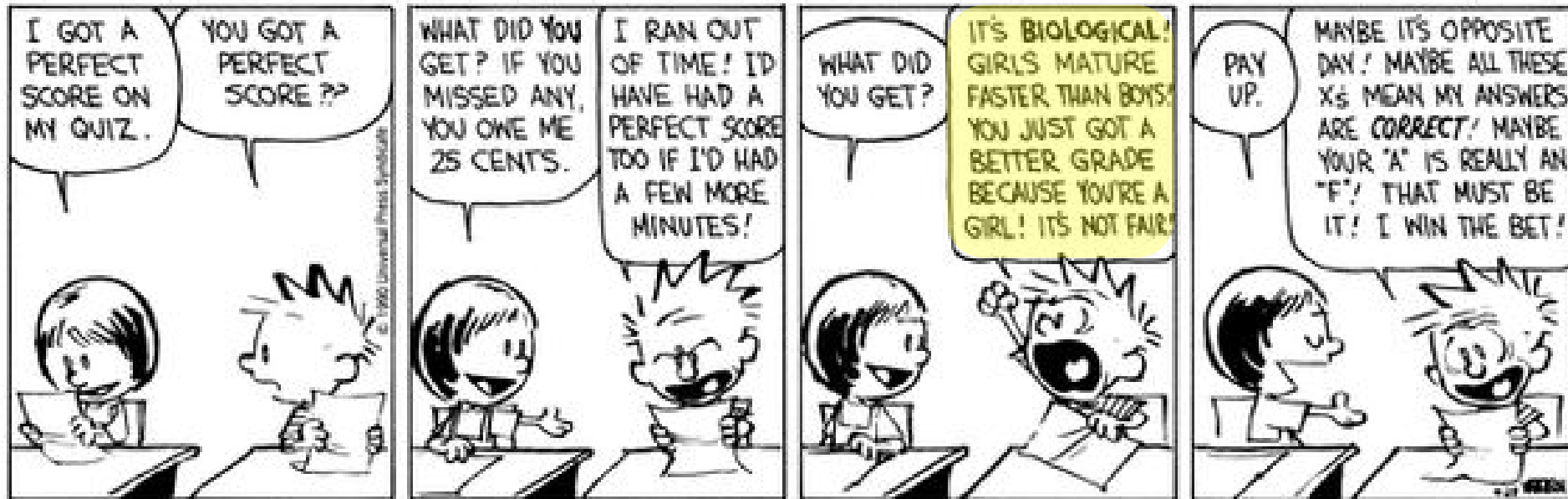


Aldersforskjeller i klasserommet



Ingeborg Foldøy Solli
Universitetet i Stavanger

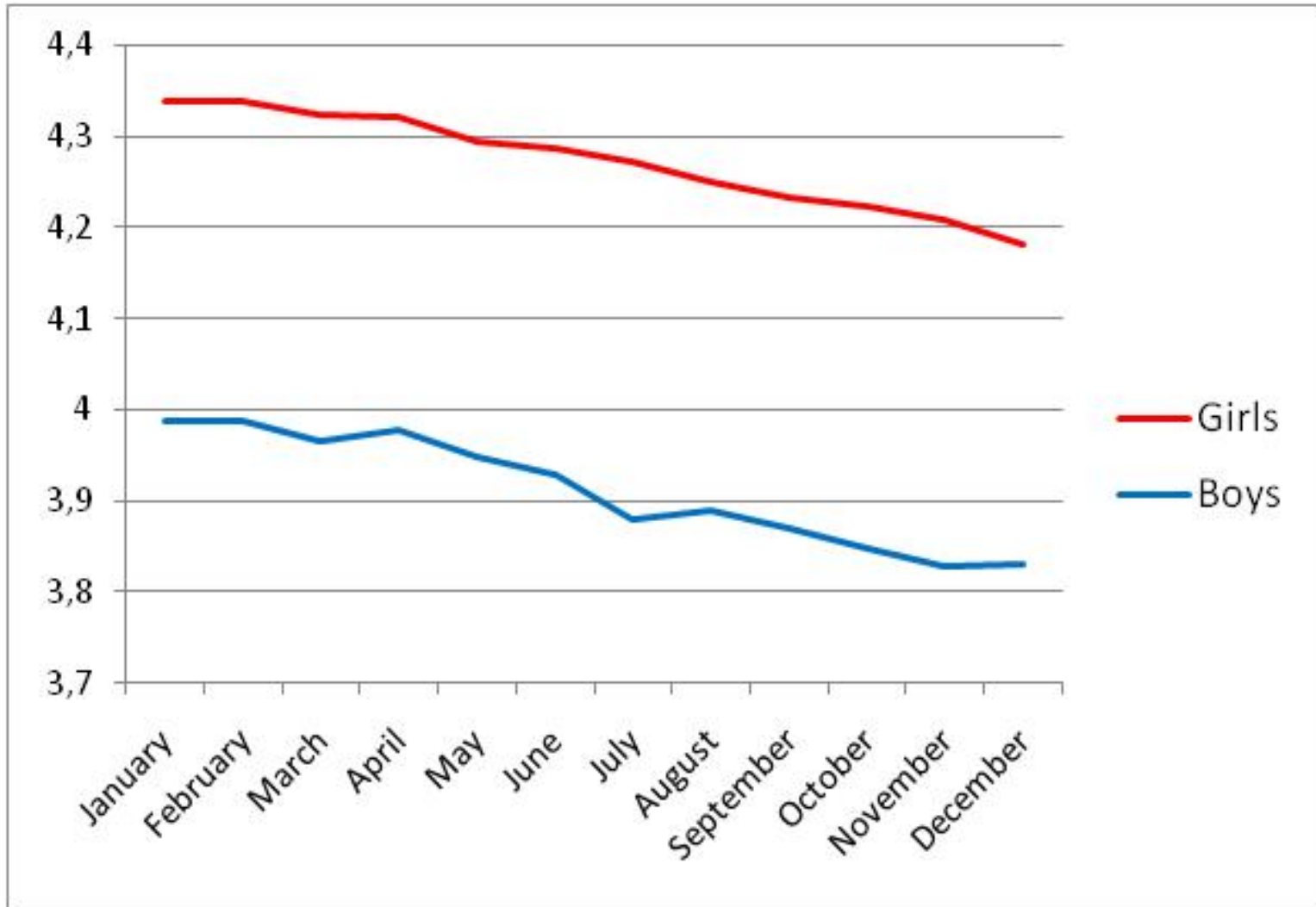
Left behind by Birth Month

(I.F. Solli Education Economics 2016)

- Skolekull blir definert av fødselsår
 - opptil 12 måneder aldersforskjell mellom den eldste og yngste i klassen
- Hvilken betydning har dette på
 - Avgangskarakterer 10 klasse
 - Å ha fullført videregående når 19 år
 - Inntekt når 30 år



Avgangskarakter (GPA) og fødselsmåned



bmo_4	-0.0081	-0.0149	-0.0592**	-0.0525**	-0.0037	0.0000	0.0146*	0.0124*	0.0103+	0.0162**	0.0175**
	(0.0102)	(0.0097)	(0.0199)	(0.0193)	(0.0070)	(0.0072)	(0.0059)	(0.0059)	(0.0054)	(0.0060)	(0.0058)
bmo_5	-0.0393**	-0.0419**	-0.0662**	-0.0666**	-0.0099	-0.0125+	0.0068	0.0026	0.0019	0.0062	0.0048
	(0.0102)	(0.0098)	(0.0204)	(0.0193)	(0.0070)	(0.0073)	(0.0059)	(0.0060)	(0.0055)	(0.0061)	(0.0059)
bmo_6	-0.0579**	-0.0489**	-0.0841**	-0.0997**	-0.0300**	-0.0150*	0.0100+	0.0073	-0.0076	0.0087	-0.0012
	(0.0104)	(0.0099)	(0.0205)	(0.0199)	(0.0071)	(0.0073)	(0.0060)	(0.0061)	(0.0056)	(0.0062)	(0.0060)
bmo_7	-0.107										-0.0066
	(0.0106)										(0.0060)
bmo_8	-0.096										-0.0041
	(0.0106)										(0.0060)
bmo_9	-0.116										-0.0056
	(0.0106)										(0.0060)
bmo_10	-0.138										-0.0017
	(0.0106)	(0.0101)	(0.0209)	(0.0201)	(0.0073)	(0.0075)	(0.0061)	(0.0062)	(0.0057)	(0.0063)	(0.0061)
bmo_11	-0.1578**	-0.1274**	-0.1669**	-0.1272**	-0.0518**	-0.0368**	0.0046	0.0001	-0.0153**	-0.0104	-0.0092
	(0.0107)	(0.0102)	(0.0211)	(0.0205)	(0.0074)	(0.0076)	(0.0062)	(0.0063)	(0.0057)	(0.0064)	(0.0061)
bmo_12	-0.1508**	-0.1533**	-0.1796**	-0.1838**	-0.0719**	-0.0467**	-0.0029	-0.0023	-0.0153**	-0.0122+	-0.0042
	(0.0106)	(0.0101)	(0.0209)	(0.0206)	(0.0074)	(0.0076)	(0.0061)	(0.0062)	(0.0057)	(0.0063)	(0.0061)
bmo_2	0.0013	0.0000	-0.0286	-0.0162	-0.0129+	0.0082	0.0049	-0.0034	0.0005	-0.0099	0.0059
	(0.0100)	(0.0095)	(0.0209)	(0.0199)	(0.0070)	(0.0073)	(0.0060)	(0.0061)	(0.0055)	(0.0060)	(0.0058)
bmo_3	-0.0202*	-0.0158+	-0.0388+	-0.0272	-0.0078	-0.0106	0.0079	-0.0048	0.0041	-0.0007	0.0075
	(0.0097)	(0.0092)	(0.0201)	(0.0193)	(0.0067)	(0.0070)	(0.0058)	(0.0058)	(0.0053)	(0.0058)	(0.0056)
bmo_4	-0.0086	-0.0195*	-0.0533**	-0.0447*	-0.0052	-0.0020	0.0110+	0.0078	0.0063	0.0108+	0.0134*
	(0.0097)	(0.0092)	(0.0200)	(0.0194)	(0.0068)	(0.0070)	(0.0058)	(0.0058)	(0.0053)	(0.0058)	(0.0056)
bmo_5	-0.0403**	-0.0454**	-0.0562**	-0.0598**	-0.0108	-0.0153*	0.0032	-0.0020	-0.0019	0.0006	0.0004
	(0.0098)	(0.0093)	(0.0205)	(0.0195)	(0.0068)	(0.0071)	(0.0058)	(0.0059)	(0.0053)	(0.0058)	(0.0056)
bmo_6	-0.0585**	-0.0504**	-0.0707**	-0.0893**	-0.0294**	-0.0178*	0.0091	0.0029	-0.0078	0.0033	-0.0021
	(0.0099)	(0.0094)	(0.0206)	(0.0201)	(0.0069)	(0.0072)	(0.0059)	(0.0060)	(0.0054)	(0.0059)	(0.0058)
bmo_7	-0.1040**	-0.0634**	-0.1226**	-0.0876**	-0.0241**	-0.0199**	-0.0040	-0.0071	-0.0106+	-0.0081	-0.0095+
	(0.0098)	(0.0094)	(0.0206)	(0.0201)	(0.0069)	(0.0072)	(0.0059)	(0.0060)	(0.0054)	(0.0059)	(0.0058)
bmo_8	-0.0996**	-0.0924**	-0.1054**	-0.1041**	-0.0307**	-0.0269**	-0.0037	-0.0064	-0.0108*	-0.0118*	-0.0068
	(0.0099)	(0.0094)	(0.0206)	(0.0203)	(0.0070)	(0.0072)	(0.0059)	(0.0060)	(0.0054)	(0.0060)	(0.0058)
bmo_9	-0.1176**	-0.1096**	-0.1061**	-0.0879**	-0.0375**	-0.0224**	-0.0001	-0.0050	-0.0141**	-0.0163**	-0.0095
	(0.0099)	(0.0094)	(0.0207)	(0.0201)	(0.0070)	(0.0072)	(0.0059)	(0.0060)	(0.0054)	(0.0060)	(0.0058)
bmo_10	-0.1407**	-0.1217**	-0.1378**	-0.1402**	-0.0294**	-0.0209**	0.0027	-0.0051	-0.0114*	-0.0080	-0.0052
	(0.0100)	(0.0095)	(0.0212)	(0.0204)	(0.0071)	(0.0073)	(0.0060)	(0.0061)	(0.0055)	(0.0060)	(0.0059)

$$Y_i = \alpha + \sum_{m=2}^{12} (\beta_m \cdot BMT_i) + \sum_y (\mu_y \cdot BYR_i) + \delta X_i + \varepsilon_i$$

GPA (standardisert) og fødselsmåned

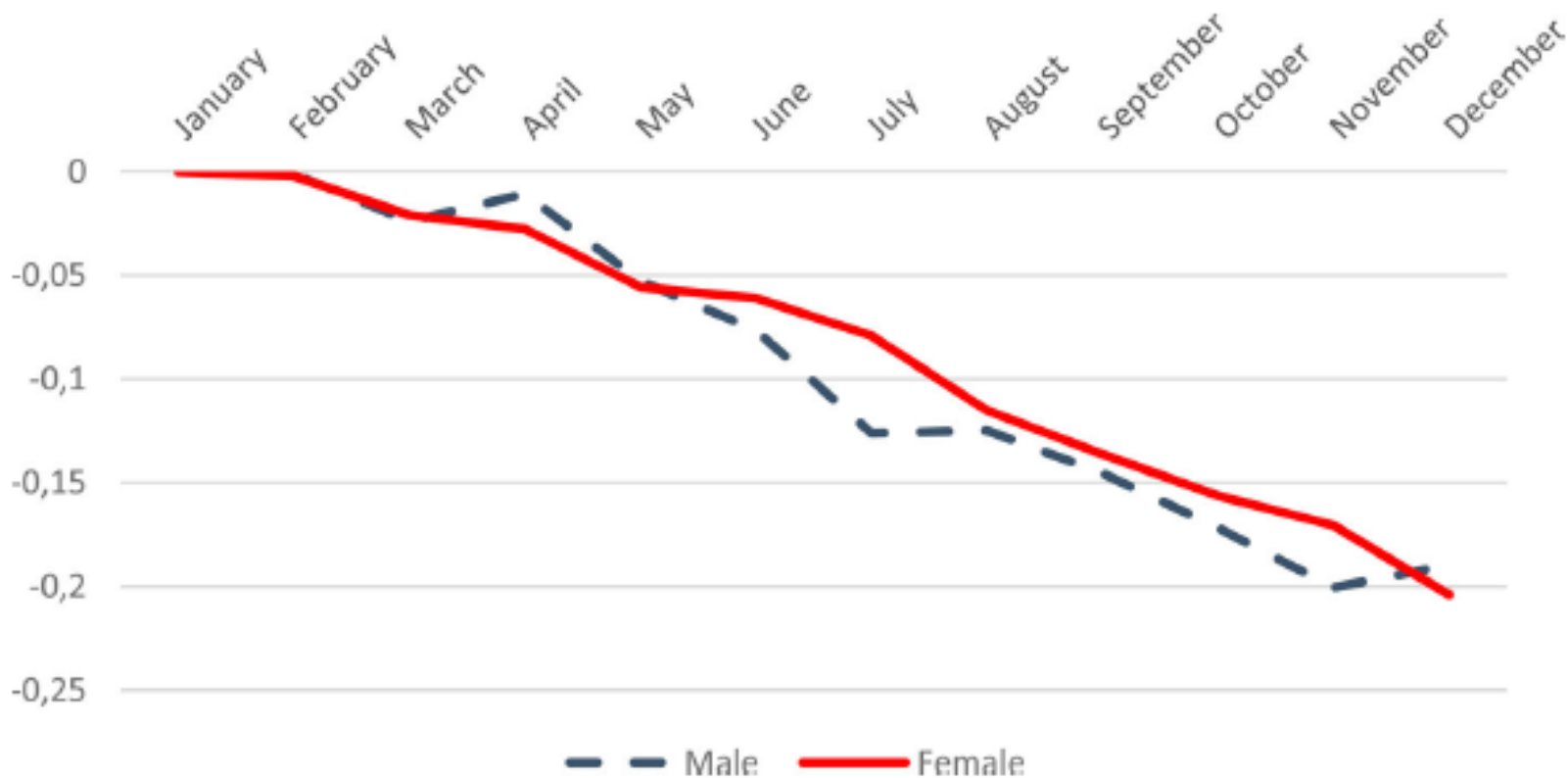


Figure 1. Birth month effects on GPA, by gender.

Notes: GPA is standardized to mean = 0, standard deviation = 1. Cohorts 1986–1991. $N = 278,602$. Standard error coefficients = 0.011, approximately constant across birth month estimates. Figure illustrates birth month coefficients in Table 4, Model 1.

Fullført videregående 19 år

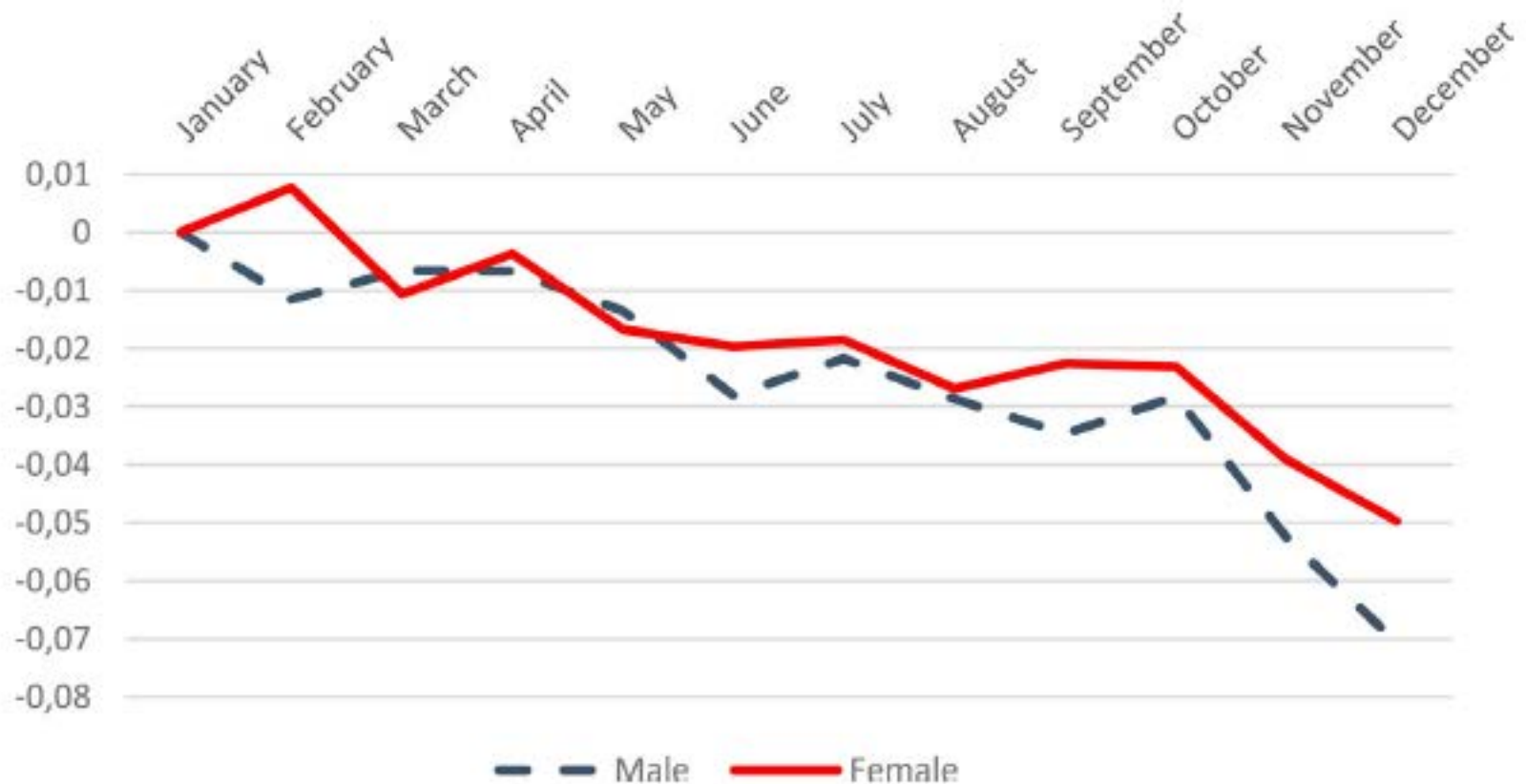


Figure 3. Birth month effects on high school completion at age 19, by gender.

Notes: Cohorts 1980–1984. Mean of outcome variable = 0.515. Standard error coefficients = 0.006, approximately constant across birth month coefficients. The outcome variable is constructed as an indicator taking the value 1 if the person had graduated from high school by year end the year he/she turned 19, otherwise 0. $N = 234,817$. Figure illustrates birth month coefficients in Table 5, Model 1.

Inntekt 30 år

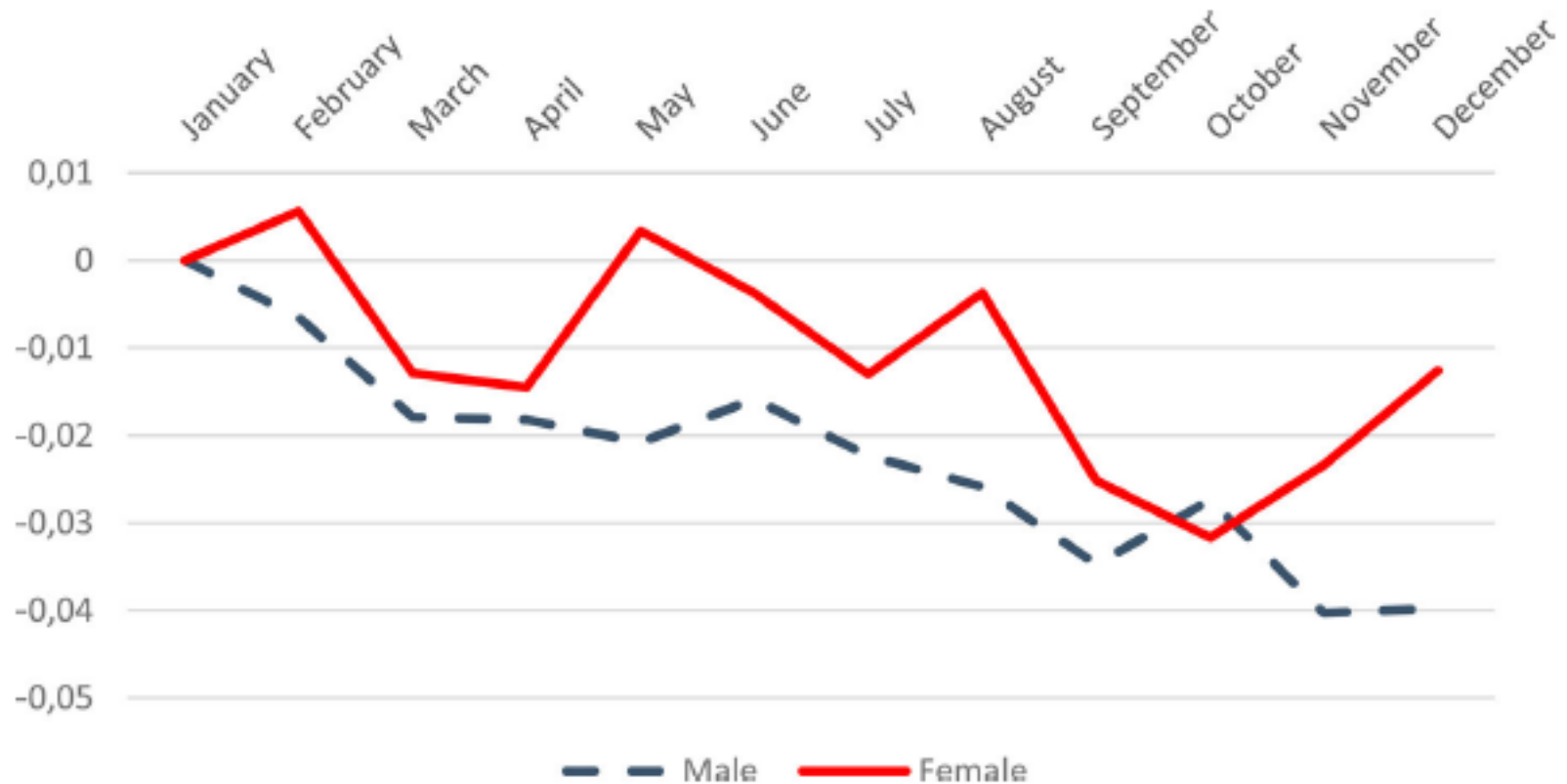


Figure 7. Birth month effects on log earnings at age 30, by gender.

Notes: Cohorts 1969–1973. Standard error coefficients = 0.011, approximately constant across birth month coefficients. The outcome variable is constructed as log of earnings the calendar year he/she turns 30. $N = 272,038$. Figure illustrates birth month coefficients in Table 7, Model 1.

Oppsummert

- Statistisk signifikante forskjeller mellom de yngste og eldste i klasserommet (fødselskull) på avgangskarakterer, fullføring av videregående skole og inntekt
- Økonomisk signifikant?

Avgangskarakterer:

- Forskjell ml eldste og yngste: 20% av et standardavvik
- Forskjell ml jenter og gutter: 50% av et st.avvik
- Forskjell ml høy og lav SES: 50% av et st.avvik

Modningshypotesen?

- Modne elever gjør det bedre på skolen enn umodne elever
- Jenter er mer modne enn gutter
- Ergo gjør jenter det bedre enn gutter på skolen
- Samvariasjon i effekter av alder og effekter av kjønn?

Avgangselever i 2015

	GPA	Norsk	Engelsk	Matte
Female/male	0,52 (0,008)	0,63 (0,008)	0,39 (0,008)	0,18 (0,008)
Old/young	0,23 (0,020)	0,24 (0,020)	0,19 (0,020)	0,17 (0,020)
High/low SES	0,47 (0,008)	0,40 (0,008)	0,37 (0,008)	0,47 (0,008)

Forskjeller i gjennomsnitt (t-test). Standardiserte karakterer.

Alderseffekter – mer enn modenhet?

- Alder ved skolestart
- Relativ alder i klasserommet

Guttene gjør det dårligere enn jentene i klassen
Har det en effekt i seg selv?



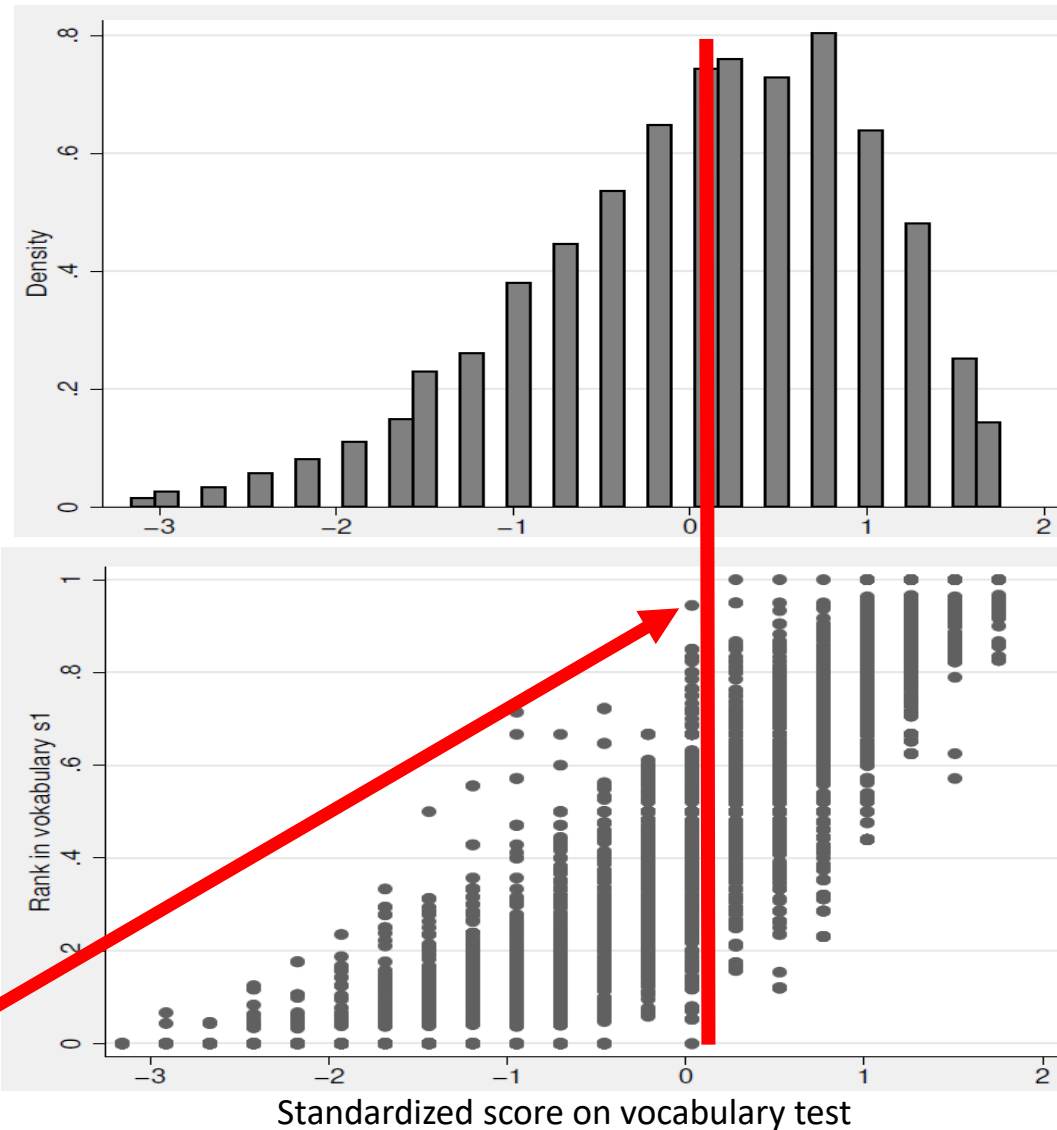
Venke F. Haaland og Ingeborg F. Solli (work in progress)

«The impact of rank in class on school performance»

Data fra «Two teachers»: 1. klasse-
elever i 300 skoleklasser, kartlagt august
2016 og juni 2017.

Fordeling i score på vokabulartest i
begynnelsen av 1. klasse
N = 5168

Rank [0,1]



Being on top of class leads to a
20% of a st.dev gain in test
score at end of 1st grade

Oppsummering og innspill

- Alder/modenhet har betydning
 - Men kan neppe alene forklare kjønnsforskjellene
- Rank har betydning
 - heterogenitet i klasserommet?
- Bedre med mer homogene elevgrupper?
 - Mer fleksibilitet og flyt i skolen: Oppstart, fag, trinn?
- Behov for solide studier av nivåinndeling i norsk skole