School Outcomes of Children Raised by Same-Sex Couples from Birth: Evidence from Administrative Panel Data

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Summary

- Children raised by same-sex couples vs children raised by different-sex couples
- Administrative panel data from the Netherlands
- OLS, CEM, and Treatment Effect Bounds
- Outcomes
  - Standardized test score in final year of primary education
  - Diploma attainment in secondary education
- Results
  - Achievement in PE: positive association of 0.182 standard deviations
  - Diploma: positive association of 6.8 percent
- Mechanisms
  - Selection approach
  - Compensation approach?

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Policy relevant

- Research on children's outcomes in same-sex families is frequently **used by both opponents as supporters** of same-sex marriage and adoption
    - Florida's ban on gay adoption rights in U.S. Supreme Court case Lofton v. Kerney (2005): *"Studies have shown that the ideal is where a child is raised in a married family with a man and a woman"* (Former President George Bush Jr. for The New York Times)
    - Right to marry for same-sex couples in U.S. Supreme Court case Obergefell v. Hodges (2015): *"the clear and consistent social science consensus is that children raised by same-sex parents fare just as well as children raised by different-sex parents"* (American Sociological Association)

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Has a consensus really been reached?

- **Small convenience samples** (sperm banks, homosexual events, snowball)
    - Gartrell and Bos (2010); Golombok, Tasker, and Murray (1997); Golombok et al. (2003); MacCallum and Golombok (2004); Sarantakos (1996).
    - ➔ Not representative!

- **Small representative samples**
    - Wainright, Russell, and Patterson (2004); Sullins (2015)
        - National Longitudinal Study of Adolescent Health (Add Health)
    - Fedewa and Clark (2009); Potter (2012)
        - Early Childhood Longitudinal Study – Kindergarten (ECLS – K)
    - Regnerus (2012); Cheng and Powell (2015)
        - New Family Structures Study (NFSS)
    - ➔ Statistical power!

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Large representative studies are inconclusive

- **Large representative samples based on Census data**
  - Rosenfeld (2010): 2000 U.S. Census 5% Public Use Microdata Sample
    - Outcome: progress through school in primary education
  - Allen, Pakaluk, and Price (2013): replication of Rosenfeld (2010)
    - Rosenfeld (2010) made sample restriction choices which were driving the results
  - Allen (2013): 2006 Canada Census 20% Restricted Master File
    - Outcome: diploma attainment in secondary education
  - Watkins (2018): 2012, 2013, and 2014 American Community Surveys
    - Outcome: progress through school in primary education

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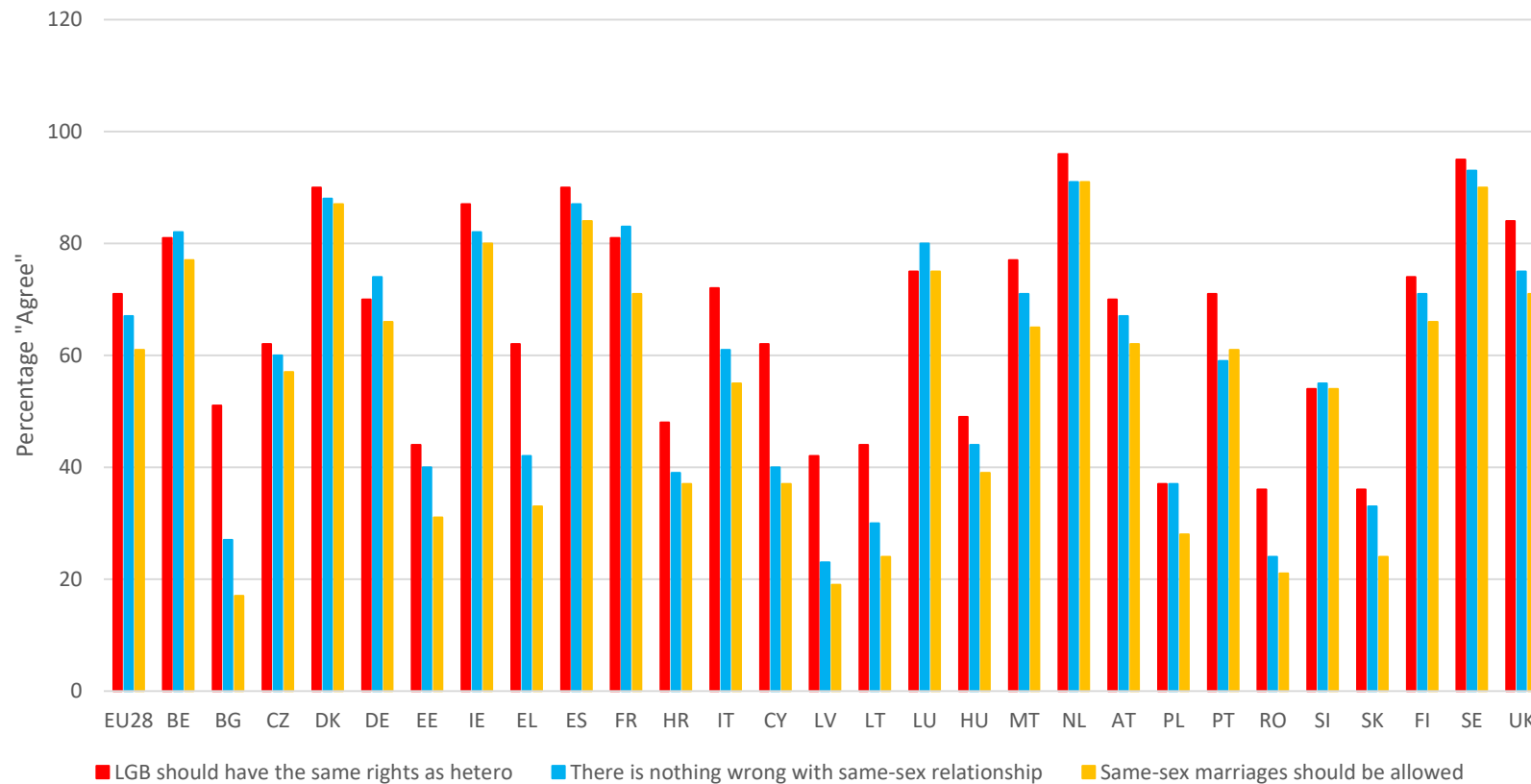KU LEUVEN

Census data have important limitations

- **Cross-sectional snapshot of family structure**
  - Children who lived in a same-sex family at a certain point in time, not children who grew up in a same-sex family
    - No information on when a child entered a same-sex family
    - Previous relationship with a heterosexual partner: independent effect of divorce (McLanahan, Tach, & Schneider, 2013)
    - Independent effect of adoption and foster care (Font, Berger, Cancian, & Noyes, 2018)
- **Misclassification of same-sex couples due to misreporting**
  - Same-sex marriage illegal during Censuses
  - U.S. Census Bureau retracted its 2010 estimates of same-sex couples (O'Connell & Feliz, 2011)
  - 50% of same-sex married couples in the 2010 ACS were actually different-sex married couples (Kreider & Lofquist, 2015)
- **Limited outcomes**
  - Imperfect proxy of progress through school using current grade and age

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We solve these issues!

- **Administrative panel data of all children born between 1995 and 2005**
    - ~~Snapshot~~ ➔ Observe each child annually from birth until age 12
    - ~~Misreporting~~ ➔ Register data
    - ~~Limited outcomes~~ ➔ Student achievement and diploma attainment
- **The Netherlands is interesting**
    - First country to legalize same-sex marriage in the world in 2001
    - Registered partnership already from 1998
    - Among the most favourable countries to same-sex couples
    - ➔ Results unlikely influenced by unique stressors e.g. lack of social support, persistent stigma and discrimination, and absent legal security

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Very positive attitude towards same-sex couples

To what extent do you agree or disagree with each of the following statements?
(Eurobarometer, 2015)

Legend:
- LGB should have the same rights as hetero (red)
- There is nothing wrong with same-sex relationship (blue)
- Same-sex marriages should be allowed (yellow)

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What about a more controversial question?

How comfortable would you feel if your child was in a love relationship with a person of the same sex? (Eurobarometer, 2015)

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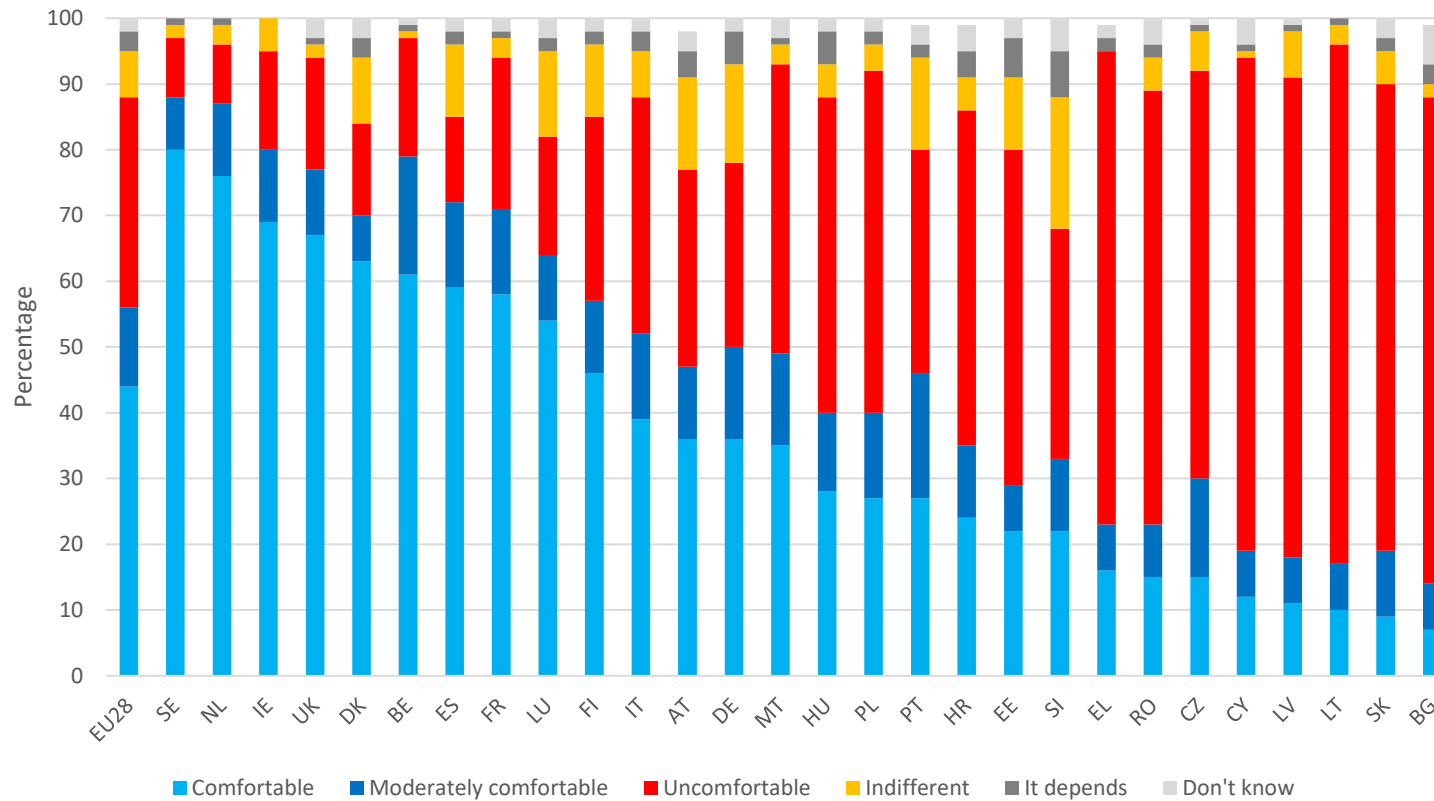
Why would gender of the parents even matter?

- **Family structure approach**

  Same-sex couples face increased stressors: lack of blood ties to their children, negative feedback from family and friends, persistent stigma from the society, modest or absent legal security… ➜ less parental investment

- **Kin Selection Theory**

  Because parents incur economic, physical and mental costs in raising a child, they display discriminative parenting and invest most in their biological children who share their genetic material ➜ less parental investment

- **Compensation approach**

  Same-sex parents channel increased stressors to prove themselves as good parents ➜ more parental investment

- **Characteristics or Selection approach**

  Given the time-consuming and costly procedures for same-sex couples to obtain children, same-sex couples have a higher socioeconomic status

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Administrative panel data from the Netherlands

- **Administrative records from Statistics Netherlands (annually 1995-2017)**
  - Children born between 1995 and 2005
  - Child, father and mother identifiers
  - Household identifiers
  - Demographic information
  - Marital status
  - Adoption
  - School outcomes
  - Labour market information

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Variables

- **Child resides in a same-sex household at least one year (1=yes, 0=no)**
  - Lives with both parents of same-sex
  - Lives with one parent who was married/cohabiting with same-sex partner
  - Lives with adoptive or foster parents of same-sex

- **Outcomes**
  - Standardized high-stakes test in final year of primary education (CITO)
  - Diploma attainment in secondary education (1=graduate, 0=dropout)

- **Control variables**

  Gender, ethnicity, indicators for birth year, household annual net income at birth, parental education at birth, average age of the parents at birth, number of siblings, family structure at birth, and indicators for neighbourhood at birth

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Empirical methodology

- **Ordinary Least Squares (OLS)**

$$Y_i = \gamma_0 + \gamma_1 H_i + \boldsymbol{\delta X}_i + v_i$$

with H_i: 1 if child resided at least one year in a same $-$ sex family

Standard errors clustered at the household level to account for siblings

- **Coarsened Exact Matching (CEM)**

Reduces imbalance in covariates and model dependence (Iacus, King, & Porro, 2008)

- **Treatment Effect Bounds**

How large should the effect of unobserved characteristics be compared to the effect of observed characteristics to render the estimates insignificant? (Oster, 2017)

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Descriptive Statistics

	Children from same-sex couples	Children from different-sex couples	Difference (T-test)
Control variables:			
Gender (1 is boy, 0 is girl)	0.493	0.503	-0.010 (0.012)
Ethnicity (1 is foreign, 0 is Dutch)	0.215	0.261	-0.046 (0.011)***
Household annual net income at birth			
At most 10,000 EUR	0.168	0.262	-0.094 (0.011)***
10,001 EUR – 20,000 EUR	0.494	0.513	-0.019 (0.012)
20,001 EUR – 30,000 EUR	0.288	0.184	0.104 (0.010)***
More than 30,000 EUR	0.050	0.041	0.009 (0.005)**
Parental education at birth (1 is no high school degree)	0.033	0.106	-0.073 (0.008)***
Average age of the parents at birth			
Younger than 35	0.498	0.754	-0.256 (0.011)***
36 to 40	0.340	0.173	0.166 (0.009)***
Older than 40	0.163	0.073	0.090 (0.006)***
Number of siblings			
Only child	0.530	0.429	0.101 (0.012)***
One sibling	0.370	0.384	-0.014 (0.012)
Two or more siblings	0.101	0.187	-0.086 (0.010)***
Family structure at birth			
Married parents	0.654	0.803	-0.149 (0.010)***
Cohabiting parents	0.314	0.196	0.119 (0.010)***
Other	0.032	0.002	0.030 (0.001)***
Outcomes:			
Test score at the end of primary education (standardized)	0.310	0.041	0.269 (0.024)***
High school diploma (1 is graduated, 0 is dropout)[a]	0.895	0.873	0.021 (0.021)
Number of children	1,661	1,199,351	

Achievement in primary education

CHILDREN FROM SAME-SEX COUPLES AND STANDARDIZED TEST SCORES AT THE END OF PRIMARY EDUCATION

	Full sample		Children raised by same-sex couples from birth	
	(1)	(2)	(3)	(4)
Child from same-sex couple (1=yes)	0.252***	0.112***	0.182***	0.195***
	(0.024)	(0.023)	(0.025)	(0.026)
Additional controls	No	Yes	Yes	Yes
Coarsened Exact Matching (CEM)	No	No	No	Yes
Number of children	1,201,012	1,201,012	1,198,479	757,379
Number of children from same-sex couples	1,661	1,661	1,246	1,246
Adj. R^2	0.012	0.109	0.109	0.081

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Heterogeneity

CHILDREN RAISED BY SAME-SEX COUPLES FROM BIRTH AND STANDARDIZED TEST SCORES AT THE END OF PRIMARY EDUCATION BY GENDER, ETHNICITY, AND FAMILY STRUCTURE

	Boys	Girls	Foreign	Dutch	Married	Cohabiting
	(1)	(2)	(3)	(4)	(5)	(6)
Child from same-sex couple (1 is yes)	0.182***	0.187***	0.241***	0.162***	0.129***	0.235***
	(0.035)	(0.035)	(0.057)	(0.028)	(0.032)	(0.041)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Number of children	602,584	595,895	312,493	885,896	963,315	235,164
Number of children from same-sex couples	627	619	265	981	774	472
Adj. R^2	0.106	0.115	0.140	0.092	0.107	0.128

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Causality?

SOCIOECONOMIC CHARACTERISTICS OF COUPLES WITH AND WITHOUT CHILDREN BY GENDER IN 2016			
	Different-sex couple with children	Different-sex couple without children	Same-sex couple with children	Same-sex couple without children
	(1)	(2)	(3)	(4)
Ethnicity (1 is foreign, 0 is Dutch)	0.256	0.378	0.223	0.562
Net income per year in euros	24,525	25,255	49,882	19,093
Number of couples	4,488,931	1,557,248	4,927	276,278

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Bounding the Causal Effect

BOUNDING THE CAUSAL EFFECT OF BEING RAISED BY A SAME-SEX COUPLE FROM BIRTH ON STANDARDIZED TEST SCORES AT THE END OF PRIMARY EDUCATION

Selection on unobservables / Selection on observables ratio	1	1.5	2	2.5	2.65
	(1)	(2)	(3)	(4)	(5)
Child from same-sex couple (1 is yes)	0.114	0.080	0.045	0.010	0.000
Number of children	1,198,479	1,198,479	1,198,479	1,198,479	1,198,479
Number of children from same-sex couples	1,246	1,246	1,246	1,246	1,246

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Diploma attainment

	Full sample		Children raised by same-sex couples from birth	
	(1)	(2)	(3)	(4)
Child from same-sex couple (1=yes)	0.020	0.025	0.068***	0.043*
	(0.018)	(0.019)	(0.018)	(0.023)
Additional controls	No	Yes	Yes	Yes
Coarsened Exact Matching (CEM)	No	No	No	Yes
Number of children	212,432	212,432	211,981	124,063
Number of children from same-sex couples	256	256	170	170
Adj. R^2	0.047	0.078	0.078	0.222

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Conclusion

- **Results**
  - Achievement in primary education: positive association of 0.182 standard deviations
  - No heterogeneity by gender and ethnicity
  - Children particularly benefit from same-sex couples if the couple is cohabiting rather than married
  - Diploma: positive association of 6.8 percent

- **Mechanisms**
  - Selection approach: control for socioeconomic status ➜ coefficient drops
  - ➜ BUT: positive association not removed
  - Compensation approach? Selection on unobservables at least 2.65 times higher than selection on observables to render association insignificant

- **Limitations**
  - Single parents?
  - Gay vs Lesbian?
  - Bisexual and transgender couples?
  - Relatively small sample of children with diploma attainment (and labour market outcomes)

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