Health differences at birth between Roma and non-Roma children in Hungary: Long-run trends and decomposition

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Background

- Health at birth predicts important outcomes in later in life
- It is important to quantify and understand the disadvantages of ethnic and racial minorities in infant health
  - the extent to which such differences may be due to poverty, education, or geographic isolation
- The Roma are one of the largest and poorest ethnic minorities in Europe
  - however, most studies on the Roma analyze small samples, in selected regions within countries, and as single cross sections
- We measure the health gap at birth between the children of the Roma minority and the non-Roma majority in Hungary
  - using comprehensive data from more than 2.5 million birth records (1981-2010)

Data

- We linked two administrative datasets for this analysis: birth records and the census of 2011
- Birth records contain information on
  - date of birth
  - gender
  - place of residence at birth
  - indicators of health at birth
  - characteristics of the mother and the father
- BUT they do not contain ethnic markers
- We linked the records of singleton births to the census of 2011 to identify the ethnicity of the mother
  - Roma newborn = infant of Roma mothers
- All characteristics of the newborns and their parents come from the birth records, except ethnicity

Data

- The proportion of linked records is high (births where the mother's ethnicity is identified)
  - 90% of live births after 1995 are successfully linked
 - the success rate is still above 50% in 1981
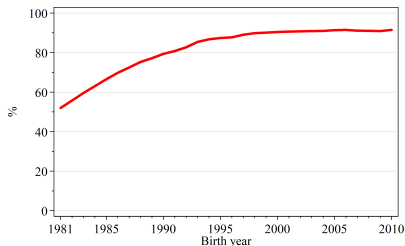
- Systematic differences between linked and not linked births are small
  - linked births appear somewhat healthier over the time period
  - we check the robustness of our results by correcting for selection using inverse probability weighting

Health at birth indicators

1. Birth weight
2. Low birth weight (< 2500 g)
3. Gestational age (length of pregnancy)
4. Preterm birth (< 37 weeks)

30-year trends (Roma and non-Roma)

(A) Birth weight

(B) LBW

(C) Gestation length

(D) PTB
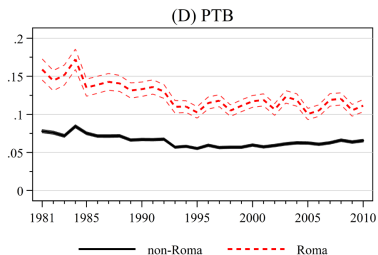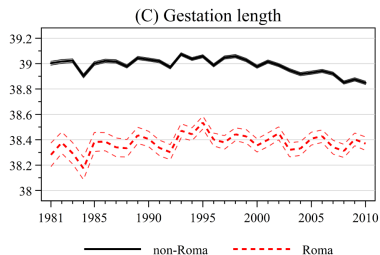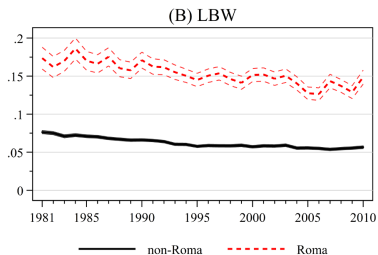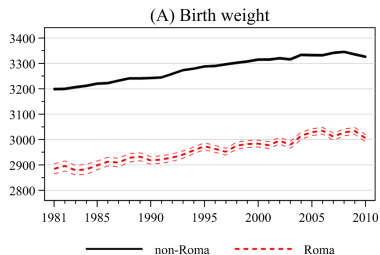
non-Roma   Roma

Gap decomposition

► 2008-2010, pooled linear regressions

Table 1. Raw gaps (A) and residual gaps (B) in the health indicators of births to Roma mothers versus non-Roma mothers

		(1) Birth weight	(2) Low birth weight	(3) Gestation age	(4) Preterm birth
(A)	Roma mother	−313**	0.083**	−0.498**	0.047**
		(4.2)	(0.003)	(0.016)	(0.002)
	Controls	No	No	No	No
	Adj. R-squared	0.02	0.01	0.01	0.00
	N	249,200	249,200	249,159	249,159
(B)	Roma mother	−72**	0.015**	−0.083**	0.001
		(4.9)	(0.003)	(0.018)	(0.003)
	Controls	Yes	Yes	Yes	Yes
	Adj. R-squared	0.09	0.04	0.04	0.02
	N	249,200	249,200	249,159	249,159
	Non-Roma average	3336	0.056	38.86	0.065

Notes. Coefficient estimates on the Roma indicator variable from OLS regressions. Live births in Hungary in 2008−2010 matched to the 2011 census to obtain ethnic markers. Controls: gender of the newborn child, month of delivery, whether information on father is missing; marital status of the mother if father is known; age, education, labor force status of mother and father; number of previous abortions, miscarriages, and live births, county of residence interacted with settlement type of residence (Budapest, large city, small town, rural).

Gap decomposition: robustness

Residual gap estimates using alternative models

		(1) Birth weight	(2) Low birth weight	(3) Gestation length	(4) Preterm birth
(A)	Weighted least squares	-70.8** (4.9)	0.015** (0.003)	-0.082** (0.018)	0.001 (0.003)
(B)	Logit regression (marginal effects)	NA	0.008** (0.002)	NA	0.002 (0.002)
(C)	Oaxaca-Blinder decomposition (linear)	-68.5** (5.0)	0.014** (0.003)	-0.070** (0.019)	-0.000 (0.003)
(D)	Oaxaca-Blinder decomposition (logit)	NA	0.014** (0.003)	NA	0.001 (0.003)
(E)	Propensity score matching (ATET)	-52.2** (6.9)	0.014** (0.004)	-0.053* (0.026)	-0.002 (0.004)

(C) and (D): non-Roma coefficients used in estimating composition effects.
Robust standard errors are in parentheses. + p<.10, * p<.05, ** p<.01

# Gap decomposition: explanatory power of subsets of the control variables

- ► Oaxaca–Blinder decompositions (using the non-Roma coefficients on the covariates to remove composition effects)

The share of parental characteristics in explaining the raw gap

	Birth weight	Low birth weight	Gestation age	Preterm birth
Education	53%	52%	49%	60%
Labor force status	10%	13%	12%	15%
Pregnancy history	−3%	2%	9%	8%
Geography	4%	3%	6%	4%
Marital status	18%	30%	29%	60%
Age	−3%	−17%	−18%	−46%
Other	0%	0%	0%	0%
Residual gap	21%	17%	13%	−1%
Total	100%	100%	100%	100%

Trends in ethnic gaps (Roma vs. non-Roma)

► for five-year periods between 1981 and 2010
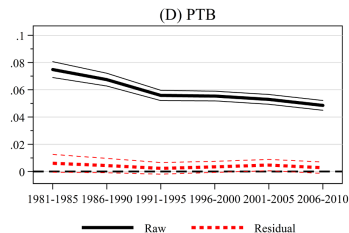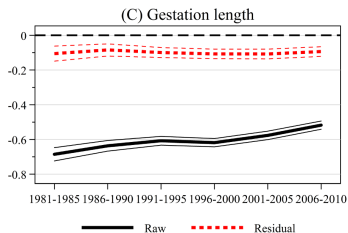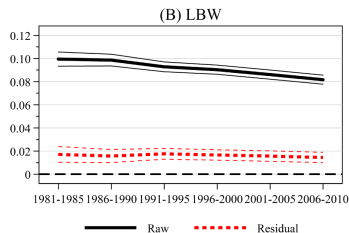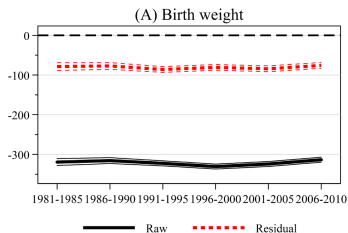
Conclusions

- We documented the health differences at birth between Roma and non-Roma children in Hungary between 1981 and 2010
- Large gaps in all indicators over the 30 years, with a small narrowing of the gap in absolute terms but not in relative terms
  - Roma children were more than twice as likely to have low birth weight, and almost twice as likely to be preterm births
- 80-100% of the gaps is explained by differences in socio-economic characteristics of the parents
  - education is the most important
- Improved education is likely to hold high potential for narrowing the ethnic gap
  - substantial progress in closing the educational gap at the lower end
  - progress is possible only through increased participation in secondary and tertiary education
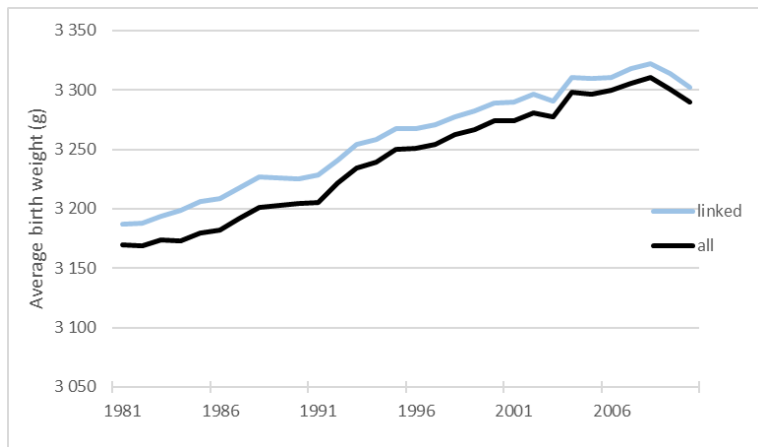
Thank you for the attention!

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Trends in educational attainment of Roma and non-Roma mothers
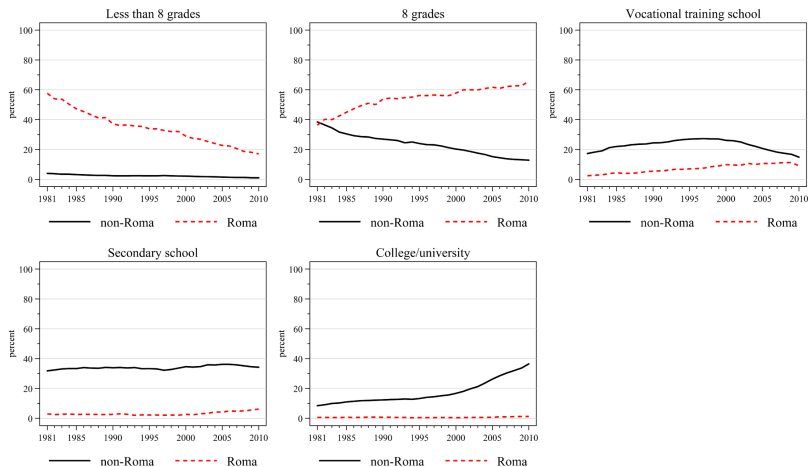
Systematic differences in outcomes by linkage

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