

# Does Compulsory School Attendance Affect Schooling and Earnings? (Generated Using PlusMind ChatGPT)

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## Abstract

This research explores the impact of compulsory school attendance laws on education and earnings, focusing on how birth season affects educational attainment due to school start age policies. The study finds that individuals born at the start of the year have less schooling due to earlier dropout eligibility, with compulsory schooling laws significantly influencing educational outcomes. Using birth quarter as an instrument for education, the analysis suggests that compulsory schooling increases earnings.

## Objective

Investigate the effects of compulsory school attendance laws on individual schooling and earnings in the United States. The hypothesis of the study suggests that compulsory schooling laws, combined with school entry age policies, create differences in education duration based on the month of birth. This leads to varying levels of educational attainment and earnings among individuals, depending on their birth month.

## Methodology & Instrument

Utilizes a natural experiment created by differences in school start age and compulsory education laws across states, employing quarter of birth as an instrumental variable for education.

## Reason

The distinct timing of birth affects educational attainment due to compulsory schooling laws, allowing for an estimation of the laws' impact on education and subsequently on earnings.

## Data

Analysis of data from the U.S. Census across multiple decades to examine the relationship between birth quarter, educational attainment, and earnings.

## Wald Estimates

The WALD estimate is calculated as the ratio of the difference in earnings to the difference in years of education between individuals born in different quarters, specifically comparing those born in the first quarter of the year to those born in the last three quarters. It represents a consistent estimate of the return to education, assuming season of birth is uncorrelated with earnings determinants other than education, with findings indicating that compulsory schooling significantly increases earnings, aligning closely with Ordinary Least Squares (OLS) estimates.

Table: Regression Results Summary

Statistic	First Quarter	Last Three Quarters	Difference
In Weekly Wage	8.030187	8.039235	-0.009048
Education	13.507911	13.617236	-0.109325
Wald Estimate	-	-	0.082765
OLS Estimate	-	-	0.069211

## Wald Estimate Results

The larger coefficients for the last three quarters indicate that those born in quarter 1-quarter 3 experience higher returns to their education. This is likely because those born later in the year receive more education before reaching the legal age to drop out of school.

## OLS and TSLS

Summarizes the regression results, focusing on the impact of education, age, marital status, race, and place of work on earnings.

Table: Combined Results Summary

Statistic	Model 1		Model 2		Model 3		Model 4	
	OLS	TSLS	OLS	TSLS	OLS	TSLS	OLS	TSLS
Years of Education	0.0655 (0.0003)	0.0799 (0.0191)	0.0694 (0.0003)	0.0647 (0.0306)	0.0655 (0.0003)	0.0731 (0.0187)	0.0655 (0.0003)	0.0625 (0.0300)
AGE	-	-	-0.0458 (0.0368)	-0.0148 (0.0392)	-	-	-0.0477 (0.0362)	-0.0208 (0.0383)
AGESQR	-	-	0.0005 (0.0004)	0.0001 (0.0004)	-	-	0.0005 (0.0004)	0.000211 (0.0004)
Married (1= married)	-	-	-	-	0.2294 (0.0027)	0.2387 (0.0032)	0.2294 (0.0027)	0.2387 (0.0032)
Race (1= black)	-	-	-	-	-0.2437 (0.0036)	-0.3444 (0.0041)	-0.2437 (0.0036)	-0.3444 (0.0041)
Place of Work (1= center city)	-	-	-	-	0.0515 (0.0026)	0.0896 (0.0027)	0.0895 (0.0026)	0.0896 (0.0027)

## OLS and TSLS Results

The results indicate that compulsory education significantly increases earnings, with the TSLS method providing a more robust estimate of education's causal effect on income, addressing potential biases in OLS estimates. This highlights the importance of compulsory schooling in improving economic outcomes.

## References

Angrist, Joshua D., and Alan B. Krueger. "Does Compulsory School Attendance Affect Schooling and Earnings?" The Quarterly Journal of Economics, Nov. 1991, Accessed Feb. 2024. Steven Ruggles, Sarah Flood, Matthew Sobek, Daniel Backman, Annie Chen,

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