Returns to English abilities and occupational decisions in Mexico

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Banco de México - PIV work schedule

Banco de Mexico - Summer Intern Research Program (PIV) Timeline 2022

Month	July				August				
Week	1	2	3	4	5	6	7	8	9
Work on seperate natural experiments from Mexican states (9)									
Write-up of introduction and literature review									
Write-up of policy implementation and Mexican education system									
Generate graphs and tables of descriptive analysis									
Write-up of emprirical strategy and data sections									
Generate graphs and tables of my difference in differences model									
Work on staggered DiD model									
Generate graphs and tables of my instrumental vaiables model									
Write-up of results and conclusions									
Prepare final presentation									
Presentation of my results and submission of research paper									

Motivation

The value of English language skills in developing non-English speaking countries

- Globalization: trade and culture (internet, news, social media, etc.)
- Migration and labor market outcomes

I will study the expansion of English instruction in different Mexican states and in different moments of time

Related Literature

- Returns to English language skills
  - In English-speaking countries: Isphording (2014); Chiswick and Miller (2015)
  - In non English-speaking countries: Azam, Chin and Prakash (2013); Eriksson (2014)
- Exposure to English instruction
  - Policy change in the medium of instruction: Angrist, Chin and Godoy (2008)
  - Exposure of English language as a subject: Chakraborty and Bakshi (2016)
- In Mexico
  - Returns to English language skills using job ads (Delgado-Helleseter, 2020)
  - Exposure to English instruction and labor market outcomes (Gálvez-Soriano, 2022)

This paper in a nutshell

Research Question

- What are the returns to English language skills in a non-English speaking country?
  - Does exposure to English instruction leads to the acquisition of English abilities?
  - Does exposure affect occupational decisions?

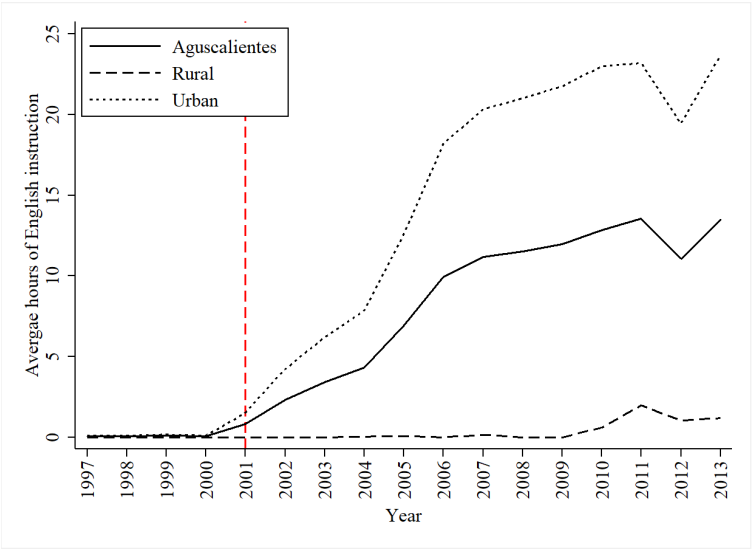
Empirical strategy

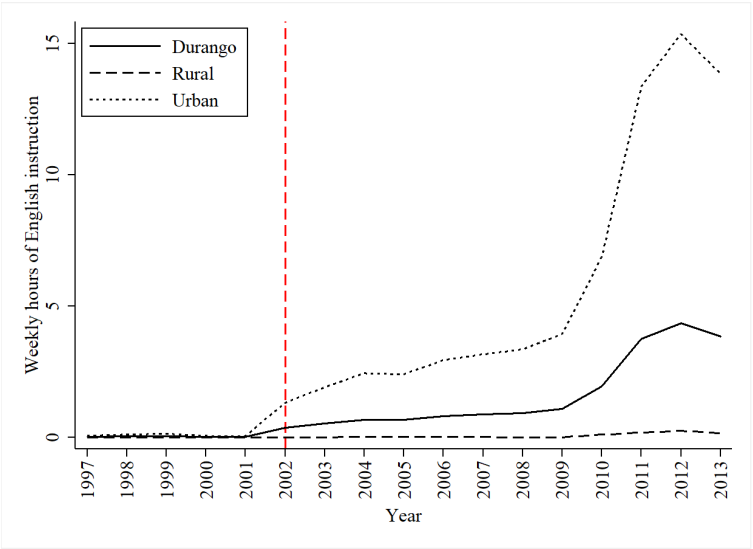
- Use state by cohort variation in exposure to English instruction in Mexican primary schools
- Difference in Differences strategy

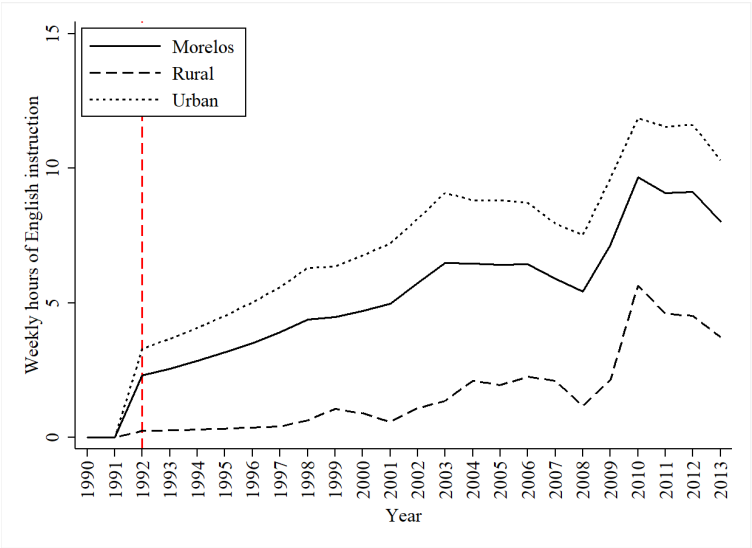
Mexican school census to measure exposure

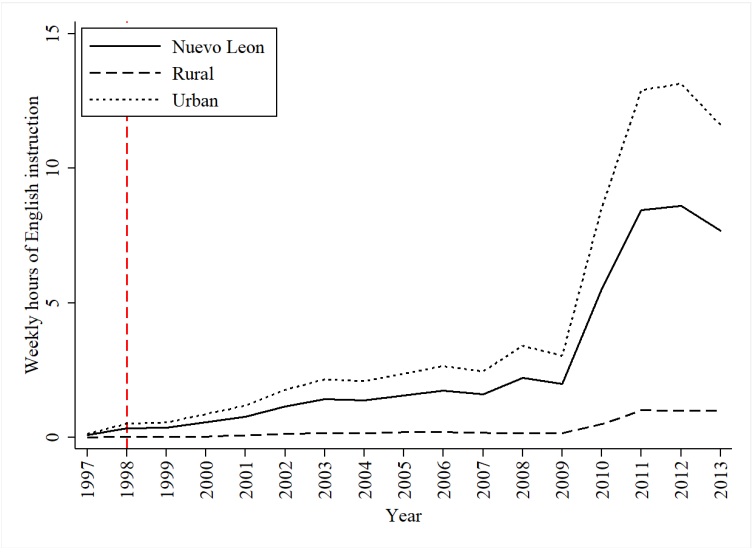
- Data at school level (reported by the Principal)
- Reports weekly hours of English instruction (shown in the following graphs)
- I use it as weekly hours of English instruction per class

English instruction in Mexican states

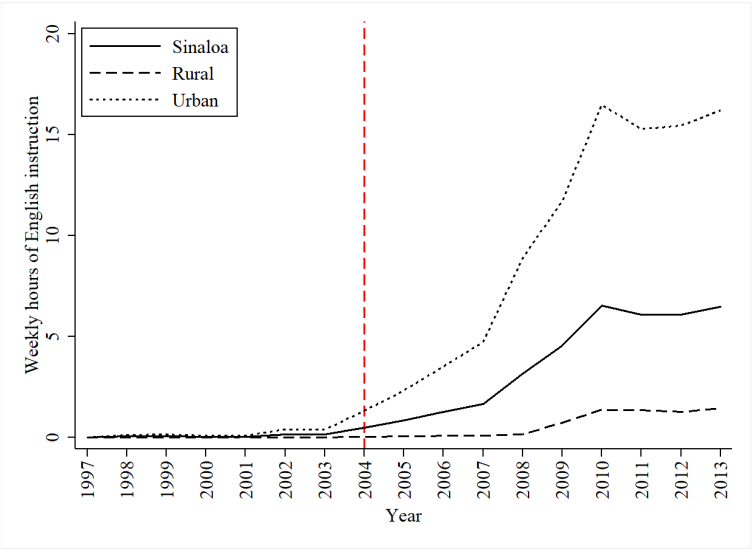


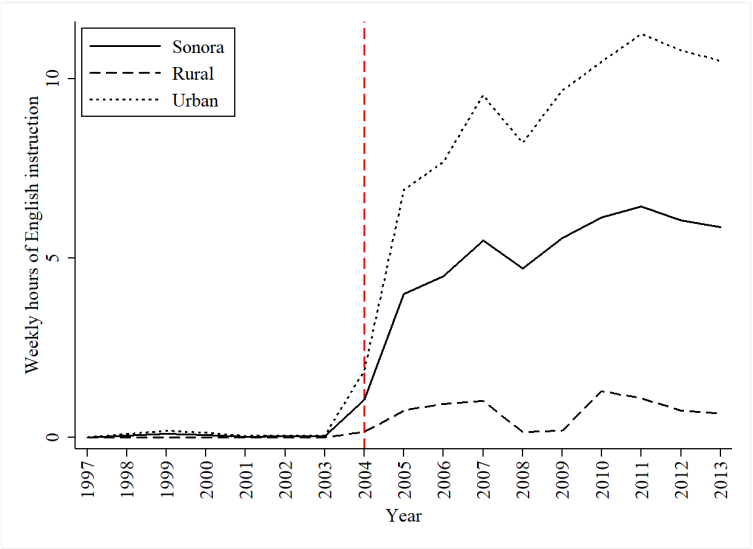


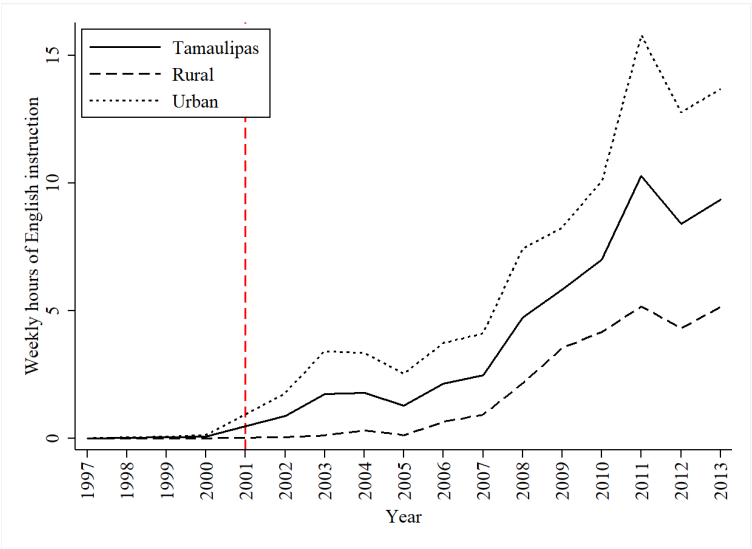




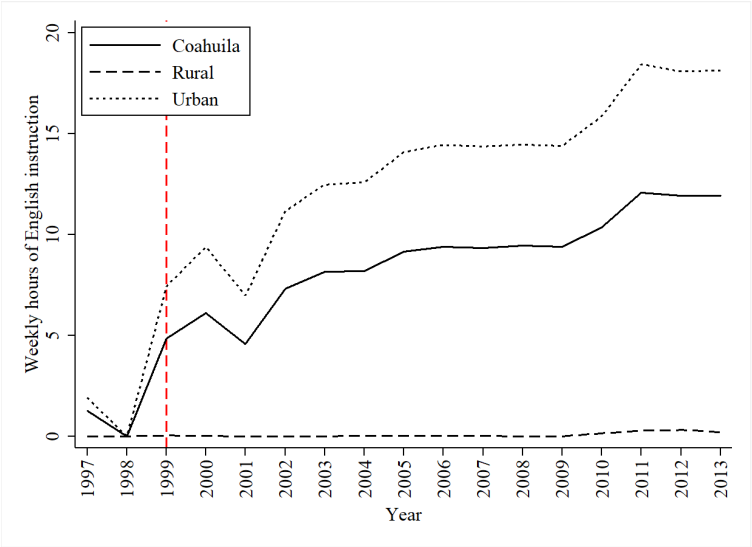
English instruction in Mexican states

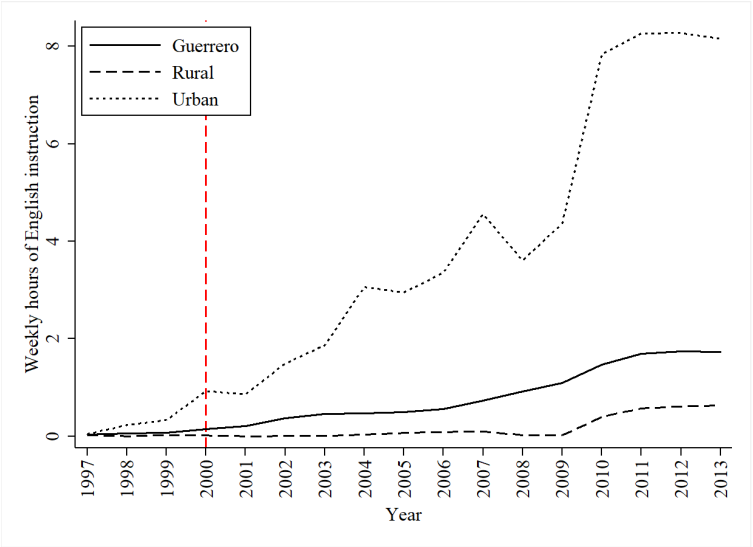






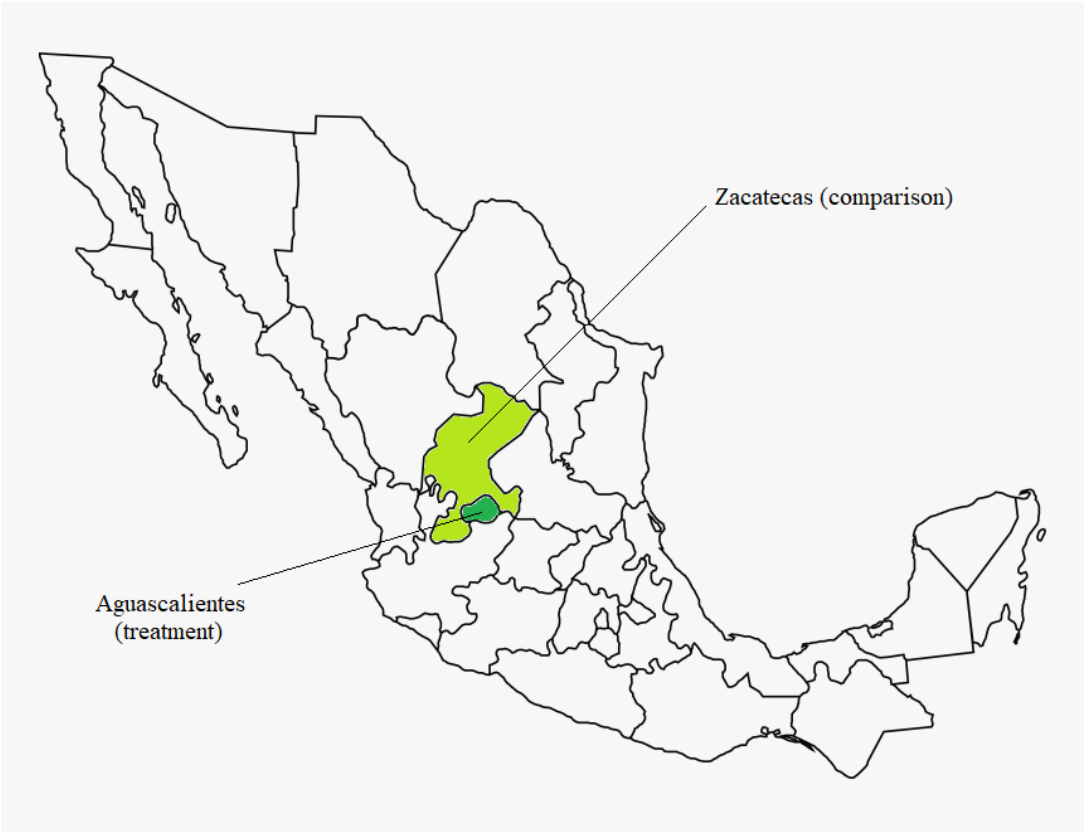
English instruction in Mexican states (Rural/Urban)





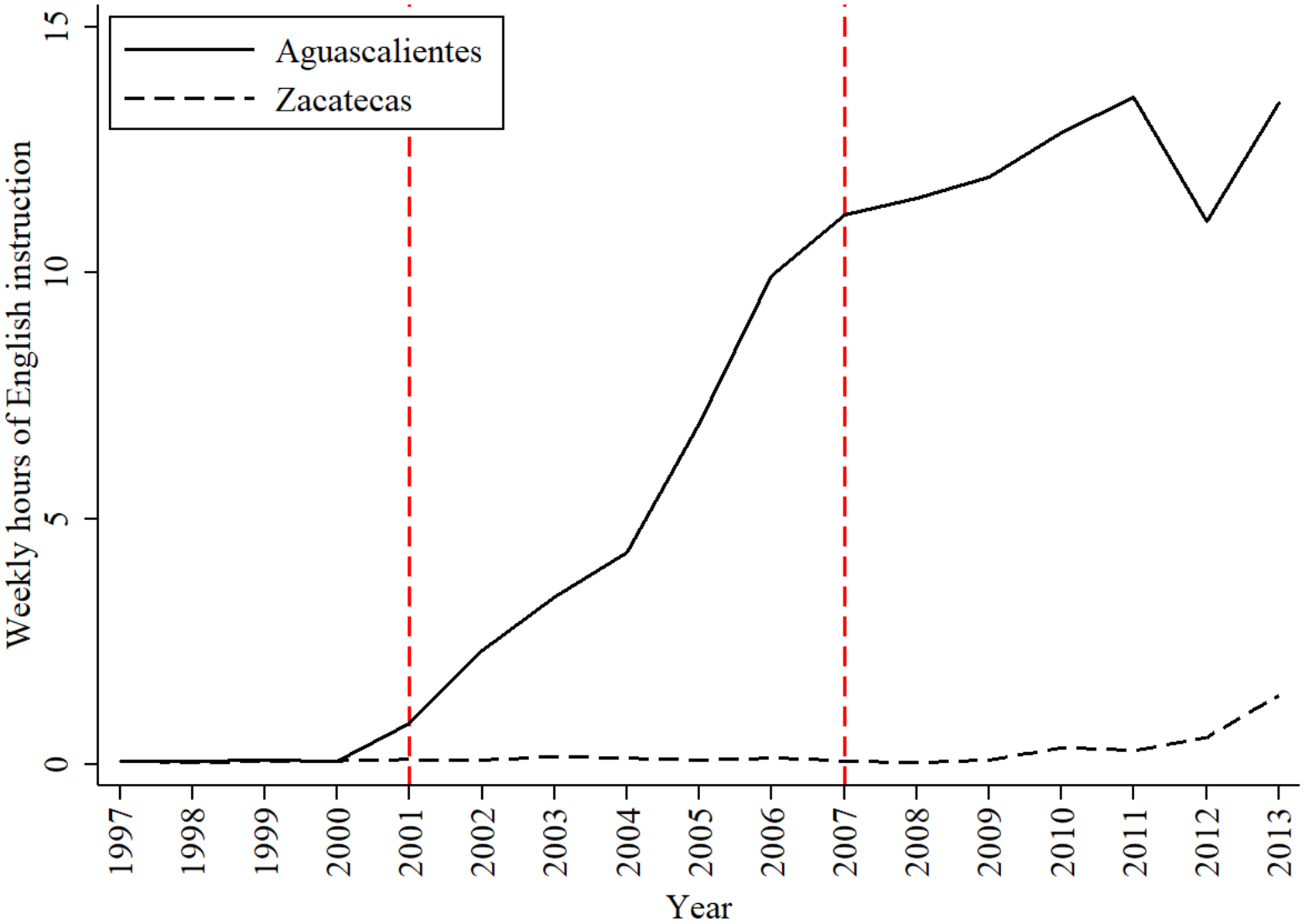
Policy background in Aguascalientes

The Mexican state of Aguascalientes introduced an English program in 2001 to offer English instruction in elementary schools



- Cohorts 1990-1996 had exposure to Eng instruction in elementary schools of Aguascalientes
- Same cohorts in Zacatecas had no exposure

Aguascalientes (treatment) vs Zacatecas (comparison)



Empirical strategy

I estimate the intention to treat effect of offering English instruction in elementary school on English abilities and labor market outcomes (y_{isc}) using a difference in differences approach

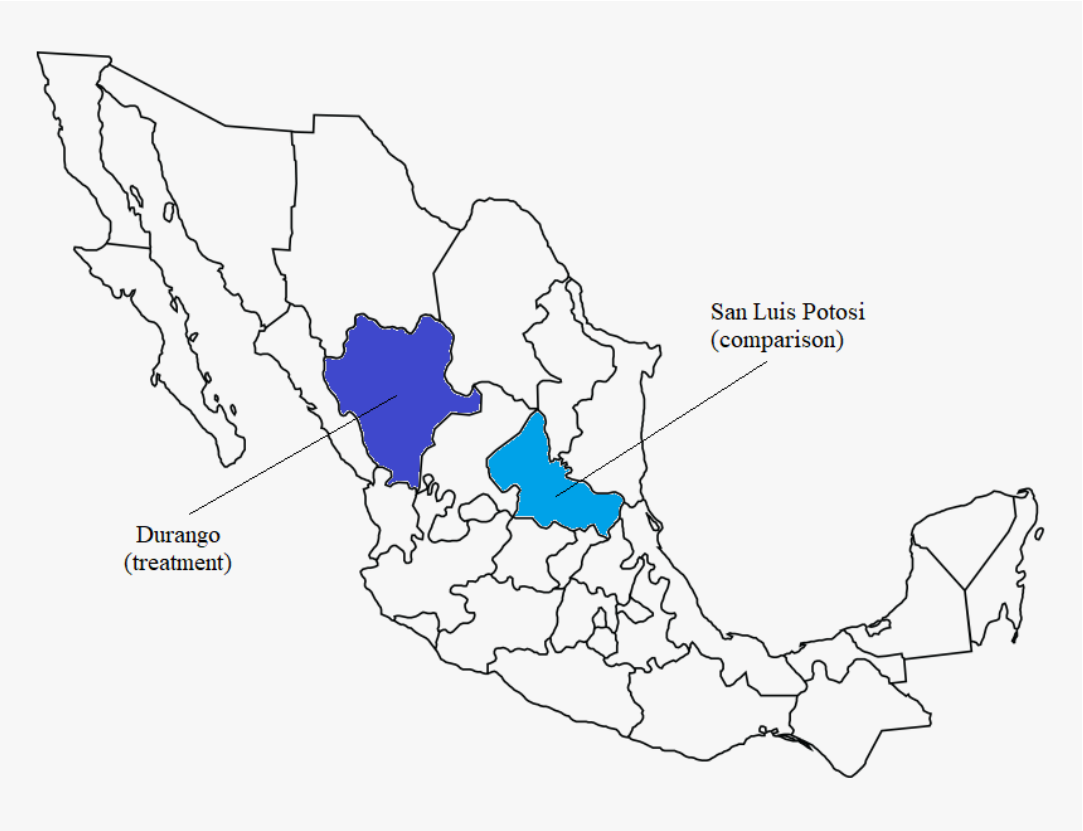
- $after_c$: takes the value of one if the individual i was born since 1990
- $treat_s$ takes the value of one if individual i lives in Aguscalientes and zero otherwise

$$y_{isc} = \alpha + \beta \cdot (treatment_s \times after_c) + \delta \cdot treatment_s + \gamma_c + \boldsymbol{X_{isc}\lambda} + \varepsilon_{isc}$$

$$y_{isc} = \alpha + \sum_c \beta_c \cdot I_{(treatment_{sc}=c)} + \delta \cdot treatment_s + \gamma_c + \boldsymbol{X_{isc}\lambda} + \varepsilon_{isc}$$

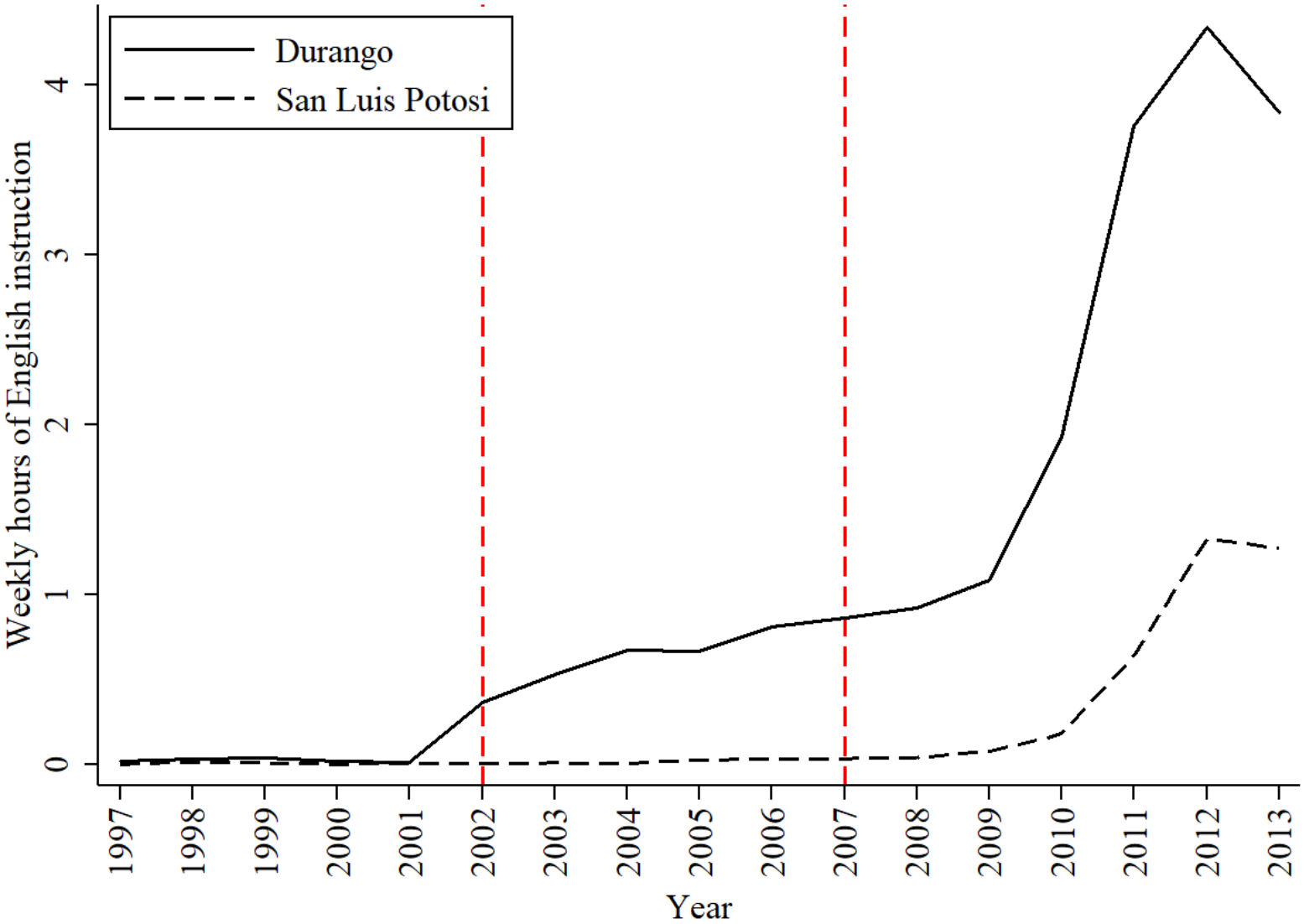
Policy background in Durango

The Mexican state of Durango introduced an English program in 2002 to offer English instruction in elementary schools



- Cohorts 1991-1996 had exposure to Eng instruction in elementary schools of Durango
- Same cohorts in San Luis Potosi had no exposure

Durango (treatment) vs San Luis Potosi (comparison)



Empirical strategy

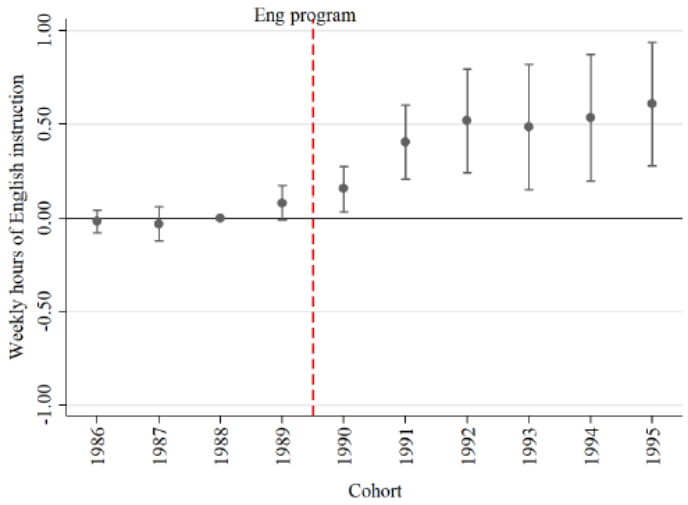
I estimate the intention to treat effect of offering English instruction in elementary school on English abilities and labor market outcomes (y_{isc}) using a difference in differences approach

- $after_c$: takes the value of one if the individual i was born since 1991
- $treat_s$ takes the value of one if individual i lives in Durango and zero otherwise

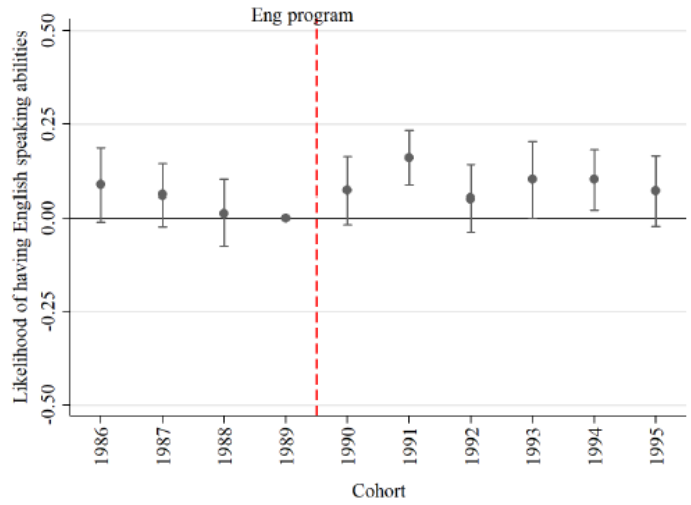
$$y_{isc} = \alpha + \beta \cdot (treatment_s \times after_c) + \delta \cdot treatment_s + \gamma_c + \boldsymbol{X_{isc}\lambda} + \varepsilon_{isc}$$

$$y_{isc} = \alpha + \sum_c \beta_c \cdot I_{(treatment_{sc}=c)} + \delta \cdot treatment_s + \gamma_c + \boldsymbol{X_{isc}\lambda} + \varepsilon_{isc}$$

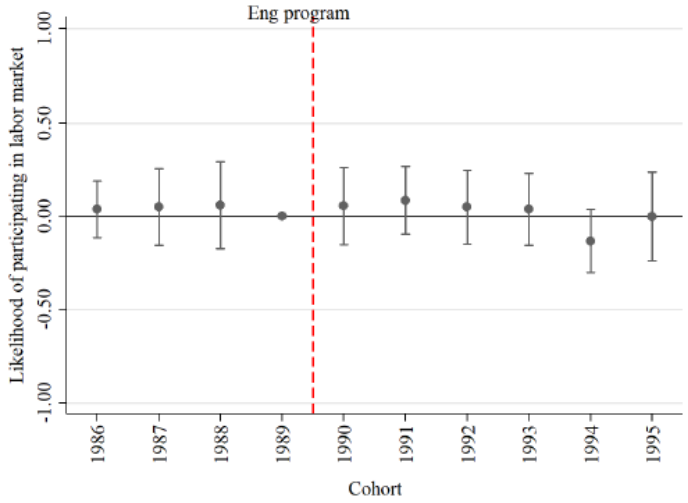
Parallel Trend Assumption (Aguascalientes)



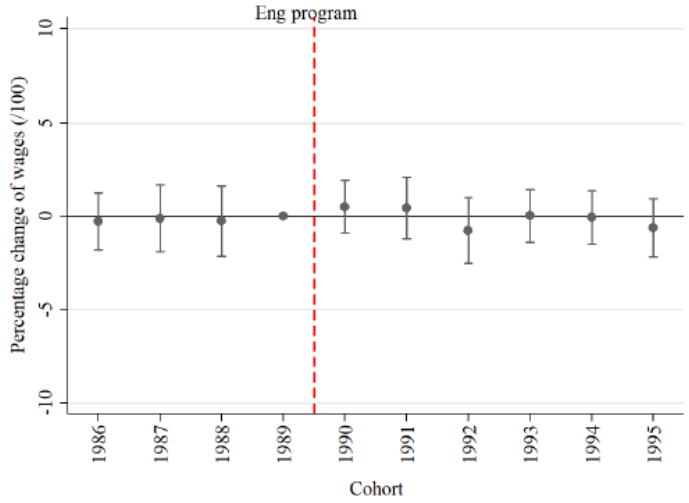
(a) Hours of English



(b) Speak English



(c) Labor force



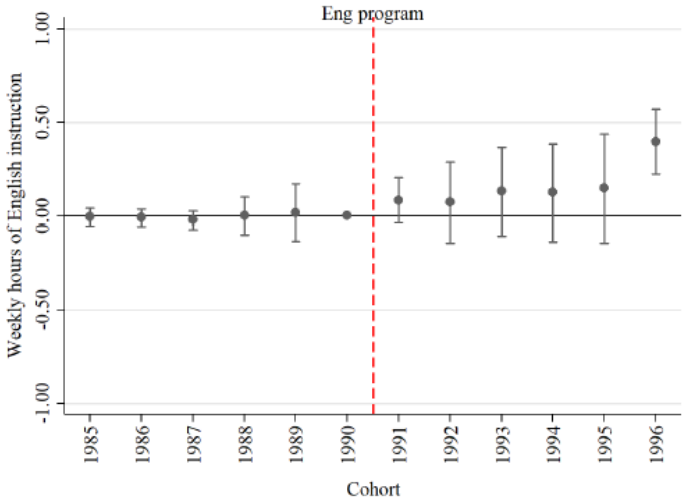
(d) Ln(wage)

Aguascalientes English program and English abilities

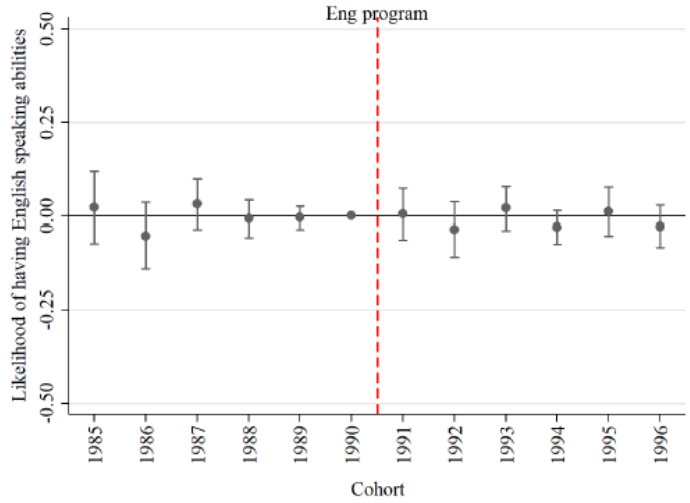
Table 8: Returns to English abilities in Aguascalientes

	Full sample				Low education sample			
	(1) Hrs Eng	(2) Speak Eng	(3) LFP	(4) ln(wage)	(5) Hrs Eng	(6) Speak Eng	(7) LFP	(8) ln(wage)
Panel A: Men and Women								
After×Treat	0.441***	0.051***	-0.023	0.091	0.446***	0.028*	0.026	0.516
	(0.116)	(0.017)	(0.063)	(0.342)	(0.140)	(0.014)	(0.063)	(0.541)
Observations	1,425	1,425	1,425	1,425	672	672	672	672
Adjusted R^2	0.871	0.015	0.176	0.160	0.855	0.003	0.356	0.224
Panel B: Men (β^M)								
After×Treat	0.460***	0.069**	-0.085	-0.134	0.447***	0.034	0.025	0.488
	(0.105)	(0.029)	(0.068)	(0.505)	(0.140)	(0.031)	(0.056)	(0.755)
Observations	686	686	686	686	322	322	322	322
Adjusted R^2	0.867	-0.022	0.091	0.158	0.857	0.119	0.119	0.159
Panel C: Women (β^W)								
After×Treat	0.428***	0.044**	0.005	0.016	0.406***	0.013	-0.046	0.071
	(0.126)	(0.018)	(0.082)	(0.534)	(0.138)	(0.009)	(0.146)	(1.169)
Observations	739	739	739	739	350	350	350	350
Adjusted R^2	0.870	0.009	0.118	0.063	0.841	0.250	0.126	0.035
$\beta^M = \beta^W$	[0.636]	[0.583]	[0.029]	[0.133]	[0.670]	[0.442]	[0.153]	[0.231]

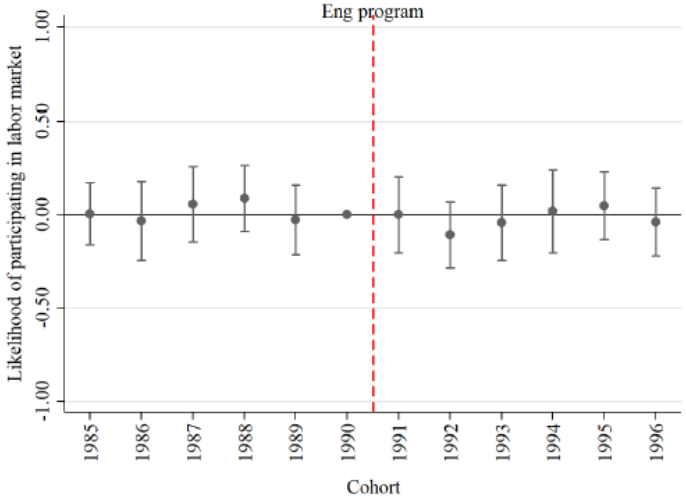
Parallel Trend Assumption (Durango)



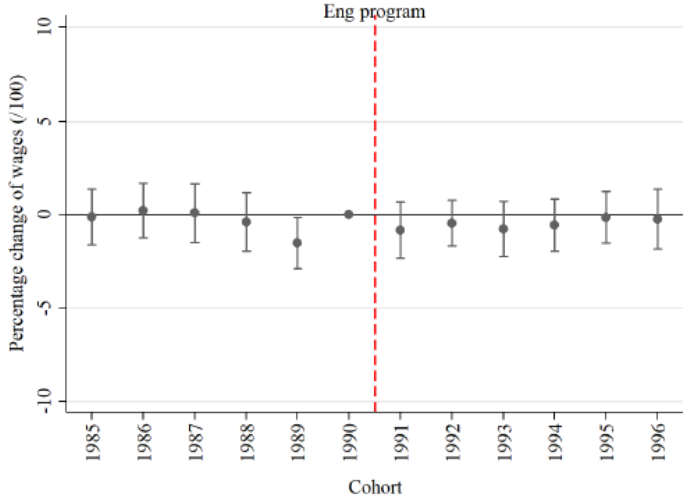
(a) Hours of English



(b) Speak English



(c) Labor force



(d) Ln(wage)

Durango English program and English abilities

Table 9: Returns to English abilities in Durango

	Full sample				Low education sample			
	(1) Hrs Eng	(2) Speak Eng	(3) LFP	(4) ln(wage)	(5) Hrs Eng	(6) Speak Eng	(7) LFP	(8) ln(wage)
Panel A: Men and Women								
After×Treat	0.169*	-0.010	-0.034	-0.170	0.139	0.004	-0.048	-0.148
	(0.086)	(0.013)	(0.062)	(0.358)	(0.087)	(0.017)	(0.061)	(0.475)
Observations	1,711	1,711	1,711	1,711	793	793	793	793
Adjusted R^2	0.688	0.009	0.237	0.200	0.718	0.086	0.404	0.256
Panel B: Men (β^M)								
After×Treat	0.174*	-0.037	0.076	0.335	0.158	0.013	0.102**	0.703
	(0.092)	(0.031)	(0.064)	(0.593)	(0.109)	(0.044)	(0.051)	(0.686)
Observations	834	834	834	834	394	394	394	394
Adjusted R^2	0.686	0.008	0.164	0.270	0.710	0.137	0.047	0.220
Panel C: Women (β^W)								
After×Treat	0.171*	0.022	-0.096	-0.748*	0.114	0.023	-0.152	-1.350
	(0.091)	(0.022)	(0.079)	(0.416)	(0.104)	(0.031)	(0.101)	(0.826)
Observations	877	877	877	877	399	399	399	399
Adjusted R^2	0.665	-0.056	0.148	0.103	0.704	-0.044	0.131	0.112
$\beta^M = \beta^W$	[0.925]	[0.628]	[0.770]	[0.735]	[0.985]	[0.736]	[0.837]	[0.776]

Next steps

- Work with the other natural experiments: Morelos and Nuevo Leon
- Work on descriptive analysis
- Write-up of intro-lit. review