Foreign language skills and labor market outcomes

The case of English in Mexico

Oscar Gálvez-Soriano

University of Chicago

Department of Economics

June 2024

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
  - 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 skills improve labor market outcomes in the context of a developing non-English-speaking country?

What I do

- Exploit state policy changes related to English instruction
  - Quantify the intention to treat effect of offering English instruction on labor market outcomes in Mexico

What I find

- Expanding English instruction does increase English skills
- However, does not affect wages
  - Increase in labor supply
  - Driven by low-educational attainment individuals

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)
  - In the sample I use, individuals are between 20 and 30 years old
- 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

Policy background: state policy changes

Since the early 1990's six Mexican states implemented English programs to offer English instruction in public primary schools

- Before these interventions, public elementary schools did not offer English instruction
- English language was offered as a subject
- The number of hours of English instruction varied by state, across time, and within a state across schools

States with and without the policy

Table A.1: Policy changes in Mexican states

State	Year of policy implementation	Cohorts affected
Aguascalientes	2001	1990-1996
Durango	2002	1991-1996
Nuevo Leon	1998	1987-1996
Sinaloa	2004	1993-1996
Sonora	2004	1993-1996
Tamaulipas	2001	1990-1996

Note: The states are listed in alphabetical order. The year of policy implementation was reported by most of the state governments, and this year also corresponds to the first increase observed in hours of English instruction, as indicated by the Mexican school census. The first affected cohort comprises students enrolled in sixth grade in the first year of policy implementation. For example, in Aguascalientes, the English program was implemented in 2001. In this year, sixth graders were 11 years old, meaning they were born in 1990. The last affected cohort is the youngest cohort observed in the BIARE survey.

Empirical framework

- We want to estimate the effect of English skills, Eng_{ijc}, on log-wages, ω_{ijc}
- Concern that English skills, Eng_{ijc}, 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 the effect of English on wages
- Take advantage of state policy changes in English instruction to learn about its causal effect on labor market outcomes

Dynamic TWFE

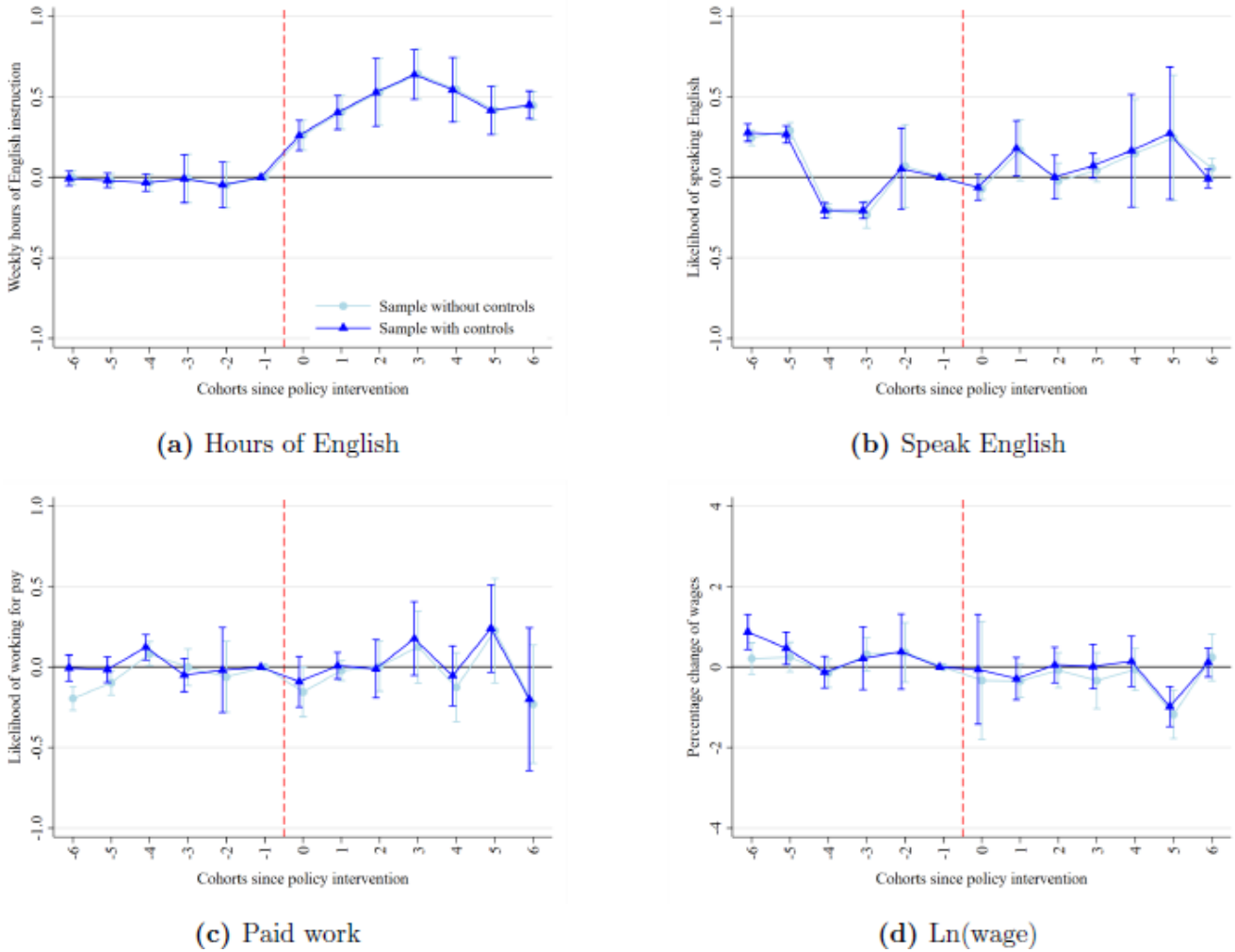
I use an event study specification to examine if pre-trends are present

$$y_{ijc} = \theta + \sum_{k} \psi_{c-c_j^*} I_{(k=c-c_j^*)} + \delta_j + \kappa_c + \boldsymbol{X_{ijc}\Psi} + \varepsilon_{ijc}$$

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

PTA staggered DiD

Figure A.4: Event-study graphs from TWFE specification



(a) Hours of English

(b) Speak English

(c) Paid work

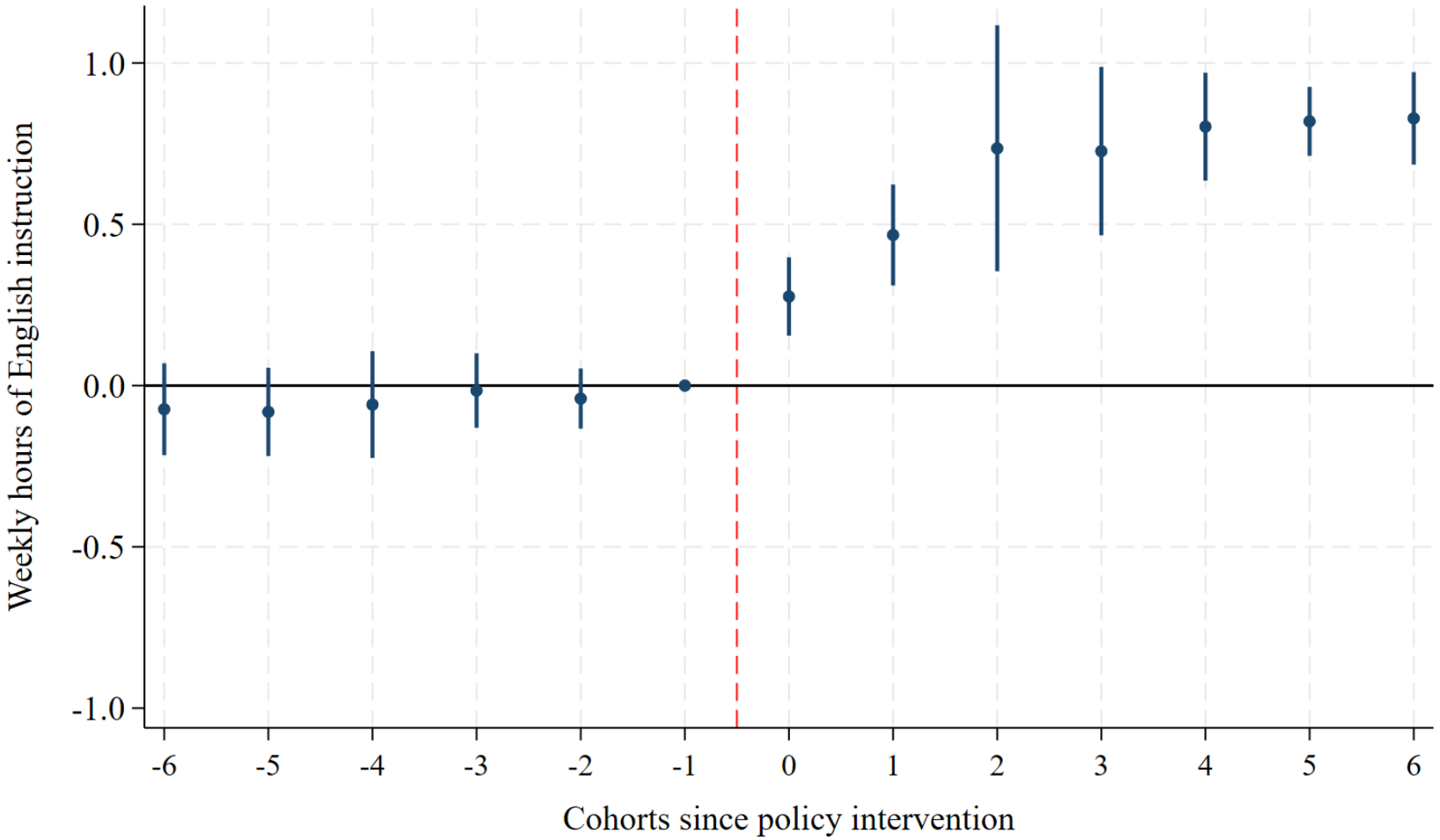
(d) Ln(wage)

Issues with staggered DiD

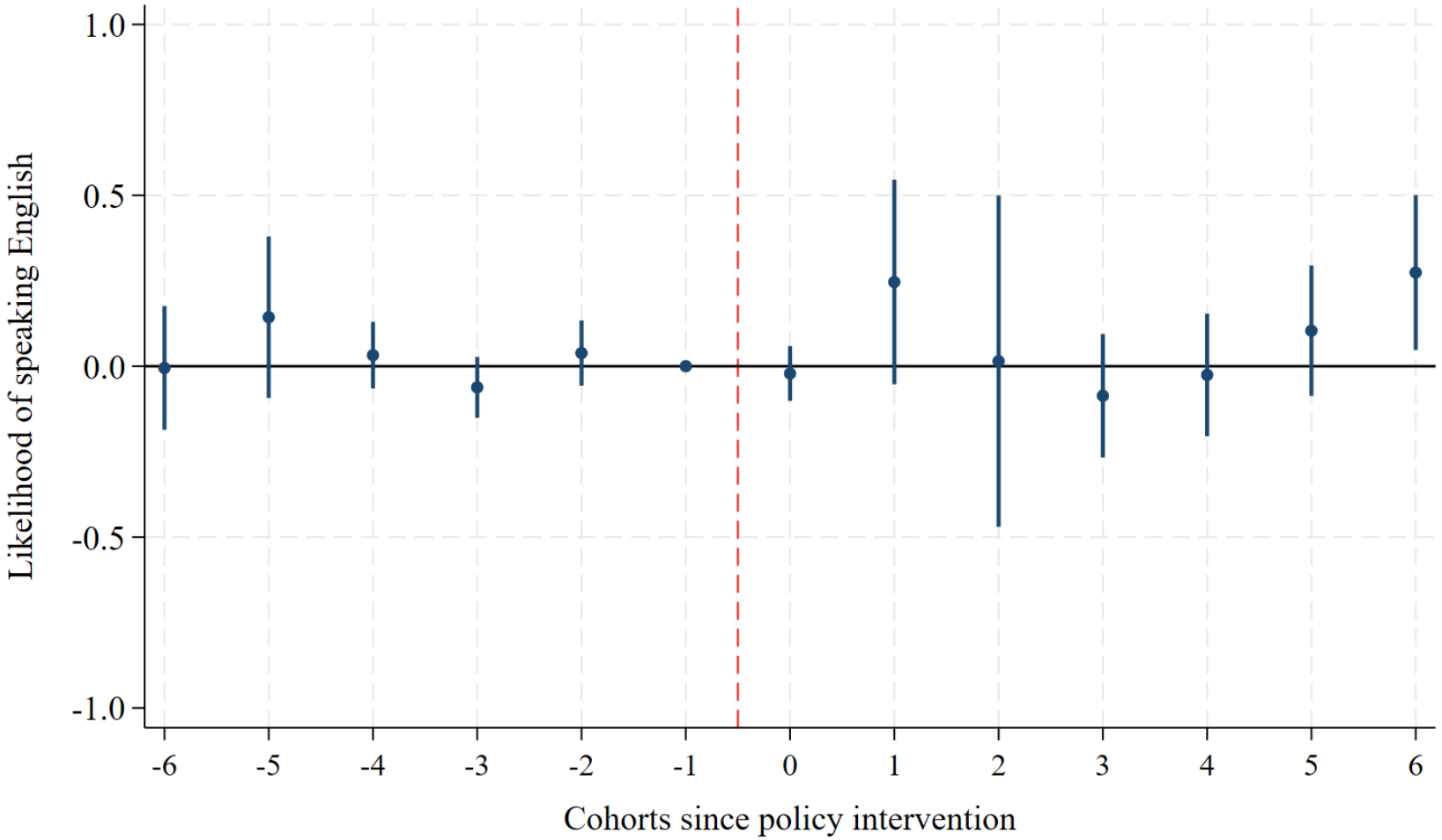
PTA

- In my staggered DiD the static and dynamic TWFE could be bias
- Concern about TWFE estimator in the presence of heterogeneous treatment effects
  - Borusyak, Jaravel and Spiess (2024)
  - Callaway and Sant'Anna (2021)
  - **de Chaisemartin and D'Haultfoeuille (2020)**
  - Sun and Abraham (2021)

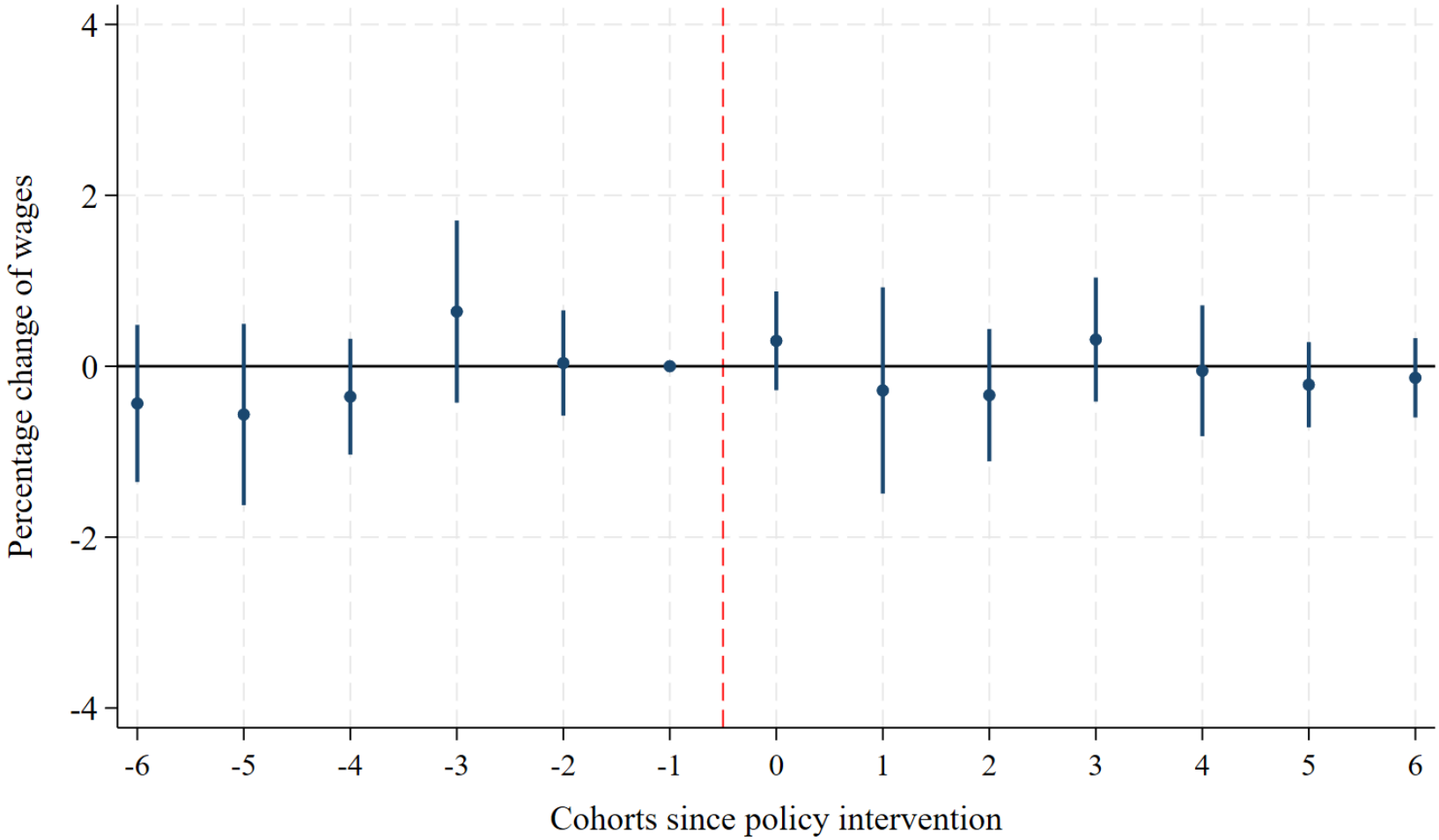
Effective increase in English instruction



More likely to speak English



No effect on wages

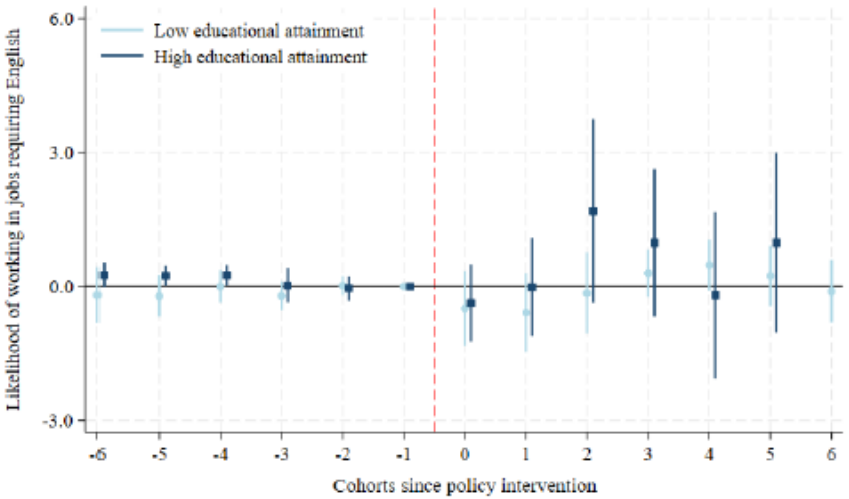


Mechanisms

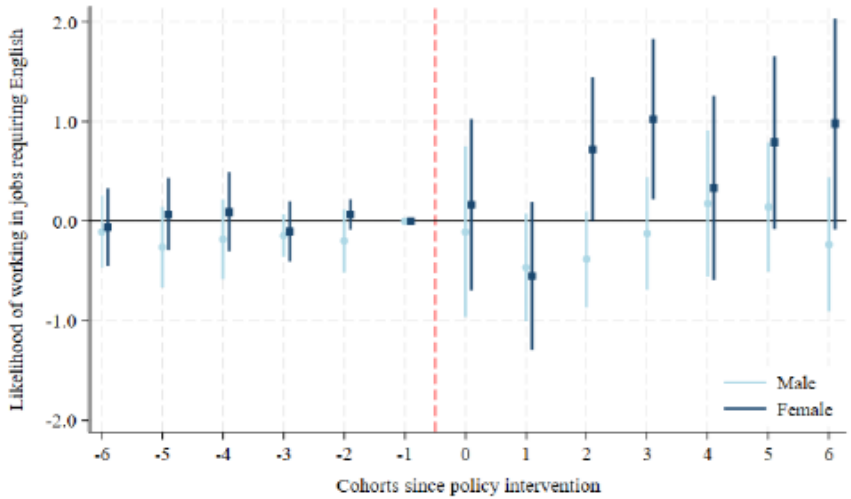
- Cognitive skills
  - Acquisition of English skills
  - No effect on other skills: Language and Mathematics (Gálvez-Soriano, 2023)
- Occupational choices
  - Labor supply
  - Working conditions
  - Subjective well-being measures
- School enrollment
  - Zero effect on wages in the short-run, but positive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

More likely to work in English-intensive jobs?

Distribution

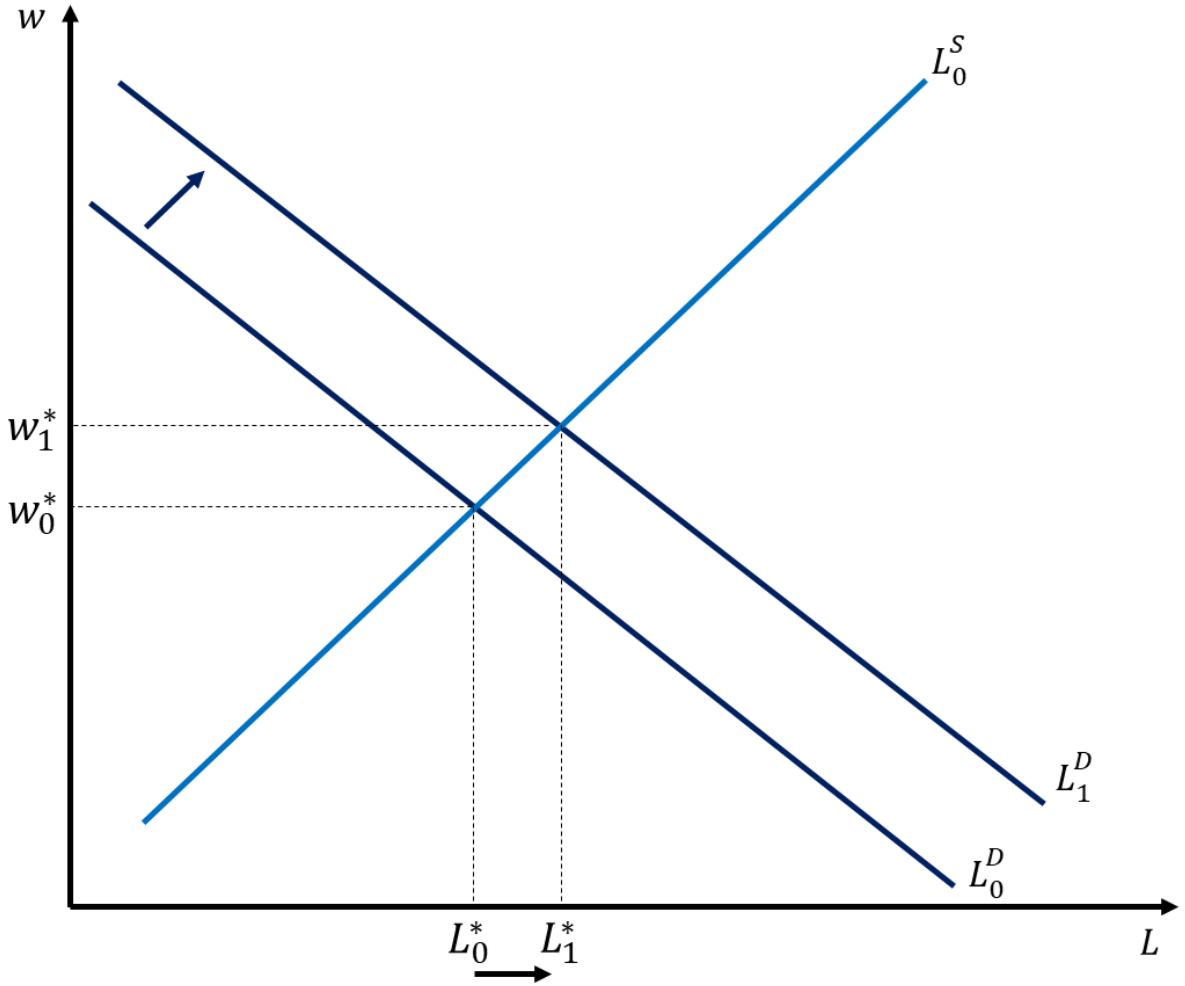


(a) By educational attainment



(b) By sex

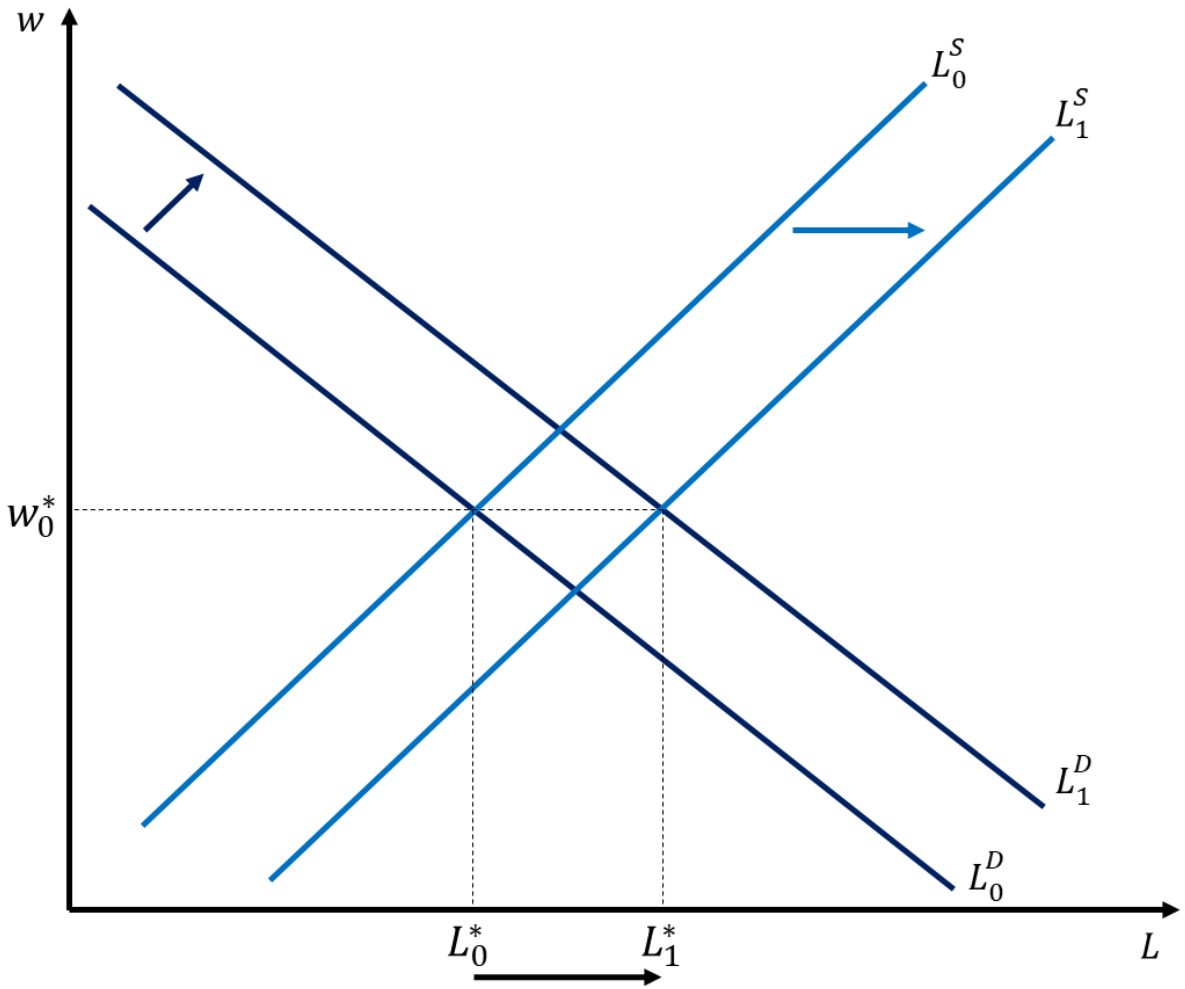
Improvement in marginal product of labor



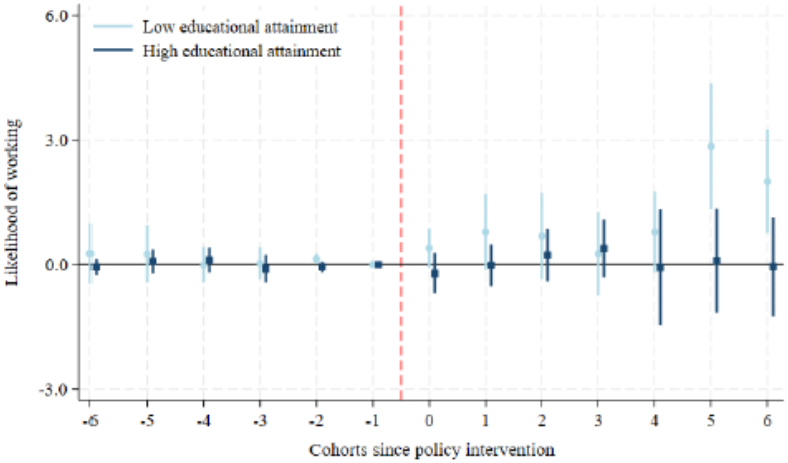
Mechanisms

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

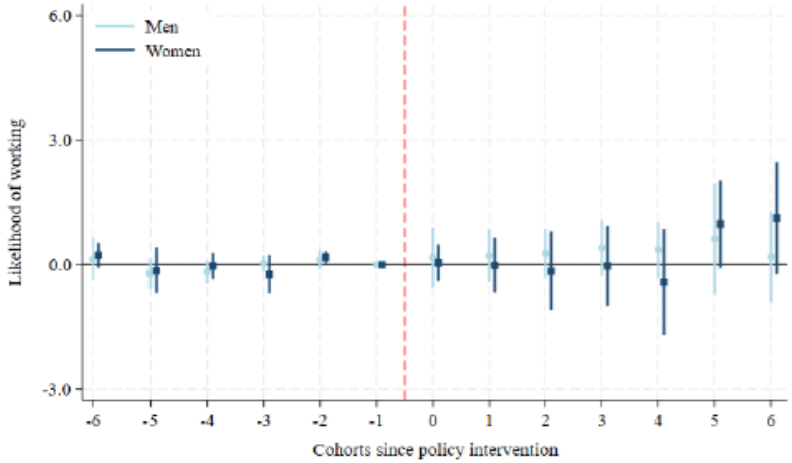
More labor supply



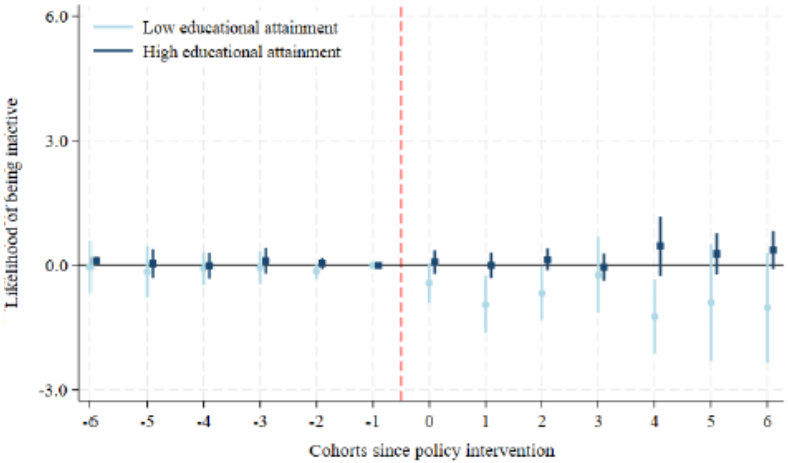
More labor force participation: 'low quality'



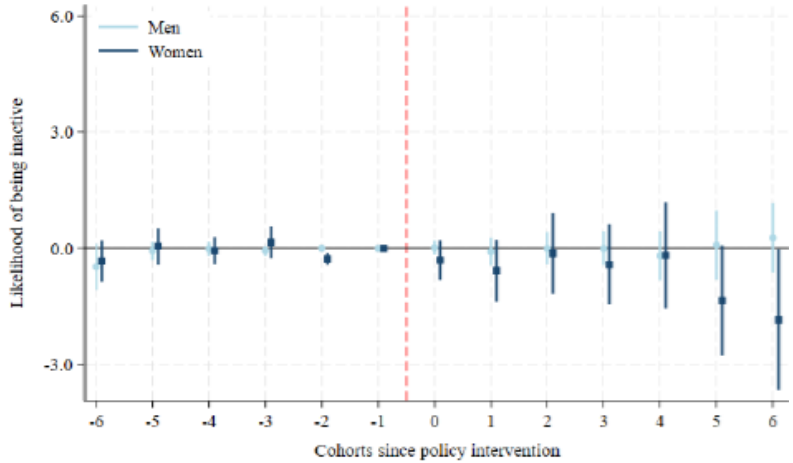
(a) By educational attainment



(b) By sex

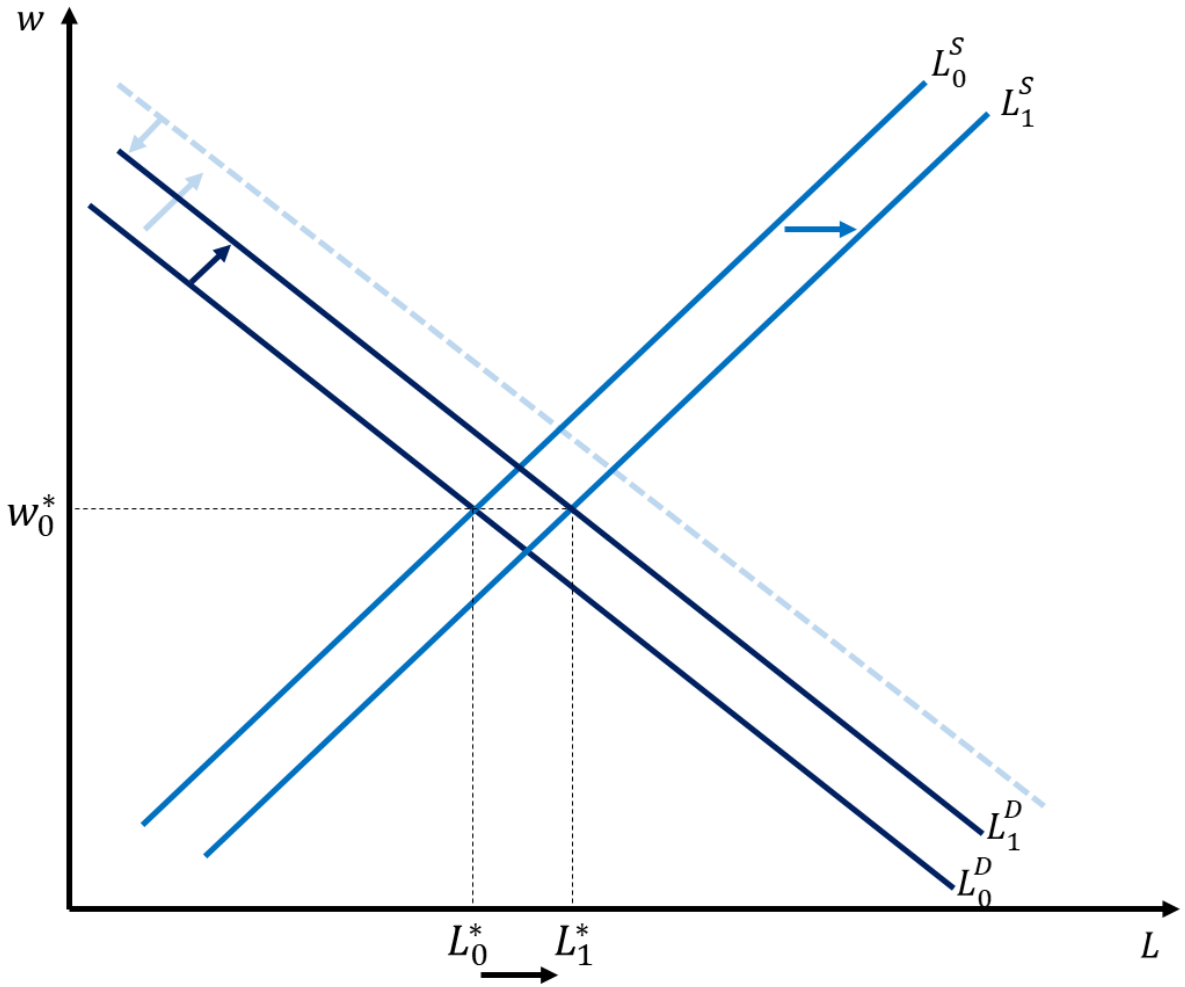


(c) By educational attainment



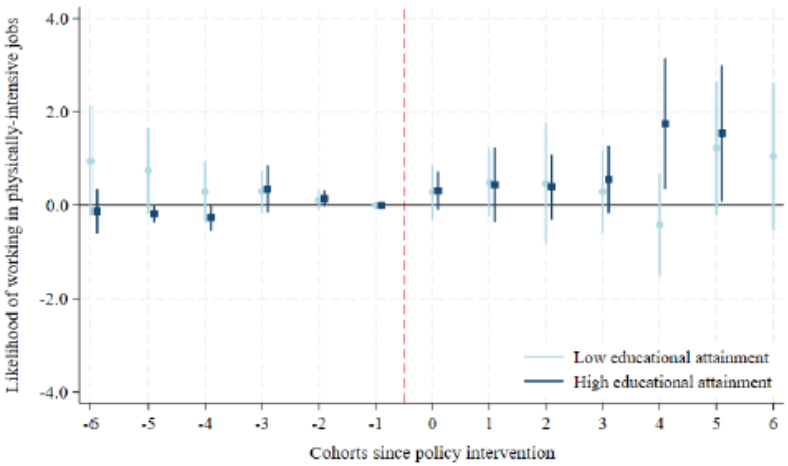
(d) By sex

Effect of low-quality workers

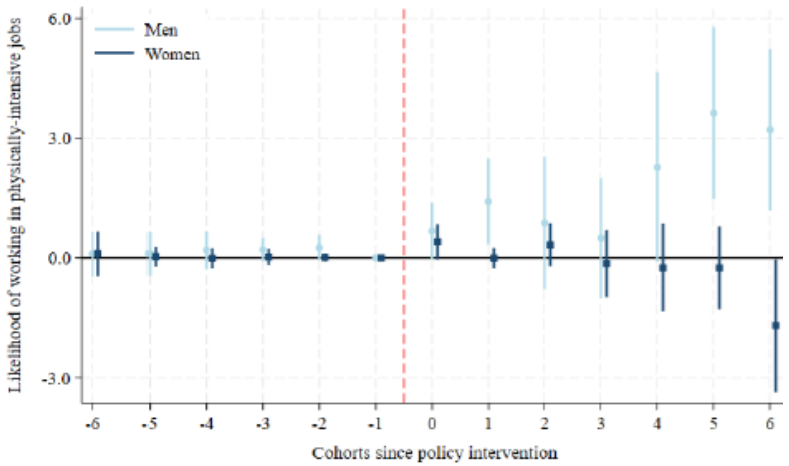


Occupational decisions by skill requirement

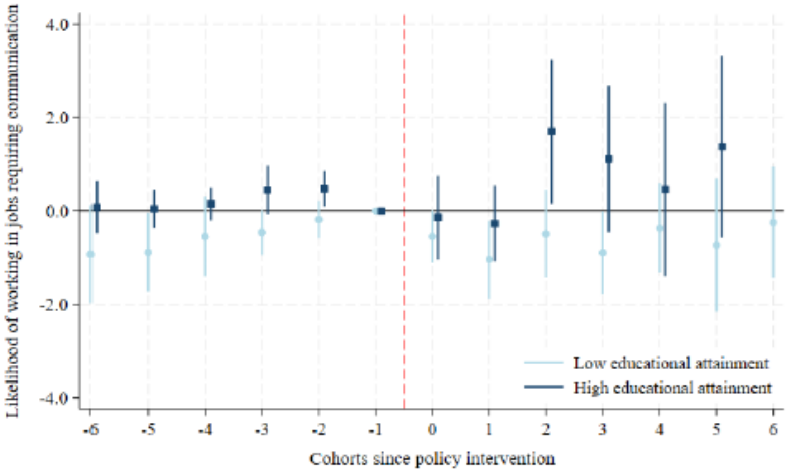
Distribution



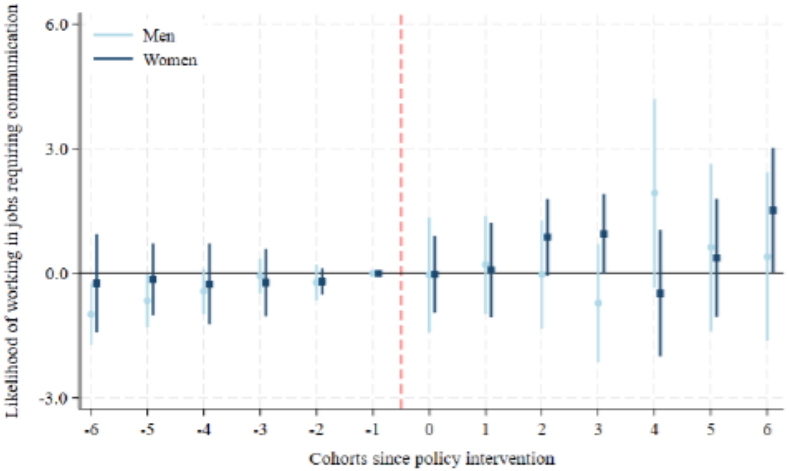
(a) Physically demanding jobs by education



(b) Physically demanding jobs by sex

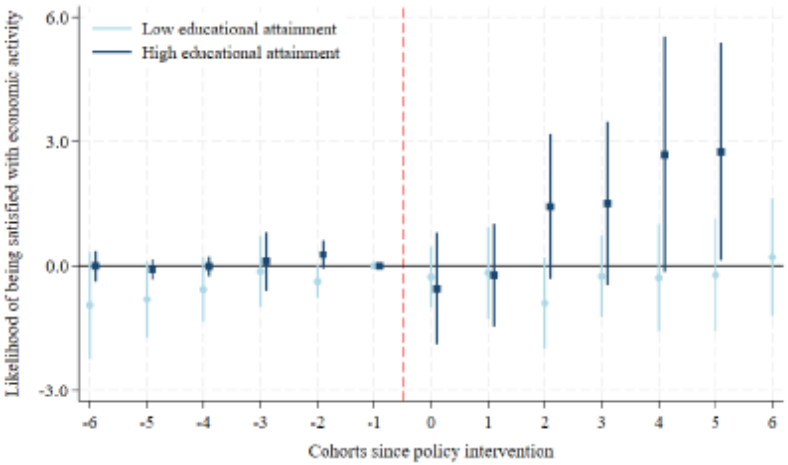


(c) Jobs requiring communication by education

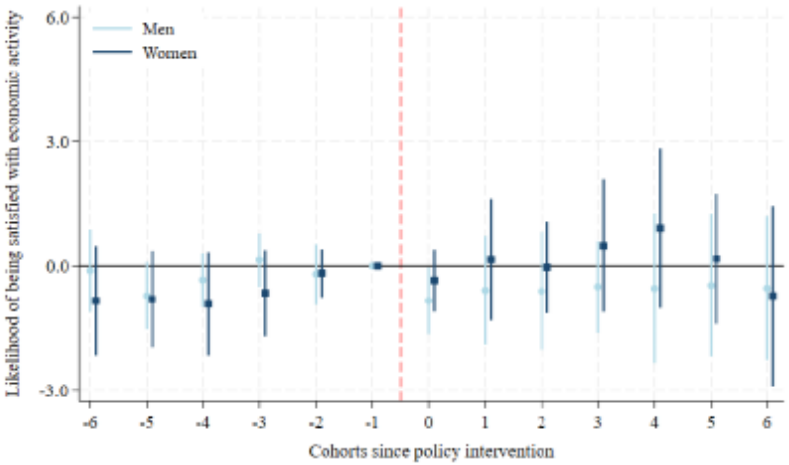


(d) Jobs requiring communication by sex

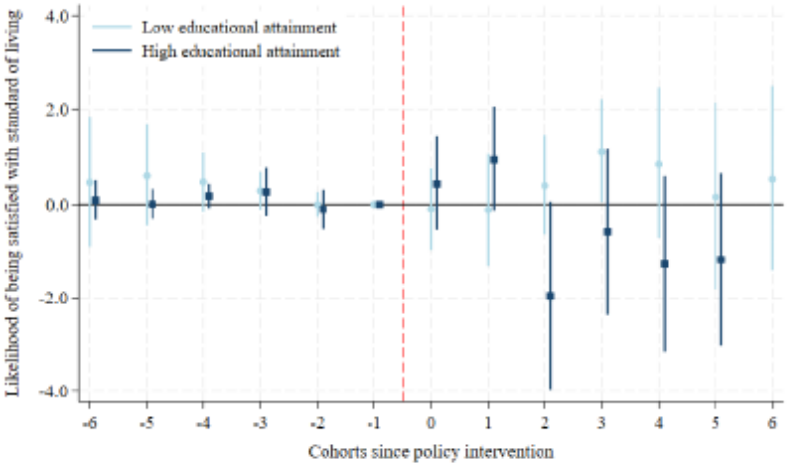
Subjective well-being



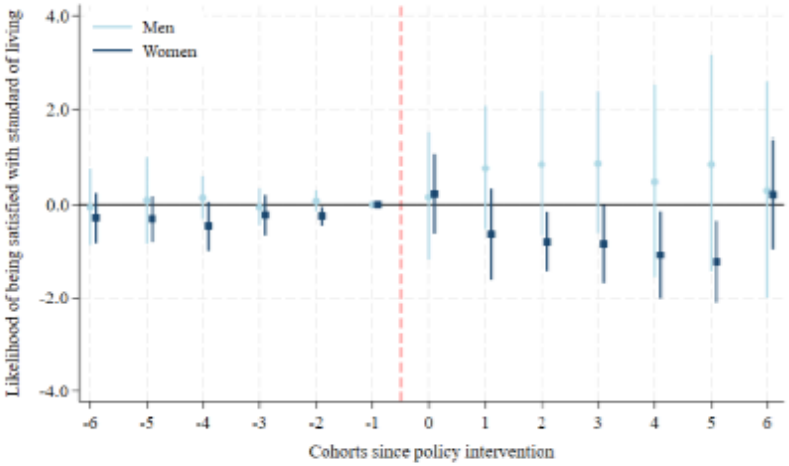
(a) Economic activity by education



(b) Economic activity by sex



(c) Standard of living by education

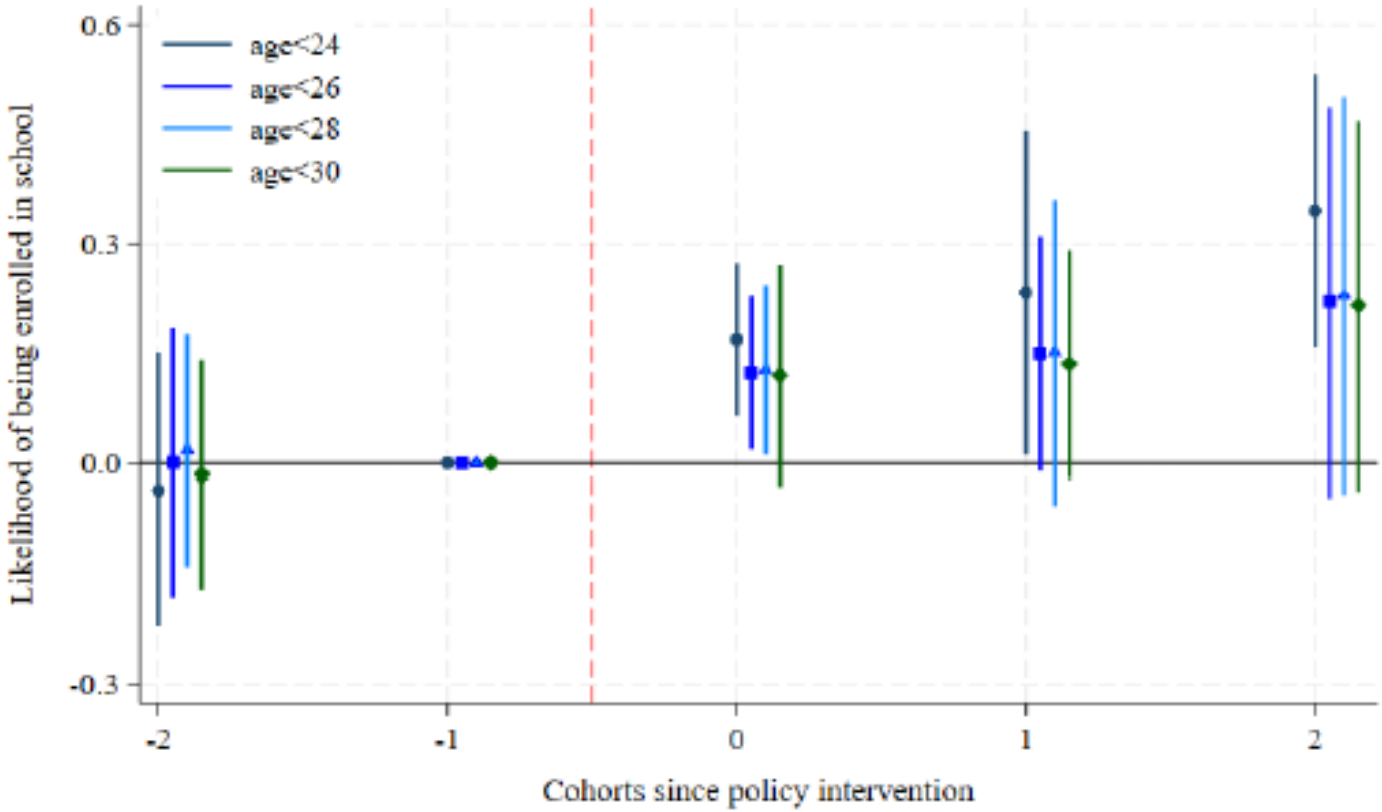


(d) Standard of living by sex

Mechanisms

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

School enrollment



(a) Young vs old cohorts

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
- I find no effect on wages, likely explained by more labor force participation
  - low-educational attainment workers
  - more likely to work in physically demanding jobs
  - less satisfied with their standard of living
- More likely to be enrolled in school

Thank you!

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

English speakers different from non-Eng speakers

Back

Table 1: Descriptive statistics

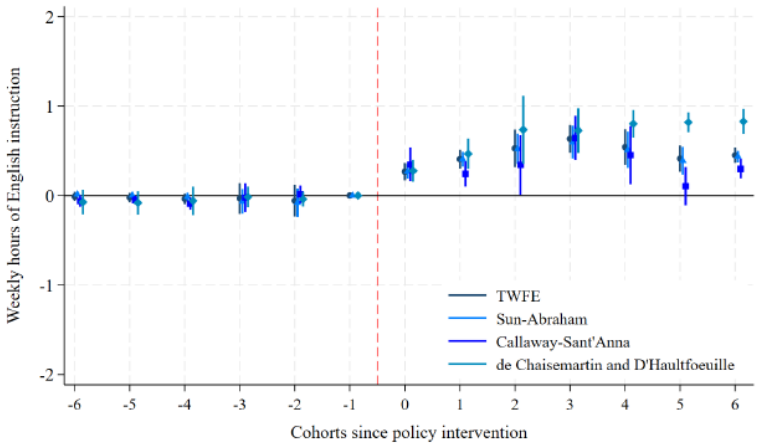
Variable	Full Sample	Speak English (a)	Don't spk English (b)	Diff. (a-b)
Dependent variable				
Wage (monthly pesos)	5,164.59	9,575.90	4,767.58	4,808.31***
English (speaking ability)	0.08	1.00	0.00	-
Hrs English	0.11	0.14	0.11	0.03
Labor supply (hours)	46.04	44.74	46.15	-1.41
Formal job	0.47	0.64	0.45	0.19***
Physically demanding job	0.26	0.10	0.27	-0.17***
Job with comm. skills	0.27	0.58	0.24	0.34***
Satisfied with job	0.52	0.59	0.52	0.07*
Satisfied with SOL	0.38	0.49	0.38	0.11***
Satisfied with achievements	0.43	0.56	0.41	0.15***
Independent variables				
Age (years)	25.72	26.61	25.64	0.97***
Education (years)	10.62	14.16	10.30	3.87***
Female (%)	0.40	0.39	0.40	-0.01
Indigenous (%)	0.06	0.03	0.06	-0.03**
Married (%)	0.54	0.39	0.55	-0.16***
Rural (%)	0.20	0.08	0.21	-0.13***
Observations	4,548	383	4,165	4,548

Robustness checks

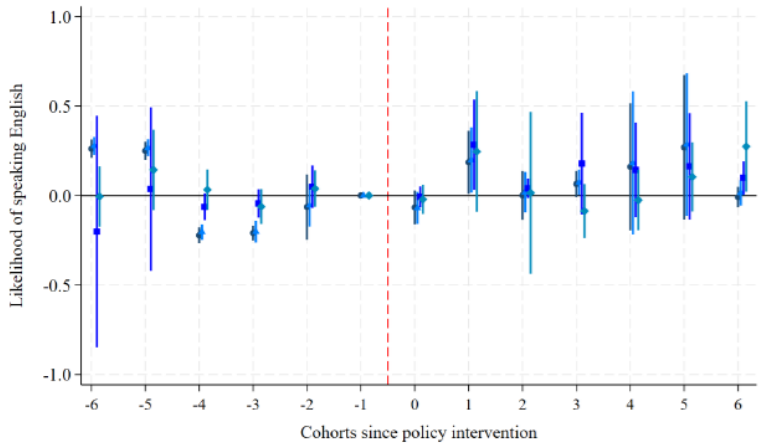
- Old and young ⏩ cohorts
  - Lags and leads
  - Cohorts
- Sensitivity analysis in treatment and control ⏩ states
  - With Coahuila and Morelos
  - Excluding southern states
  - Excluding states from treatment group
- State ⏩ trends

TWFE correction

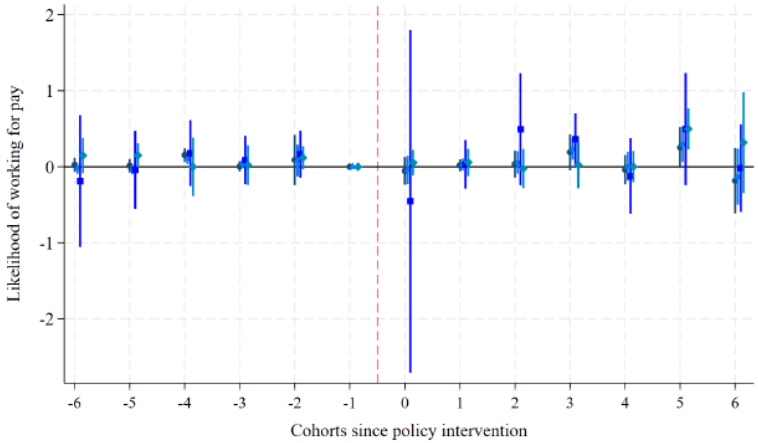
Back



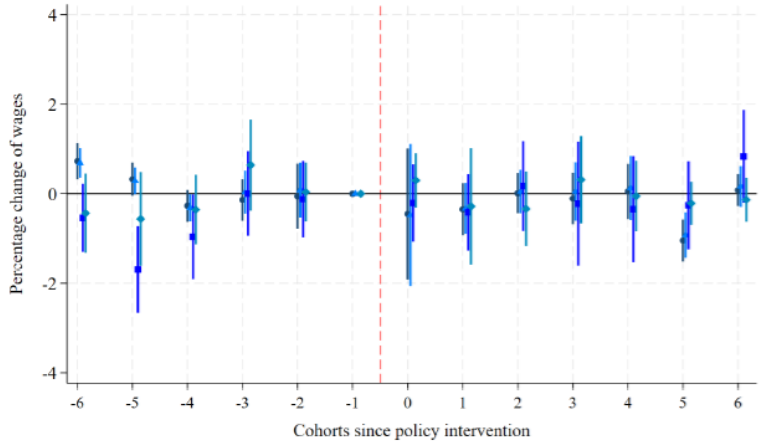
(a) Hours of English



(b) Speak English



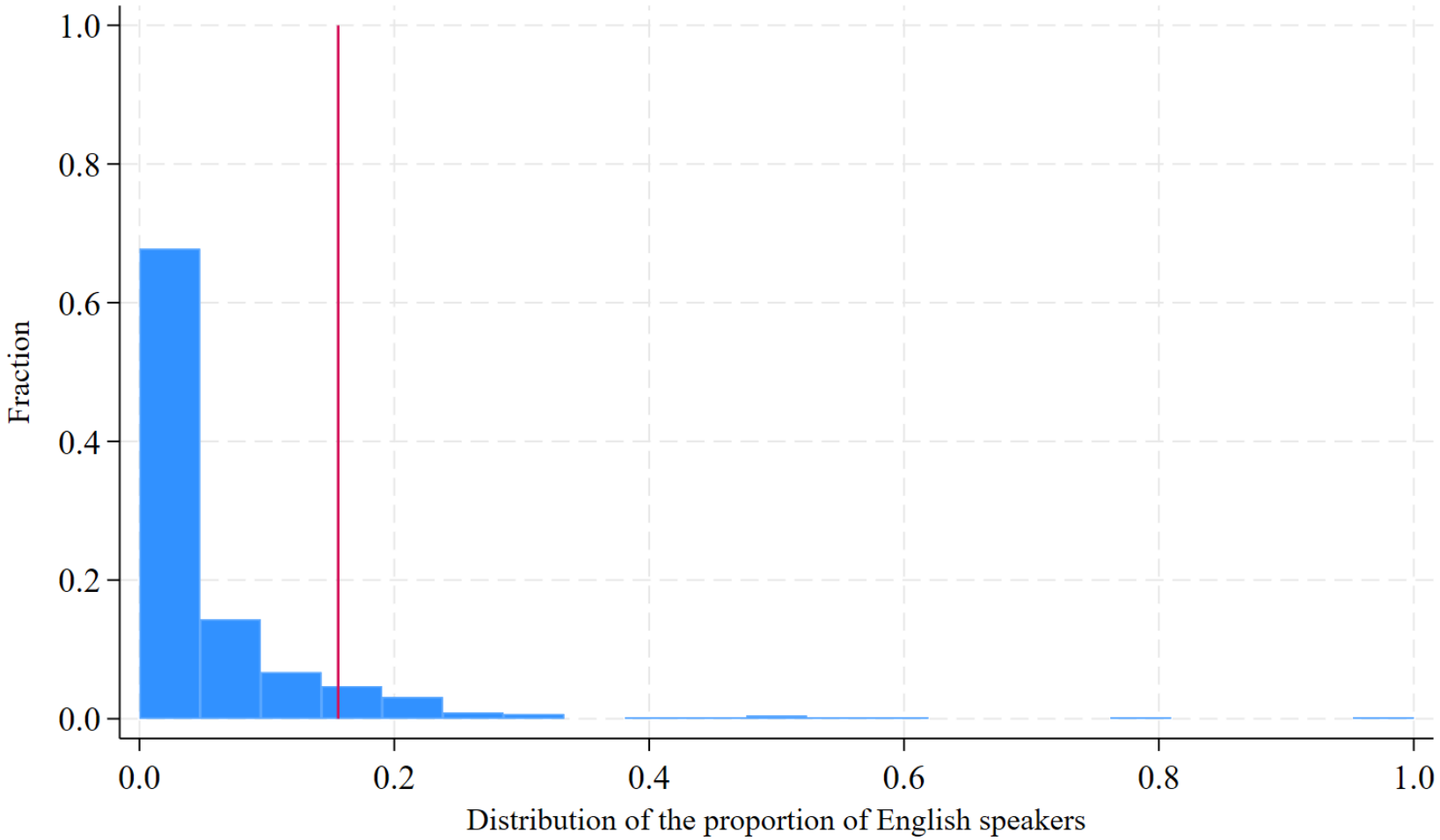
(c) Paid work



(d) Ln(wage)

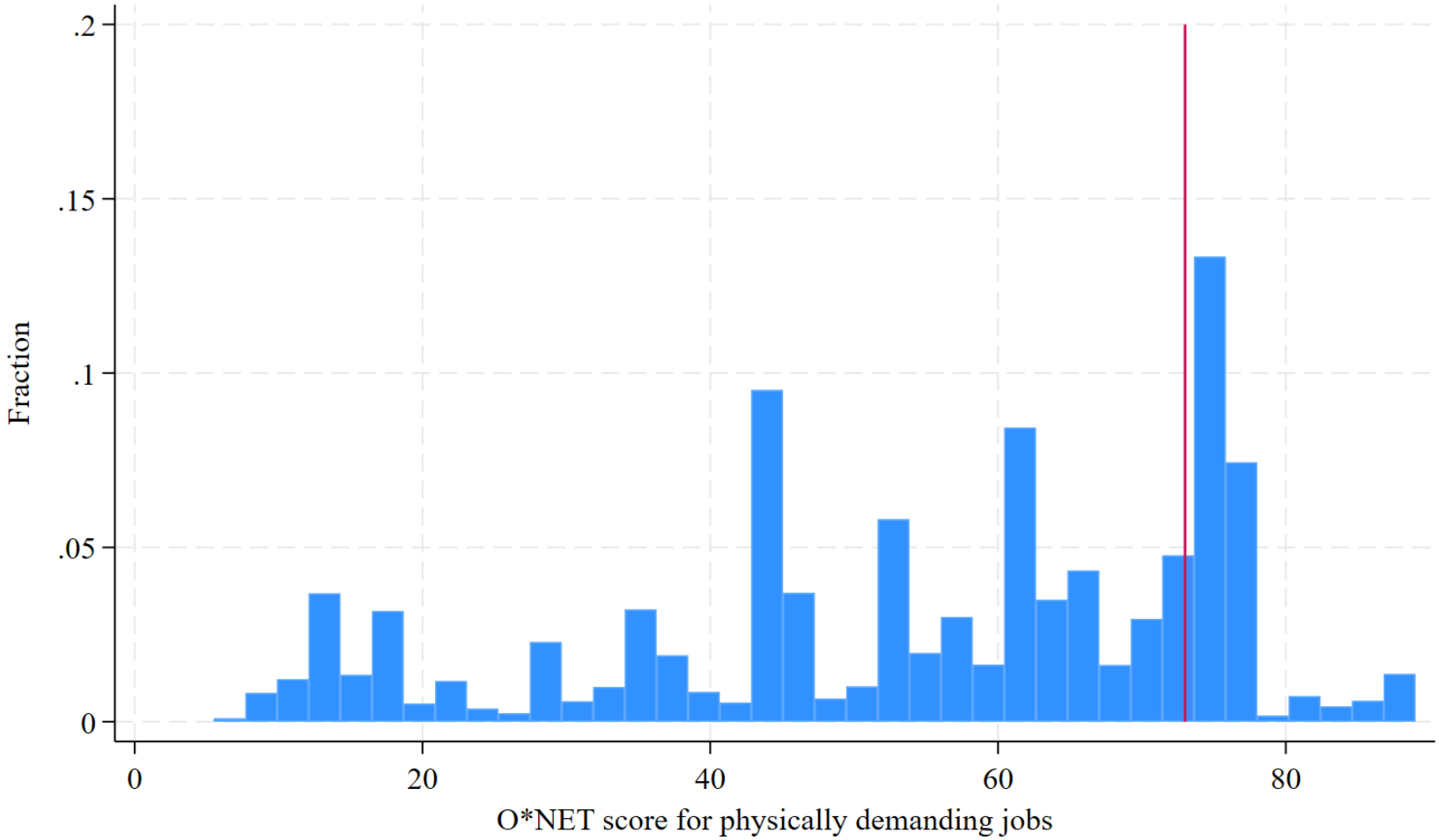
Distribution of English-intensive jobs

Back



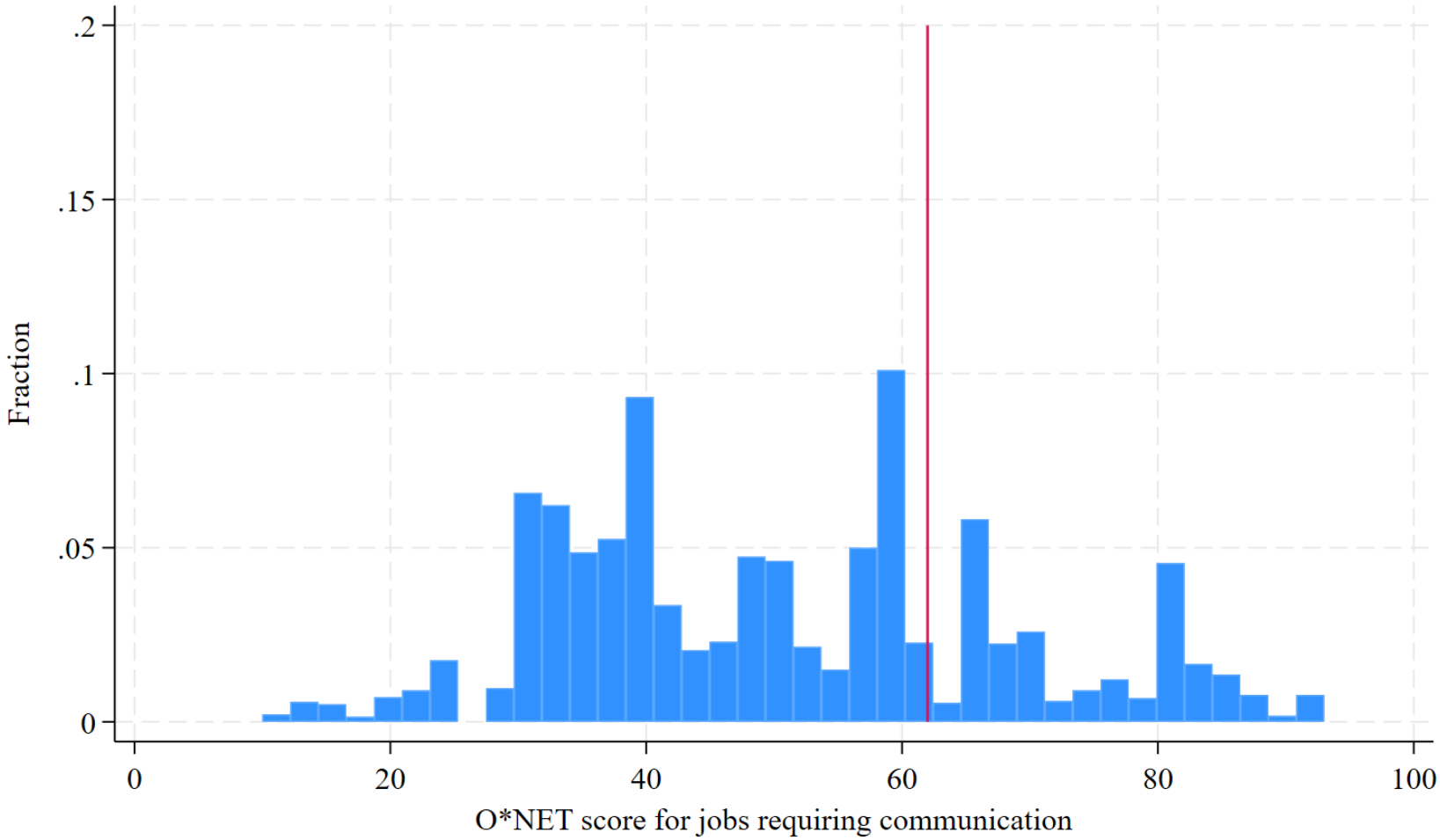
Distribution of physically demanding jobs

Back



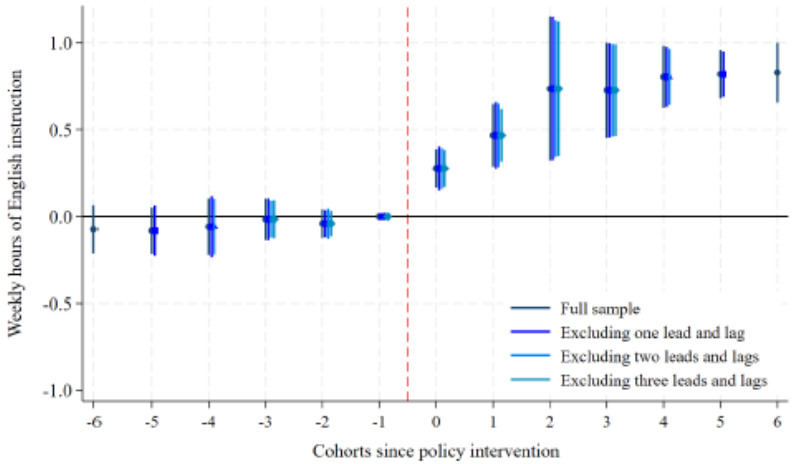
Distribution of jobs requiring communication

Back

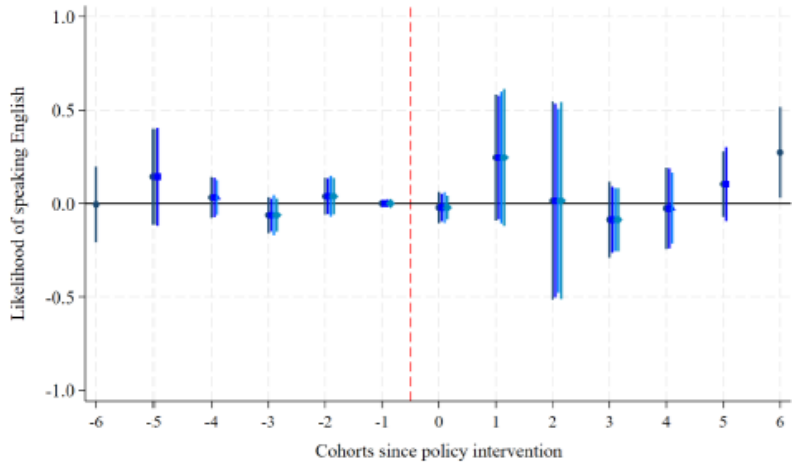


Robustness check: Changing leads and lags

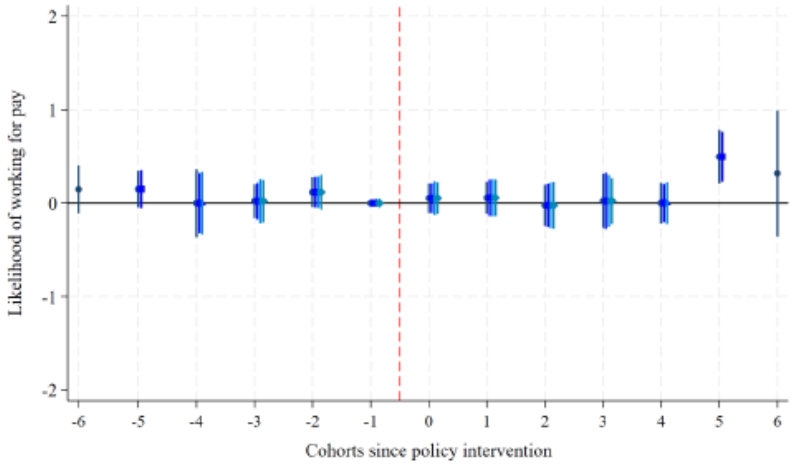
Back



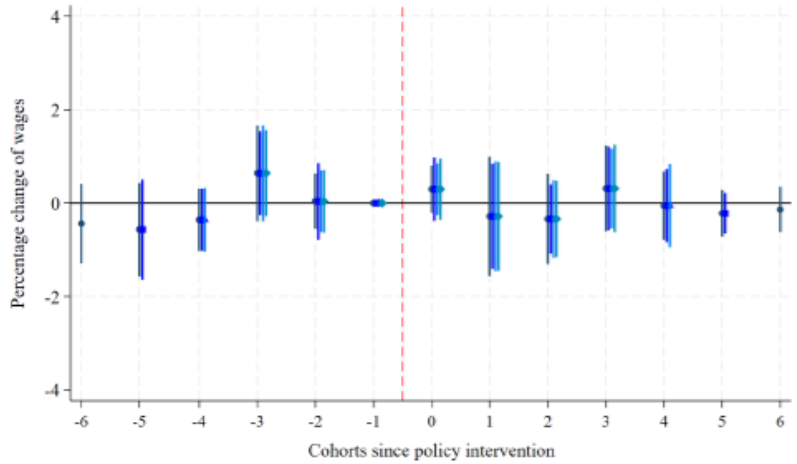
(a) Hours of English



(b) Speak English



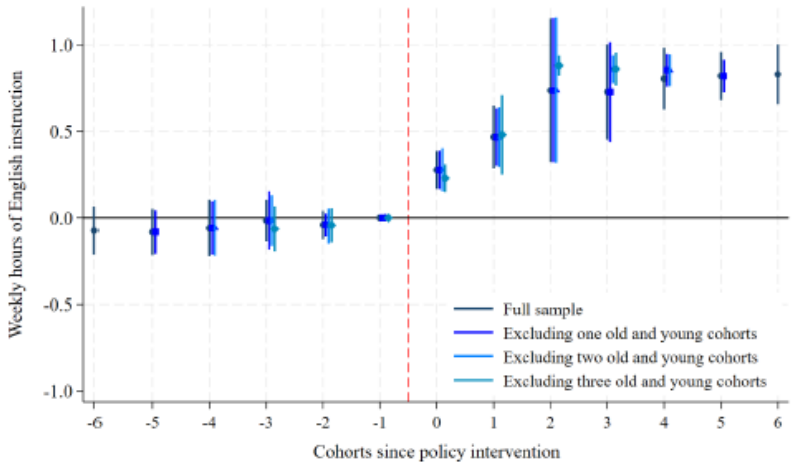
(c) Paid work



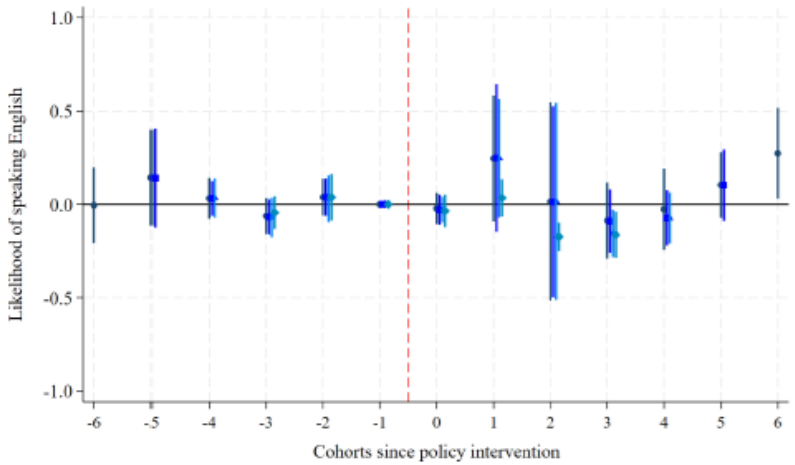
(d) Ln(wage)

Robustness check: Narrower cohort window

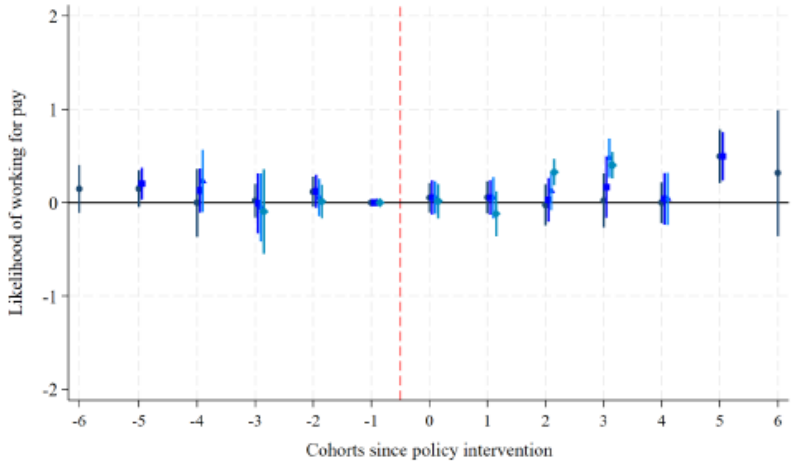
Back



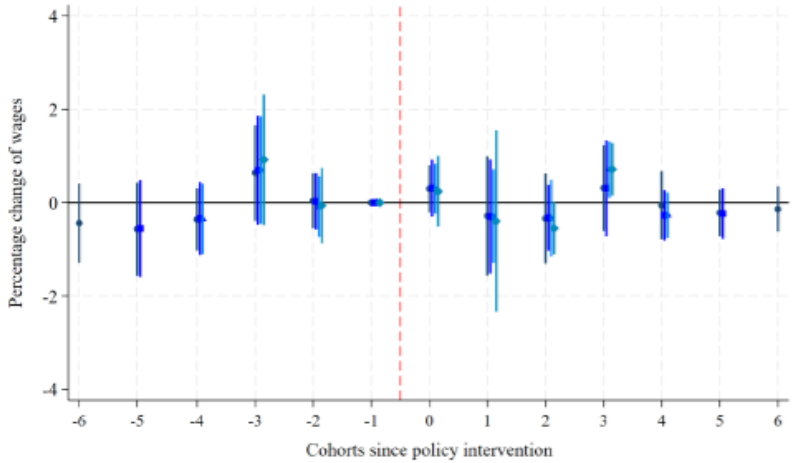
(a) Hours of English



(b) Speak English



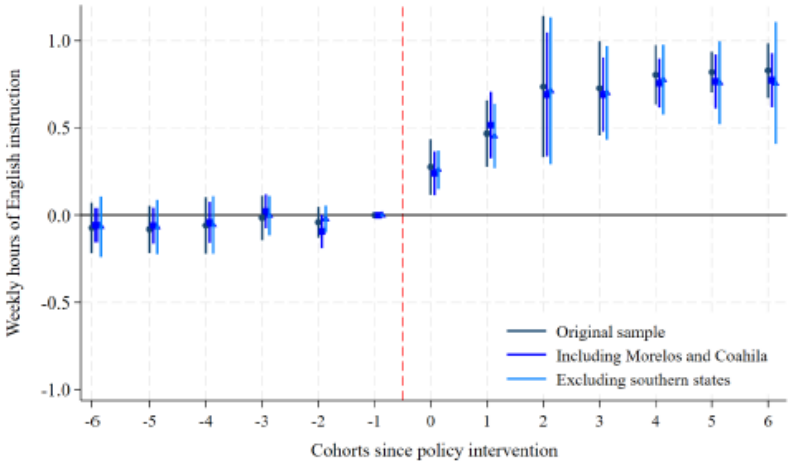
(c) Paid work



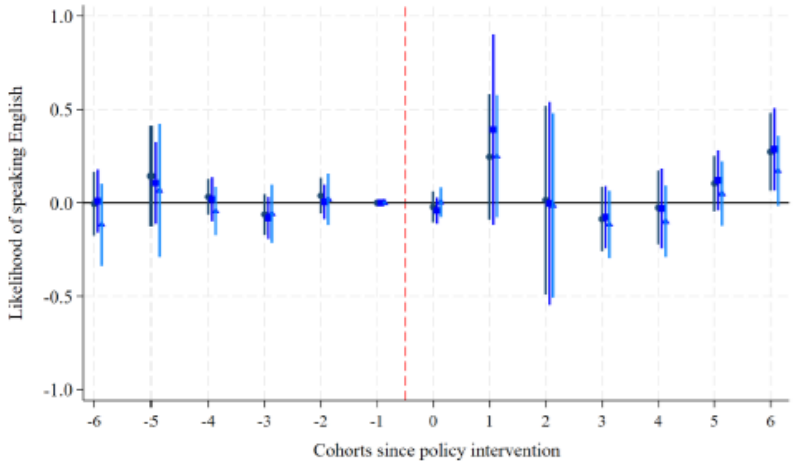
(d) Ln(wage)

Robustness check: Varying comparison group

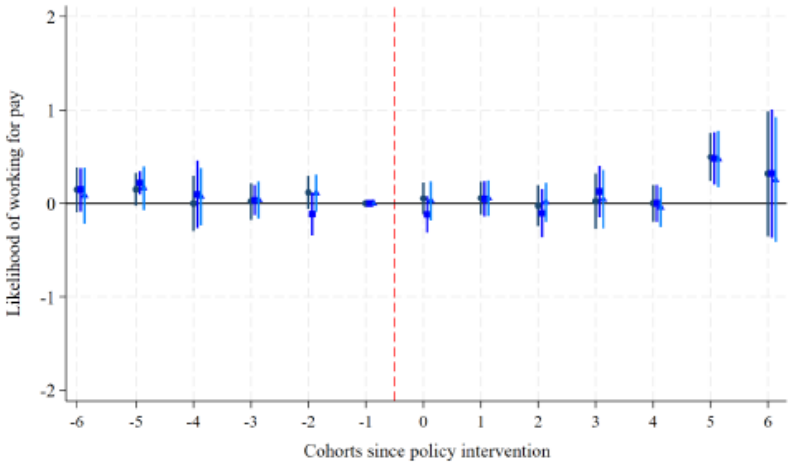
Back



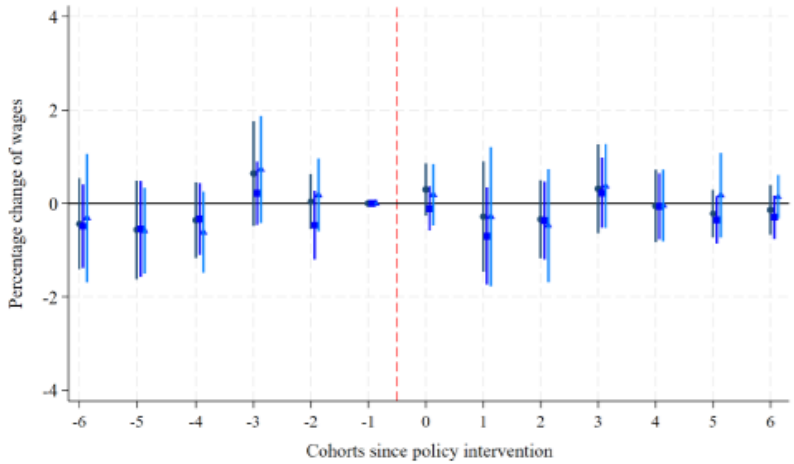
(a) Hours of English



(b) Speak English



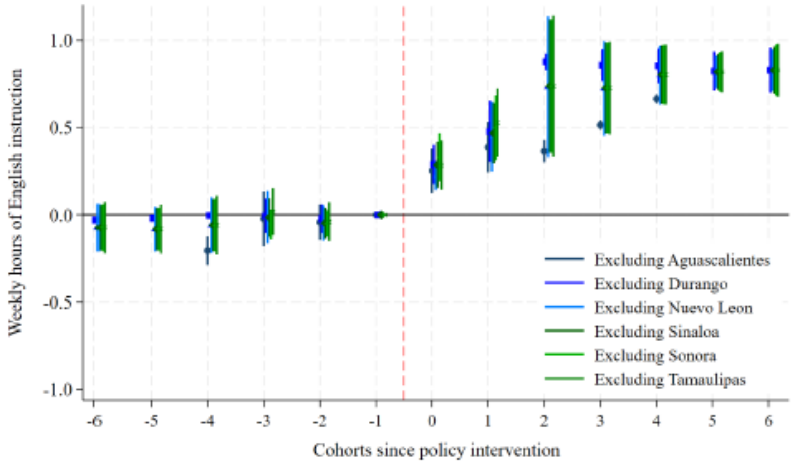
(c) Paid work



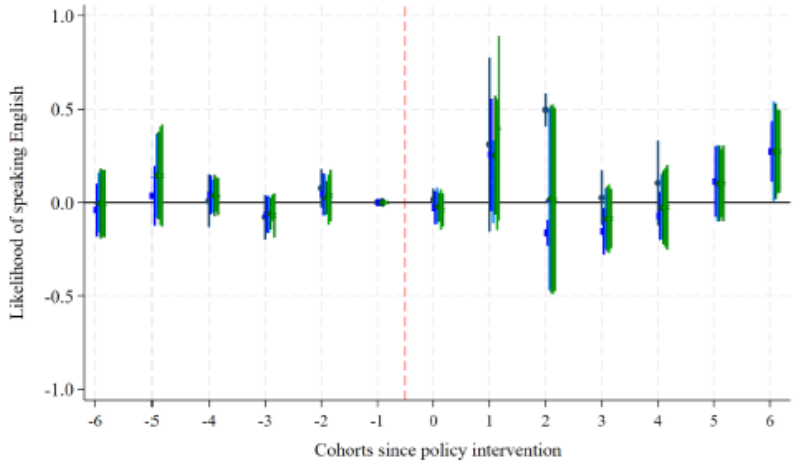
(d) Ln(wage)

Robustness check: Dropping treatment states

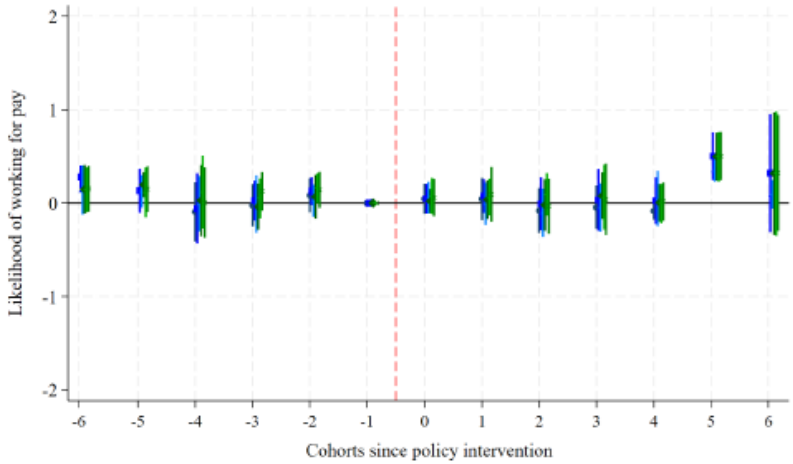
Back



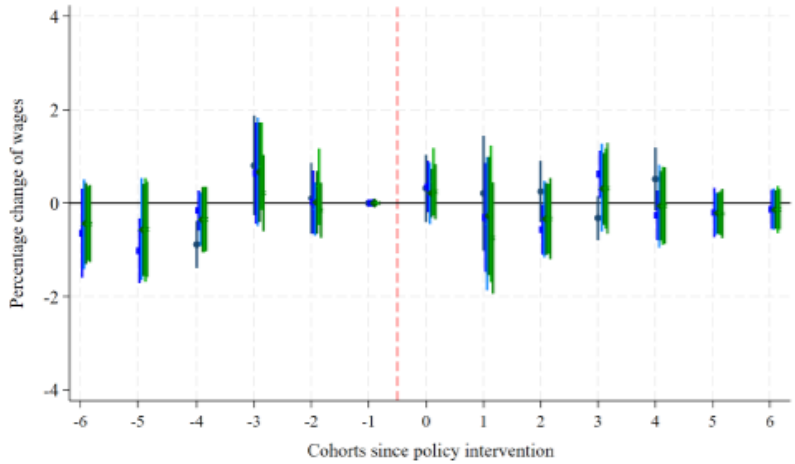
(a) Hours of English



(b) Speak English



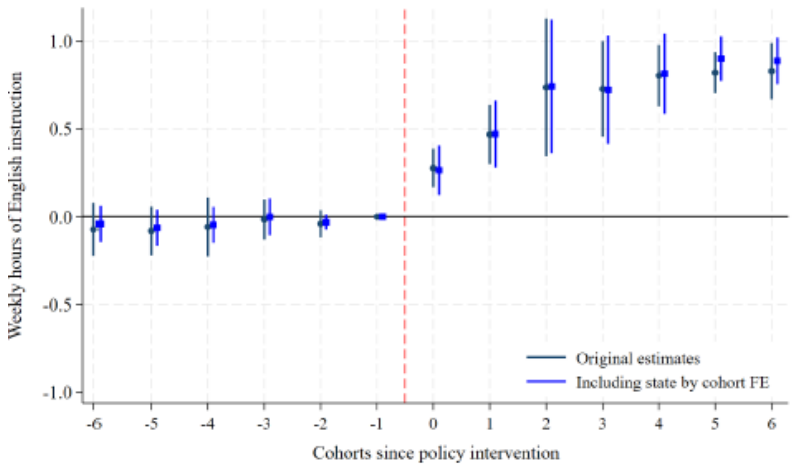
(c) Paid work



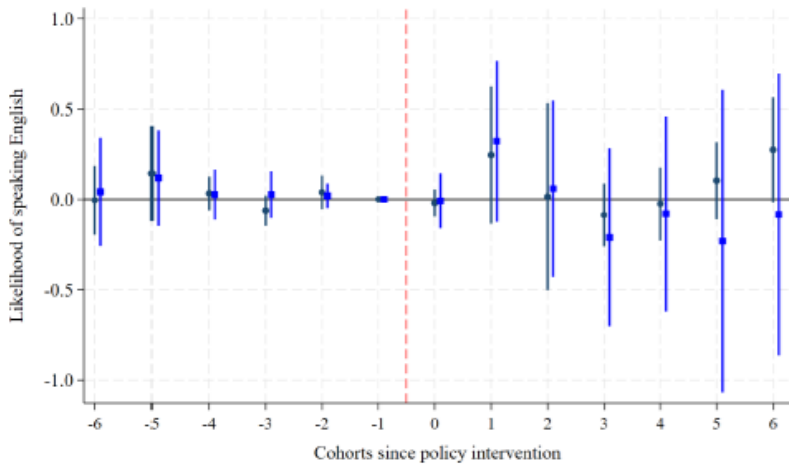
(d) Ln(wage)

Robustness check: State trends

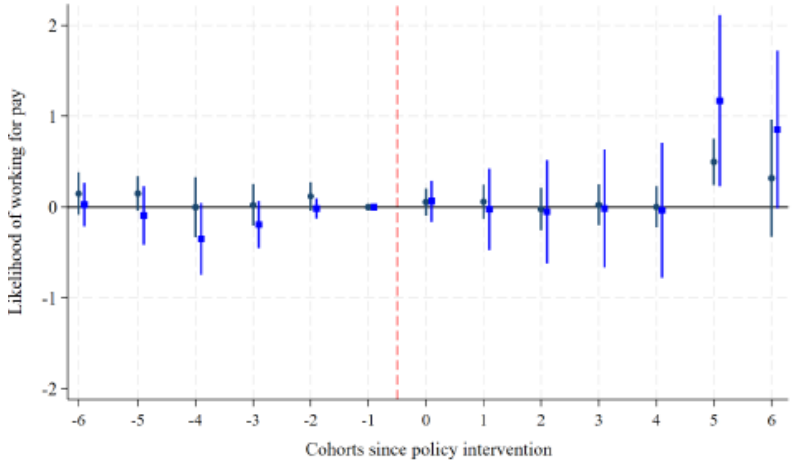
Back



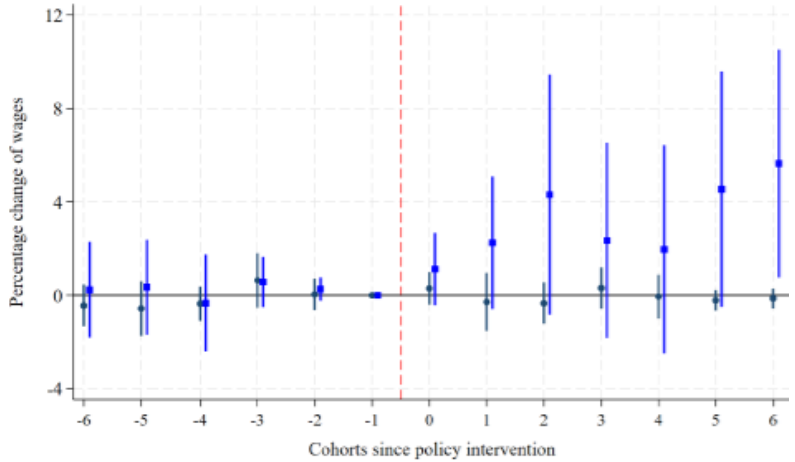
(a) Hours of English



(b) Speak English



(c) Paid work



(d) Ln(wage)