

# Why does starting school older harm schooling: First evidence on the role of youth employment laws

Itay Attar and Danny Cohen-Zada

EEA Annual Meeting

August 2025

# Motivation

- The decision at what age to start school is pivotal in the lives of many families as it may greatly influence their children's process of human capital accumulation.
- The seminal papers by Angrist and Krueger (1991, 1992) show that in the United States the interaction between the school entrance age (SEA) policy and the compulsory schooling law creates a mechanism through which students who start school older are more likely to drop out of high school (HS).
- This occurs because the compulsory schooling law in the US mandates a **minimum school dropout age**, and students who start school older reach this legal dropout age at an earlier grade.
- However, this mechanism does not apply to countries, like Israel, where the compulsory schooling law specifies a **minimum number of completed grades** instead of a minimal dropout age.

# Motivation

- Thus, while subsequent studies in the United States have consistently found that older school entrants are less likely to complete HS, studies conducted in several countries outside the United States reported either no effect or even a positive effect of a higher entrance age on educational attainment.
- All these studies attributed their findings to the presence or absence of the compulsory schooling law mechanism in their respective countries.
- However, Angrist and Krueger (1991) show that the **compulsory schooling law in the US prevent only 10% of students from dropping out of high school.** Moreover, Acemoglu and Angrist (2000) show across countries that the impact of **youth employment laws** on educational attainment is more important than that of compulsory schooling laws.
- Recent studies reinforce this link by showing that greater access to the labor market or stronger labor market conditions reduce schooling by raising the opportunity cost of education and encouraging students to work instead (Saha and Steinberg 2017, Charles et al. 2018).

# Motivation

- Most studies find that the effect of employment on dropout rates is particularly strong among male students (Atkin 2016, Shah and Steinberg 2021, Cascio and Ayushi 2022, Montmarquette et al. 2007, Holford 2020).
- Surprisingly, despite the significance of youth employment laws, the SEA literature has completely overlooked the impact of SEA on youth employment and how the interaction between school entrance age policy and youth employment laws leads older school entrants to drop out of high school at higher rates.

**The main purpose of this paper is to fill this gap.**

# The Role of Youth Employment Laws

- Youth employment regulations, which exist in most developed countries, set minimum wages, hours worked limitations and most importantly a **minimum legal working age** for individuals under 18.
- Therefore, students who enter school a year older are permitted to work more years during HS because they reach the legal working age at an earlier grade.
- The existence of this tempting outside option may lead them to **drop out of high school** and consequently achieve lower educational attainment.
- We explore this mechanism in four steps. First, we establish that a higher SEA has a significant positive effect on **youth employment**. Second, we show that reaching the minimum legal working age substantially increases the likelihood of working during high school. Third, we provide evidence that a higher SEA also has a significant positive effect on **HS dropout**. Finally, **we use several strategies to provide evidence that the positive effect of a higher SEA on high school dropout is driven by youth employment**.

# The Israeli Youth Employment Law

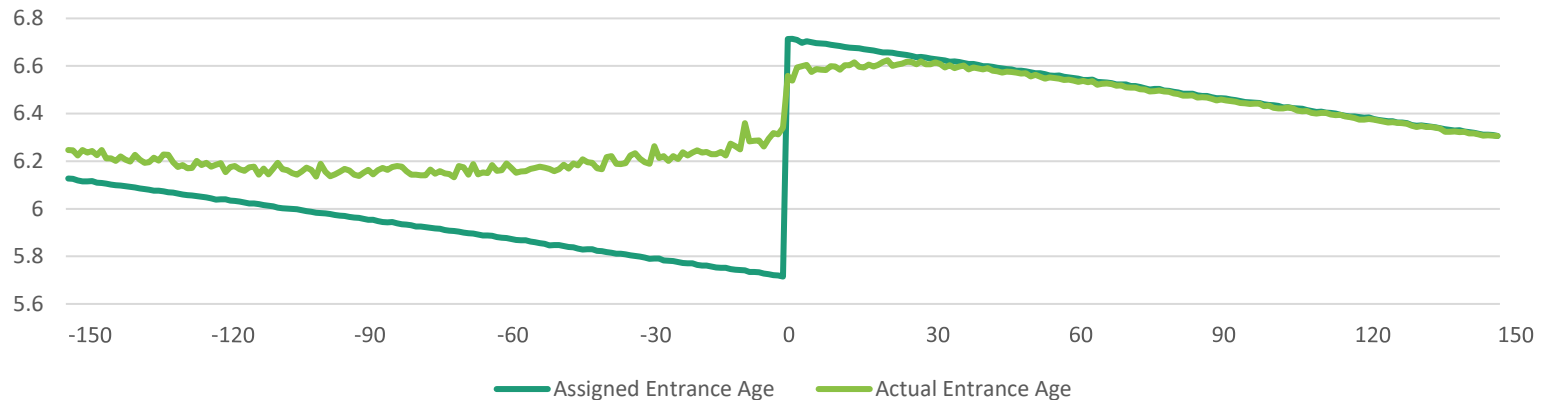
- The Israeli Youth Employment Law, enacted in 1953, regulates the employment of minors under 18 years old.
- According to the law, children aged 15-16 cannot be employed unless exempt from compulsory schooling, while those 16 and older who are subject to compulsory schooling can work after school hours.
- This implies that students born just after the cutoff date and starting school a year older can begin working as early as during the second half of tenth grade. In contrast, those born just before the cutoff date and starting school a year younger must wait until the second half of eleventh grade before they can be employed.
- Thus, this law is expected to drive a positive association between a higher school entrance age and youth employment.

# Data

- Our database includes administrative records from the Israel Ministry of Education, tracking seven cohorts of students from school entry to age 20 (hereinafter referred to as “Young Cohorts”) and four cohorts from tenth grade to age 38 (hereinafter referred to as “Old Cohorts”). Each record contains a rich set of control variables.
- The records of the “Young Cohorts” allow us to estimate all short- and medium-term SEA effects on the same students.
- The records of the “Old Cohorts” allow us to estimate the effect of SEA on a rich set of long-term outcome variables.
- Our raw dataset includes information on the entire population of students in public schools living in Jewish localities.
- As we employ a regression discontinuity (RD) approach, we focus on a narrow interval of +/- 28 days around the entrance cutoff dates. Thus, our final RD sample includes 70,758 observations for the young cohorts and 35,856 for the old ones.

# The common estimation strategy

- Previous studies that examined SEA effects on various outcomes generally acknowledged that this variable is endogenous because the decision of parents whether or not to delay school entry is based on the characteristics of the child as well as those of the parents.



- To deal with this concern, researchers usually exploited an RD specification around the entrance cutoff date, where an indicator for whether the child was born before or after the cutoff point serves as an instrumental variable for the actual school entry age:

$$Y_{id} = \alpha_0 + \alpha_1 \cdot SEA_{id} + \beta \cdot X_{id} + \varepsilon_{id}$$



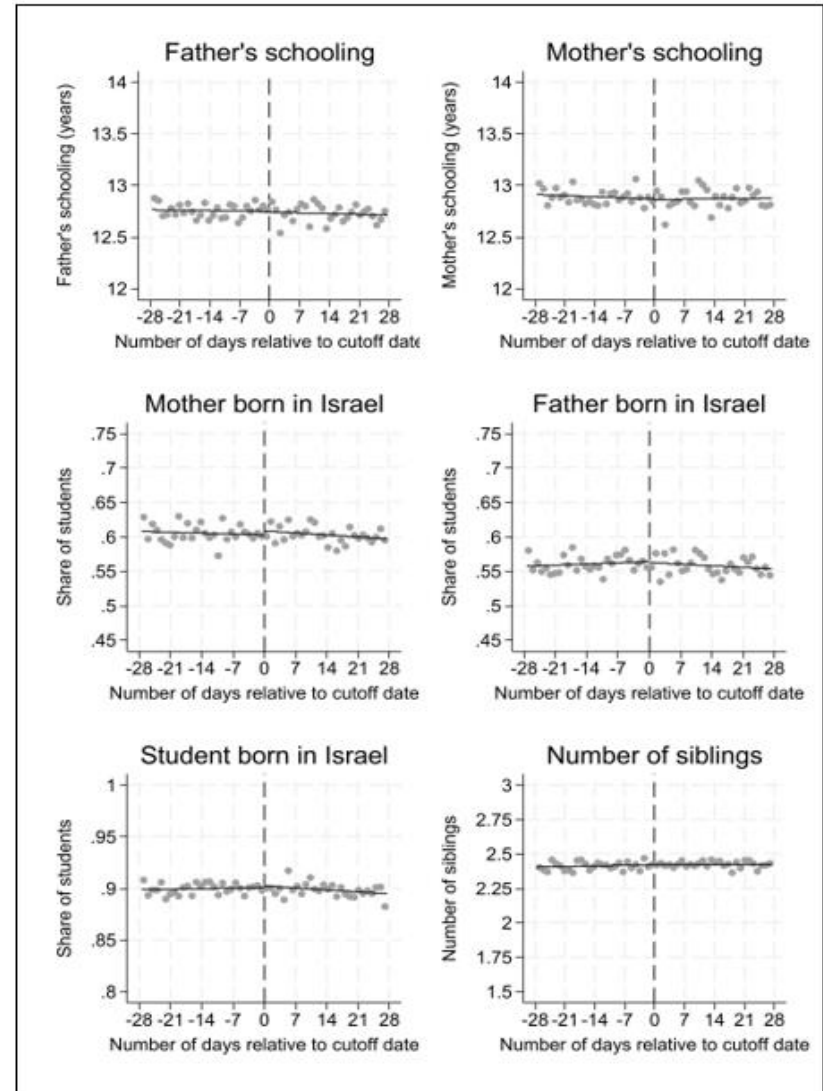
$$IV = After_{(i)d}$$

# Our improved identification strategy

- We employ an improved identification strategy that leverages a natural experiment arising from the previous school entrance rule in Israel. This rule set the school entry cutoff date to be every year (up until 2015) on the **same Jewish calendar date**.
- However, as the Jewish lunar year is about eleven days shorter than the solar cycle, this fixed Jewish cutoff date falls in different years on different Gregorian dates, spread throughout December.
- As a result, children born on the same date of the year but in different years may fall on different sides of the cutoff date.
- This unique setting creates a natural experiment where students born on the same date of the year, educated in the same country, and sharing the same culture and institutions, start school at different ages solely because they face a different cutoff date in different years and not because of any other reason related to their socio-economic background or their educational strength.

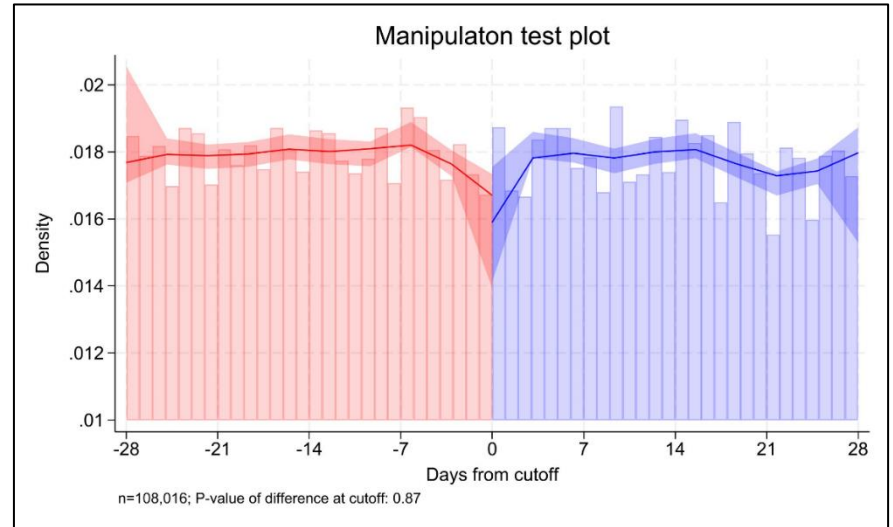
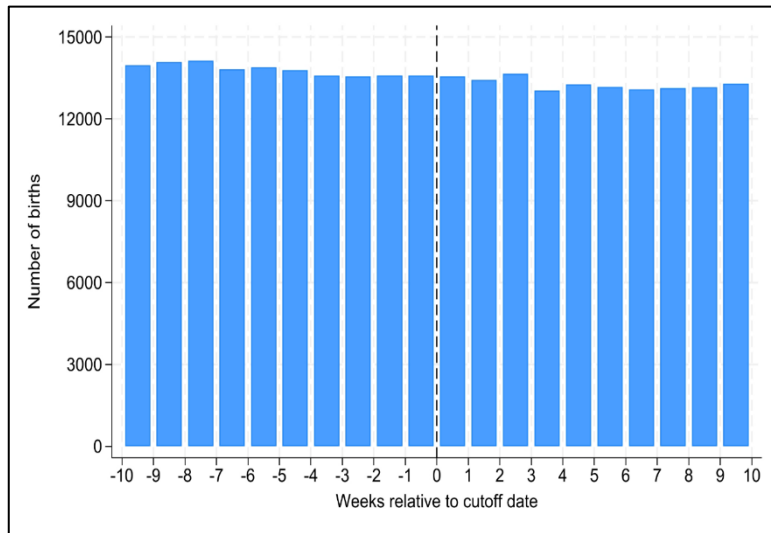
# Instrument validity

- To corroborate the validity of our identification strategy, we first show that, conditional on the date of birth, day-of-week, and period fixed effects, which are part of our estimation strategy, student traits are balanced around the entrance cutoff date.
- For the "young" and "old" cohorts, 2 and 3 out of 44 covariates, respectively, show statistically significant differences between children born before and after the cutoff dates. This is roughly the ratio one would expect to obtain by pure chance.



# Instrument validity

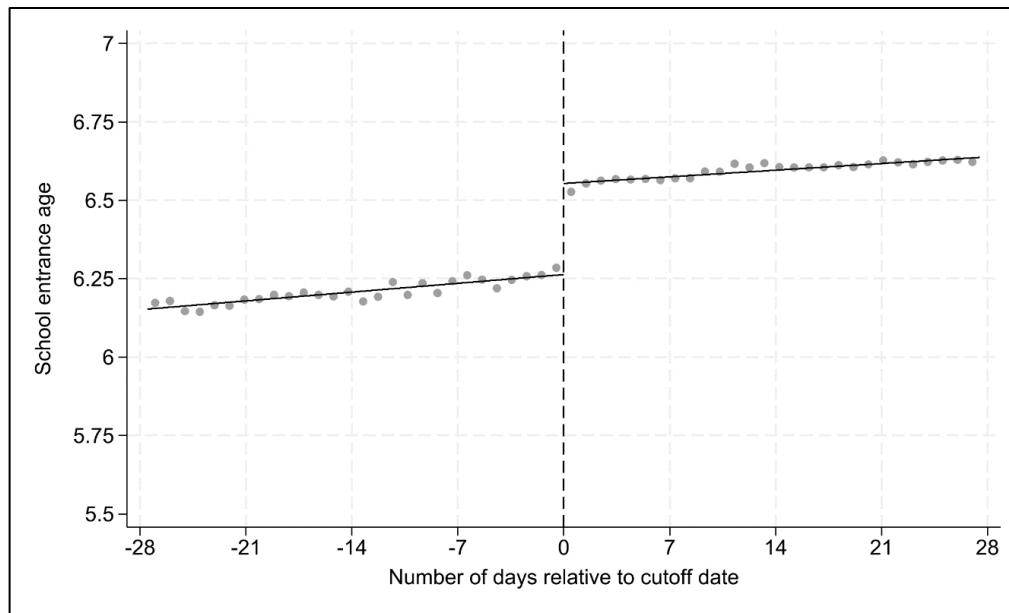
To examine whether parents manipulate their timing of birth, we also present density tests, which reveal no suspicious jump in the number of births around the cutoff points.



To further convince that manipulation of the date of birth is unlikely in our setting, we also conducted a survey among 200 parents with children in school, showing that none of them knew that the cutoff date was Aleph Tevet. Moreover, only 5% of them thought that the cutoff date was any Hebrew date.

# Instrument relevance

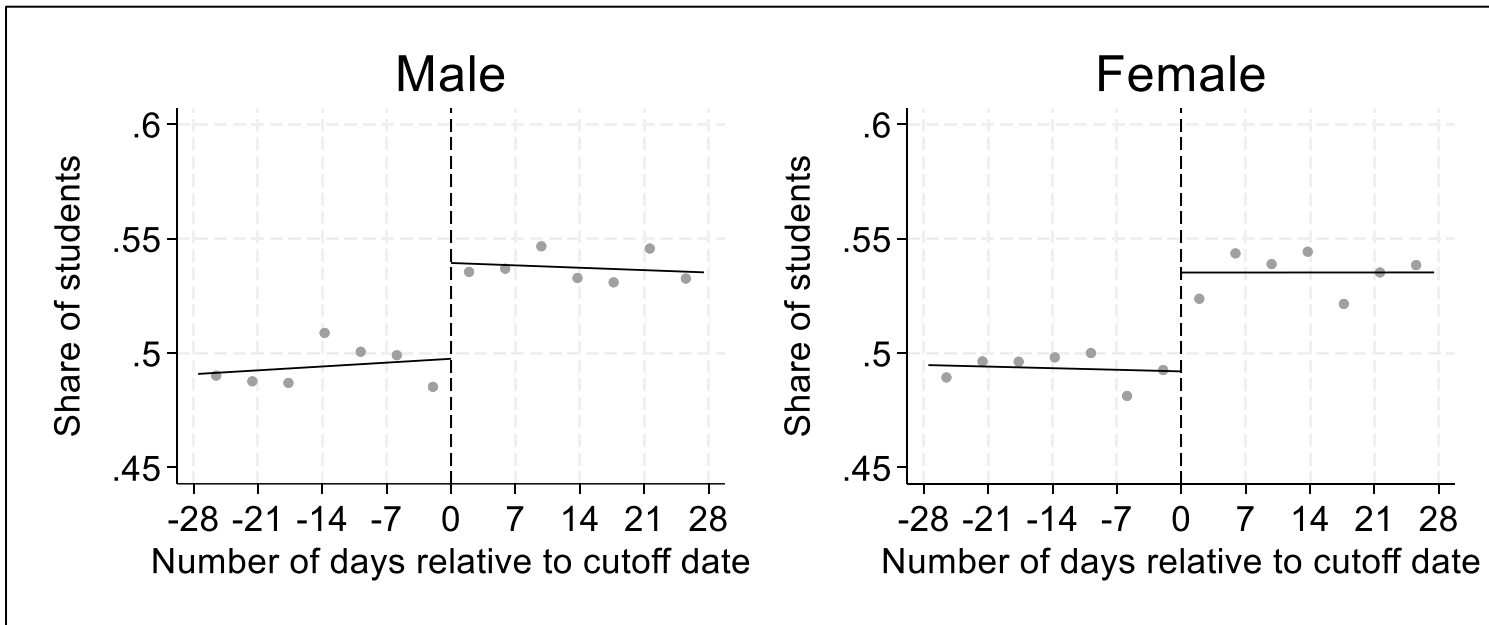
This graph reveals a marked discontinuity in the actual entrance age at the cutoff point.



Throughout the entire paper, the f-statistic on the excluded instrument is very high and always exceeds even the strictest criteria recently suggested by Lee (2022).

We next examine whether this discontinuity leads to similar discontinuities in various outcome variables over the short-, medium-, and long-term horizons.

# Employment during HS



# SEA effects on youth employment

	All	Male	Female
Employed during 10 <sup>th</sup> grade	0.088*** (0.019)	0.090*** (0.031)	0.087*** (0.020)
Months employed during 10 <sup>th</sup> grade	0.625*** (0.113)	0.586*** (0.195)	0.652*** (0.117)
Employed during 11 <sup>th</sup> grade	0.115*** (0.024)	0.131*** (0.032)	0.102*** (0.029)
Months employed during 11 <sup>th</sup> grade	0.923*** (0.168)	1.003*** (0.223)	0.860*** (0.199)
Employed during 12 <sup>th</sup> grade	0.118*** (0.029)	0.136*** (0.042)	0.102*** (0.037)
Months employed during 12 <sup>th</sup> grade	0.802*** (0.184)	0.895*** (0.289)	0.712*** (0.224)
Employed during high school (sample average =0.51)	0.159*** (0.030)	0.191*** (0.043)	0.132*** (0.035)
Employment duration during high school (months) (sample average= 6.4)	2.567*** (0.388)	2.620*** (0.557)	2.506*** (0.479)
Observations	70,758	35,856	34,902

# SEA effects on youth employment earnings

	Sample Average	All	Male	Female
Yearly earnings, 9 <sup>th</sup> -10 <sup>th</sup> grades (in 1,000 shekels)	0.261	0.172*** (0.039)	0.145** (0.057)	0.195*** (0.048)
Yearly earnings, 10 <sup>th</sup> -11 <sup>th</sup> grades (in 1,000 shekels)	0.700	0.515*** (0.070)	0.458*** (0.121)	0.560*** (0.068)
Yearly earnings, 11 <sup>th</sup> -12 <sup>th</sup> grades (in 1,000 shekels)	1.483	0.669*** (0.129)	0.731*** (0.201)	0.626*** (0.140)
Total earnings, 9 <sup>th</sup> -12 <sup>th</sup> , (in 1,000 shekels)	2.400	1.315*** (0.191)	1.354*** (0.268)	1.294*** (0.200)
Observations		70,758	35,856	34,902

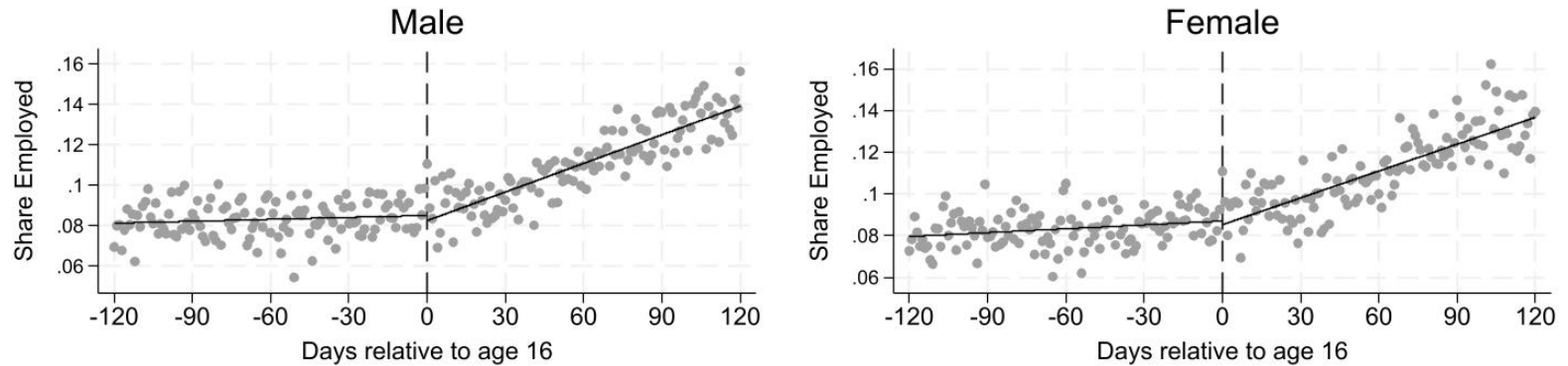
# Dissecting the mechanism: why do older school entrants work more during HS?

We next aim to provide evidence that the youth employment law significantly influences why older school entrants are more likely to work during high school.

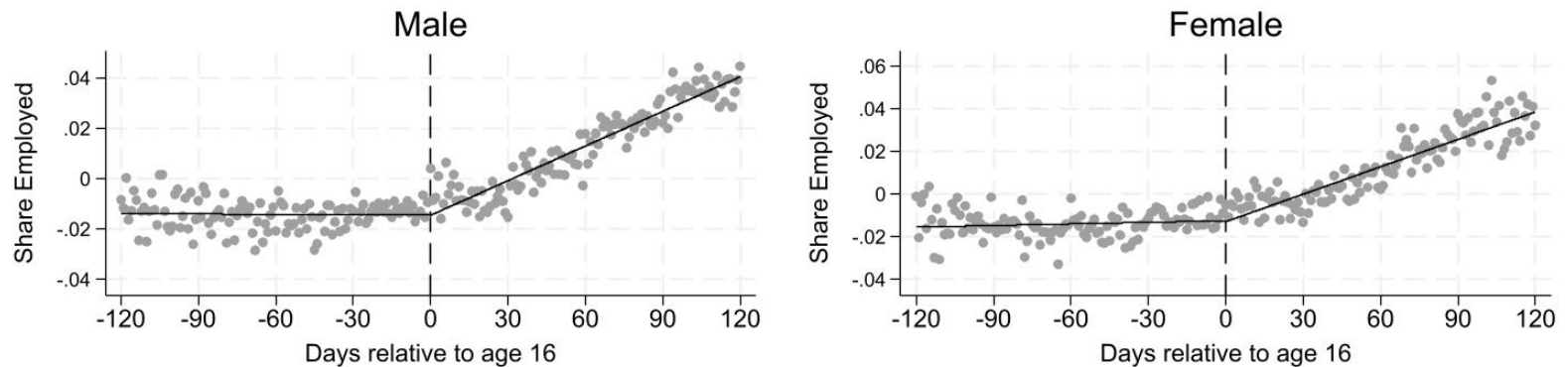
	All	Male	Female
Employed during the first half of 10 <sup>th</sup> grade (September- January)	0.031** (0.013)	0.019 (0.022)	0.041*** (0.015)
Employed during the second half of 10 <sup>th</sup> grade (February- June)	0.074*** (0.016)	0.088*** (0.027)	0.063*** (0.017)
Months employed during the first half of 10 <sup>th</sup> grade (September- January)	0.222*** (0.060)	0.174* (0.096)	0.259*** (0.062)
Months employed during the second half of 10 <sup>th</sup> grade (February- June)	0.403*** (0.063)	0.412*** (0.114)	0.393*** (0.070)
Observations	70,758	35,856	34,902

# Employment status by days relative to the legal working age cutoff

Panel A: Employment status



Panel B: Residuals of employment status on student fixed effects



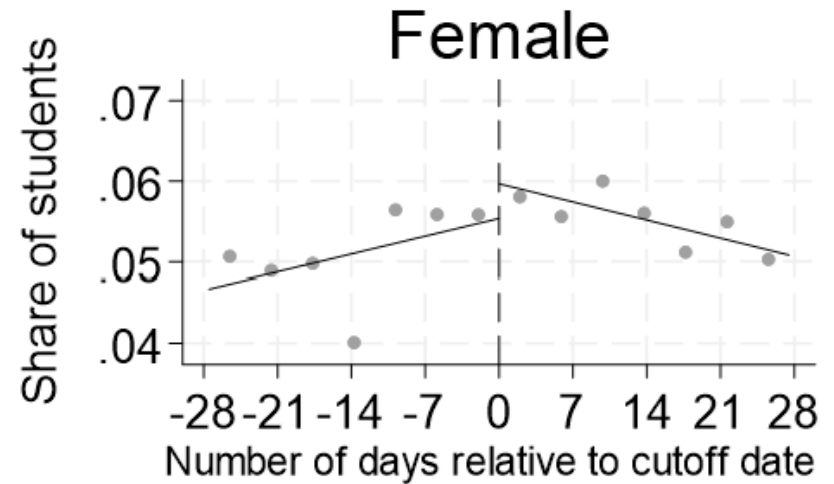
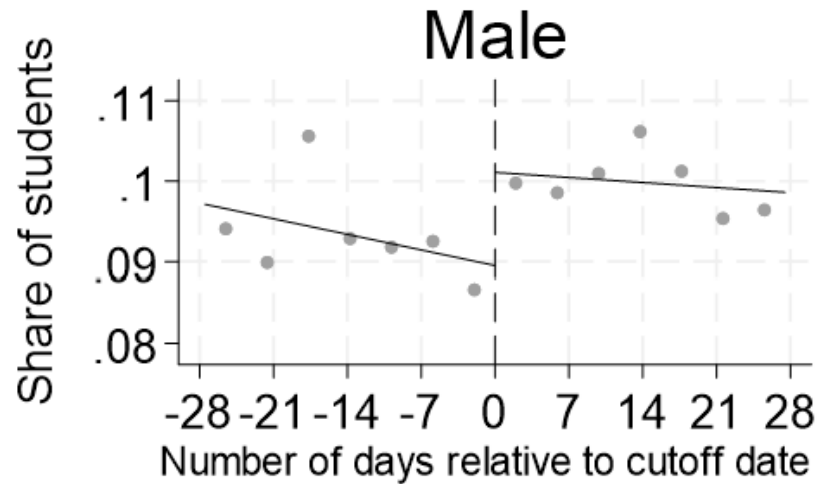
# RD analysis of the probability of employment around the minimum legal working age

$$Employment_{ipt} = \gamma_i + \delta_p + \beta_1 \cdot RC_{ipt} + \beta_2 \cdot AC_{ipt} + \beta_3 \cdot AC_{ipt} \cdot RC_{ipt} + \varepsilon_{ipt}$$

	Male	Female	Male	Female
RC/100	0.0029 (0.0018)	0.0057*** (0.0018)	0.0001 (0.0018)	0.0038** (0.0018)
Above 16	-0.0026 (0.0016)	-0.0018 (0.0017)	-0.0017 (0.0014)	-0.0019 (0.0015)
RC/100 * Above 16	0.0445*** (0.0026)	0.0374*** (0.0026)	0.0461*** (0.0027)	0.0402*** (0.0027)
F-stat of structural break ( $\beta_2 = \beta_3 = 0$ )	149.44	103.75	146.22	109.68
Student FE	No	No	Yes	Yes
Period FE	Yes	Yes	No	No
Controls	Yes	Yes	No	No
Observations	277,434	270,106	277,434	270,106

# SEA effects on high school dropout

Panel A: Did not complete 12th grade



# SEA effects on high school dropout

Although starting school at an older age leads to benefits in the short-run, we also find that it significantly increases the probability of not completing eleventh grade and twelfth grade. These effects are particularly pronounced for male students, who are 5.3 and 6.6 percentage points less likely than their younger counterparts to complete eleventh grade and twelfth grade, respectively.

	Sample Average	All	Male	Female
Did not complete 11 <sup>th</sup> grade	0.046	0.024** (0.011)	0.053*** (0.019)	0.004 (0.012)
Did not complete 12 <sup>th</sup> grade	0.075	0.040** (0.016)	0.066** (0.028)	0.024 (0.015)
Did not complete a matriculation diploma	0.325	0.016 (0.023)	0.037 (0.041)	-0.001 (0.026)
Observations		70,758	35,856	34,902

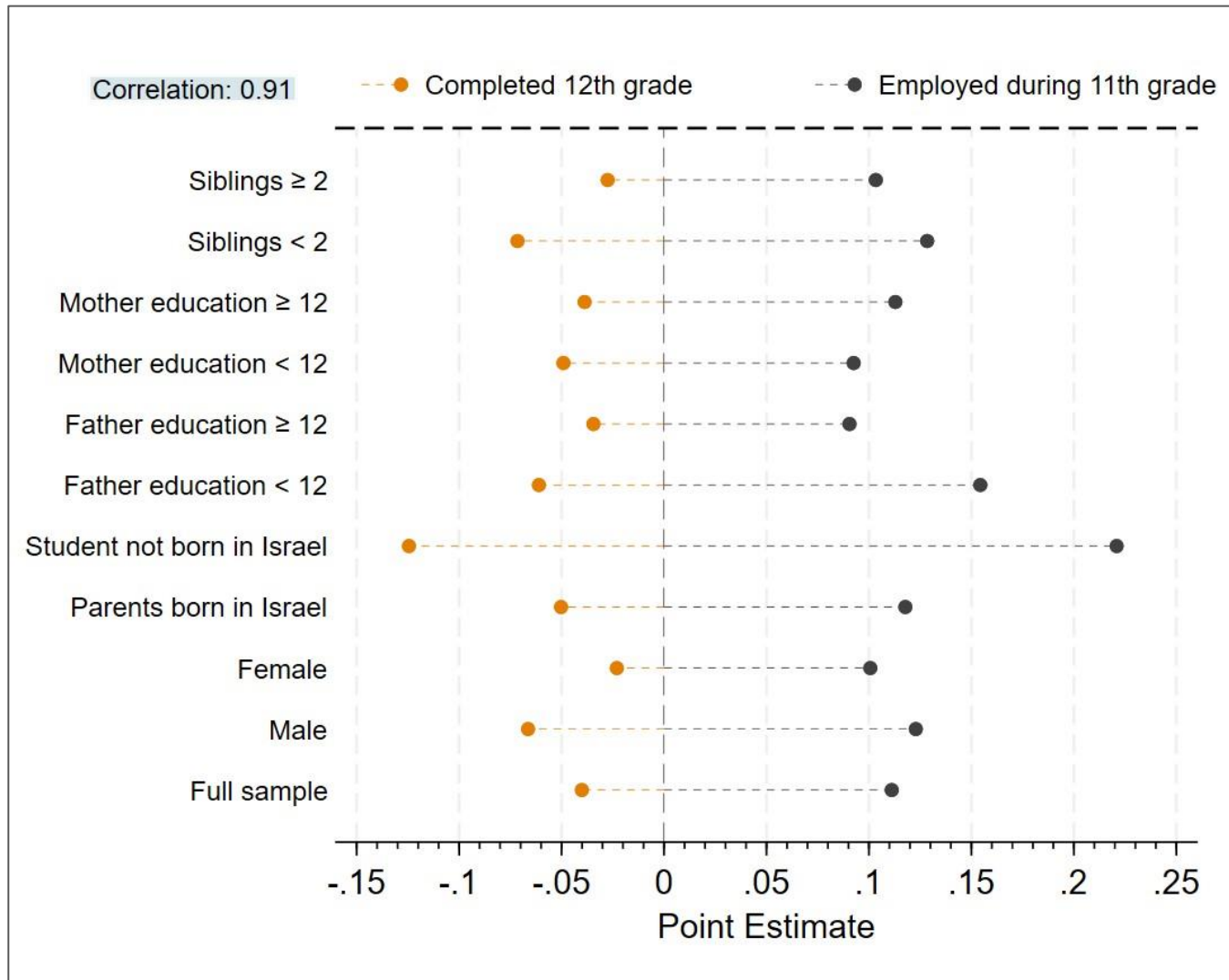
# Youth employment as an alternative mechanism driving HS dropout

# Evidence that youth employment drives HS dropouts

	Dropped out during 11 <sup>th</sup> -12 <sup>th</sup> grades			
		and worked 11 <sup>th</sup> grade	and didn't work 11 <sup>th</sup> grade	Observations
Entire sample	0.031** (0.015)	0.025*** (0.007)	0.006 (0.012)	70,758
Male	0.043* (0.025)	0.042*** (0.014)	0.001 (0.018)	35,856
Female	0.024 (0.015)	0.013** (0.005)	0.011 (0.013)	34,902

A similar decomposition of the effect of SEA on dropout during 10<sup>th</sup>-11<sup>th</sup> grades based on employment in tenth grade yields very similar results.

# SEA effects on youth employment and HS dropout across subgroups



# Heterogenous SEA effects

	Didn't complete 12th grade	Employed during high school	Employed and didn't complete 12 <sup>th</sup> grade	Employed and didn't complete a diploma
SEA	0.090** (0.033)	0.255*** (0.048)	0.080*** (0.025)	0.133*** (0.041)
Parent's education quartile * SEA	-0.002** (0.001)	-0.005** (0.001)	-0.002*** (0.001)	-0.005*** (0.001)
SEA	0.061** (0.029)	0.195*** (0.044)	0.044** (0.021)	0.061* (0.034)
No. of siblings * SEA	0.002* (0.001)	-0.002 (0.001)	0.003*** (0.001)	0.003*** (0.001)
Observations	35,856	35,856	35,856	35,856

# SEA effects decomposition by achievements in fifth-grade test scores

Our dataset follows the same students from school entry to age 20 and thus allows us to examine for the first time whether the students who experience short-term benefits in terms of higher fifth-grade test scores are the same ones that later in their academic trajectory work more years during HS and ultimately face a higher likelihood of high school dropout.

	All students tested in the Meitzav	Above average 5th grade test scores	Below average 5th grade test scores
Did not complete 12 <sup>th</sup> grade	0.028 (0.017)	0.024** (0.011)	0.004 (0.014)
Employed during high school	0.180*** (0.037)	0.187*** (0.034)	-0.007 (0.032)
Observations	32,505	32,505	32,505

# Long-term effects

- We find that for male students among whom our employment mechanism is particularly pronounced, a higher SEA also reduces the probability of taking a psychometric college entrance exam, achieving high scores in this exam, and entering college.
- Remarkably, unlike most of the literature, our estimates on test scores are clean of age-at-test effects, making this finding another valuable contribution to the literature.
- In addition, a higher SEA reduces educational attainment for both genders, but does not impact significantly employment or earnings as adults.
- Heterogeneous effects on these long-term educational outcomes reveals a very similar pattern to that observed for high school completion. These effects are generally negative for males, less pronounced for those with more educated parents, and more pronounced for those with more siblings.

# Policy Implications

Our findings have several policy and econometric implications:

- Specifying in the youth employment law a minimal number of completed grades as a condition for working instead of a minimum age could mitigate the unintended consequence of the law, which is that students who start school at an older age are more likely to drop out of high school.
- Cross-country variation in youth employment policies may help explain the differing SEA effects on dropout rates documented across countries.
- Our finding that youth employment is a significant factor of high school dropout implies that interventions aimed at weakening students' motivation to work during high school may effectively reduce dropout rates. However, it should be noted that reducing dropout rates may not always be the most desirable outcome for all students. For those who do not plan to pursue higher education, acquiring work experience during high school may be beneficial for their future career prospects.

# Econometric Implications

- Using instrumental variables like the quarter of birth or the location of birth relative to the school entry cutoff date when estimating the returns to education may lead to inadvertently capturing the combined effect of years of schooling and loss of work experience during high school.
- Moreover, differences in estimated education returns across studies that solely relied on compulsory schooling laws or their changes over time, can be explained by variations in youth labor laws across different locations or by simultaneous changes in the legal working age in these localities.

# Summary

- This paper employs a unique identification strategy that controls non-parametrically for date of birth effects in order to estimate the causal effects of school entrance age on a comprehensive set of outcomes, spanning from the short- to the long-term.
- We establish that a higher SEA has a significant positive effect on youth employment. Additionally, we provide direct evidence that the minimum legal working age plays an important role in driving this effect.
- We find that a higher SEA also has a substantial positive effect on high school dropout. The effect is more pronounced among males than females.
- We identify the interplay between SEA policy and youth employment laws as a central mechanism driving male students who start school older to have a higher probability of high school dropout.
- Interestingly, a higher SEA increases the likelihood that the exact same student will benefit in elementary schooling from achieving above-average test scores and will then drop out of high school.

# Summary

- We find that the SEA effect on high school dropout is stronger for males than for females and is more pronounced among those with more siblings and less pronounced among those with educated parents.
- We find that for male students among whom our employment mechanism is particularly pronounced, a higher SEA also reduces the probability of taking a college entrance exam, achieving high scores in this exam, and entering college.
- Importantly, our SEA estimates on test scores are not confounded by age-at-test effects, which is a rarity in previous research.
- The pattern of SEA effects on high school completion and subsequent educational outcomes is strikingly similar: all these effects are significantly negative only for males, and they tend to be less pronounced for children with more educated parents and more pronounced for those with more siblings.
- For both genders, SEA has a negative effect on educational attainment, but does not impact significantly employment or earnings as adults.
- Overall, our findings suggest that delaying school entry does not result in a faster accumulation of human capital and may even hinder it.

Thanks for listening !!!

# Outline of results

- Delaying school entry by one year increases the probability of working during high school by 15.9 percent points. The effect is about 45% larger for males than for females.
- We provide direct evidence that this effect is largely driven by the minimum legal working age. Specifically, we show that employment rates remain flat before age 16 but rise sharply thereafter.
- Starting school a year older substantially and significantly increases the probability of high school dropout by 4.0 percentage points. The effect is about three times larger for males (6.6%) than for females (2.4%).
- We provide evidence that the effect of SEA on dropout is driven by youth employment.
- Interestingly, a higher SEA elevates the likelihood that the exact same student will benefit in elementary schooling from achieving above-average test scores and nevertheless will drop out of high school.

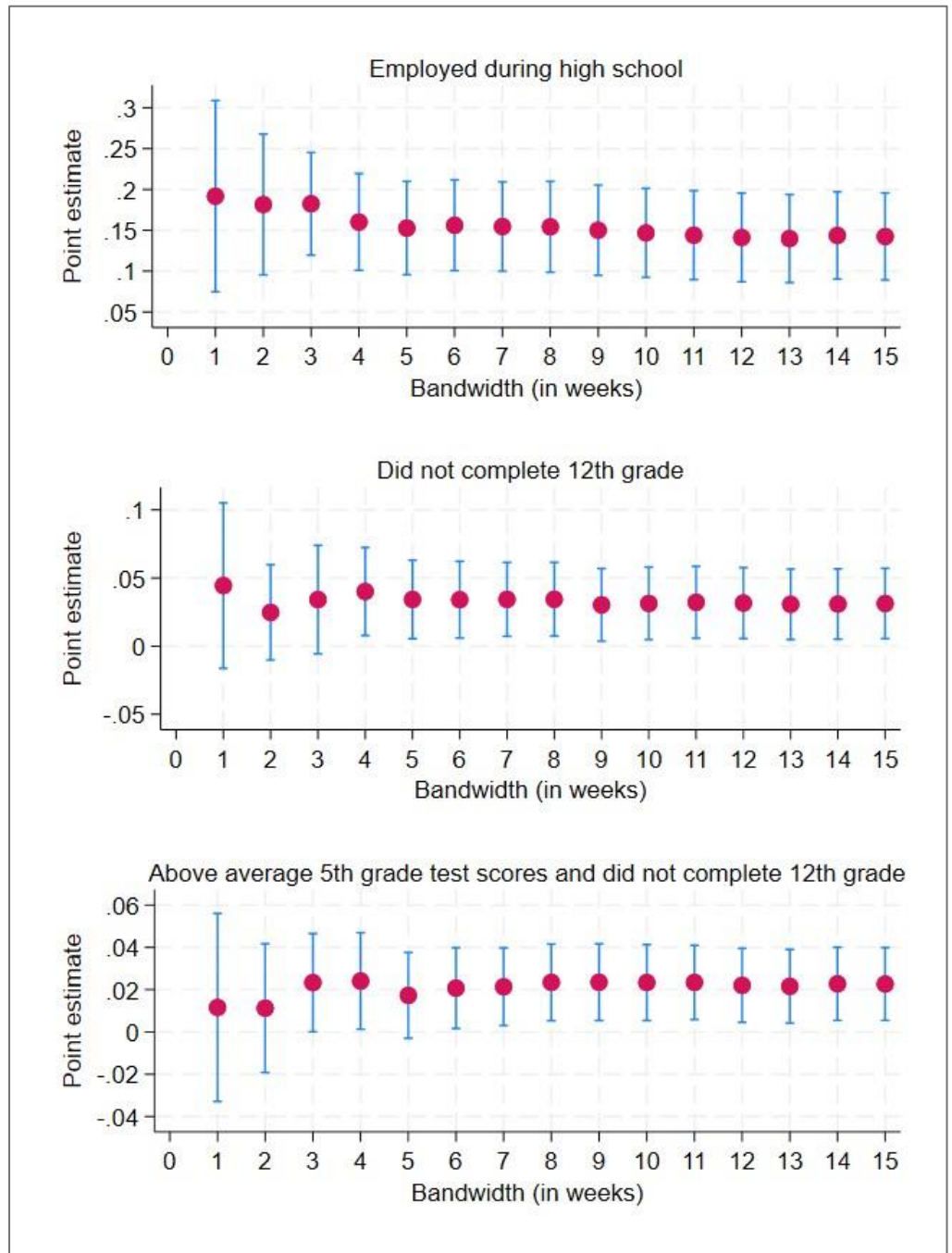
# Outline of results

- Among males, SEA reduces the probability of taking a psychometric college entry exam, achieving above-average test scores in the exam, and entering college. Our SEA estimates on test scores are not confounded by age-at-test effects, which is a rarity in previous research.
- The pattern of our estimated SEA effects on high school completion and subsequent educational outcomes is strikingly similar: all these effects are significantly negative only for males, and they tend to be less pronounced for children with more educated parents and more pronounced for those with more siblings.

# Heterogenous SEA effects in the long-term

	Applied for a psychometric exam	Started a first degree	Years of schooling
SEA	-0.158** (0.062)	-0.164*** (0.060)	-0.158** (0.062)
Parent's education quartile * SEA	0.010*** (0.003)	0.013*** (0.003)	0.010*** (0.003)
SEA	-0.127* (0.066)	-0.124** (0.061)	-0.377 (0.250)
No. of siblings * SEA	-0.003** (0.002)	-0.003* (0.002)	-0.013 (0.008)
Observations	18,381	18,381	18,381

# SEA effects by bandwidth size



# Robustness Analysis

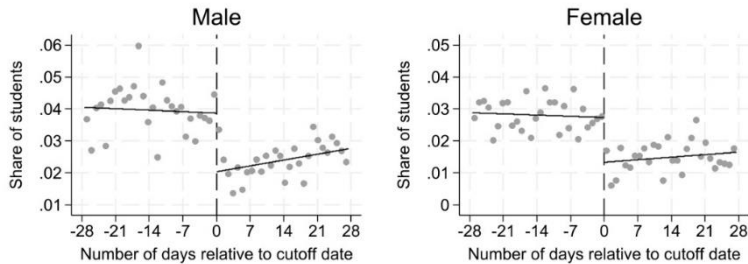
	Bandwidth			Opt. Bandwidth	
	28 days	28 days	56 days	MSE	CER
Did not complete 12 <sup>th</sup> grade	0.040** (0.016)	0.029** (0.014)	0.034** (0.014)	77	40
Employed during HS	0.160*** (0.030)	0.143*** (0.025)	0.154*** (0.028)	57	30
Employed and didn't complete HS	0.031*** (0.012)	0.023** (0.010)	0.029*** (0.010)	62	32
Applied for a psychometric exam (males)	-0.135** (0.066)	-0.087 (0.055)	-0.095* (0.057)	48	27
Total score > 550 (males)	-0.133** (0.056)	-0.084* (0.046)	-0.122*** (0.046)	71	40
Started a first degree (males)	-0.133** (0.061)	-0.105** (0.052)	-0.104* (0.055)	46	26
Years of schooling	-0.474*** (0.157)	-0.344** (0.145)	-0.367*** (0.133)	47	25
Period FE	Yes	Yes	Yes		
Piecewise linear trend	No	Yes	No		
Day-of-week FE	Yes	No	Yes		
Data-of-year FE	Yes	No	Yes		

# The Israeli Compulsory Schooling Law

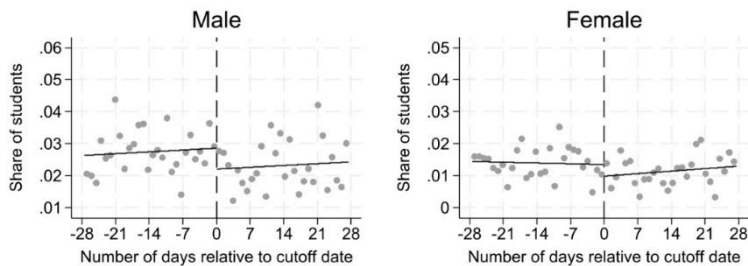
- The compulsory schooling law in Israel was established in 1949.
- It mandated that all children who had not yet turned 16 at the beginning of the school year were required to attend school at least until the completion of the tenth grade.
- This rule implied that unless children repeated a grade, they were not exempted from completing the tenth grade, regardless of when they started school.
- Amendment no. 29, which was passed in 2007, extended compulsory schooling to all children who are younger than 18 years old at the beginning of the school year, or until the completion of twelfth grade.
- This means that, as was the case before the amendment, unless they repeat a grade, children must complete the same number of grades regardless of when they start school because they typically do not turn 18 before the beginning of twelfth grade.
- Thus, in Israel, the compulsory schooling law is not likely to drive a positive association between a higher SEA on HS dropout.

# Short-term outcome variables

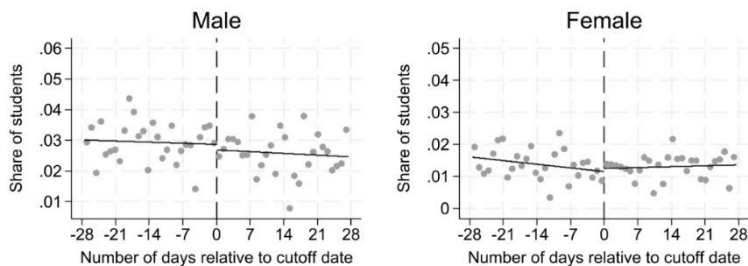
Panel A: Retained 1st-3rd grade



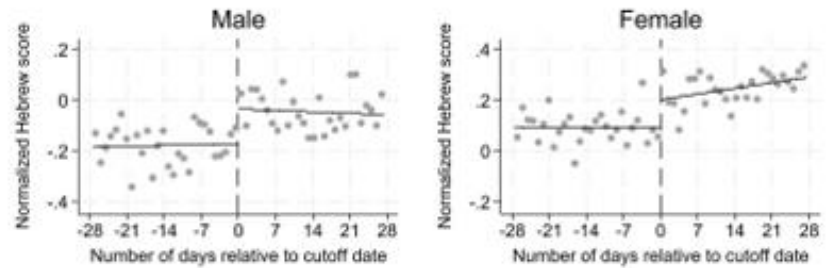
Panel B: Retained 4th-6th grade



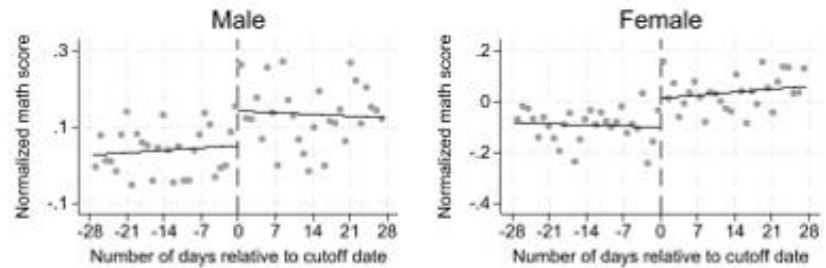
Panel C: Retained 7th-9th grade



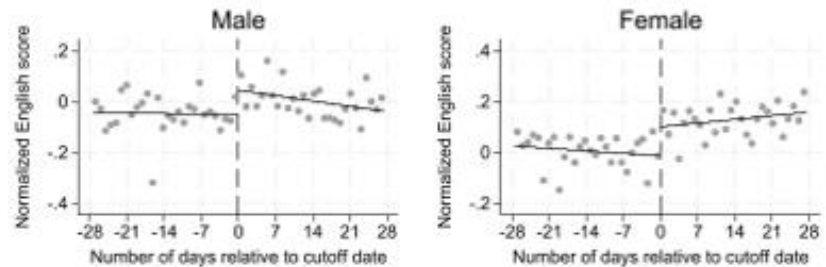
Panel A: Normalized 5th grade Hebrew score



Panel B: Normalized 5th grade math score

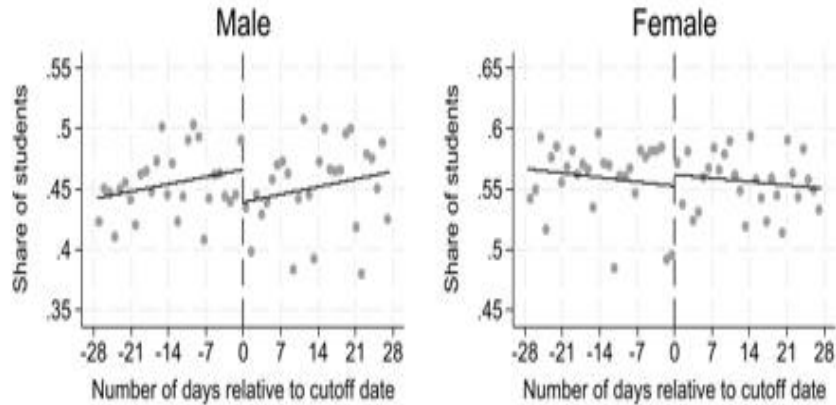


Panel C: Normalized 5th grade English score

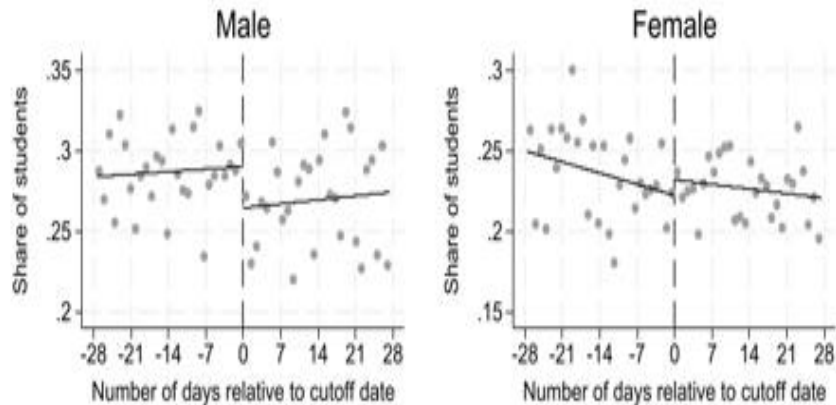


# Long-term outcomes

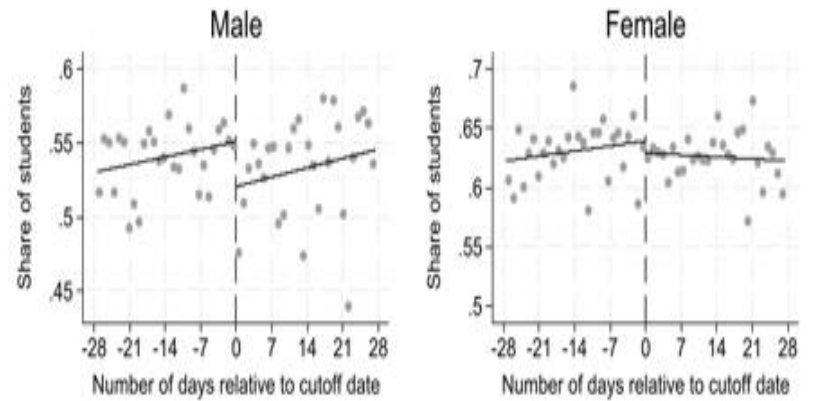
Panel A: Applied for a psychometric exam



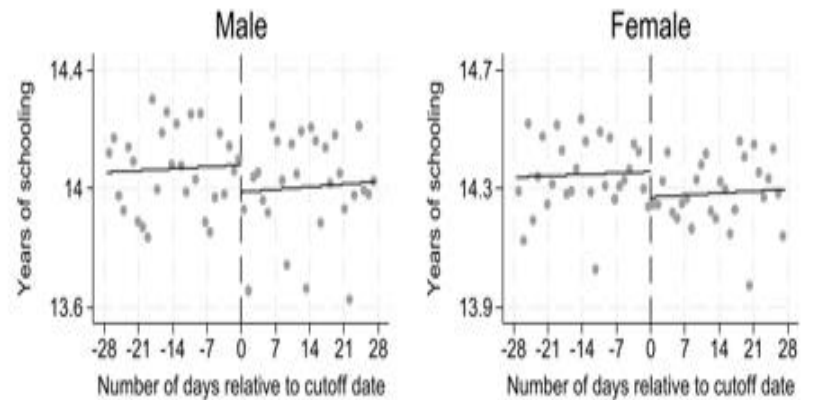
Panel B: Applied for a psychometric exam and achieved an above average score



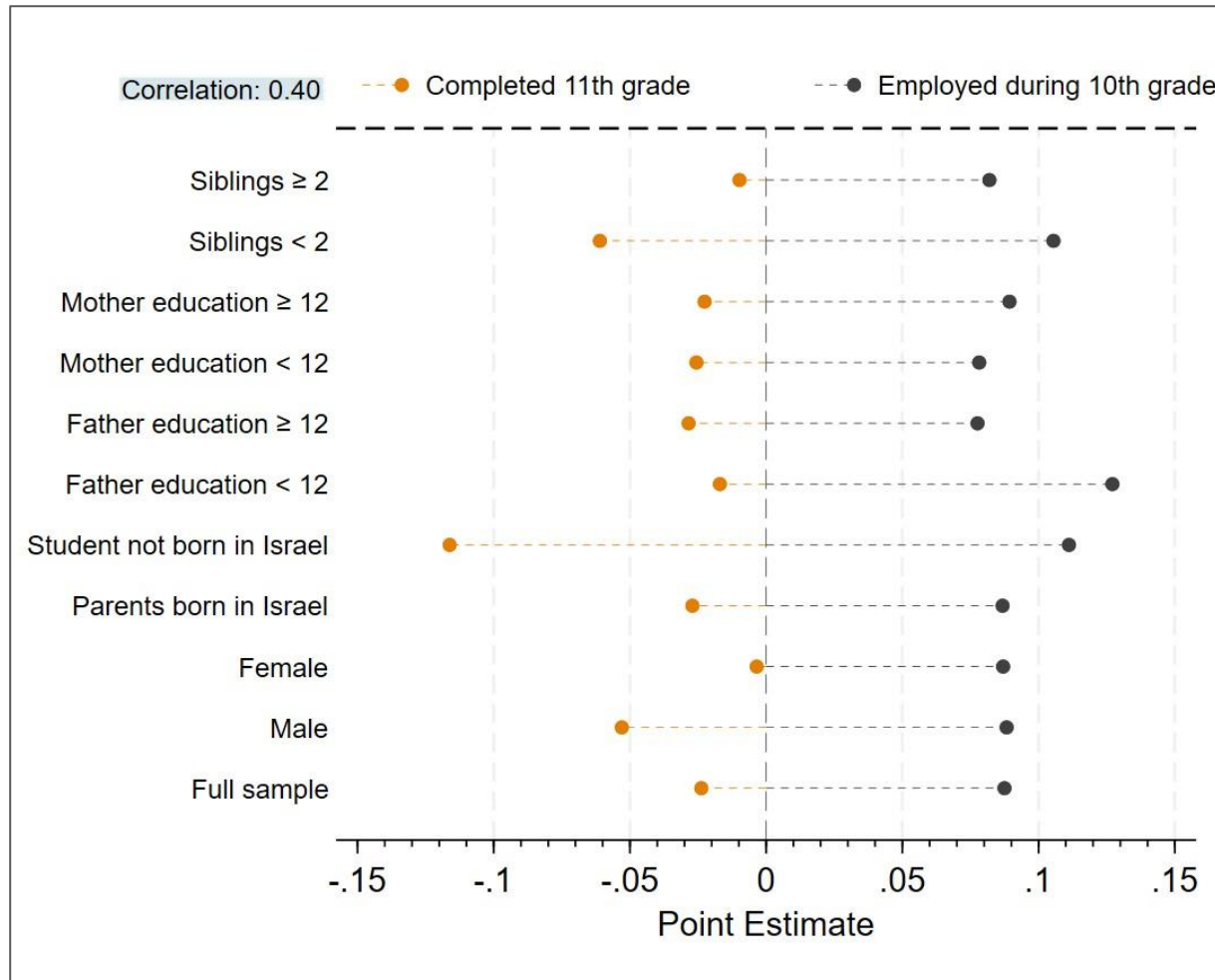
Panel C: Started a first degree



Panel D: Years of schooling



# SEA effects on youth employment and HS dropout across subgroups



Why is the positive effect of SEA on HS dropout larger among males?

The impact of SEA on the probability of working is larger among males.

Several papers show that male students are more prone to dropping out of high school due to employment reasons (Holford 2020, Monmarquette 2007).

# SEA effects on grade retention

Starting school at an older age also substantially and significantly decreases the probability of retention during 1<sup>st</sup>-3<sup>rd</sup> grade, with the effect being at least as twice as large for males compared to females.

The impact of SEA on grade retention diminishes as grade levels increase, becoming smaller and statistically insignificant for grades 4-6, and further decreasing to nearly zero for grades 7-9.

	Sample Average	All	Male	Female
Retained during 1 <sup>st</sup> – 3 <sup>rd</sup> grade	0.027	-0.055*** (0.010)	-0.076*** (0.016)	-0.038*** (0.010)
Retained during 4 <sup>th</sup> – 6 <sup>th</sup> grade	0.020	-0.013 (0.008)	-0.025 (0.016)	-0.002 (0.007)
Retained during 7 <sup>th</sup> – 9 <sup>th</sup> grade	0.022	-0.001 (0.006)	-0.005 (-0.014)	0.002 (0.009)
Retained during 4 <sup>th</sup> – 6 <sup>th</sup> grade & No retention during 1 <sup>st</sup> – 3 <sup>rd</sup> grade	0.016	-0.008 (0.007)	-0.018 (0.013)	0.000 (0.005)
Retained during 7 <sup>th</sup> – 9 <sup>th</sup> grade & No retention during 1 <sup>th</sup> – 6 <sup>th</sup> grade	0.014	0.005 (0.005)	0.016 (0.010)	-0.005 (0.006)
Observations		70,758	35,856	34,902

# Short-term outcome variables

## SEA effects 5th grade normalized test scores

Consistent with the entire SEA literature, we find that a higher SEA leads to academic benefits in the short-run in terms of higher elementary test scores and a lower probability of grade retention. The effects on test-scores may be due to age-at-test effects.

	<u>All</u>	<u>Male</u>	<u>Female</u>
Normalized math score	0.284*** (0.079)	0.252** (0.128)	0.300*** (0.104)
Normalized science score	0.416*** (0.092)	0.484*** (0.177)	0.376*** (0.094)
Normalized English score	0.360*** (0.075)	0.395** (0.164)	0.337*** (0.098)
Normalized Hebrew score	0.347*** (0.087)	0.408** (0.167)	0.309*** (0.089)
Above average scores across (all subjects)	0.196*** (0.041)	0.224*** (0.065)	0.177*** (0.054)

# Our improved identification strategy

- In other words, the exogenous variation in school entry cutoff dates across periods (years), together with detailed information on the exact date of birth, provides us with a rare opportunity to non-parametrically control for date-of-birth effects.

$$Y_{idwp} = \alpha_0 + \alpha_1 \cdot SEA_{idwp} + \beta \cdot X_{idwp} + \varphi_d + \tau_p + \sigma_w + \varepsilon_{idwp}$$



$$IV = After_{dp}$$

- Thus, instead of having to assume, like previous studies, that within a narrow bandwidth around the cutoff date, children born on different dates are not different in their unobserved characteristics, we rely on a weaker assumption that they can differ as long as these differences remain constant over different periods.

## SEA effects in the long-term

	Sample Average	All	Male	Female
Started a first degree	0.58	-0.105** (0.043)	-0.133** (0.061)	-0.080 (0.058)
Age when started a first degree	24.3	-0.131 (0.367)	0.231 (0.587)	-0.282 (0.411)
Age when completed a first degree	28.1	0.166 (0.413)	0.802 (0.804)	-0.227 (0.475)
Years of schooling	14.1	-0.474*** (0.157)	-0.411 (0.250)	-0.532** (0.241)
Month Employed during ages 33-38	40.1	1.003 (1.764)	1.006 (2.479)	1.117 (2.489)
Log annual wage earnings during ages 33-38	12.8	-0.059 (0.069)	-0.059 (0.135)	-0.063 (0.109)

# SEA estimates on outcomes in a psychometric college-entry exam

	Sample Average	All	Male	Female
Age at psychometric exam (Obs. = 18,857)	20.4	0.240 (0.323)	0.170 (0.716)	0.321 (0.259)
Applied for a psychometric exam	0.506	-0.079** (0.037)	-0.135** (0.066)	-0.031 (0.050)
Total score > 550 (Avg.)	0.254	-0.033 (0.033)	-0.133** (0.056)	0.056 (0.042)
Total score > 650 (Avg.)	0.088	-0.054** (0.021)	-0.108*** (0.040)	-0.001 (0.045)
English score > 120	0.174	-0.052* (0.027)	-0.107** (0.044)	0.001 (0.033)
Verbal score > 120	0.141	-0.044* (0.024)	-0.100** (0.042)	0.008 (0.029)
Math score > 120	0.152	-0.050** (0.024)	-0.130** (0.050)	0.028 (0.030)
Observations		37,258	18,381	18,877