Online Appendix: The Unequal Battle Against Infertility: Theory and Evidence from IVF Success (For Online Publication)

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This Online Appendix consists of two parts:

- First, we provide additional tables regarding further demographic characteristics, live births over treatments, treatments by sector, medical conditions (including disease diagnoses) plus additional robustness exercises on the education gradient regarding with logit specifications, finer specifications for education (including schooling years), controlling for medical degrees, reporting time between treatments, and redoing our main set of results setting *HS* women as our reference group in Section A.
- Second, we provide a detailed discussion on our failed attempts to replicate Lundborg et al. (2017) in Section B.

A Additional Tables

Table A1: Demographic Characteristics of IVF Patients: First Treatment

Education	$<$ *HS*	*HS*	*College*
Age	31.7	31.5	32.2
Married (%)	58.9	57.7	56.7
Patient's income	186,211	234,222	280,515
Spousal income	262,058	313,827	353,014
Employment status (%):			
On leave	1.7	0.8	0.4
Self-employment	3.0	3.0	1.4
Employed	73.2	89.0	94.1
Out of labor force	10.9	3.3	2.0
Unemployed	11.3	3.8	2.1
Treated in public hospital (%)	87.2	83.7	79.6
Live births (%)	20.9	24.9	26.0
Sample (%)	12.6	50.7	36.7
Observations	2,579	10,392	7,542

Notes: In terms of education groups, we denote IVF patients with less than high school as $<$ *HS*, high school or some college as *HS*, and college or higher degree as *College*. Income is in DKK, deflated by CPI to year 2000. Employment status and income are measured the year prior to treatment. The sample consists of women of all ages and treat in both public and private clinics ($N = 20,513$).

Table A2: Live births over treatments

	Treatment Number					
	1	2	3	4	5	Last
Number of observations:						
Overall	20,513	13,326	8,653	5,251	3,024	-
High School Dropouts	2,579	1,735	1,166	719	397	-
High School Graduates	10,392	6,792	4,429	2,700	1,528	-
College	7,542	4,799	3,058	1,832	1,099	-
% Live births:						
Overall	0.2478	0.2157	0.1958	0.1739	0.1667	0.5826
High School Dropouts	0.2090	0.1793	0.1552	0.1335	0.1411	0.4876
High School Graduates	0.2486	0.2138	0.1917	0.1837	0.1623	0.5830
College	0.2600	0.2317	0.2171	0.1752	0.1820	0.6170
% Dropout:						
Overall	0.1126	0.1479	0.2230	0.2801	0.2944	-
High School Dropouts	0.1373	0.1699	0.2599	0.3563	0.3431	-
High School Graduates	0.1108	0.1485	0.2265	0.2858	0.3086	-
College	0.1063	0.1386	0.2026	0.2402	0.2558	-

Notes: This table shows the number of observations, success and dropout (conditional on failure) rates in the first five treatments and the success rate for the last treatment, overall and by education groups. The sample consists of women of all ages and treat in both public and private clinics ($N = 20,513$).

Table A3: IVF Treatments by Age in Public and Private Sectors

		Age			
	All	25-29	30-34	35-40	41+
(a) Treatments in the public sector:					
Only first treatment (%)	82.6	87.3	84.8	76.9	2.6
Only free-eligible treatments (%)	82.7	87.0	85.2	79.0	6.8
All (%)	81.7	86.7	84.1	78.6	14.8
(b) IVF success rate: Treatment level					
Public Sector	25.6	29.2	25.8	19.2	0.0
Private Sector	21.1	26.2	26.0	14.6	6.0
(c) IVF success rate: Hospital level					
Public Sector	25.8	29.2	27.4	18.1	0.0
Private Sector	17.8	26.9	22.8	10.6	6.9

Notes: The unit of observation is a treatment in panel (b), and the hospital in panel (c). The sample consists of women of all ages and treat in both public and private clinics ($N = 20,513$).

Table A4: Medical Conditions of IVF Patients by Education Groups

Variable	$<$ *HS*	*HS*	*College*
(a) Infertility causes (%):			
Cervical defect	0.67	1.29	1.89
Ovulation defect	11.59	10.25	11.23
Fallopian tube defect	37.38	24.42	20.58
Male causes	35.52	39.88	42.01
Other causes	13.90	22.02	28.75
Unspecified causes	18.94	24.14	22.55
(b) Health Status:			
General practitioner (GP) services:			
Average number of GP services	9.33	8.22	7.63
Average cost of GP services	70,011	60,901	58,204
Disease Diagnosis (%):			
Infectious diseases	0.58	0.39	0.32
Neoplasms	0.18	0.17	0.23
Blood diseases	0.13	0.06	0.07
Endocrine diseases	1.52	0.92	1.12
Mental Illness	0.18	0.15	0.08
Nervous system	0.62	0.47	0.42
Eye diseases	0.44	0.48	0.43
Ear diseases	0.53	0.31	0.30
Circulatory system	0.27	0.51	0.65
Respiratory system	1.29	0.60	0.57
Digestive system	2.18	1.66	1.47
Skin diseases	1.29	0.76	0.73
Musculoskeletal system	4.10	2.50	2.00
Genitourinary system	34.71	32.61	29.97
Pregnancy or childbirth	5.48	5.80	6.57
Prenatal diseases	0.00	0.01	0.03
Malformations chromosomal	0.18	0.37	0.38
Abnormal laboratory findings	3.12	2.57	2.74
Injuries	9.89	8.12	7.60
Factors for health contact	12.52	12.25	12.03
(c) Health Behavior:			
BMI (%):			
BMI$<$20	9.0	10.6	13.2
20$\leq$BMI$<$25	38.4	44.7	51.9
25$\leq$BMI$<$30	22.3	22.8	18.2
BMI$\geq$30	15.8	10.7	6.6
Missing	14.5	11.2	10.0
Cigarettes smoked per week (%):			
# of cigarette $= 0$	63.2	76.7	84.2
$1\leq$ # of cigarette ≤ 5	4.5	3.6	2.9
$6\leq$ # of cigarette ≤ 10	9.0	3.7	1.5
# of cigarette ≥ 11	9.0	3.9	1.2
Missing	14.2	12.0	10.2
Alcohol consumption per week (%):			
# of units $= 0$	50.6	41.7	36.6
$1\leq$ # of units ≤ 3	18.4	25.2	30.7
$4\leq$ # of units ≤ 5	1.9	6.5	8.4
# of units ≥ 6	3.9	4.2	5.8
Missing	25.2	22.5	18.5

Notes: We denote IVF patients with less than high school as $<$ *HS*, high school or some college as *HS*, and college or higher degree as *College*. Average cost is in DKK, deflated by CPI to year 2000. The sample consists of women below 40 in their first treatment who got treated in a public clinic ($N = 16,900$) in their first treatment to get the first child.

Table A5: Education Gradient in IVF (Live Births): Logit Specification, Average Marginal Effect

IVF Live Births	(1)	(2)	(3)	(4)	(5)
HS and some college	0.0416***	0.0392***	0.0365***	0.0330***	0.0315***
	(0.00984)	(0.00980)	(0.00999)	(0.0103)	(0.0102)
College and higher degree	0.0589***	0.0622***	0.0594***	0.0547***	0.0539***
	(0.0104)	(0.0104)	(0.0108)	(0.0112)	(0.0112)
Age Dummies		✓	✓	✓	✓
Time Dummies			✓	✓	✓
Health Status:					
Average number of GP services			-0.00126	-0.00153	-0.00171
			(0.00144)	(0.00145)	(0.00145)
Average cost of GP services			-8.03e-08	-4.26e-08	-5.00e-08
			(1.84e-07)	(1.84e-07)	(1.84e-07)
Disease(s) Diagnoses			✓	✓	✓
Socioeconomic Characterisitcs:					
Married				-0.0143**	-0.0120*
				(0.00682)	(0.00681)
Log total income				0.00835*	0.00882**
				(0.00431)	(0.00446)
Log spousal income				0.00263	0.00280
				(0.00386)	(0.00389)
Employment status:					
On leave				-0.0202	-0.0209
				(0.0453)	(0.0455)
Self-employment				0.0209	0.0182
				(0.0280)	(0.0277)
Employed				-0.00994	-0.0126
				(0.0173)	(0.0172)
Out of labor force				-0.0324	-0.0300
				(0.0256)	(0.0256)
Infertility causes:					
Cervical defect					-0.00531
					(0.0296)
Ovulation defect					-0.0146
					(0.0127)
Fallopian Tube defect					-0.0298**
					(0.0121)
Male causes					-0.0138
					(0.00975)
Other causes					-0.0296**
					(0.0120)
Unspecified causes					-0.0150
					(0.0129)
Clinic Fixed Effects					✓
Observations	16,900	16,900	16,897	16,897	16,897

Notes: Robust standard errors are in parentheses. They are clustered at the individual level in columns (1) and (2). *** $p < 0.01$, ** $p < 0.05$, *$p < 0.1$. HS denotes high school. Employment status reference category is "in school". All specifications include clinic fixed effect and year fixed effects. The sample consists of women below 40 in their first treatment who got treated in a public clinic ($N = 16,900$) in their first treatment to get the first child.

Table A6: A Finer Specification for Education

	4 Categories	Schooling Years
High School	0.0314***	
	(0.0102)	
Bachelor	0.0491***	
	(0.0116)	
Master or PhD	0.0666***	
	(0.0145)	
Schooling Years		0.00667***
		(0.00155)
Age Dummies	✓	✓
Time Dummies	✓	✓
Health Status	✓	✓
Socioeconomic Characteristics	✓	✓
Infertility Causes	✓	✓
Clinic Fixed Effects	✓	✓
Constant	0.230***	0.172***
	(0.0595)	(0.0602)
Observations	16,900	16,900
R-squared	0.022	0.022

Notes: *** $p < 0.01$, ** $p < 0.05$, *$p < 0.1$. Robust standard errors are in parenthesis. The omitted category is HS dropouts. The sample consists of women below 40 in their first treatment who got treated in a public clinic ($N = 16,900$) in their first treatment to get the first child.

Table A7: Medical Degree

IVF Live Births	(1) Benchmark	(2)	(3)	(4)	(5)
High School	0.0313***	0.0314***	0.0283***	0.0285***	0.0286***
	(0.0102)	(0.0102)	(0.0104)	(0.0104)	(0.0104)
College	0.0537***	0.0526***	0.0441***	0.0424***	0.0419***
	(0.0111)	(0.0116)	(0.0117)	(0.0122)	(0.0121)
High School, Partner			0.0136	0.0136	0.0135
			(0.00939)	(0.00939)	(0.00939)
College, Partner			0.0306***	0.0294**	0.0282**
			(0.0116)	(0.0117)	(0.0116)
Health Bachelor		-0.000303		0.00412	
		(0.0143)		(0.0145)	
Health Master		0.0315		0.0193	
		(0.0294)		(0.0308)	
Health Bachelor, Partner				-0.0359	
				(0.0413)	
Health Master, Partner				0.0625	
				(0.0405)	
Health Bachelor, any					0.00212
					(0.0139)
Health Master, any					0.0559**
					(0.0257)
Constant	0.224***	0.227***	0.210***	0.214***	0.215***
	(0.0594)	(0.0595)	(0.0609)	(0.0610)	(0.0610)
Observations	16,900	16,900	16,672	16,672	16,672
R-squared	0.023	0.022	0.023	0.023	0.023

Notes: Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, *$p < 0.1$. The main sample considered are women below 40 treated in public clinics ($N = 16,900$).

Table A8: Education Gradient in IVF Success (Live Births)

IVF Live Births	(1)	(2)	(3)	(4)	(5)
High School Dropouts	-0.0416***	-0.0392***	-0.0361***	-0.0326***	-0.0313***
	(0.00984)	(0.00981)	(0.00999)	(0.0102)	(0.0102)
College	0.0173**	0.0228***	0.0228***	0.0219***	0.0225***
	(0.00742)	(0.00742)	(0.00751)	(0.00754)	(0.00756)
Age Dummies		✓	✓	✓	✓
Time Dummies			✓	✓	✓
Health Status:					
Average number of GP services			-0.00118	-0.00140	-0.00158
			(0.00135)	(0.00135)	(0.00135)
Average cost of GP services			-7.94e-08	-4.73e-08	-5.54e-08
			(1.70e-07)	(1.71e-07)	(1.71e-07)
Disease(s) Diagnoses			✓	✓	✓
Socioeconomic Characteristics:					
Married				-0.0142**	-0.0119*
				(0.00687)	(0.00688)
Log total income				0.00656**	0.00669**
				(0.00301)	(0.00301)
Log spousal income				0.00236	0.00244
				(0.00333)	(0.00330)
Employment status:					
On leave				-0.0183	-0.0199
				(0.0410)	(0.0413)
Self-employment				0.0214	0.0187
				(0.0282)	(0.0279)
Employed				-0.00866	-0.0113
				(0.0169)	(0.0169)
Out of labor force				-0.0284	-0.0268
				(0.0231)	(0.0231)
Infertility causes:					
Cervical defect					-0.00539
					(0.0292)
Ovulation defect					-0.0141
					(0.0127)
Fallopian Tube defect					-0.0293**
					(0.0118)
Male causes					-0.0131
					(0.00954)
Other causes					-0.0292**
					(0.0118)
Unspecified causes					-0.0149
					(0.0128)
Clinic Fixed Effects					✓
Constant	0.255***	0.318***	0.316***	0.223***	0.256***
	(0.00468)	(0.0159)	(0.0218)	(0.0579)	(0.0597)
Observations	16,900	16,900	16,900	16,900	16,900
R-squared	0.002	0.010	0.014	0.015	0.022

Notes: Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, *$p < 0.1$. HS denotes high school. Employment status reference category is "unemployed". All specifications are run on the first treatment. The omitted category is HS graduates. The sample consists of women below 40 in their first treatment who got treated in a public clinic ($N = 16,900$) in their first treatment to get the first child.

Table A9: Education Gradient in IVF Success (Live Births): Different Stages of the IVF treatment

Outcome:	Aspiration (1)	Embryo Transfer (2)	Live Birth (3)	Live Birth (4)
High School Dropouts	-0.0101*	-0.0301***	-0.0309**	-0.0298**
	(0.00563)	(0.00968)	(0.0124)	(0.0124)
College	0.0102***	0.00705	0.0235***	0.0242***
	(0.00317)	(0.00635)	(0.00879)	(0.00878)
Full Controls	✓	✓	✓	✓
2 Embryos Trans.				0.124***
				(0.00887)
≥3 Embryos Trans.				0.0397
				(0.0282)
Constant	0.862***	0.770***	0.359***	0.265***
	(0.0322)	(0.0581)	(0.0723)	(0.0730)
Observations	16,900	16,204	13,783	13,647
R-squared	0.043	0.024	0.024	0.037

Notes: Robust standard errors are in parenthesis. Observations in Columns (3) and (4) are treatments that reached the embryo implantation stage. The omitted category is HS graduates. The sample consists of women below 40 in their first treatment who got treated in a public clinic ($N = 16,900$) in their first treatment to get the first child.

Table A10: Robustness

IVF Live Births	(1) Benchmark	(2) 2006-2009	(3) Behaviors 2006-2009	(4) Wealth	(5) All women/clinics	(6) Occupations Sample	(7) Occupations	(8) Spousal educ.
High School Dropouts	-0.0313***	-0.0618**	-0.0588**	-0.0308***	-0.0299***	-0.0283***	-0.0234**	-0.0283***
	(0.0102)	(0.0243)	(0.0245)	(0.0102)	(0.00932)	(0.0107)	(0.0112)	(0.0104)
College	0.0225***	0.0292**	0.0263*	0.0222***	0.0189***	0.0217***	0.0188*	0.0159**
	(0.00756)	(0.0135)	(0.0136)	(0.00756)	(0.00670)	(0.00778)	(0.00993)	(0.00802)
Benchmark controls	✓	✓	✓	✓	✓	✓	✓	✓
BMI			✓					
Smoking			✓					
Alcohol			✓					
Wealth				1.85e-08*				
				(9.68e-09)				
Occupation FE							✓	
High School Dropout, Partner								-0.0136
								(0.00939)
College, Partner								0.0170*
								(0.00885)
Constant	0.256***	0.376***	0.411***	0.262***	0.260***	0.266***	0.281***	0.251***
	(0.0597)	(0.121)	(0.122)	(0.0597)	(0.0519)	(0.0630)	(0.0633)	(0.0613)
Observations	16,900	4,673	4,673	16,900	20,513	15,737	15,737	16,672
R-squared	0.022	0.024	0.025	0.022	0.028	0.022	0.024	0.023

Notes: Robust standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, *$p < 0.1$. HS denotes high school. Employment status reference category is "unemployed". All specifications are run on the first treatment. The omitted category is HS graduates. The main sample considered are women below 40 treated in public clinics ($N = 16,900$) in all columns except column (5) where the sample is all women/all clinics ($N = 20,513$).

Table A11: Ability Proxies as Determinants of Pre-IVF Outcomes, IVF Success, and Post-IVF outcomes

	All IVF women			**Successful IVF women**		**All IVF women**	
Outcome:	Log(Wage) Pre	IVF success	Log(Wage) Post	Log(Wage) Pre	Log(Wage) Post	IVF success	Log(Wage) Post
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
log(GPA)	0.254***	0.131***	0.294***	0.241***	0.261***		
	(0.0097)	(0.0476)	(0.0251)	(0.0128)	(0.0325)		
Pre-IVF FE						0.0736***	0.531***
						(0.0206)	(0.0116)
Observations	58,414	8,220	5,117	33,893	3,043	17,979	11,324
R-squared	0.512	0.113	0.509	0.511	0.542	0.115	0.573
Full IVF Controls		✓				✓	
Full LM Controls	✓		✓	✓	✓		✓

Notes: The full IVF controls contain all controls from our benchmark specification in Table 2. The full labor market (LM) controls include education, experience (quadratic), firm tenure (quadratic), 2-digit industry FE, year and age FE, labor market outcomes (income, employment status) in the year before entering IVF, and the total number of children an whether or not the woman was successful in IVF. All wages are full-time hourly wages. Columns (1)-(5) are estimated on HS and college graduates.

B Replication note of Lundborg, Plug and Rasmussen (2017)

This note shows that we fail to replicate the small and insignificant education gradient in IVF fertility success in Lundborg et al. (2017), henceforth LPR, reported in their Online Appendix Table 1 for a sample originating from the same raw data. In order to compare our results to LPR, we describe three ways of selecting the women for the final sample, show the same summary statistics as in LPR, and perform the same regression of IVF success on education, controlling for the same set of variables. The code available in the LPR replication package does not contain information on how the sample or the included variables are constructed, which is the reason why we try to replicate the LPR results using three differently selected samples.

B.1 Sample selection

The LPR sample is a subset of our sample. That is, we also have access to the IVF register from Denmark for the period 1994 to 2005, which LPR is based on. However, where LPR find 31,666 unique women, we find 31,653 unique women who exist in the population register (BEF).[1] Then, following LPR, we select only women in their first treatment, calculated such that we exclude women in all years with treatments in 1994 and only use first treatments appearing from 1995 onwards. This excludes 2,907 women from the sample, which gives 28,758 women with a first treatment. We further exclude 5,661 who enter IVF treatment with a child and we exclude 4,305 women who do not reach stage four of the IVF treatments, which is the stage at which an embryo is placed back in the womb. For the fourth stage selection, we condition on women having a positive number of fresh embryos transferred. This leaves 18,780 women with IVF treatments.[2]

From here, we generate three different samples, depending on which year (of the other Danish register data) we select the background characteristics "married" and "education" from, to merge on to the IVF women and whether or not we condition on prior and post . Our sample 1 is with "married" and "education" measured at January 1 in the year of the treatment and our sample 2 is with "married" and "education" measured at January 1 in the year prior to the treatment. We use both sample selections because sample 1 has summary statistics closer to LPR and sample 2 follows the description of the sample selection in LPR. We further create a sample 3, where we follow the selection in sample 1, however, we include women with missing education and impute their values following LPR as per our email exchange with them (we provide further details in the next section) and exclude women who are not in the population data in zero and one years after potential birth of the child.[3]

In samples 1 and 3 (sample 2), we merge marital status and education for women who are in the IVF register on January 1 in the year of (before) their treatment. For samples 1 and 3 (sample 2), marital status is the woman's status on January 1, in the year of (before) the treatment and for education, it is the highest obtained degree recorded in October the year before (two years before) the treatment, for those women who are in the IVF sample on January 1 in the year of the treatment.

All samples are conditional on being in the population registers (BEF) on January 1 in the year of treatment and therefore having a marital status in the year of treatment. In sample 2, we further condition on being in the population register in the year before treatment, excluding an additional 206 women, most likely because they do not reside in Denmark. In samples 1 and 2, we exclude respectively another 199 and 232 women with missing information on education (in the UDDA register). In sample 3, we keep women with missing education, but exclude women who are not registered with a labor income (which can be zero) in the year of, and the year after, potential birth.[4] This leaves us with a sample 1 with 18,581 women, sample 2 with 18,342 women, and sample

[1] In order to exist in the population statistics, the woman has to be a resident of Denmark on January 1 in the year of the IVF treatment.

[2] At this stage the LPR sample contains 18,798 women.

[3] The year of potential birth is calculated as 9 months after the first day in the menstrual cycle, which is also the treatment day.We create sample 3 because this sample selection has the same number of observations as LPR and the conditioning on being in the population after potential birth matches the second stage IV-regressions in LPR.

[4] This information is extracted from the IDAP register.

Table B1: Sample selection for LPR, sample 1, sample 2, and sample 3

	LPR	Sample 1	Sample 2	Sample 3
Number of entries in sample (womenXtreatment)	96,807	96,807	96,807	96,807
Not in population register year t of treatment		420	420	420
Number of unique women	31,666	31,653	31,653	31,653
Women treated in 1994	2,908	2,907	2,907	2,907
Left over:	28,758	28,746	28,746	28,746
Women who enter IVF treatment with children	5,674	5,661	5,661	5,661
Leaves number of women:	23,084	23,084	23,084	23,084
No fresh embryo transfer	4,286	4,305	4,305	4,305
Leaves number of women for only fresh embryo transfers	18,798	18,780	18,780	18,780
Not in population register year t-1 of treatment			206	
Missing education		199	232	
Not in labor market register year 0 and year 1 after potential birth				242
Total not in other registers	260	199	438	242
Final sample of women	18,538	18,581	18,342	18,538

Notes: The table shows sample selection for four different samples. LPR is the selection we aim to replicate. Samples 1, 2, and 3 are created through exclusion of women who do not link to other registers at Statistics Denmark in different ways (see discussion in the text). The population register is from BEF. Women who enter treatment with children is from the BEF register. Fresh embryos is from the IVF register. Education is from UDDA register converted to years of education, and labor market status is from the IDAP register.

3 with 18,538 women compared to the 18,538 women in LPR sample. We show our sample selections compared to LPR in Table B1.

From samples 1, 2, and 3, we generate variables to replicate Table 1 in the appendix from LPR. All variables, except for the exact age, marital status, and the CPI deflator used in earnings are the same definition as LPR. We have obtained this information from correspondence with the authors. However, we were not able to get access to the file that generates the sample selection or exact variable definitions of age, marital status, and the CPI deflator.

We compute the age at treatment and round it to the nearest integer.[5] We use marital status from the population register (BEF)[6]. We collect sickness benefit from the Social Statistics register (SHSS) and generate an indicator for received sickness benefit during the year prior to treatment[7]. From the labor market register (IDAP), we use labor income in the year prior to treatment, deflate it with the Consumer Price Index to get 2008 Danish Kroner, and generate an indicator for positive labor income.[8] We categorize and assign years of education from highest completed education in the Education Register (UDDA)[9]. Finally, we use success in treatment as the indicator for at least one child recorded, in the IVF register, because of the treatment.[10] In Table B2, we show

[5]We choose to round to the nearest integer because this gives the average age that is closest to LPR. If we round down, this does not change the education gradient significantly.

[6]Married is CIVST="G"

[7]Positive sickness benefit are bel_syg>0

[8]We use the earnings variable LONIND

[9]We obtain a variable for highest education, HFUDD, and transfer it to broad education categories (the first two digits from an older educational classification HFFSP) using a transfer-key, AUDD2010_L1l5_K, from Statistics Denmark. With the broad education categories, we assign years of education by the following main HFFSP categories: 9 years of education when $HFFPS = \{10\}$, 12 years of education when $HFFPS = \{20, 25, 35\}$, 14 years of education when $HFFPS = \{40\}$, 15 years of education when $HFFPS = \{50, 60\}$, 17 years of education when $HFFPS = \{65, 70\}$. These categories are made following a correspondence with the authors. In sample 3, we assign missing education to 9 of years of education.

[10]We create an indicator equal to one if the variable v_f_bflerfold>0.

summary statistics for women with and without a successful treatment from samples 1 to 3 and compare these to the sample of LPR. We also include columns with the difference between IVF failure and success and test whether these are significantly different from zero. Table B2 shows that in all three samples and in the LPR sample, age, year at first treatment, and positive earnings are significantly different between the two groups, leading LPR to conclude that success in IVF treatment is random conditional on age and year at first treatment. Notice that in these unconditional differences education is not significantly different between women with IVF failure and IVF success.

Comparing the means between LPR and our three samples from Table B2, we see that the largest difference between the samples, besides the number of observations, is the fraction of women married where samples 1 and 3, like LPR, have 52% married women and sample 2 only has 42% married women. Annual earnings are also somewhat different from LPR, which could be due to differences in how we deflate the earnings to 2008 prices. Schooling also varies a little over the samples, especially with sample 2 having slightly fewer years of education, due to being recorded the year prior to sample 1 and 3. We use the variables to run the OLS regression from Table 1 in the appendix of LPR to compare the education gradient in our samples with the gradient from LPR. We run the following linear probability model:

$$IVFsuccess = \alpha + \beta_1 School + \beta_2 sick + \beta_3 mar + \beta_4 I(earn > 0) + \beta_5 earn + \gamma_{age} + \delta_{year}$$

We are interested in the education gradient, β_1, using years of completed education. In Table B3 we show the regressions from sample 1, sample 2, and sample 3 and compare the coefficients to LPR. For our three samples, we further provide results on education, conditional on only age and year fixed effects. In all of our three samples we see that years of schooling are associated with IVF success conditional on age and year fixed effects, see col (2), (4) and (6) in Table B3. Including all the control variables decreases the education gradient slightly, but we still find a significant educational gradient such that probability of IVF success is associated with either a 0.37, 0.46, or 0.46 percentage point increase for every year of education in samples 1, 2 and 3, respectively. This means that a woman with a 5-year university degree has 2.96 to 3.68 percentage points higher probability of success than a women with mandatory school level of grade 9. Women with grade 9 has an average of success probability of respectively 28.9%, 29.2%, or 28.6%, making the 2.96 and 3.68 percentage points increase from grade 9 to a university degree associated with either a 10.24%, 12.6%, or 12.9% percent increase in success probability. This is in contrast to the LPR sample that has an education gradient that is insignificant at 0.002, which is only around half of what what we find. Most of the other control coefficients closely resemble the coefficients from LPR, except for the coefficient on married, which has the opposite sign.

In sum, we closely replicate the summary statistics of LPR across the three samples but we fail to replicate the estimated coefficient on years of education after controlling for observables.

Table B2: Summary Statistics of LPR, Sample 1, Sample 2, and Sample 3

	LPR			Sample 1			Sample 2			Sample 3		
	IVF failure	IVF success	(2)-(1)	IVF failure	IVF success	(5)-(4)	IVF failure	IVF success	(8)-(7)	IVF failure	IVF success	(11)-(10)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Pre-treatment outcomes:												
Age at first treatment	32.490	31.415	1.075***	32.417	31.393	1.024***	32.401	31.383***	1.019***	32.422	31.388	1.033***
	(4.445)	(3.886)	(0.069)	(4.390)	(3.862)	(0.069)	(4.386)	(3.853)	(0.069)	(4.404)	(3.862)	(0.069)
Year at first treatment	2000.149	2000.295	-0.146***	2000.160	2000.309	-0.148***	2000.151	2000.305	-0.154***	2000.152	2000.299	-0.149***
	(3.12)	(3.07)	(0.050)	(3.120)	(3.069)	(0.050)	(3.120)	(3.067)	(0.051)	(3.122)	(3.067)	(0.050)
Annual earnings (1000 DKK)	245.36	243.91	1.448	236.923	235.884	1.038	238.941	237.172	1.769	235.980	235.574	0.407
	(143.37)	(131.74)	(2.168)	(138.883)	(127.258)	(2.196)	(137.869)	(126.396)	(2.193)	(138.937)	(127.277)	(2.198)
Schooling	12.82	12.84	-0.023	12.837	12.856	-0.020	12.730	12.752	-0.023	12.787	12.836	-0.049
	(2.359)	(2.294)	(0.038)	(2.355)	(2.288)	(0.038)	(2.342)	(2.266)	(0.038)	(2.372)	(2.299)	(0.038)
Sickness benefits	0.170	0.169	0.005	0.170	0.168	0.002	0.172	0.169	0.002	0.171	0.168	0.003
	(0.376)	(0.375)	(0.004)	(0.376)	(0.374)	(0.006)	(0.377)	(0.375)	(0.0061)	(0.376)	(0.374)	(0.006)
Married	0.521	0.523	-0.002	0.523	0.525	-0.001	0.429	0.423	0.006	0.526	0.526	-0.000
	(0.500)	(0.500)	(0.008)	(0.499)	(0.499)	(0.008)	(0.495)	(0.494)	(0.008)	(0.499)	(0.499)	(0.008)
Positive earnings	0.910	0.922	-0.013***	0.908	0.922	-0.014***	0.913	0.926	-0.013***	0.906	0.922	-0.016***
	(0.288)	(0.268)	(0.005)	(0.289)	(0.268)	(0.005)	(0.282)	(0.262)	0.005	(0.291)	(0.268)	(0.004)
Observations	13,168	5,370		13,220	5,361		13,041	5,301		13,177	5,361	

Notes: The table shows descriptive statistics for four samples: LPR contains the summary statistics we aim to replicate. Sample 1, 2, and 3 are different ways of constructing the samples. Annual earnings is deflated with the consumer price index to get 2008 DKK. Schooling is years of education before entering first treatment, sickness benefits is an indicator for receiving sickness benefits in the year prior to treatment. Married is and indicator for being married before entering first treatment. Columns (1), (2), (4), (5), (7), (8), (10), and (11) show means with standard deviations in parentheses. Column (3), (6), (9), and (12) show the difference in means between previous two columns. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B3: LPM: Outcome=IVF success, results from LPR, Sample 1, Sample 2, and Sample 3

	LPR	Sample 1		Sample 2		Sample 3	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Schooling	0.002	0.00411***	0.00365**	0.00475***	0.00457***	0.00509***	0.00462***
	(0.002)	(0.00146)	(0.00155)	(0.00148)	(0.00160)	(0.00145)	(0.00155)
Sickness Benefit	-0.010		-0.00984		-0.0101		-0.00994
	(0.090)		(0.00897)		(0.00900)		(0.00896)
Married	0.002		-0.00159		-0.00406		-0.00247
	(0.007)		(0.00671)		(0.00684)		(0.00672)
Positive earnings	0.027**		0.0255*		0.0262*		0.0274**
	(0.0138)		(0.0138)		(0.0141)		(0.0137)
Earnings	-0.000		-1.04e-05		-2.52e-05		-1.39e-05
	(0.000)		(3.05e-05)		(3.12e-05)		(3.07e-05)
Year FE	✓	✓	✓	✓	✓	✓	✓
Age FE	✓	✓	✓	✓	✓	✓	✓
Observations	18,538	18,581	18,581	18,342	18,342	18,538	18,538
R-squared	0.02	0.018	0.018	0.018	0.018	0.018	0.019

Notes: The table shows regressions on the probability of success at first IVF treatment. LPR are the results we aim to replicate. Sample 1, 2, and 3 are different ways of constructing the samples. Column (2), (4), and (6) include schooling and age and year fixed effects. Column (3), (5), and (7) further include sickness benefits, being married, and earnings as controls. Annual earnings is deflated with the consumer price index to get 2008 DKK. Schooling is years of education before entering first treatment, sickness benefits is an indicator for receiving sickness benefits in the year prior to treatment. Married is and indicator for being married before entering first treatment. IVF success is an indicator for being registered with at least 1 child from the IVF treatment in the IVF register. Robust standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

References

Lundborg, P., Plug, E., and Rasmussen, A. W. (2017). Fertility effects on female labor supply: Iv evidence from ivf treatments. *American Economic Review*, 107.