

# Can a workfare program lure children out of school?

Dániel Horn <sup>1,2</sup>  
Hedvig Horváth <sup>3</sup>  
Róbert Károlyi <sup>1,2</sup>  
Balázs Reizer <sup>1,2</sup>

<sup>1</sup>KRTK KTI

<sup>2</sup>Corvinus University of Budapest

<sup>3</sup>University College London

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# Outline

- 1 Introduction
- 2 Data
- 3 Descriptives
- 4 Regressions
- 5 Summary

# Motivation

- The social and individual benefits of human capital
- Many factors influence school leaving decisions.
- Opportunity costs of remaining in secondary education
  - Local labor market conditions
  - *Public Works Scheme*
- The Hungarian dropout rate increased significantly, as a consequence of the *lowered compulsory schooling age* (Adamecz-Völgyi et al., 2021; Hermann, 2020)

## Related Literature

- Increase in outside option of students increases drop out (Aparicio-Fenoll, 2016; Evans and Kim, 2006; Li and Sekhri, 2019; Saad and Fallah, 2020; Shah and Steinberg, 2019)
  - **This paper:** What kind of students react?
- Aggregate labor demand shocks increase early drop out and employment (Atkin, 2016; Bensnes and Strom, 2019; Black et al., 2005; Greenland and Lopresti, 2016)
  - **This paper:** What are the effects of temporary jobs without change of aggregate demand?

# Institutional background

## The Hungarian school system

- 8 years of elementary + 4 years of secondary education
- 6/8 year long high schools, where dropout is quite rare.

## School leaving age (SLA) reform

- Compulsory schooling age is decreased from 18 to 16.
- For those completing primary school in 2012 or later.

## The Public Works Scheme

- Workfare program, reformed in 2011
- Employment opportunities for less than minimum wage.
- The share in total employment increased from 1.4 to 5 percent between 2011 and 2015.

Max. primary educ.: 6% → 22% (source: *LFS*)

# Data

## Admin 3 (KRTK Databank)

- linked administrative data
- 50% random sample of the Hungarian population
- 40-45 thousand students in each cohort

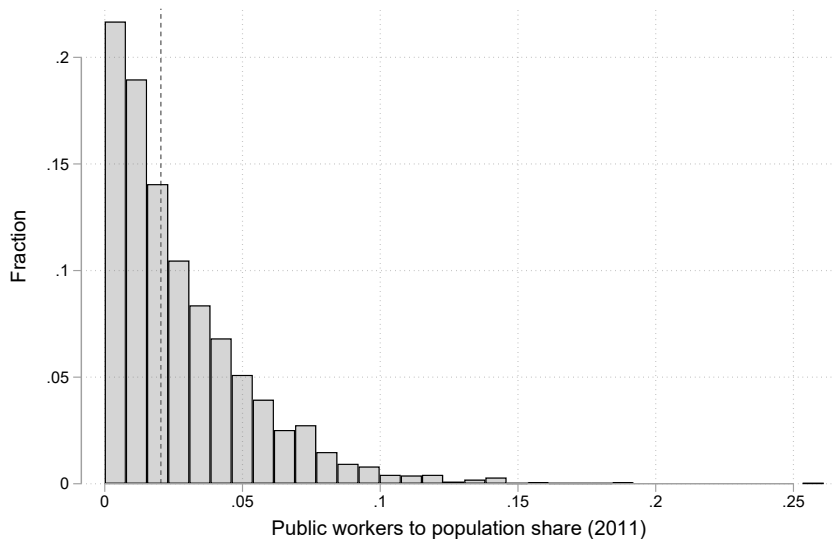
## National Assessment of Basic Competences (NABC)

- Contains basically every student in grades 6, 8 and 10
- reading and math test scores
- students' socioeconomic background
- Cohorts are defined by the year of (the last) 8th grade's test

## Public Worker Register

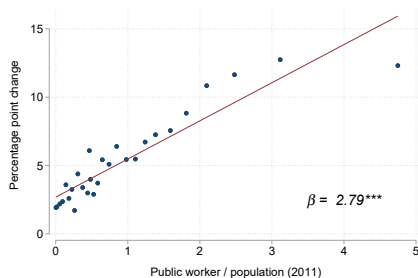
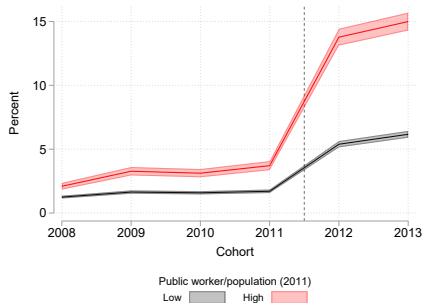
- Treatment variable: monthly average number of public workers **among adults** in 2011, divided by the municipality's population (pop.: age 18-59)

# Public workers to population ratio (age 18-59)



# Local exposure to public works: Dropout

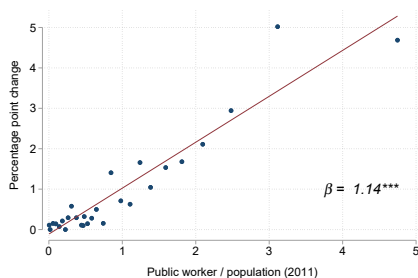
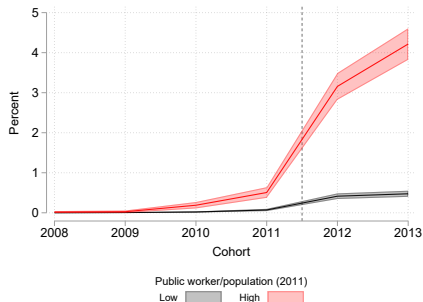
Leaving school at age 16-17





# Local exposure to public works: PW participation

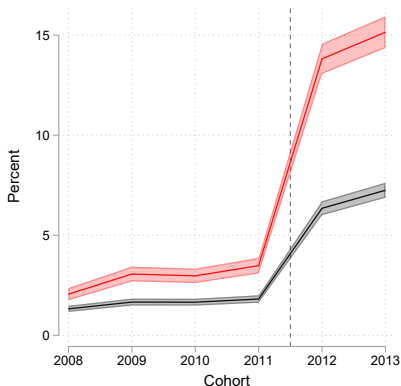
Public worker for at least one month at age 16-17



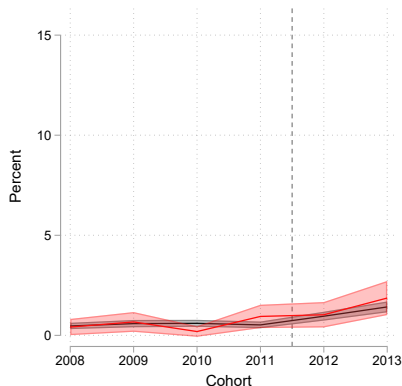
# Low-status children are the most affected

## Leaving school at age 16-17 by mothers' education

No high school diploma



At least high school diploma



Public worker/population (2011)

Low



High



# Model

## Diff-in-diff

$$y_{icms} = \gamma Post_c \times High_m + \mu_m + \rho_m C_i + \phi_c + \pi_s + X'_{icm} \delta + \varepsilon_{icm}$$

$y_{icms}$ : dropout, pw participation, employed at age 16-17, graduation from secondary ed., employment at age 18-19

$\mu_m$ : municipality FE

$\rho_m C_i$ : municipality fix trends

$\pi_s$ : municipality FE

**X** controls: parental education, reading and math scores in grade 8

+ Propensity score screening:  $0.1 < p(High_m = 1) < 0.9$

# Regression Results

	(1) Dropout	(2) PW 16-17	(3) Emp 16-17	(4) Grad	(5) Emp 5
<i>High · Post</i>	0.061*** (0.004)	0.028*** (0.002)	0.005 (0.003)	-0.001 (0.005)	0.011* (0.006)
Observations	233,005	233,005	233,005	197,436	196,945
$R^2$	0.116	0.081	0.049	0.234	0.081

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# Covariate Balance

# Regressions: p-score screening

	(1) Dropout	(2) PW 16-17	(3) Emp 16-17	(4) Grad	(5) Emp 5
<i>High · Post</i>	0.019*** (0.005)	0.017*** (0.002)	-0.004 (0.004)	-0.003 (0.007)	-0.010 (0.013)
Observations	99,085	99,085	99,085	84,143	83,940
$R^2$	0.108	0.053	0.056	0.230	0.075

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# Event Study

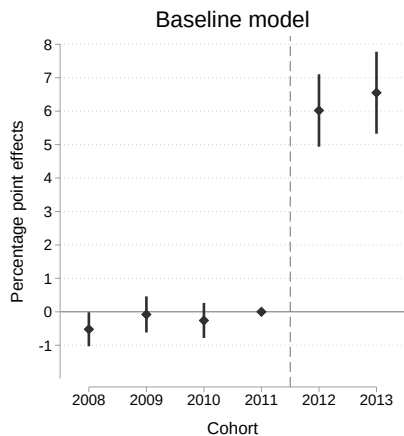
## Baseline model

$$y_{icms} = \sum_{c=2008}^{2013} \gamma_c [C_i \times High_m] + \mu_m + \phi_c + \pi_s + X'_{icm} \delta + \varepsilon_{icm}$$

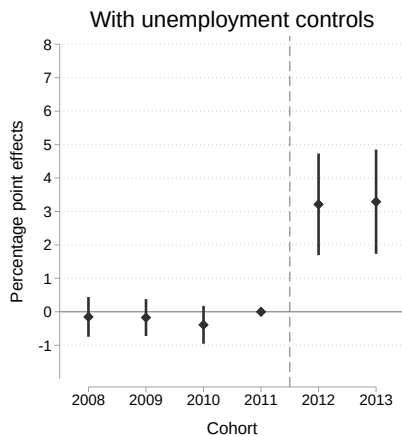
Interaction controls (ruling out confounding channels):

$$+ \sum_{c=2008}^{2013} \lambda_c [C_i \times Unemp2011_m]$$

# Event Study - Dropout

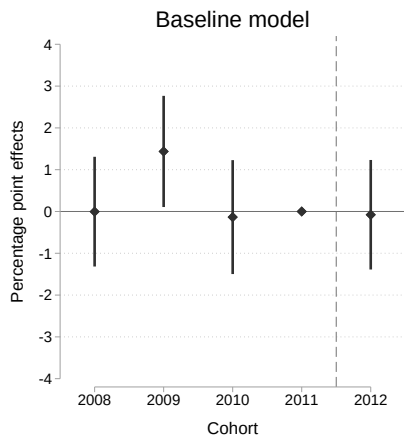


with 95% confidence interval

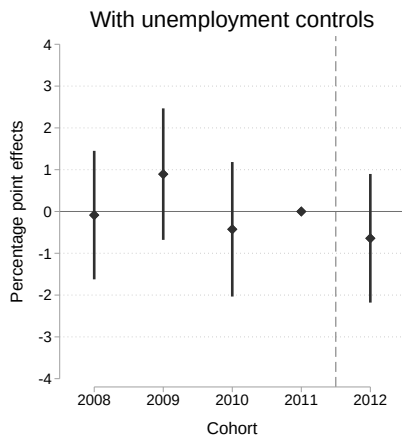




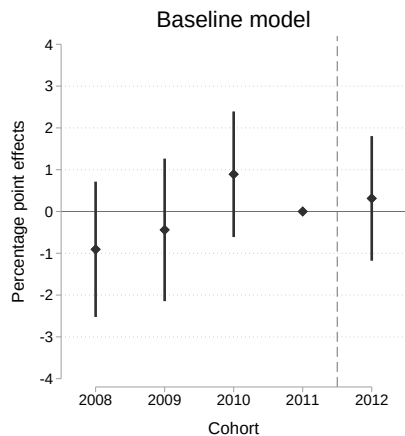
# Event Study - Graduation probability



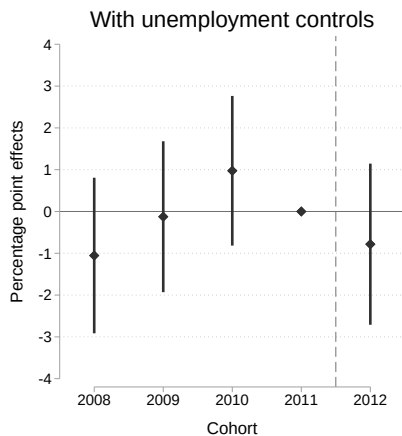
with 95% confidence interval



# Event Study - Employment



with 95% confidence interval



# Summary

- The jump in the dropout rate is 2-6 percentage point higher at municipalities with high public works exposure.
- Which, however, did not result in a lower graduation rate.
- Short term labor market outcomes are not effected.
- These results do not suggest any long-term effects on actual human capital.
- We will be able to analyze a wider time window → Admin 4

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