isc} , which can be approximated with the following equation:

$$\omega_{isc} = \alpha + \beta Eng_{isc} + \mathbf{X}_{isc}\boldsymbol{\Pi} + \epsilon_{isc}$$

where each individual i belongs to a cohort c and lives in locality s , \mathbf{X}_{isc} is a vector of controls including: education, gender, marital status, ethnicity, cohort FE and locality FE

Empirical challenges

- Concern that English skills, Eng_i , are endogenous in the wage equation
 - Omitted variables: abilities may be correlated with both English skills and wages
 - Measurement error of English skills variable
- OLS estimation would lead to a biased estimate of β
- Take advantage of state policy changes in English instruction to propose a Difference-in-Differences strategy

States with and without the policy



Staggered Difference in Differences

I examine all these policies at once, using the following specification:

$$y_{isc} = \theta + \psi \text{HadPolicy}_{sc} + \delta_s + \kappa_c + \mathbf{X}_{isc}\Psi + \varepsilon_{isc}$$

where HadPolicy_{sc} takes the value of one if individual i lives in a treated locality and he/she belongs to one of the affected cohorts (zero otherwise)

Parallel Trend Assumption

I use an event study specification to examine if pre-trends are present

$$y_{isc} = \theta + \sum_k \psi_{c-c_s^*} I_{(k=c-c_s^*)} + \delta_s + \kappa_c + \mathbf{X}_{isc} \Psi + \varepsilon_{isc}$$

where c_s^* denotes the first cohort affected by the intervention in locality s , so $c - c_s^*$ is the time relative to c_s^* with negative values reflecting older cohorts not exposed to the policy. $I_{(k=c-c_s^*)}$ is a dummy variable for $k = c - c_s^*$, so $\psi_{c-c_s^*}$ gives the effect of leads and lags of policy adoption. The omitted category is -1

►► PTA

Data

» Descriptive Stats

Household survey (2014 BIARE)

- Individual level data (cohorts 1981-1996)
- BIARE surveyed 44,518 households
 - Representative at national and state level
- Very rich questionnaire, including English skills

School data on exposure to English instruction

- Mexican School Census (1997-2007)
- Weekly hours of English instruction (exposure)
 - By school-cohort, average over primary school
 - By cohort, take locality average
- Merge English instruction measure to individual-level data (in BIARE) by locality and cohort

Results: Effect of English policies

Table 4: Effect of English programs

	(1)	(2)	(3)	(4)
	Hrs Eng	Speak Eng	ln(wage)	Paid work
<i>Panel A: Staggered DiD</i>				
Had Policy	0.546*** (0.073) [0.000]	0.082* (0.043) [0.034]	-0.052 (0.154) [0.727]	-0.043 (0.030) [0.144]
Observations	6,573	6,573	6,573	11,965
Adjusted R^2	0.681	0.141	0.285	0.258
Mean Dep. Var.	0.103	0.083	7.710	0.541

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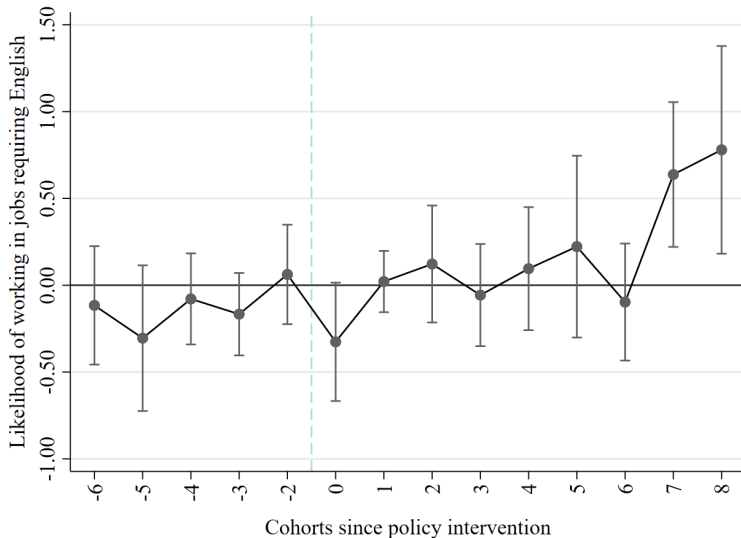
Robustness checks

- Concern about staggered DiD estimator in the presence of heterogeneous treatment effects [▶ HTE](#)
 - Sun and Abraham (2021)
 - Callaway and Sant'Anna (2021)
- Without excluding Morelos and Coahuila [▶ Sample](#)
- Narrower cohorts [▶ Narrow](#)

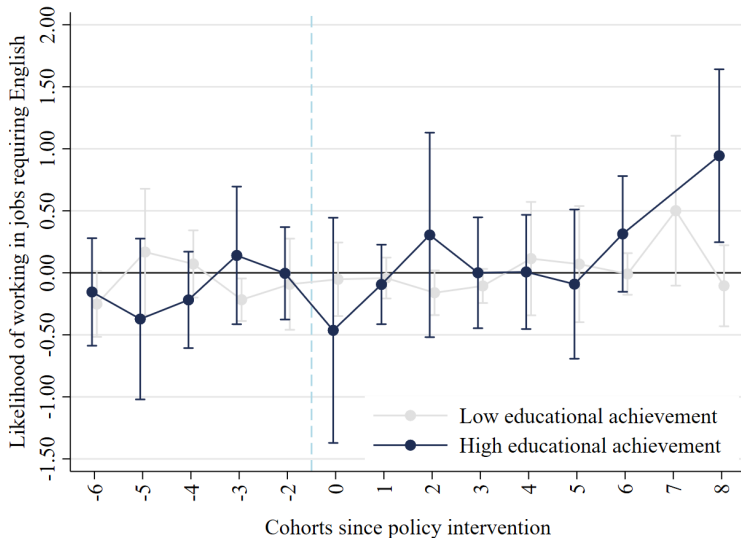
Mechanisms

- Cognitive skills
 - Acquisition of English skills
 - No effect on other skills: Language and Mathematics
(Gálvez-Soriano, 2023)
- Occupational choices
 - Better paid jobs or better working conditions?
 - Subjective well-being measures
- School enrollment
 - Zero effect on wages in the short-run, but positive in the long-run?

More likely to work in English-intensive jobs?

[► Distribution](#)

More likely to work in English-intensive jobs?



Mechanisms

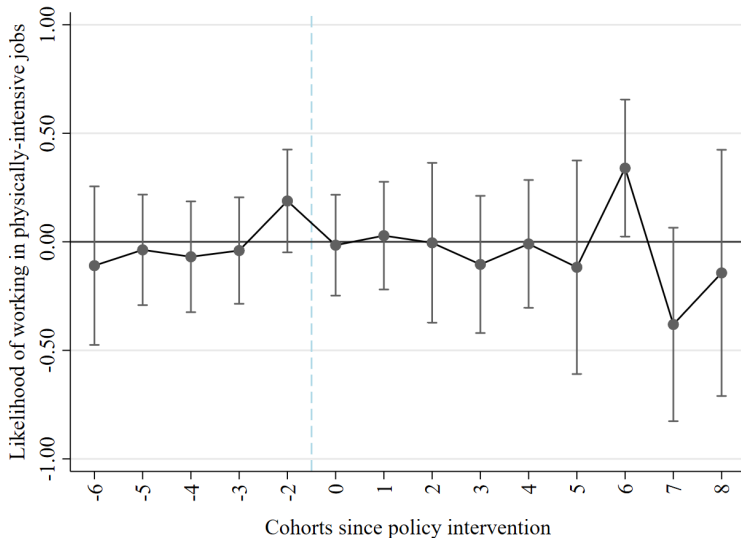
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Mechanisms: Labor supply and formal jobs

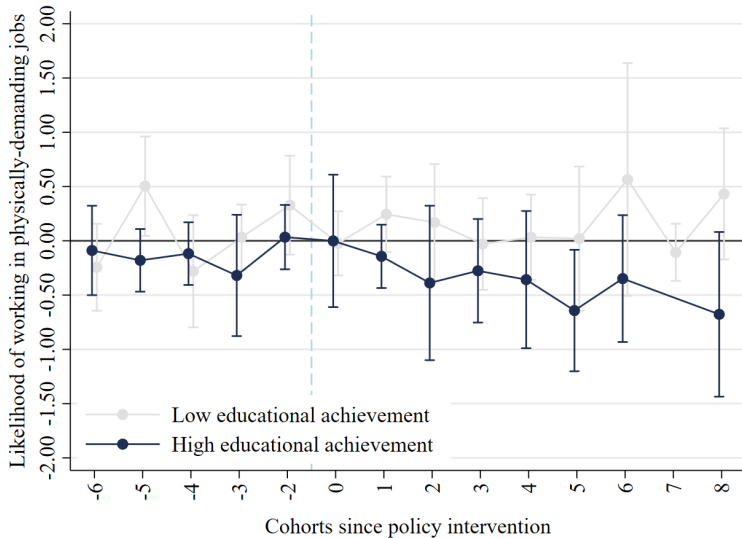
Table 4: Effect of English programs

	(5)	(6)
	Labor supply	Formal work
<i>Panel B: Sun and Abraham (2021)</i>		
Had Policy	-0.052 (0.066)	0.088* (0.052)
Observations	5,859	6,264
Adjusted R^2	0.151	0.278
<i>Panel C: Callaway and Sant'Anna (2021)</i>		
Had Policy	-0.051 (0.185)	0.474* (0.267)
Observations	6,110	6,489
Pre-trend test [p-value]	[0.843]	[0.659]
Mean Dep. Var.	3.720	0.471

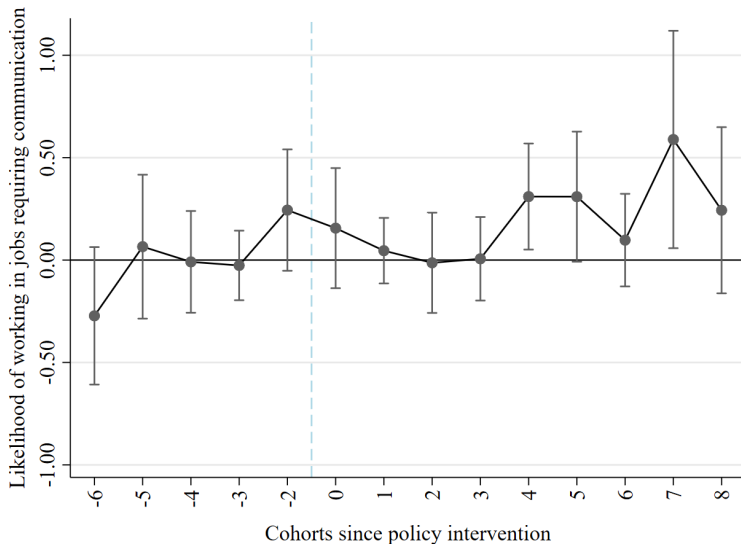
Physically demanding jobs ► Distribution



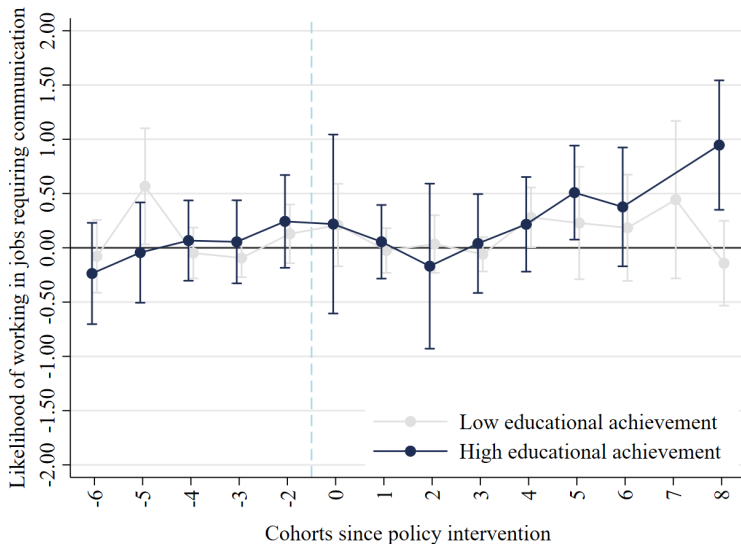
Physically demanding jobs by educational achievement



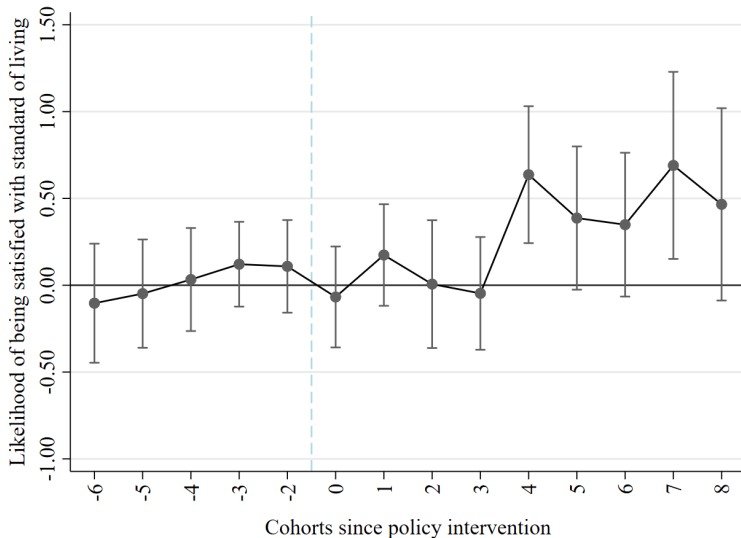
Jobs requiring communication skills » Distribution



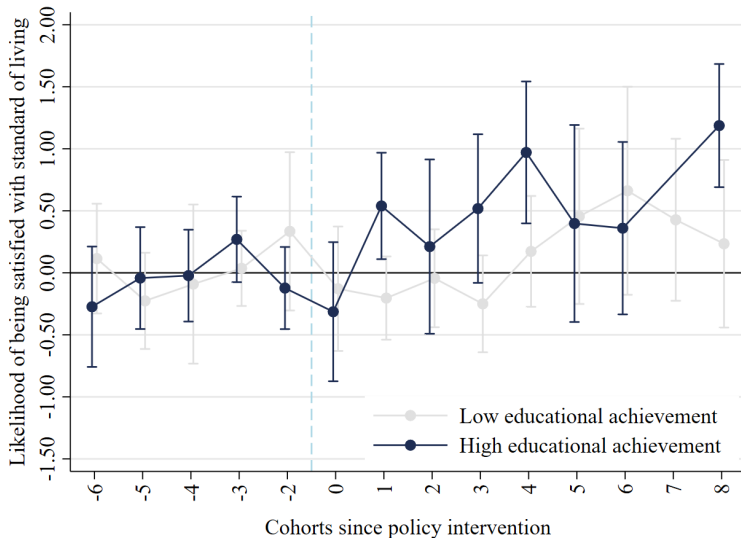
Jobs requiring communication skills by education



Better labor conditions and better SOL?



Better labor conditions and better SOL? (by education)

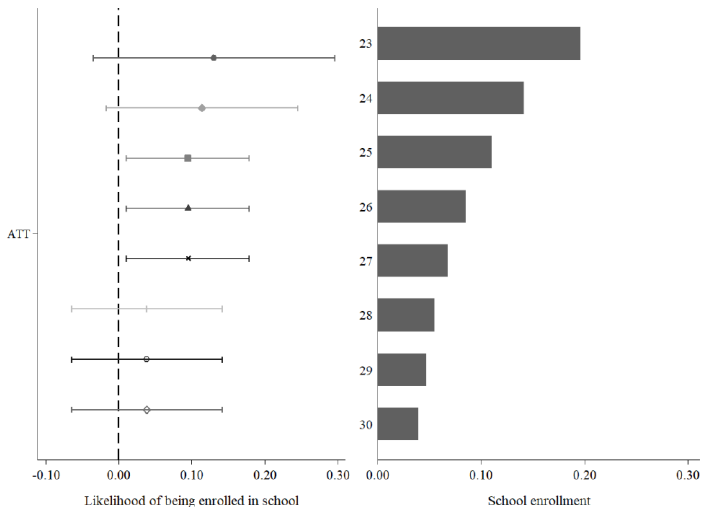


Mechanisms

- Cognitive skills
 - Acquisition of English skills
 - No effect on other skills: Language and Mathematics (Gálvez-Soriano, 2023)
- Occupational choices
 - Better paid jobs or better working conditions?
 - Subjective well-being measures
- School enrollment
 - Zero effect on wages in the short-run, but positive in the long-run?

School enrollment

Figure 6: Educational decisions after exposure to English instruction



Conclusion

- First study to examine English skills and labor market outcomes in Mexico using large nationally representative sample
- I use variation in English skills generated by state policy changes
- Acquisition of English skills
 - Increase in likelihood of working in English intensive jobs
- I find no effect on wages, shifts across occupations. Highly educated are:
 - more likely to work in jobs requiring communication skills
 - less likely to work in physically demanding jobs
 - more satisfied with their standard of living

Thank you!

For more about me and my research, please scan here:

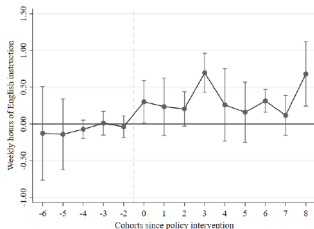


English speakers different from non-Eng speakers [» Back](#)

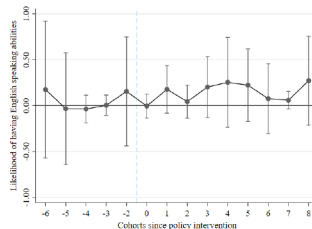
Table 2: Descriptive statistics

Variable	Full Sample	Speak English (a)	Don't spk English (b)	Diff. (a-b)
<i>Dependent variable</i>				
Wage (monthly pesos)	5,366.88	11,645.27	4,795.18	6,850.09***
Labor supply (hours)	45.97	44.99	46.06	-1.07
Formal job	0.47	0.67	0.45	0.22***
Physically demanding job	0.26	0.10	0.28	-0.18***
Job with comm. skills	0.27	0.58	0.24	0.34***
Satisfied with SOL	0.38	0.51	0.37	0.14***
Satisfied with achievements	0.44	0.58	0.42	0.16***
<i>Independent variables</i>				
English (speaking ability)	0.08	1.00	0.00	-
Hrs English	0.20	0.33	0.18	0.14***
Age (years)	26.81	27.71	26.72	0.99***
Education (years)	10.50	14.16	10.17	4.00***
Female (%)	0.41	0.34	0.41	-0.07**
Indigenous (%)	0.06	0.03	0.06	-0.03***
Married (%)	0.55	0.44	0.57	-0.13***
Rural (%)	0.21	0.09	0.22	-0.13***
Observations	6,573	560	6,013	6,573

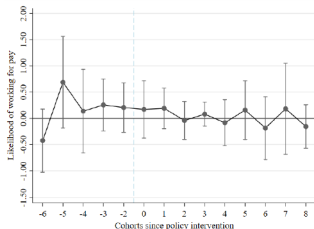
PTA Staggered DiD [▶ Back](#)



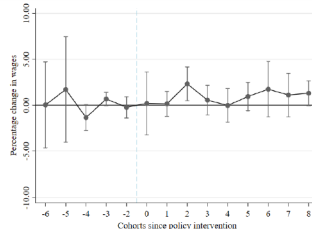
(a) Hours of English



(b) Speak English

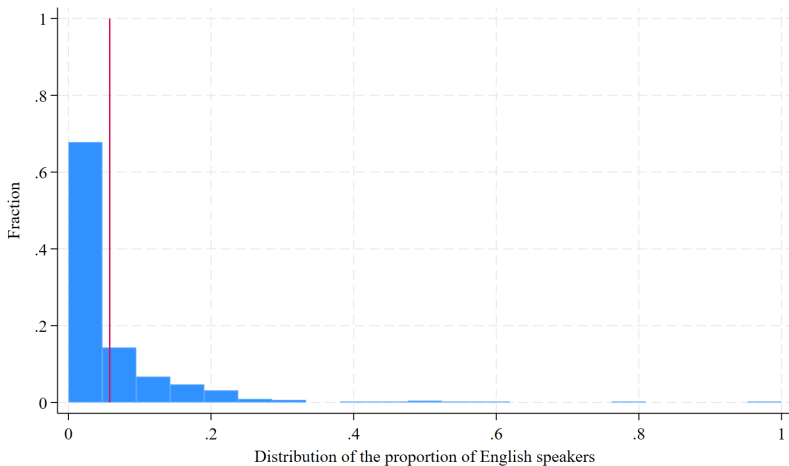


(c) Paid work

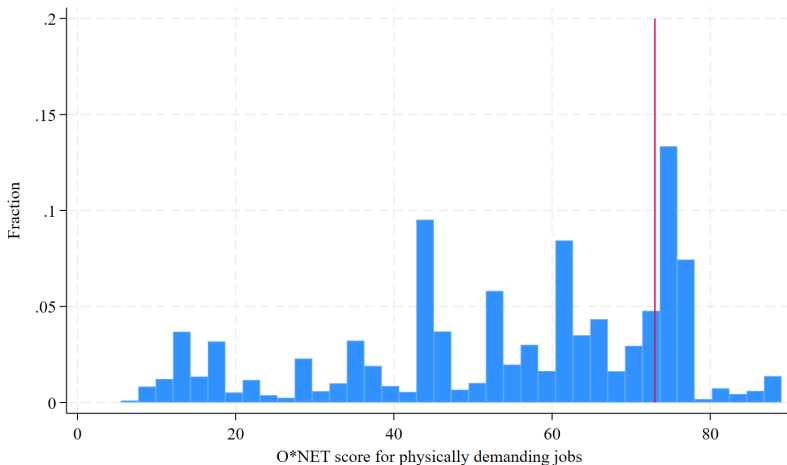


(d) Ln(wage)

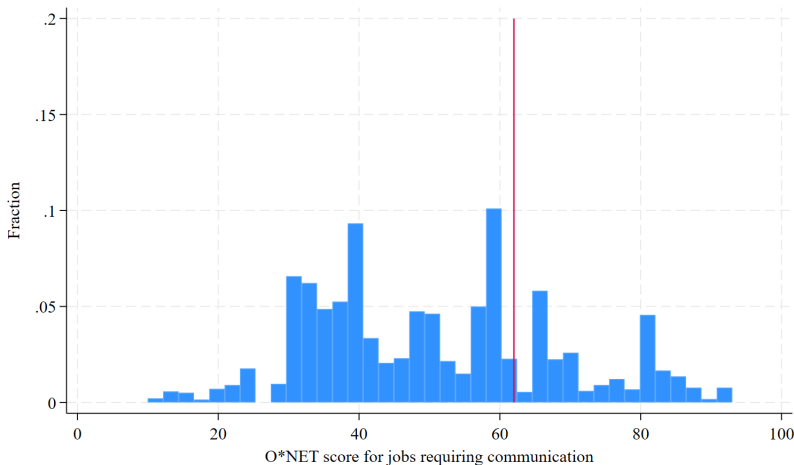
Distribution of English-intensive jobs [» Back](#)



Distribution of physically demanding jobs

[» Back](#)

Distribution of jobs requiring communication

[» Back](#)

Staggered DiD correction [» Back](#)

Table 4: Effect of English programs

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	Hrs	Speak	ln(wage)	Paid
	Eng	Eng		work
<i>Panel B: Sun and Abraham (2021) interaction weighted estimator</i>				
Had Policy	0.563***	0.092**	-0.120	-0.025
	(0.058)	(0.024)	(0.133)	(0.025)
Observations	6,264	6,264	6,264	11,813
Adjusted R^2	0.666	0.160	0.274	0.257
<i>Panel C: Callaway and Sant'Anna (2021)</i>				
Had Policy	0.355***	0.156**	0.769	0.011
	(0.075)	(0.077)	(0.508)	(0.124)
Observations	6,489	6,489	6,489	10,091
Pre-trend test [p-value]	[0.987]	[0.707]	[0.927]	[0.387]
Mean Dep. Var.	0.103	0.083	7.710	0.541

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Table 4: Effect of English programs

	(1)	(2)	(3)	(4)
	Hrs Eng	Speak Eng	ln(wage)	Paid work
<i>Panel D: Callaway and Sant'Anna (2021): Narrow cohorts, 1985-1995</i>				
Had Policy	0.348***	0.160**	0.774	0.050
	(0.076)	(0.080)	(0.512)	(0.141)
Observations	4,143	4,143	4,143	7,820
Pre-trend test [p-value]	[0.9723]	[0.760]	[0.571]	[0.439]
Mean Dep. Var.	0.103	0.083	7.710	0.541

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Table 4: Effect of English programs

	(1)	(2)	(3)	(4)
	Hrs Eng	Speak Eng	ln(wage)	Paid work
<i>Panel E: Callaway and Sant'Anna (2021). All states</i>				
Had Policy	0.339*** (0.069)	0.160** (0.080)	0.705 (0.508)	-0.025 (0.146)
Observations	6,413	6,413	6,413	9,937
Pre-trend test [p-value]	[0.927]	[0.660]	[0.677]	[0.722]