

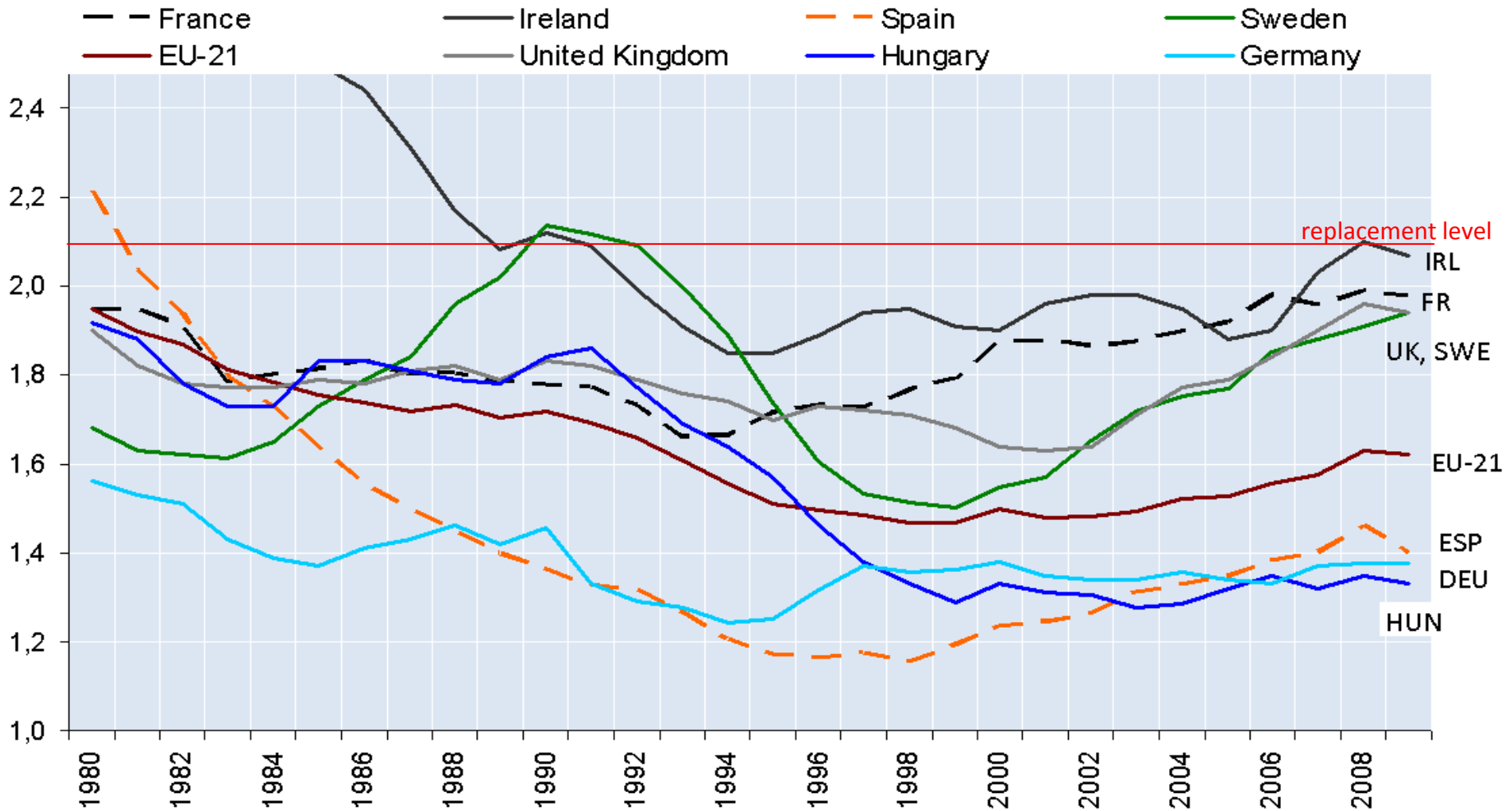
Angela Greulich

“Socioeconomic differentials in the transition to have a second child in Europe“

Université Paris 1 Panthéon Sorbonne
Economics Department



1. Motivation

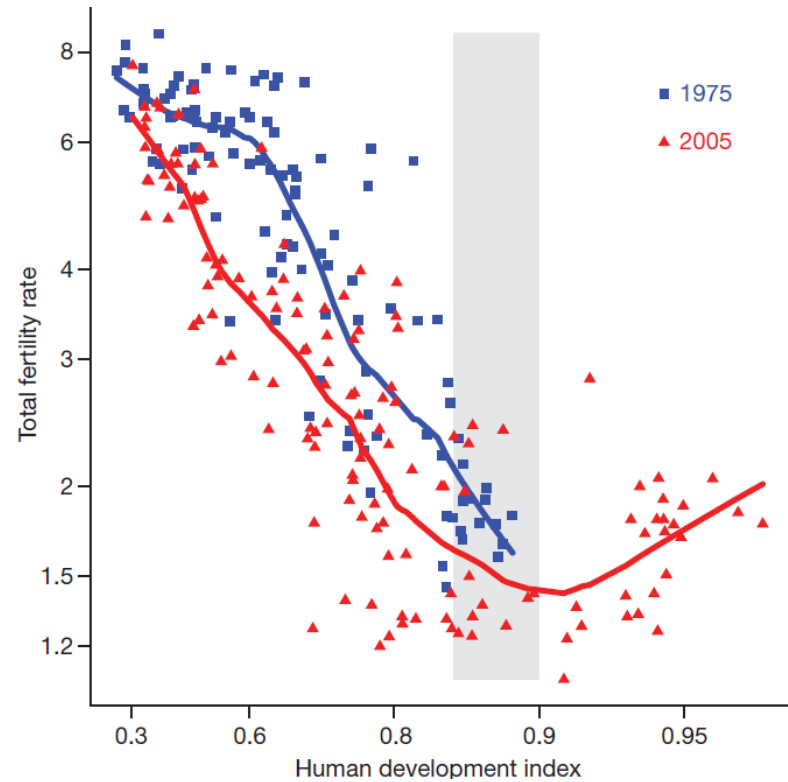


Data: OECD Family Database (2010)

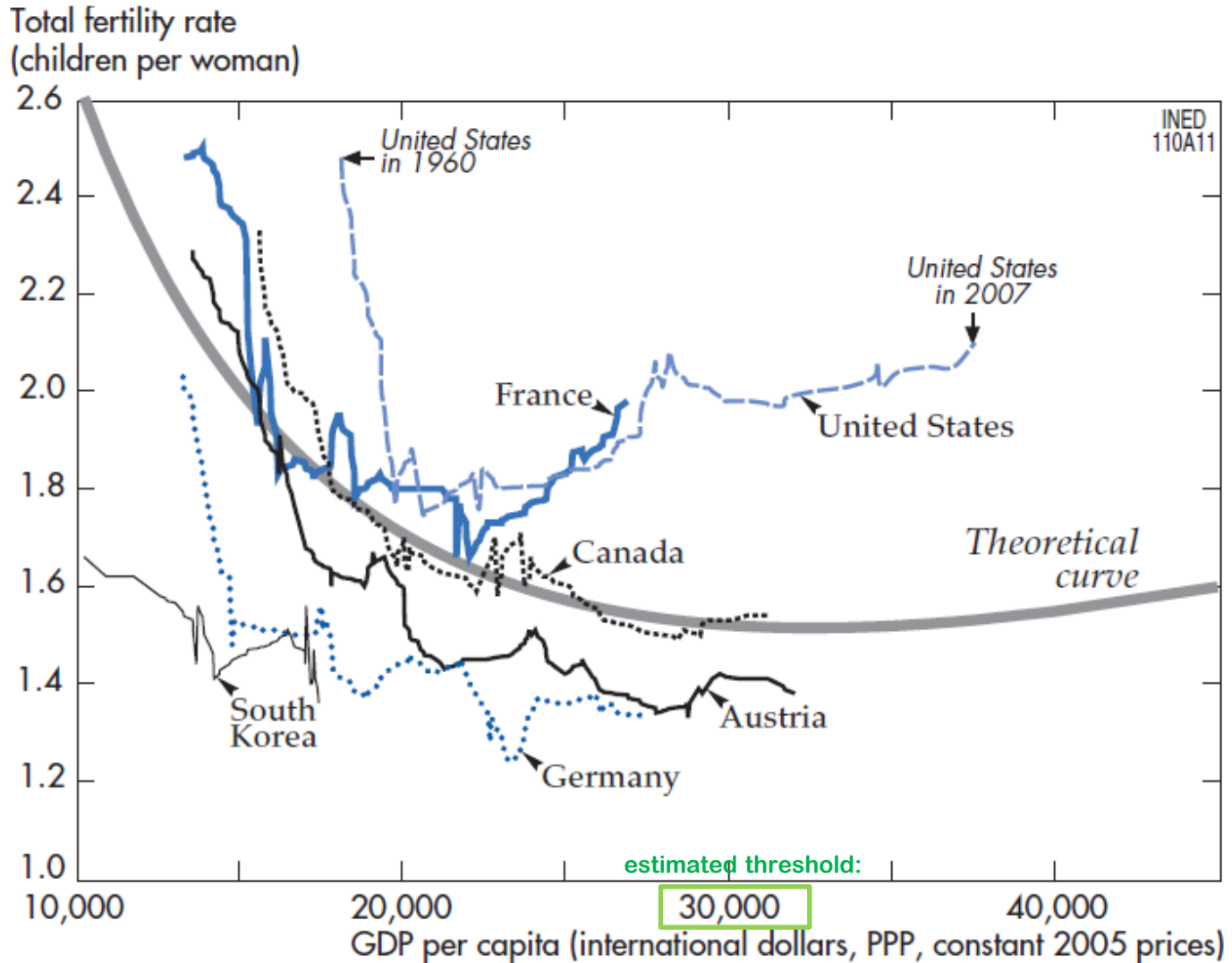
1. Motivation

Myrskylä M., Kohler H.P., Billari F., 2009: “Advances in development reverse fertility declines.” *Nature*, 460(6).

107 countries, 1975 and 2005
1975: negative correlation HDI – TFR
2005: positive correlation for HDI > 0,9



1. Motivation



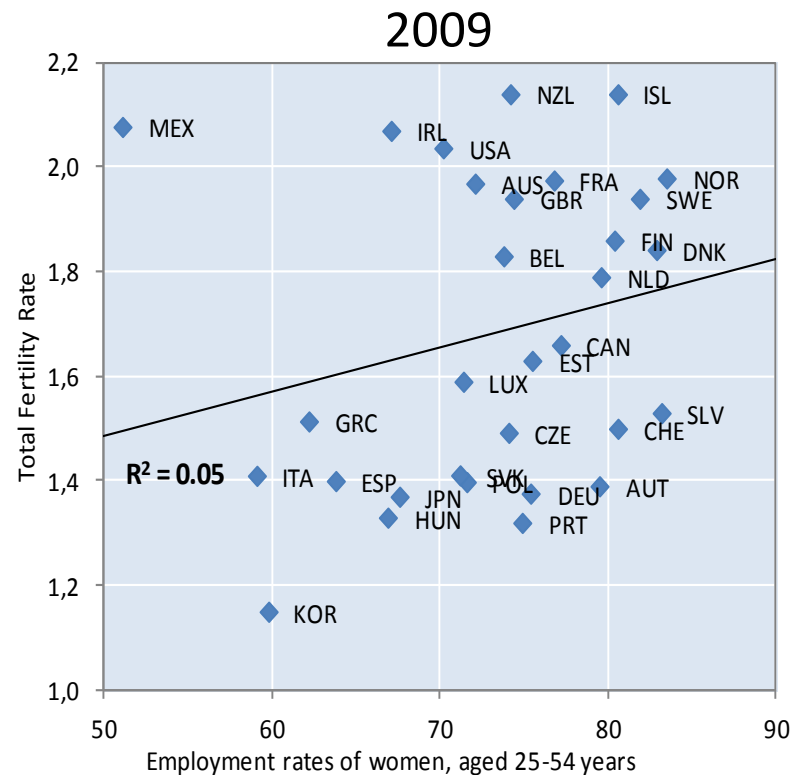
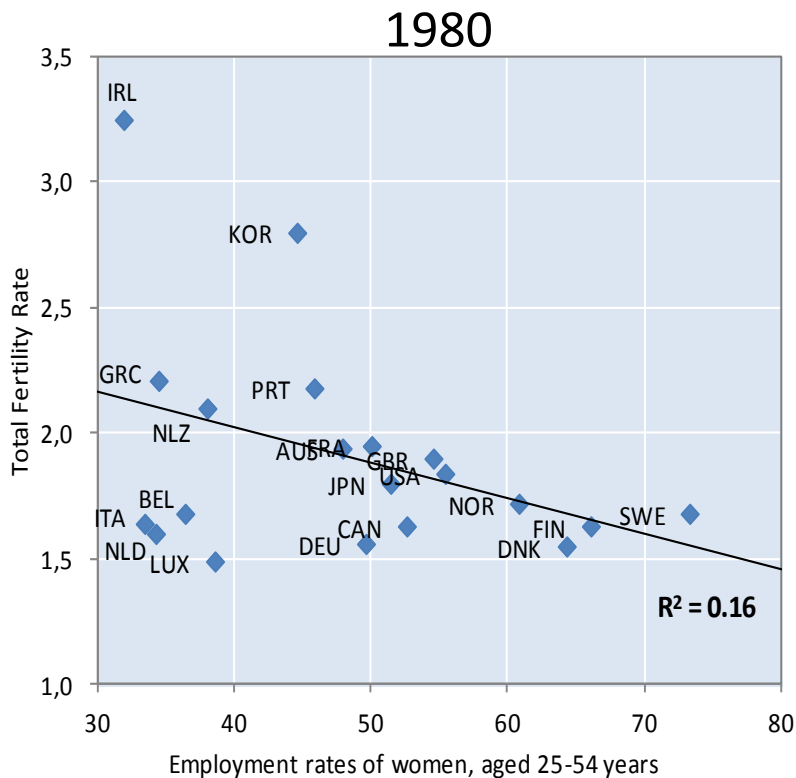
1. Motivation

Decomposition of GDP per capita:

$$GDPpc_{i,t} = \text{Labour productivity} * \text{working hours} * \text{employment}$$

Result:

Female labour market participation is the driving factor behind the fertility rebound in OECD countries



Source: OECD (2011), *Doing Better for Families*, OECD, Paris.

1. Motivation

- **Micro** factors that contribute to maintain fertility at low levels in several European countries and of drivers leading to re-increases of fertility in other highly developed European countries?
- Do all **socio economic status** groups have more children in high fertility countries or is there a particular group that has relatively more children in high fertility countries in comparison to low fertility countries?
- Focus on **within-country differences** in an internationally comparative perspective
- Objective: clearly identify *who* is facing **barriers to fertility** in low fertility countries
- Policy debate: **differentiated effects** of policies

2. Data

Data requirements:

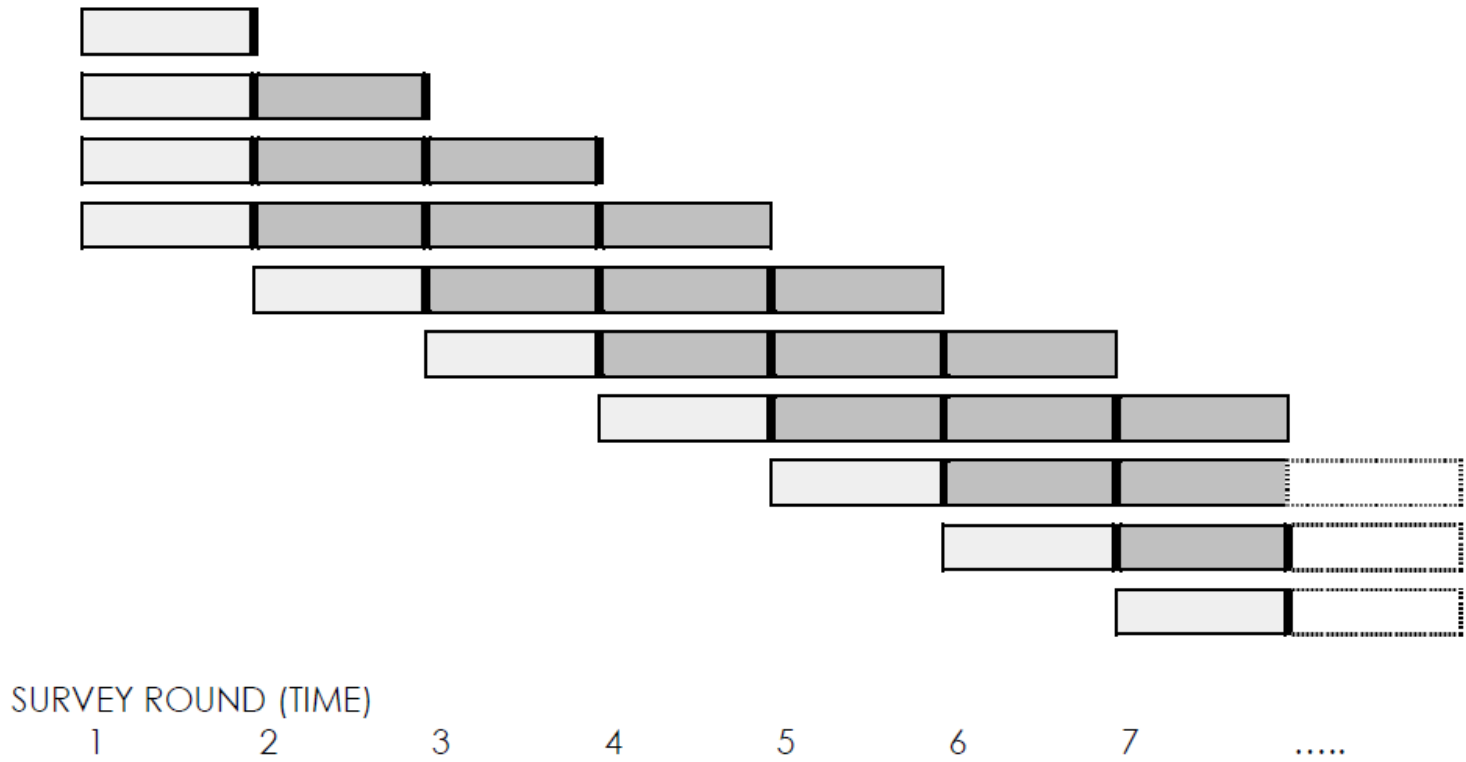
- Internationally harmonized database
- Demographic as well as economic variables
- Follow-up of individuals/couples to model socioeconomic status as a *determinant* for fertility decision, not as a consequence

EU Survey of Income and Living Conditions (SILC) Eurostat:

- CS and LT, waves 2003 to 2011
- 27 countries: Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Spain, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Lithuania, Luxembourg, Latvia, the Netherlands, Norway, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia and the United Kingdom.
- Not included (at least in LT): Germany, Malta, Switzerland, Croatia

2. Data

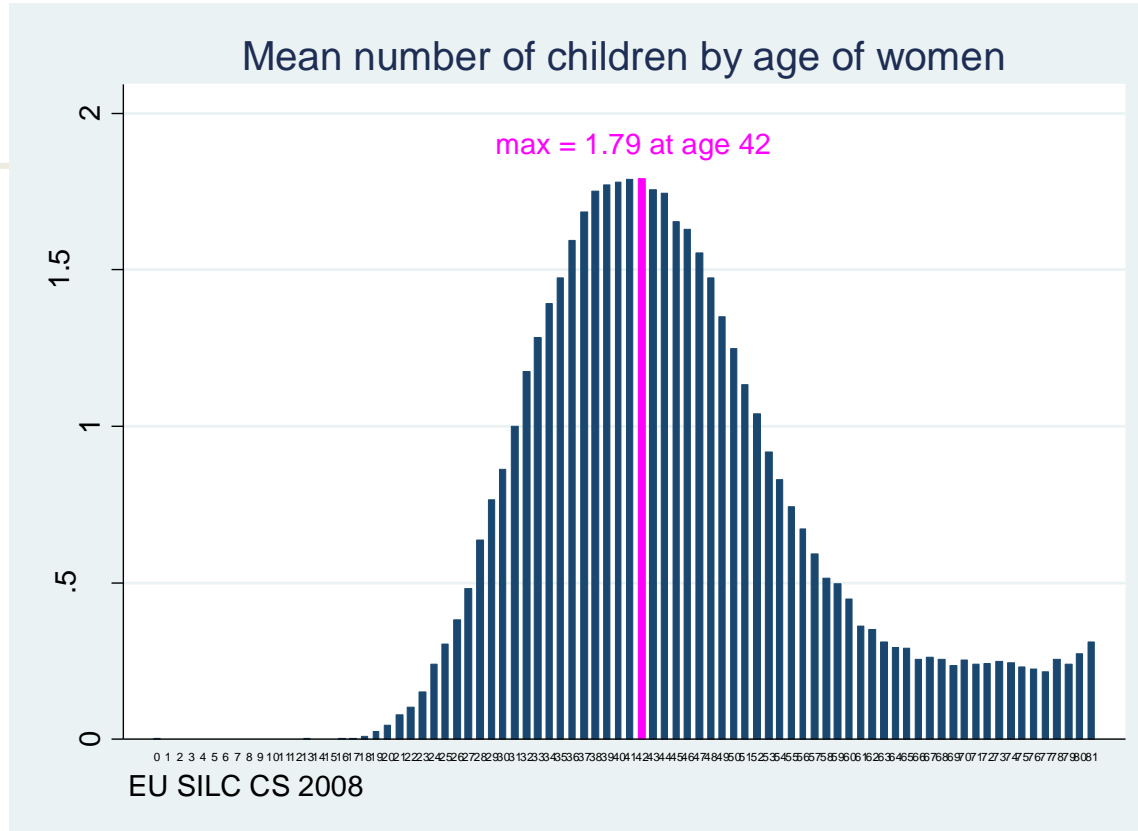
Rotational Design:



2. Data

Main disadvantage of EU SILC:

Children are only observed when living in the household
→ Fertility underestimated for higher ages



country code	country	completed fertility rate women aged 39-45, (EU SILC CS 2008)	95% conf int		completed fertility rate of women born in 1970 (VID 2012)	SILC rank	VID rank	relative difference (SILC - VID)/VID	TFR (WB WDI 2008)
1	AT	1,54	1,47	1,62	1,62	8	5	-0,05	1,41
2	BE	1,72	1,64	1,81	1,82	13	15	-0,05	1,86
3	BG	1,51	1,44	1,59	1,68	4	8	-0,10	1,48
4	CY	2,12	2,00	2,23	2,24	27	27	-0,06	1,493
5	CZ	1,78	1,73	1,83	1,88	15	19	-0,05	1,5
6	DE	1,37	1,33	1,42	1,5	2	3	-0,08	1,38
7	DK	1,94	1,87	2,01	1,97	21	22	-0,01	1,89
8	EE	1,93	1,85	2,01	1,87	19	18	0,03	1,65
9	ES	1,52	1,48	1,57	1,47	5	2	0,04	1,46
10	FI	2,00	1,93	2,07	1,8	25	13	0,11	1,85
11	FR	1,82	1,76	1,88	2	17	24	-0,09	2,01
12	GR	1,59	1,53	1,65	1,6	10	4	-0,01	1,51
13	HU	1,79	1,73	1,85	1,86	16	16	-0,04	1,35
14	IE	1,99	1,88	2,11	2,11	23	26	-0,06	2,1
15	IS	2,18	2,08	2,28	2,29	28	28	-0,05	2,15
16	IT	1,45	1,42	1,49	1,46	3	1	0,00	1,42
17	LT	1,54	1,46	1,62	1,74	7	11	-0,11	1,47
18	LU	1,76	1,66	1,86	1,87	14	17	-0,06	1,61
19	LV	1,54	1,45	1,62	1,73	6	10	-0,11	1,44
20	NL	1,72	1,66	1,77	1,75	12	12	-0,02	1,77
21	NO	1,94	1,86	2,01	2,07	20	25	-0,06	1,96
22	PL	2,00	1,94	2,06	1,81	24	14	0,10	1,39
23	PT	1,57	1,49	1,65	1,67	9	7	-0,06	1,37
24	RO	1,36	1,29	1,44	1,67	1	6	-0,18	1,35
25	SE	1,95	1,88	2,02	2	22	23	-0,02	1,91
26	SI	1,85	1,80	1,89	1,71	18	9	0,08	1,53
27	SK	2,02	1,94	2,10	1,93	26	21	0,05	1,32
28	UK	1,62	1,55	1,68	1,9	11	20	-0,15	1,96
	EU avrg	1,75			1,82				1,63

3. Barriers to start or to enlarge a family?

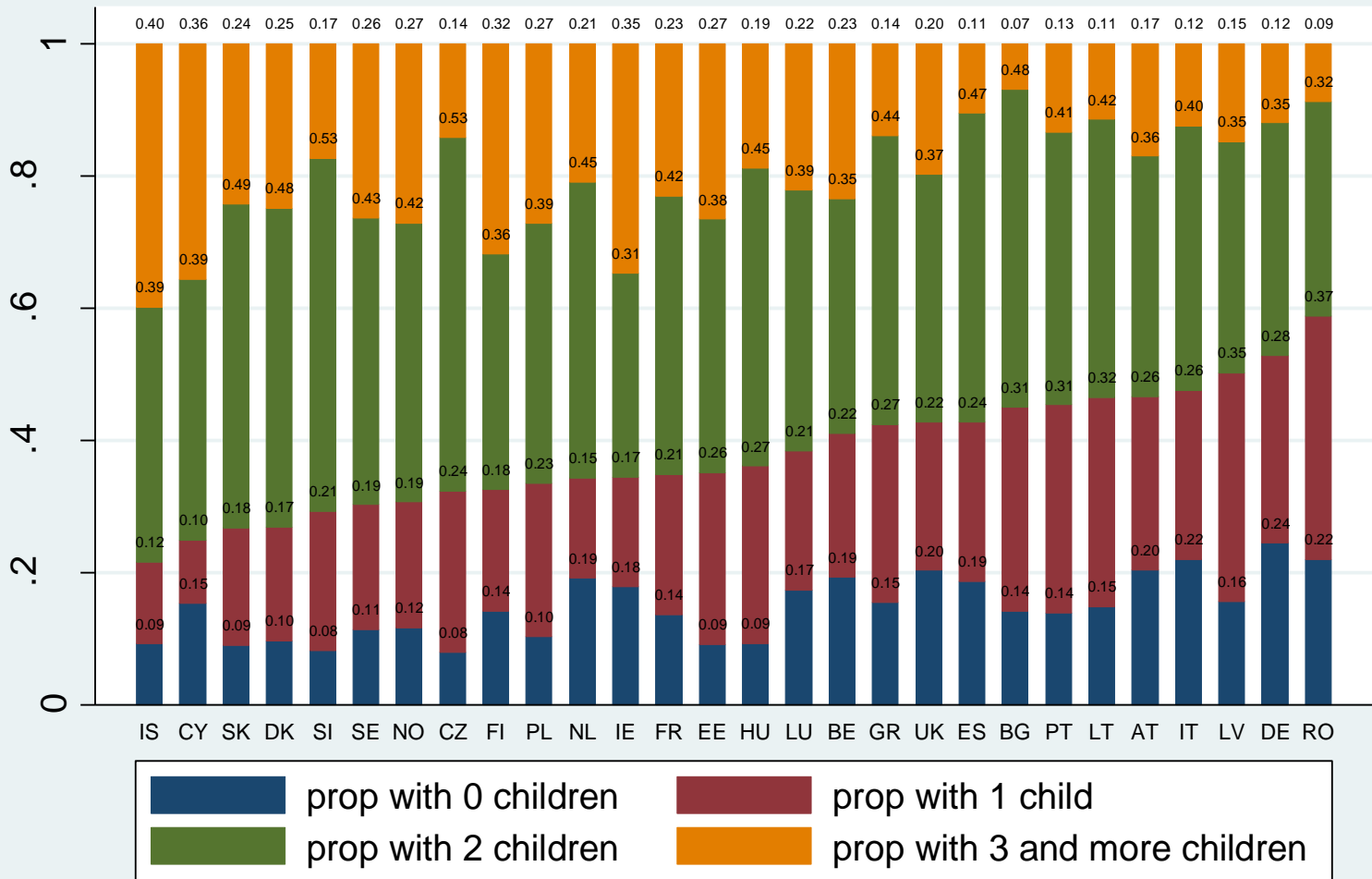
Observation of socioeconomic situation of woman and their partners before potential child arrival:

Necessity to distinguish between different ranks

Is low fertility (below replacement level) mainly due to

- a high proportion of childless women, while another important proportion of women has two children (polarization of fertility behaviour)?
 - Barrier for 1st child
- a majority of women having only one child?
 - Barrier for 2nd child

3. Barriers to start or to enlarge a family?



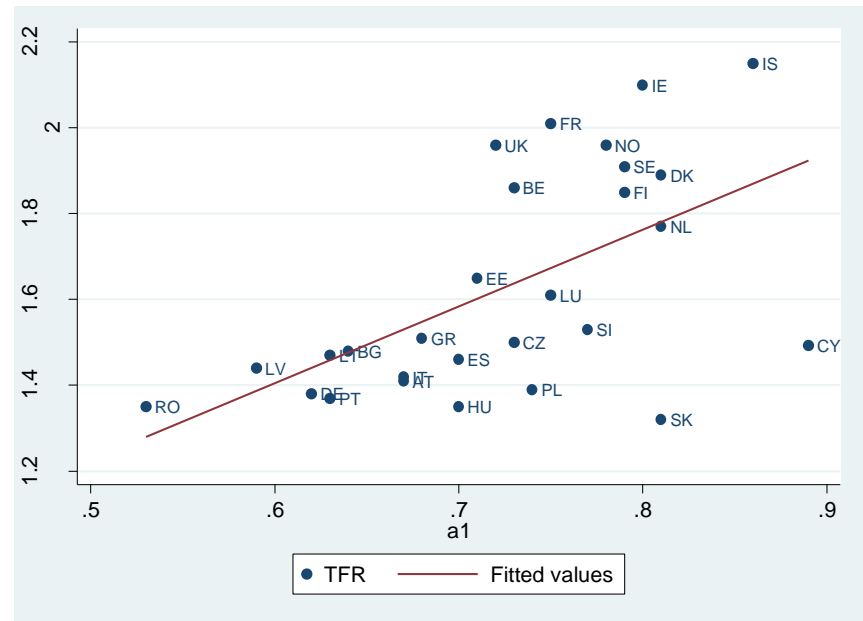
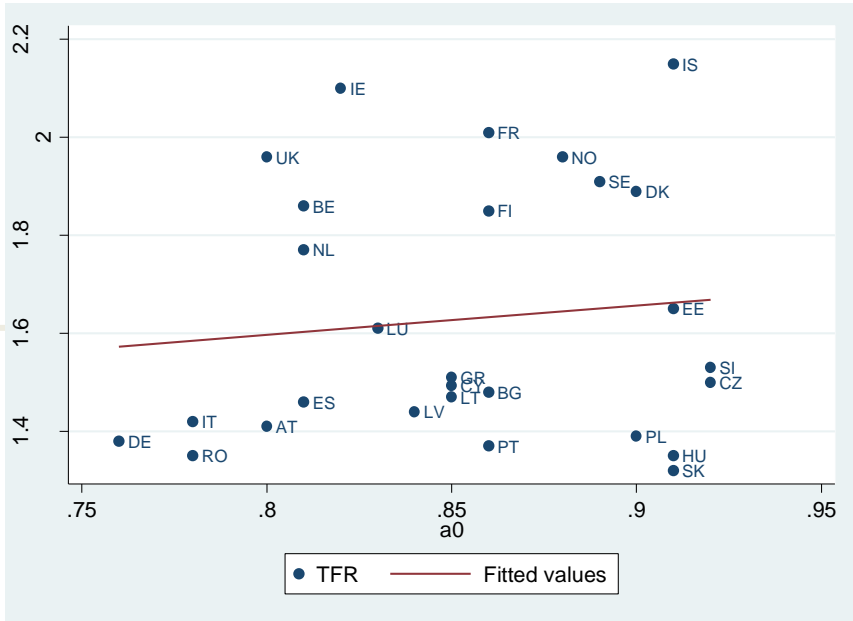
Women aged 39-45
EU SILC CS 2008

Family extension probabilities:

$$ax = \frac{\sum_{x+1}^n p(x)}{\sum_x^n p(x)}$$

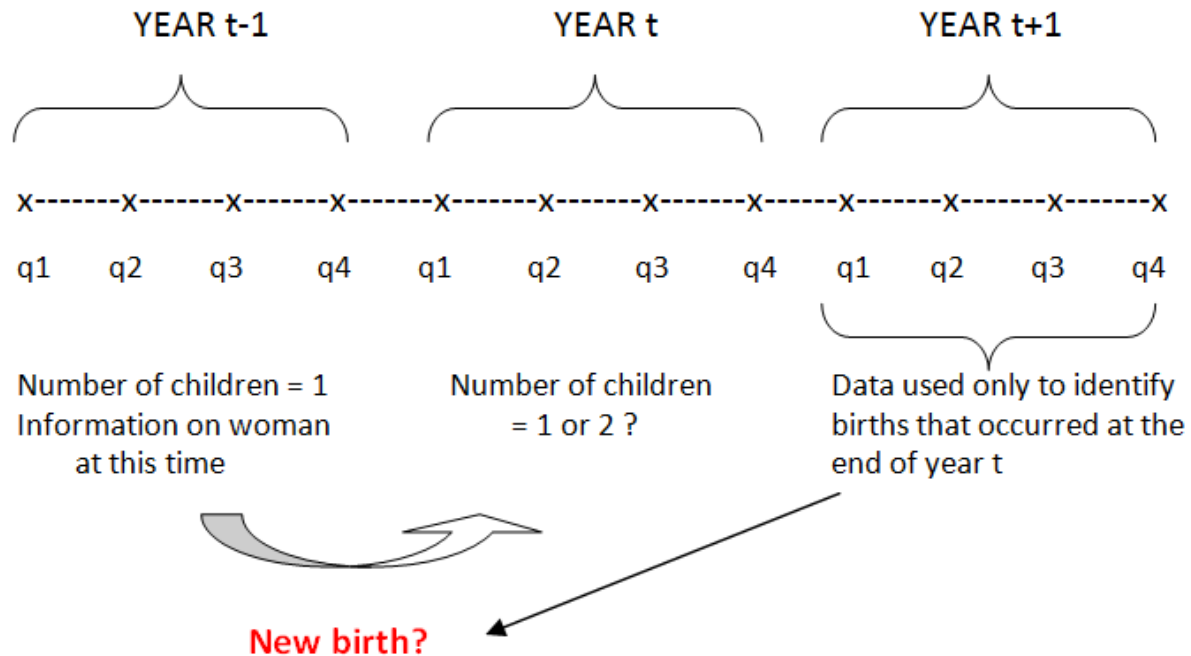
	prop 0 children	prop 1 child	prop 2 children	prop 3+ children	a0	a1	a2	ma1b	ma2b	ma3b	ma1b 1child
AT	0,20	0,26	0,36	0,17	0,80	0,67	0,25	26,70	29,99	32,37	28,43
BE	0,19	0,22	0,35	0,23	0,81	0,73	0,32	26,94	29,57	32,02	28,71
BG	0,14	0,31	0,48	0,07	0,86	0,64	0,11	22,66	25,34	26,79	24,61
CY	0,15	0,10	0,39	0,36	0,85	0,89	0,40	24,58	27,57	30,28	28,48
CZ	0,08	0,24	0,53	0,14	0,92	0,73	0,19	23,57	26,93	30,63	25,36
DE	0,24	0,28	0,35	0,12	0,76	0,62	0,19	27,87	31,06	33,08	28,68
DK	0,10	0,17	0,48	0,25	0,90	0,81	0,31	27,79	30,77	33,28	30,47
EE	0,09	0,26	0,38	0,27	0,91	0,71	0,37	23,48	26,52	30,21	25,53
ES	0,19	0,24	0,47	0,11	0,81	0,70	0,15	27,71	31,43	33,13	29,82
FI	0,14	0,18	0,36	0,32	0,86	0,79	0,40	27,62	30,20	32,59	29,83
FR	0,14	0,21	0,42	0,23	0,86	0,75	0,31	27,30	30,37	32,68	29,83
GR	0,15	0,27	0,44	0,14	0,85	0,68	0,20	26,28	28,77	31,38	28,47
HU	0,09	0,27	0,45	0,19	0,91	0,70	0,27	23,75	26,80	30,13	25,93
IE	0,18	0,17	0,31	0,35	0,82	0,80	0,44	28,47	31,18	33,33	30,66
IS	0,09	0,12	0,39	0,40	0,91	0,86	0,46	25,15	29,33	32,85	27,78
IT	0,22	0,26	0,40	0,12	0,78	0,67	0,19	27,69	31,05	33,44	29,86
LT	0,15	0,32	0,42	0,11	0,85	0,63	0,18	24,32	27,73	30,97	25,77
LU	0,17	0,21	0,39	0,22	0,83	0,75	0,30	27,97	31,35	33,10	29,65
LV	0,16	0,35	0,35	0,15	0,84	0,59	0,25	23,97	27,17	30,23	25,22
NL	0,19	0,15	0,45	0,21	0,81	0,81	0,26	29,65	31,95	33,64	31,74
NO	0,12	0,19	0,42	0,27	0,88	0,78	0,35	27,21	30,39	32,30	29,25
PL	0,10	0,23	0,39	0,27	0,90	0,74	0,37	24,05	27,08	29,96	26,33
PT	0,14	0,31	0,41	0,13	0,86	0,63	0,21	25,27	29,52	31,74	27,47
RO	0,22	0,37	0,32	0,09	0,78	0,53	0,17	23,73	26,17	27,81	25,32
SE	0,11	0,19	0,43	0,26	0,89	0,79	0,34	26,65	29,46	31,91	28,89
SI	0,08	0,21	0,53	0,17	0,92	0,77	0,22	23,13	26,75	30,89	25,10
SK	0,09	0,18	0,49	0,24	0,91	0,81	0,30	22,71	25,32	28,33	25,02
UK	0,20	0,22	0,37	0,20	0,80	0,72	0,28	28,25	31,00	32,68	30,18
			Variance:		0,0023	0,0069	0,0083	4,2531	4,2056	3,2043	4,4864
			Variance coefficient:		0,0562	0,1148	0,3281	0,0797	0,0708	0,0568	0,0758

3. Barriers to start or to enlarge a family?



4. Construction of the data base

Estimation of women's probability of having a second child (logit) while taking into account women's and their partners' characteristics observed one year before child arrival



4. Construction of the data base

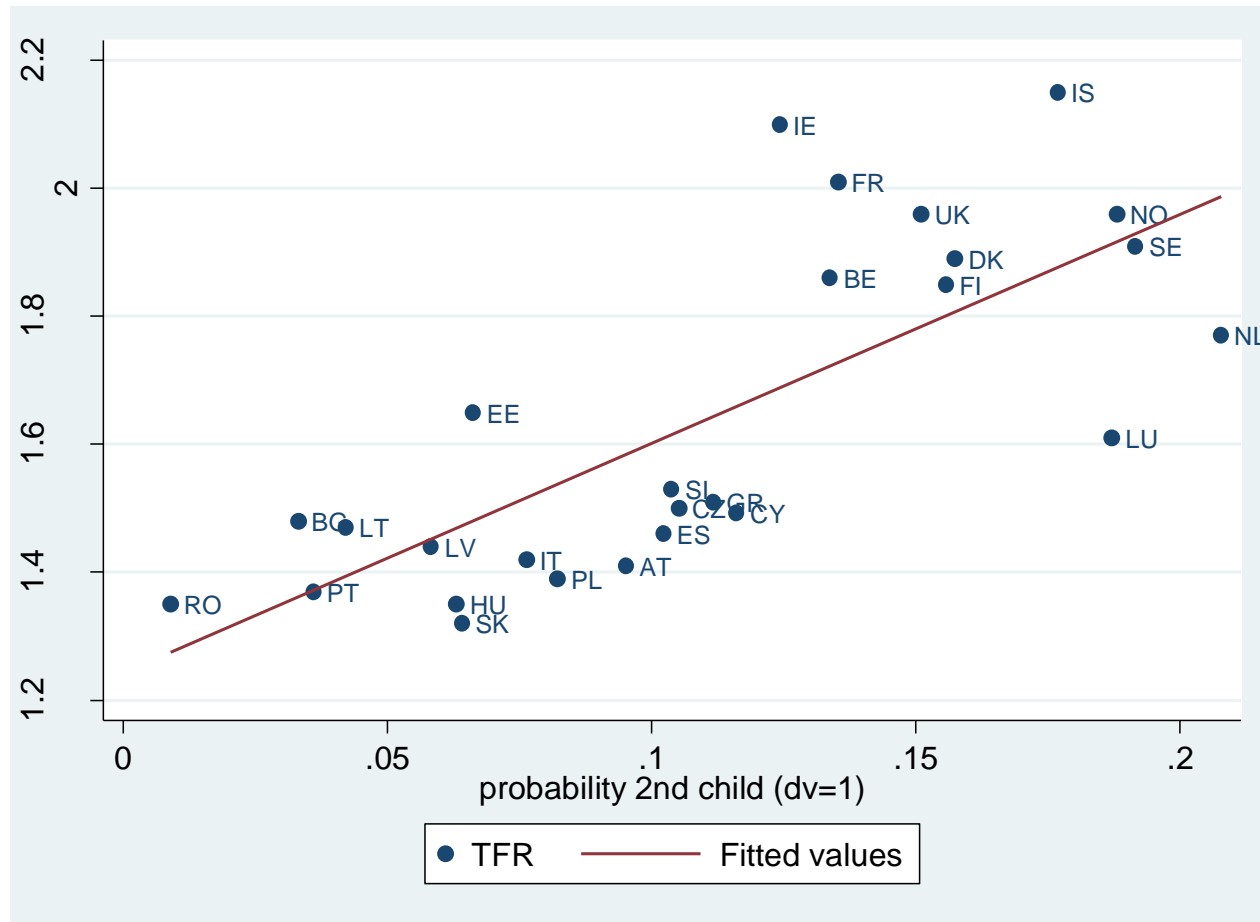
Some singularities:

- Women who have their first child in $t-1$ are not dropped
- A woman who is observed during three years and who gives birth to a second child in year $t+1$ will be in the control group (“no child arrival in year t ”) because we would need wave $t+2$ to observe all childbirths in $t+1$.
- Women who are observed during four years ($t-1$ to $t+2$) and who haven’t had a second child in year t are observed twice, once in t and once in $t+1$ (and they are observed once if their first child is born in t).
- In six countries (France, Lithuania, Luxembourg, Norway, Portugal and Slovakia), a subgroup of individuals is observed for more than four years. To avoid an overrepresentation of these individuals in comparison to other countries, only four years are taken into account for them (they are thus presented maximum twice in the sample like it is the case for the other countries). The period 2007 to 2010 has been chosen, which is the period with the largest data coverage.
- Control for multiple births, non-biological children, move of first child

Probability of having a second child in a particular observed year, women aged 15-45, with observed partner:

	time period (year before childbirth)	Number of observations	prop. of events "2nd child arrival"
Austria	2004-2009	956	0,10
Belgium	2004-2009	755	0,13
Bulgaria	2006-2009	815	0,03
Cyprus	2005-2009	422	0,12
Czech Republic	2005-2009	1455	0,11
Danemark	2003-2009	775	0,16
Estonia	2004-2009	921	0,07
Spain	2004-2009	2308	0,10
Finland	2004-2009	886	0,16
France	2004-2008	872	0,14
Greece	2003-2008	582	0,11
Hungary	2005-2009	1380	0,06
Ireland	2004-2007	177	0,12
Iceland	2004-2009	390	0,18
Italy	2004-2009	2530	0,08
Lithuania	2005-2009	665	0,04
Luxembourg	2003-2009	764	0,19
Latvia	2005-2009	652	0,06
Netherlands	2005-2009	1179	0,21
Norway	2003-2009	436	0,19
Poland	2005-2009	2433	0,08
Portugal	2004-2009	333	0,04
Romania	2007-2009	1236	0,01
Sweden	2004-2008	793	0,19
Slovenia	2005-2009	1262	0,10
Slovakia	2005-2008	608	0,06
United Kingdom	2005-2009	715	0,15
Total	2003-2009	26300	0,11

4. Construction of the data base



11 “high fertility” countries: IE, FR, BE, UK, DK, FI, IS, NO, SE, NL, LU

16 “low fertility” countries: RO, BG, LT, EE, PT, LV, HU, SK, IT, PL, AT, ES, SI, CZ, GR, CY

Estimated probabilities of having a second child:

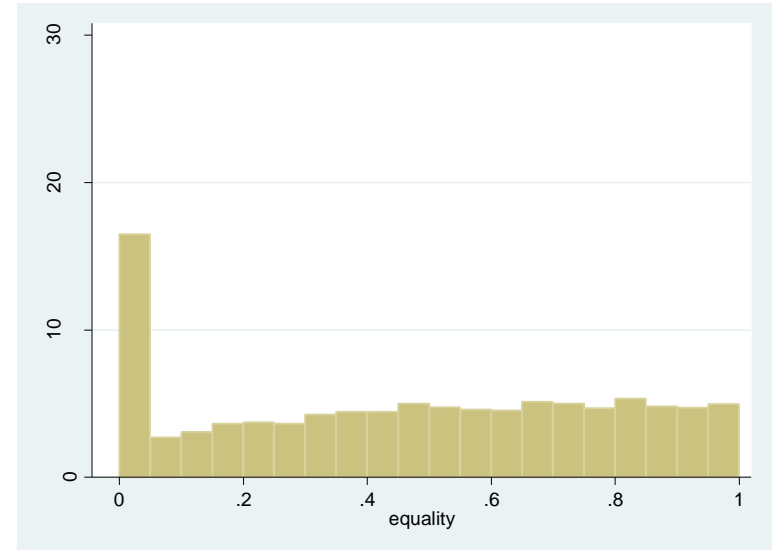
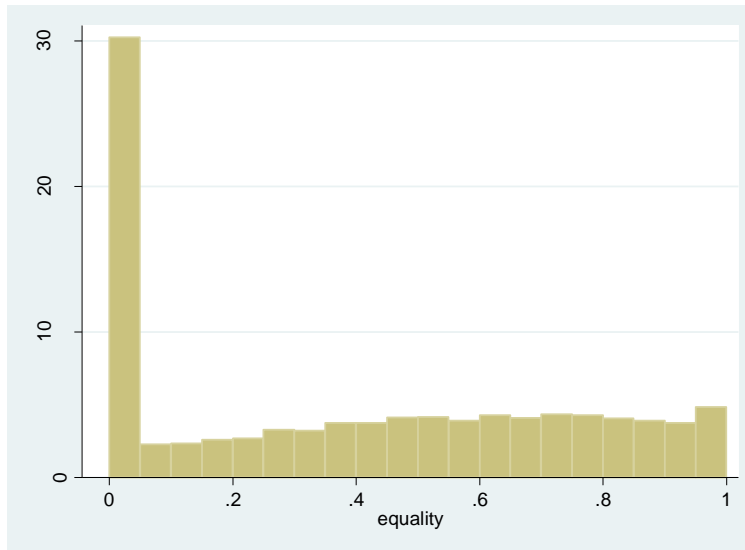
Who faces particular barriers in low fertility countries?

4. Construction of the data base

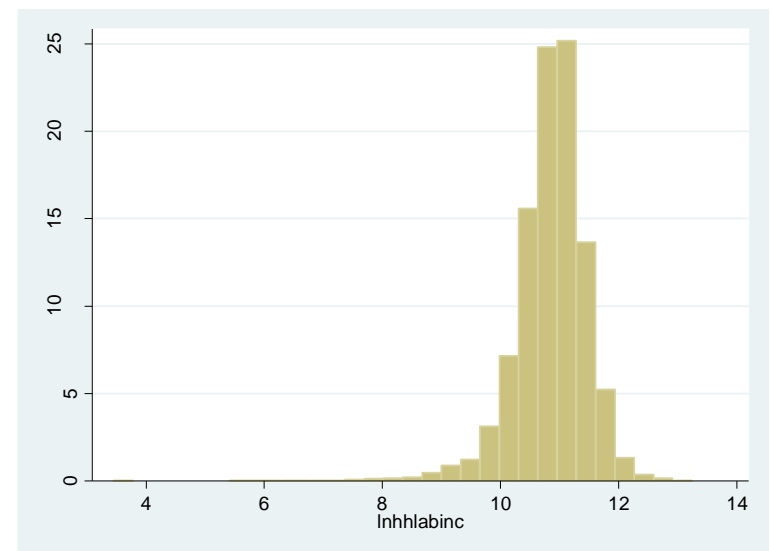
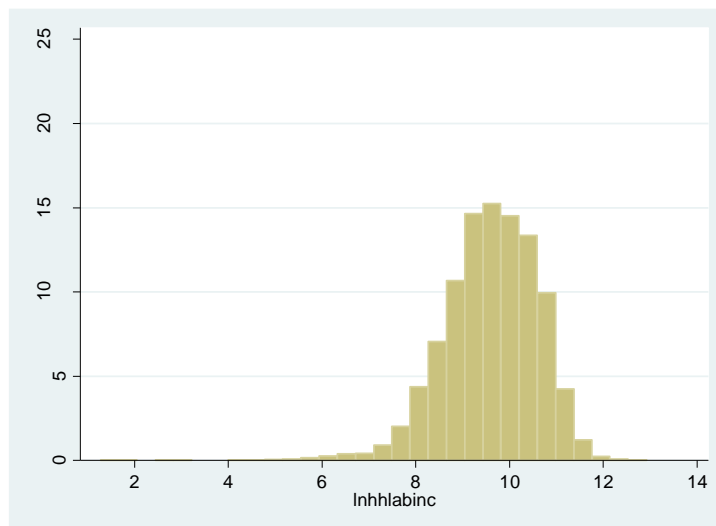
Descriptive statistics of some selected regressors:

	high fertility regime		low fertility regime	
	dv=0	dv=1	dv=0	dv=1
age at first birth	28,84	28,32	26,03	25,69
married	0,62	0,60	0,87	0,86
high education (tertiary)	0,38	0,33	0,40	0,37
high education partner	0,32	0,43	0,19	0,25
zero individual labour income	0,11	0,13	0,23	0,31
high individual labour income	0,30	0,28	0,26	0,23
high hh labour income	0,33	0,33	0,33	0,35
high wage equality (>0.6)	0,34	0,32	0,29	0,25
women's wage share	0,35	0,33	0,33	0,28

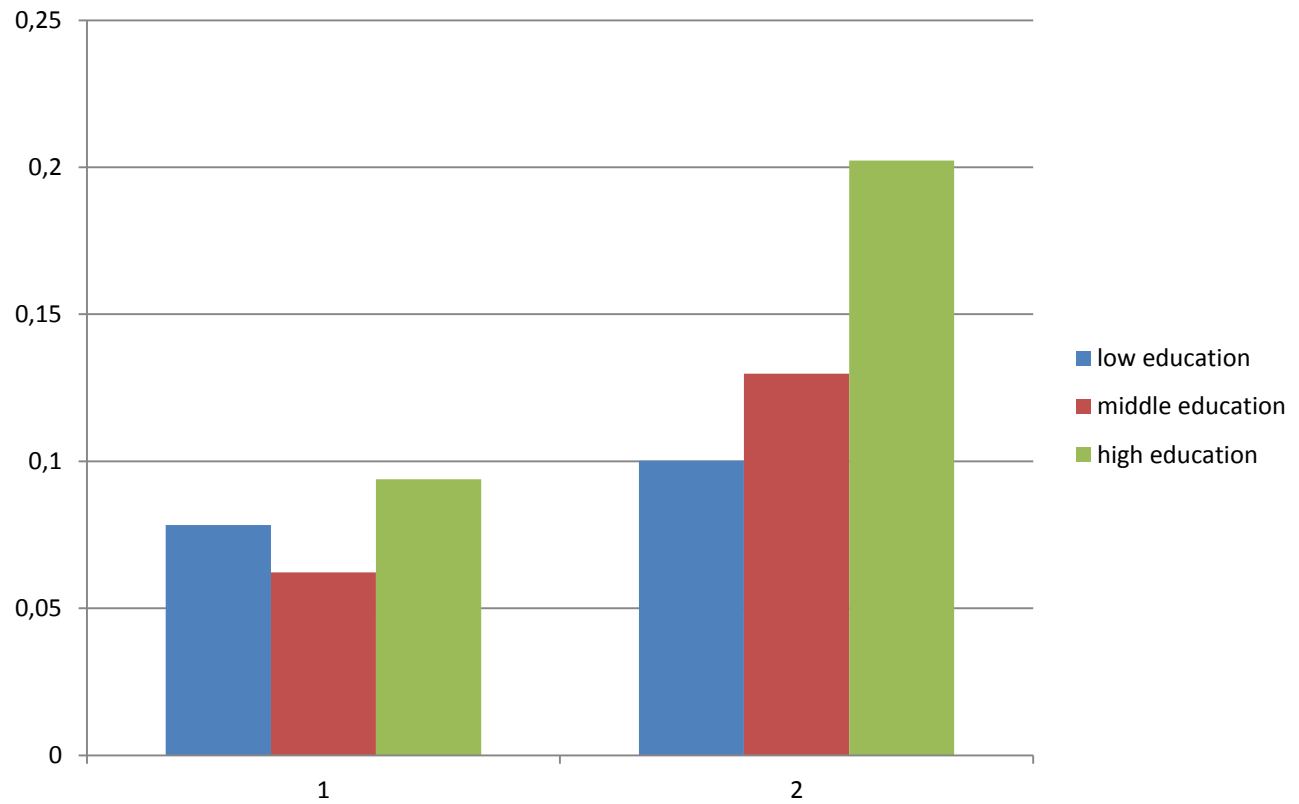
Equality distribution: low fertility regime vs high fertility regime



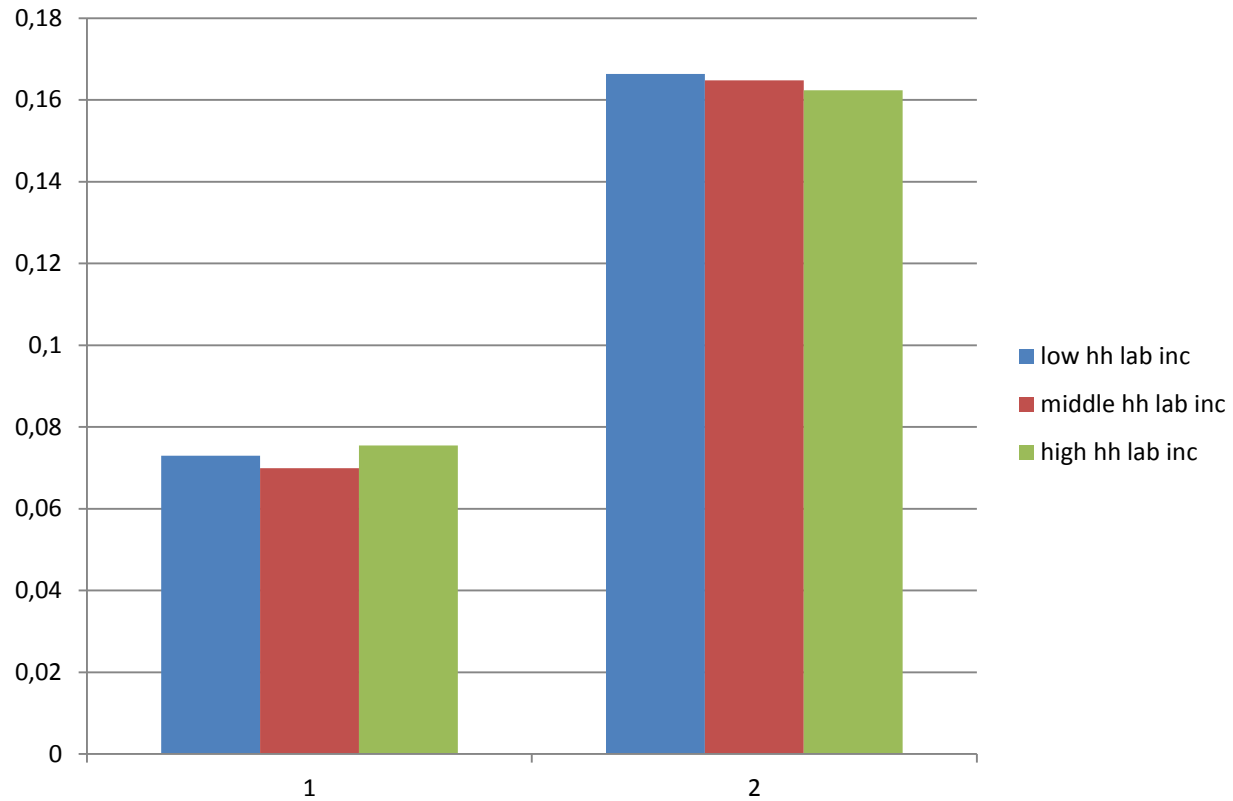
Household labour income distribution: low fertility regime vs high fertility regime



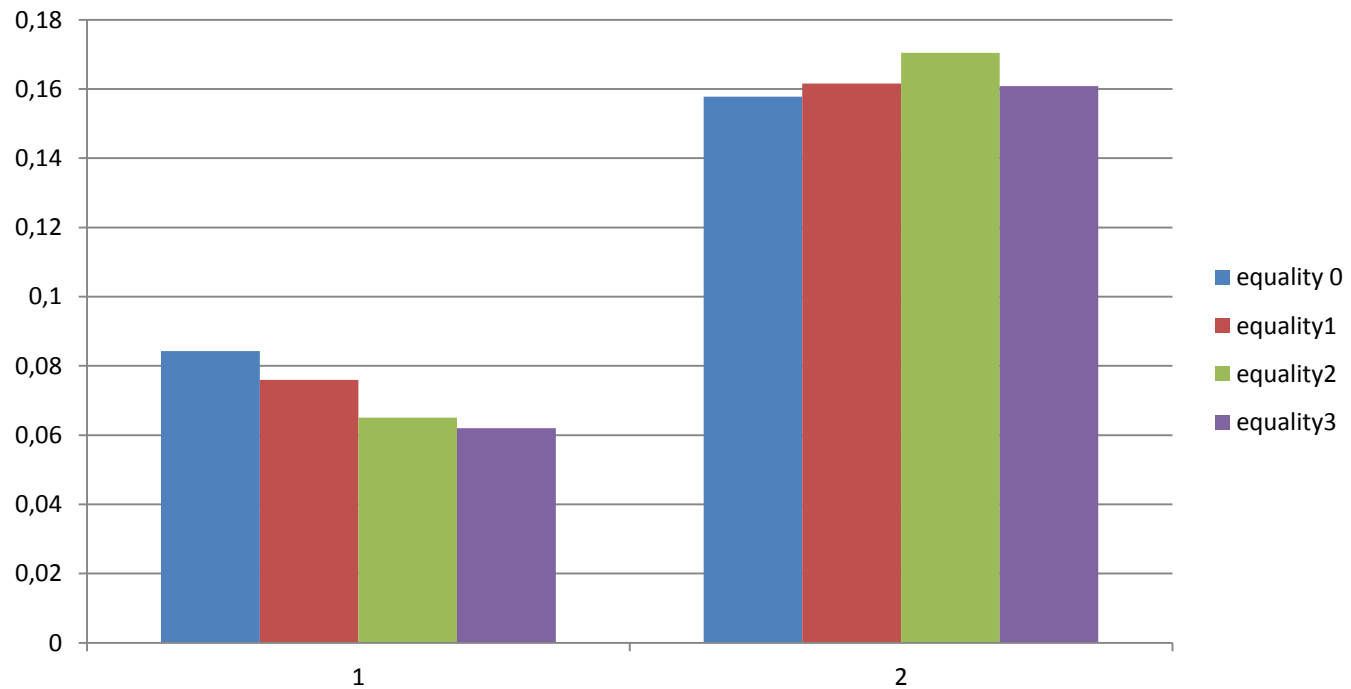
Probability of having a second child by woman's education Low fertility regime vs high fertility regime



Probability of having a second child by hh labour income Low fertility regime vs high fertility regime



Probability of having a second child by equality Low fertility regime vs high fertility regime



5. Estimation results

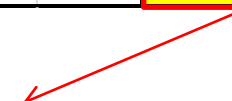
	Education		Education + partner education		hh labour income		couple educ + hh lab inc		hh lab inc + distribution		hh lab inc + distribution differentiated		hh lab inc + distribution differ. for high educated	
	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF
<i>Low education</i>	0.0312 (0.0882)	-0.279* (0.119)	0.0480 (0.0919)	-0.199 (0.121)			0.0549 (0.0928)	-0.209 (0.120)					-0.245* (0.109)	-0.493*** (0.130)
<i>Medium education</i>	Ref.	Ref.	Ref.	Ref.			Ref.	Ref.					-0.287*** (0.0762)	-0.270*** (0.0801)
<i>High education</i>	0.378*** (0.0683)	0.317*** (0.0732)	0.305*** (0.0741)	0.230** (0.0780)			0.280*** (0.0753)	0.246** (0.0787)					Ref.	Ref.
<i>Low education partner</i>			-0.0193 (0.0867)	-0.243* (0.106)			-0.00720 (0.0874)	-0.252* (0.106)					-0.163 (0.108)	-0.434*** (0.119)
<i>Medium education partner</i>			Ref.	Ref.			Ref.	Ref.					-0.153 (0.0812)	-0.188* (0.0818)
<i>High education partner</i>			0.197* (0.0790)	0.184* (0.0780)			0.165* (0.0808)	0.208* (0.0811)					Ref.	Ref.
<i>low hh lab inc</i>					0.00643 (0.0720)	-0.0669 (0.0824)	0.0466 (0.0735)	0.0214 (0.0832)	-0.0544 (0.0777)	-0.0615 (0.0877)	-0.0701 (0.0785)	-0.0814 (0.0885)	-0.0283 (0.0796)	0.0141 (0.0894)
<i>medium hh lab inc</i>					Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>high hh lab inc</i>					0.266*** (0.0722)	0.0821 (0.0820)	0.167* (0.0758)	-0.0829 (0.0867)	0.278*** (0.0727)	0.0862 (0.0821)	0.198* (0.0874)	-0.0272 (0.104)	0.110 (0.0900)	-0.184 (0.108)
<i>zero equality (1 earner only)</i>									Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>low equality (0.01-0.33)</i>									-0.0875 (0.0885)	-0.0531 (0.119)	-0.0756 (0.0887)	-0.0409 (0.120)	-0.0849 (0.0891)	-0.0423 (0.122)
<i>medium equality (0.34-0.66)</i>									-0.0896 (0.0876)	-0.00861 (0.117)	-0.0703 (0.0884)	0.0126 (0.118)	-0.0735 (0.0891)	0.0177 (0.121)
<i>high equality (0.67-1)</i>									-0.226* (0.0892)	-0.0323 (0.120)	-0.328** (0.109)	-0.123 (0.130)	-0.328** (0.109)	-0.110 (0.132)
<i>women earns more</i>									0.0845 (0.0793)	-0.164 (0.0900)	0.0786 (0.0795)	-0.168 (0.0901)	0.0480 (0.0804)	-0.204* (0.0913)
<i>high equality* high income</i>											0.247 (0.144)	0.275 (0.153)	0.223 (0.144)	0.256 (0.153)
<i>age 15-24</i>	0.253* (0.104)	0.328* (0.139)	0.261* (0.104)	0.366** (0.139)	0.188 (0.102)	0.167 (0.136)	0.267* (0.105)	0.354* (0.141)	0.178 (0.102)	0.152 (0.137)	0.177 (0.102)	0.145 (0.137)	0.255* (0.105)	0.335* (0.141)
<i>age 25-34</i>	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>age 35-45</i>	-1.194*** (0.0895)	-0.937*** (0.0943)	-1.210*** (0.0897)	-0.950*** (0.0946)	-1.192*** (0.0901)	-0.930*** (0.0946)	-1.224*** (0.0900)	-0.938*** (0.0950)	-1.200*** (0.0905)	-0.923*** (0.0947)	-1.204*** (0.0905)	-0.922*** (0.0947)	-1.234*** (0.0905)	-0.928*** (0.0951)
<i>first child age 0</i>	-1.455*** (0.127)	-2.234*** (0.125)	-1.462*** (0.127)	-2.127*** (0.125)	-1.435*** (0.127)	-2.085*** (0.124)	-1.460*** (0.127)	-2.128*** (0.125)	-1.423*** (0.128)	-2.084*** (0.124)	-1.425*** (0.128)	-2.088*** (0.124)	-1.449*** (0.129)	-2.130*** (0.125)
<i>first child age 1-2</i>	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>first child age 3-6</i>	-0.0251 (0.0685)	-0.458*** (0.0814)	-0.0225 (0.0685)	-0.436*** (0.0818)	-0.0805 (0.0681)	-0.520*** (0.0803)	-0.0314 (0.0693)	-0.432*** (0.0819)	-0.0628 (0.0686)	-0.517*** (0.0804)	-0.0613 (0.0686)	-0.524*** (0.0805)	-0.00977 (0.0700)	-0.434*** (0.0821)
<i>first child age >6</i>	-1.206*** (0.105)	-2.234*** (0.158)	-1.192*** (0.105)	-2.198*** (0.158)	-1.301*** (0.104)	-2.362*** (0.156)	-1.203*** (0.106)	-2.194*** (0.159)	-1.277*** (0.104)	-2.361*** (0.156)	-1.272*** (0.104)	-2.364*** (0.156)	-1.170*** (0.107)	-2.193*** (0.159)
<i>first child female</i>	-0.0273 (0.0577)	-0.0183 (0.0667)	-0.0304 (0.0578)	-0.0141 (0.0669)	-0.0256 (0.0577)	-0.00616 (0.0664)	-0.0289 (0.0579)	-0.0159 (0.0669)	-0.0250 (0.0578)	-0.00437 (0.0665)	-0.0258 (0.0578)	-0.00262 (0.0665)	-0.0294 (0.0579)	-0.0130 (0.0669)
<i>not married</i>	-0.216* (0.0879)	-0.154* (0.0735)	-0.209* (0.0877)	-0.143 (0.0736)	-0.229** (0.0875)	-0.171* (0.0732)	-0.207* (0.0878)	-0.145* (0.0736)	-0.227** (0.0878)	-0.167* (0.0734)	-0.224* (0.0734)	-0.170* (0.0735)	-0.201* (0.0879)	-0.144 (0.0739)
<i>observed a second year</i>	-0.0854 (0.0625)	-0.0885 (0.0758)	-0.0839 (0.0625)	-0.0901 (0.0760)	-0.0806 (0.0624)	-0.0906 (0.0756)	-0.0811 (0.0625)	-0.0888 (0.0761)	-0.0806 (0.0624)	-0.0906 (0.0756)	-0.0822 (0.0624)	-0.0903 (0.0757)	-0.0825 (0.0625)	-0.0881 (0.0762)
<i>year fixed effects</i>	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
<i>country fixed effects</i>	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
<i>constant</i>	-1.367*** (0.205)	-0.485 (0.250)	-1.393*** (0.207)	-0.517* (0.250)	-1.308*** (0.210)	-0.296 (0.250)	-1.431*** (0.211)	-0.521* (0.254)	-1.227*** (0.215)	-0.238 (0.269)	-1.207*** (0.215)	-0.206 (0.270)	-0.885*** (0.226)	0.0238 (0.276)
interaction: chi2(1)										0.43		0.90	0.72	0.81
interaction: Prob > chi2										0.5112		0.3417	0.3961	0.3670

5. Estimation results

	Education		Education + partner education		hh labour income		couple educ + hh lab inc		hh lab inc + distribution		hh lab inc + distribution differentiated		hh lab inc + distribution differ. for high educated	
	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF
Low education	0.0312 (0.0882)	-0.279* (0.119)	0.0480 (0.0919)	-0.199 (0.121)			0.0549 (0.0928)	-0.209 (0.120)					-0.245* (0.109)	-0.493*** (0.130)
Medium education	Ref.	Ref.	Ref.	Ref.			Ref.	Ref.					-0.287*** (0.0762)	-0.270*** (0.0801)
High education	0.378*** (0.0683)	0.317*** (0.0732)	0.305*** (0.0741)	0.230** (0.0780)			0.280*** (0.0753)	0.246** (0.0787)					Ref.	Ref.
Low education partner			-0.0193 (0.0867)	-0.243* (0.106)			-0.00720 (0.0874)	-0.252* (0.106)					-0.163 (0.108)	-0.434*** (0.119)
Medium education partner			Ref.	Ref.			Ref.	Ref.					-0.153 (0.0812)	-0.188* (0.0818)
High education partner			0.197* (0.0790)	0.184* (0.0780)			0.165* (0.0808)	0.208* (0.0811)					Ref.	Ref.
low hh lab inc					0.00643 (0.0720)	-0.0669 (0.0824)	0.0466 (0.0735)	0.0214 (0.0832)	-0.0544 (0.0777)	-0.0615 (0.0877)	-0.0701 (0.0785)	-0.0814 (0.0885)	-0.0283 (0.0796)	0.0141 (0.0894)
medium hh lab inc					Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
high hh lab inc					0.266*** (0.0722)	0.0821 (0.0820)	0.167* (0.0758)	-0.0829 (0.0867)	0.278*** (0.0727)	0.0862 (0.0821)	0.198* (0.0874)	-0.0272 (0.104)	0.110 (0.0900)	-0.184 (0.108)
zero equality (1 earner only)									Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
low equality (0.01-0.33)									-0.0875 (0.0885)	-0.0531 (0.119)	-0.0756 (0.0887)	-0.0409 (0.120)	-0.0849 (0.0891)	-0.0423 (0.122)
medium equality (0.34-0.66)									-0.0896 (0.0876)	-0.00861 (0.117)	-0.0703 (0.0884)	0.0126 (0.118)	-0.0735 (0.0891)	0.0177 (0.121)
high equality (0.67-1)									-0.226* (0.0892)	-0.0323 (0.120)	-0.328** (0.109)	-0.123 (0.130)	-0.328** (0.109)	-0.110 (0.132)
women earns more									0.0845 (0.0793)	-0.164 (0.0900)	0.0786 (0.0795)	-0.168 (0.0901)	0.0480 (0.0804)	-0.204* (0.0913)
high equality* high income											0.247 (0.144)	0.275 (0.153)	0.223 (0.144)	0.256 (0.153)
age 15-24	0.253* (0.104)	0.328* (0.139)	0.261* (0.104)	0.366** (0.139)	0.188 (0.102)	0.167 (0.136)	0.267* (0.105)	0.354* (0.141)	0.178 (0.102)	0.152 (0.137)	0.177 (0.102)	0.145 (0.137)	0.255* (0.105)	0.335* (0.141)
age 25-34	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
age 35-45	-1.194*** (0.0895)	-0.937*** (0.0943)	-1.210*** (0.0897)	-0.950*** (0.0946)	-1.192*** (0.0901)	-0.930*** (0.0946)	-1.224*** (0.0900)	-0.938*** (0.0950)	-1.200*** (0.0905)	-0.923*** (0.0947)	-1.204*** (0.0905)	-0.922*** (0.0947)	-1.234*** (0.0905)	-0.928*** (0.0951)
first child age 0	-1.455*** (0.127)	-2.234*** (0.125)	-1.462*** (0.127)	-2.127*** (0.125)	-1.435*** (0.127)	-2.085*** (0.124)	-1.460*** (0.127)	-2.128*** (0.125)	-1.423*** (0.128)	-2.084*** (0.124)	-1.425*** (0.128)	-2.088*** (0.124)	-1.449*** (0.129)	-2.130*** (0.125)
first child age 1-2	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
first child age 3-6	-0.0251 (0.0685)	-0.458*** (0.0814)	-0.0225 (0.0685)	-0.436*** (0.0818)	-0.0805 (0.0681)	-0.520*** (0.0803)	-0.0314 (0.0693)	-0.432*** (0.0819)	-0.0628 (0.0686)	-0.517*** (0.0804)	-0.0613 (0.0686)	-0.524*** (0.0805)	-0.00977 (0.0700)	-0.434*** (0.0821)
first child age >6	-1.206*** (0.105)	-2.234*** (0.158)	-1.192*** (0.105)	-2.198*** (0.158)	-1.301*** (0.104)	-2.362*** (0.156)	-1.203*** (0.106)	-2.194*** (0.159)	-1.277*** (0.104)	-2.361*** (0.156)	-1.272*** (0.104)	-2.364*** (0.156)	-1.170*** (0.107)	-2.193*** (0.159)
first child female	-0.0273 (0.0577)	-0.0183 (0.0667)	-0.0304 (0.0578)	-0.0141 (0.0669)	-0.0256 (0.0577)	-0.00616 (0.0664)	-0.0289 (0.0579)	-0.0159 (0.0669)	-0.0250 (0.0578)	-0.00437 (0.0665)	-0.0258 (0.0578)	-0.00262 (0.0665)	-0.0294 (0.0579)	-0.0130 (0.0669)
not married	-0.216* (0.0879)	-0.154* (0.0735)	-0.209* (0.0877)	-0.143 (0.0736)	-0.229** (0.0875)	-0.171* (0.0732)	-0.207* (0.0878)	-0.145* (0.0736)	-0.227** (0.0878)	-0.167* (0.0734)	-0.224* (0.0734)	-0.170* (0.0735)	-0.201* (0.0879)	-0.144 (0.0739)
observed a second year	-0.0854 (0.0625)	-0.0885 (0.0758)	-0.0839 (0.0625)	-0.0901 (0.0760)	-0.0806 (0.0624)	-0.0906 (0.0756)	-0.0811 (0.0625)	-0.0888 (0.0761)	-0.0806 (0.0624)	-0.0906 (0.0756)	-0.0822 (0.0624)	-0.0903 (0.0757)	-0.0825 (0.0625)	-0.0881 (0.0762)
year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
constant	-1.367*** (0.205)	-0.485 (0.250)	-1.393*** (0.207)	-0.517* (0.250)	-1.308*** (0.210)	-0.296 (0.250)	-1.431*** (0.211)	-0.521* (0.254)	-1.227*** (0.215)	-0.238 (0.269)	-1.207*** (0.215)	-0.206 (0.270)	-0.885*** (0.226)	0.0238 (0.276)
interaction: chi2(1)										0.43		0.90	0.72	0.81
interaction: Prob > chi2										0.5112		0.3417	0.3961	0.3670

5. Estimation results

	Education		Education + partner education		hh labour income		couple educ + hh lab inc		hh lab inc + distribution		hh lab inc + distribution differentiated		hh lab inc + distribution differ. for high educated	
	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF	LF	HF
<i>Low education</i>	0.0312	-0.279*	0.0480	-0.199			0.0549	-0.209					-0.245*	-0.493***
<i>Medium education</i>	Ref.	Ref.	Ref.	Ref.			Ref.	Ref.					-0.287***	-0.270***
<i>High education</i>	0.378***	0.317***	0.305***	0.230**			0.280***	0.246**					Ref.	Ref.
<i>Low education partner</i>			-0.0193	-0.243*			-0.0072	-0.252*					-0.163	-0.434***
<i>Medium education partner</i>			Ref.	Ref.			Ref.	Ref.					-0.153	-0.188*
<i>High education partner</i>			0.197*	0.184*			0.165*	0.208*					Ref.	Ref.
<i>low hh lab inc</i>					0.00643	-0.0669	0.0466	0.0214	-0.0544	-0.0615	-0.0701	-0.0814	-0.0283	0.0141
<i>medium hh lab inc</i>					Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>high hh lab inc</i>					0.266***	0.0821	0.167*	-0.0829	0.278***	0.0862	0.198*	-0.0272	0.110	-0.184
<i>zero equality (1 earner only)</i>									Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
<i>low equality (0.01-0.33)</i>									-0.0875	-0.0531	-0.0756	-0.0409	-0.0849	-0.0423
<i>medium equality (0.34-0.66)</i>									-0.0896	-0.00861	-0.0703	0.0126	-0.0735	0.0177
<i>high equality (0.67-1)</i>									-0.226*	-0.0323	-0.328**	-0.123	-0.328**	-0.110
<i>women earns more</i>									0.0845	-0.164	0.0786	-0.168	0.0480	-0.204*
<i>high equality* high income</i>											0.247	0.275	0.223	0.256



Coefficient of high equality in comparison to zero equality for couples with low and middle household labour income: **lf -0.33 significant**, hf -0.12 insignificant

Coefficient of high equality in comparison to zero equality for couples with high household labour income: lf $-0.33+0.25= -0.08$ insignificant, hf $-0.12 + 0,28= 0.16$ insignificant

5. Estimation results

Robustness checks:

- Drop second year observations
- Equality deciles
- Interaction equality * education instead of *hh labour income
- Drop self-employed
- Replace age categories by continuous variable: age and age²
- Replace age of first child categories by continuous variable: age first child and age first child²
- Replace age of first child (categories and continuous) by age of mother at first childbirth (categories and continuous with ²)
- Use women aged 35 to 45 as reference category to capture birth postponement
- Use different definitions of education categories
- Include control dummy: woman works full time (during three months before conception)

Illustration of estimated probabilities:

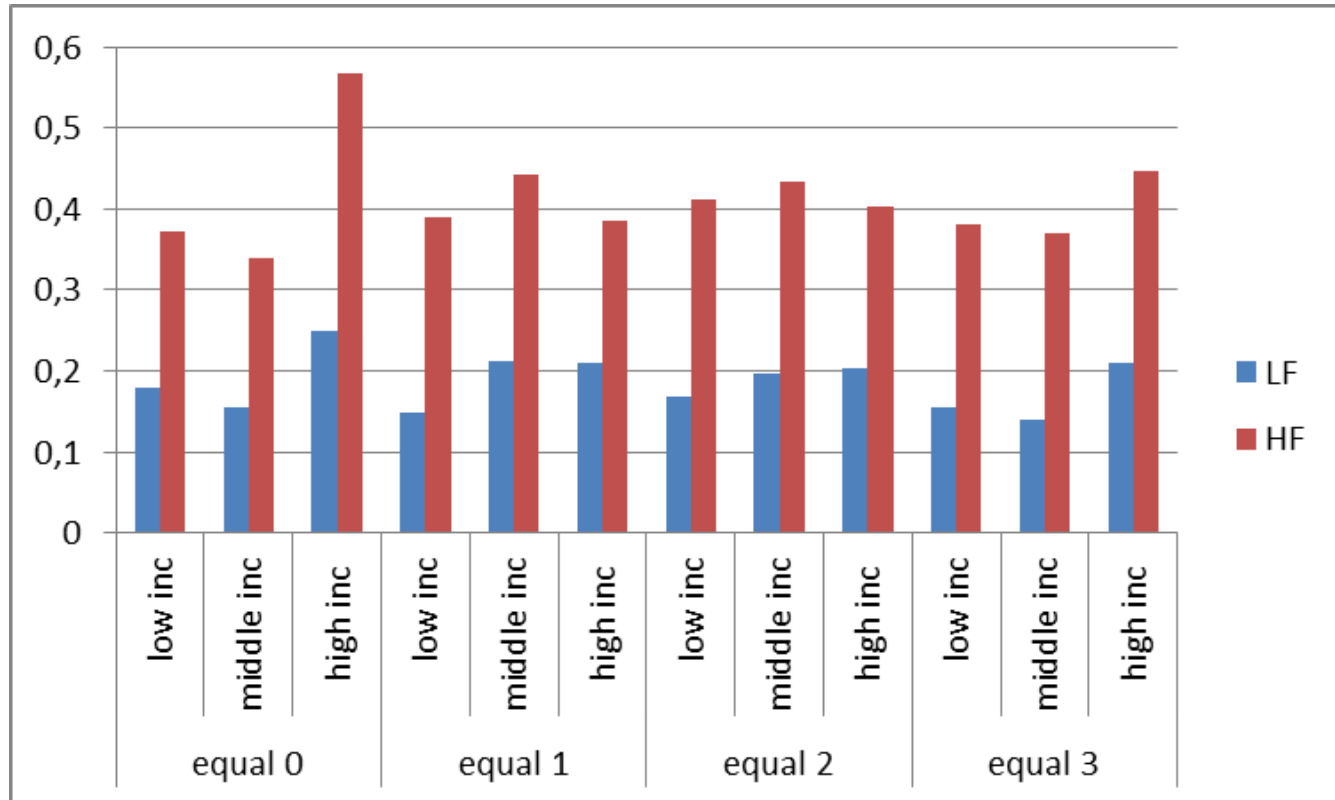
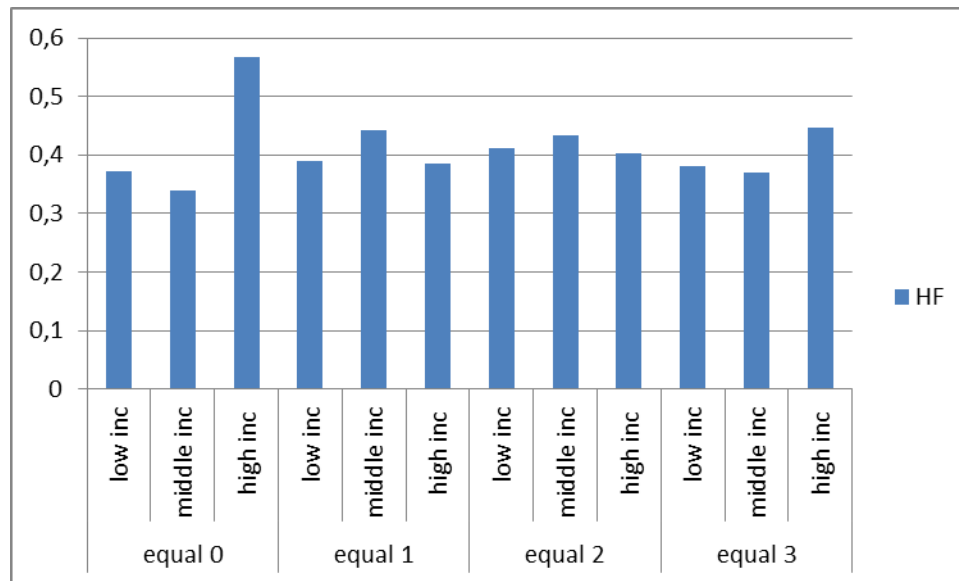
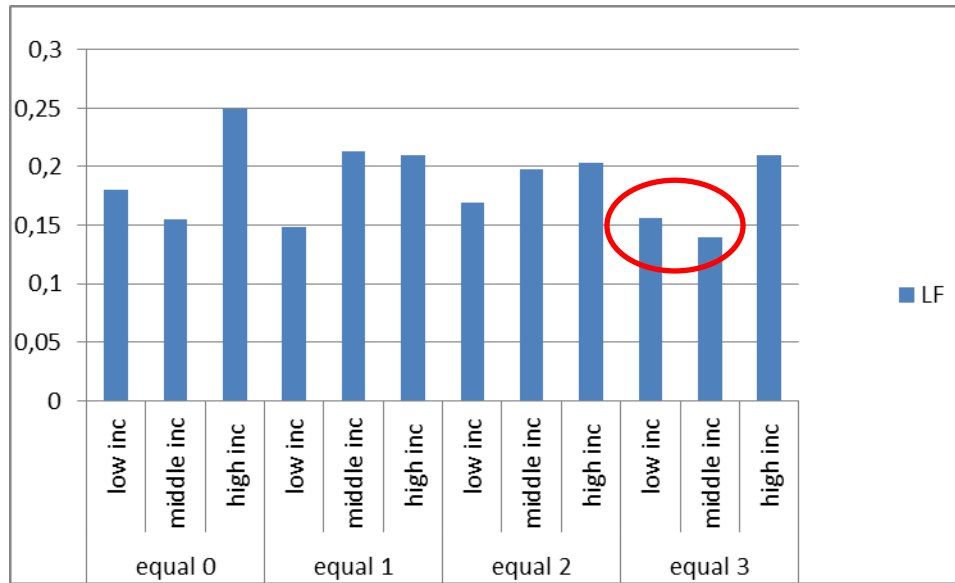
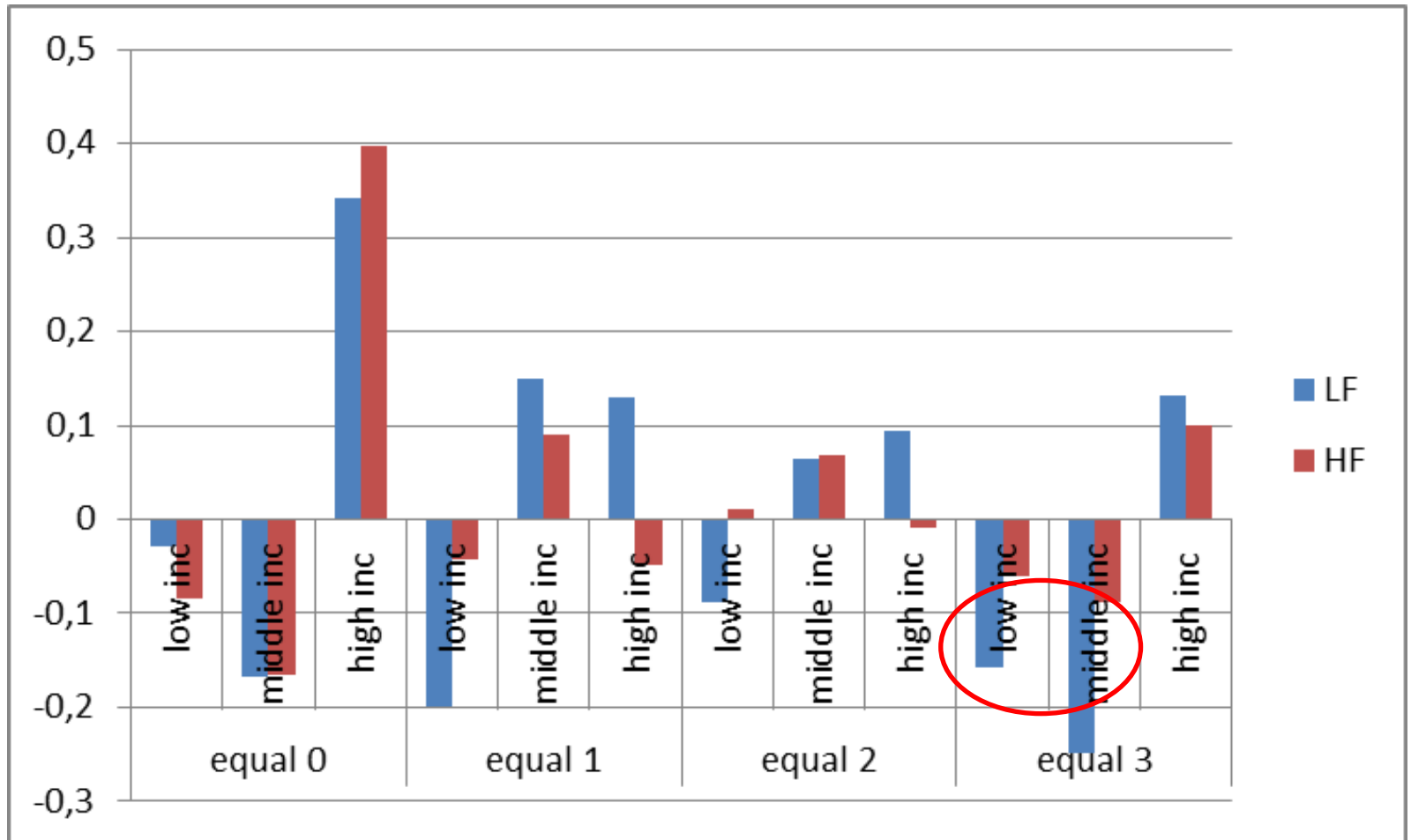
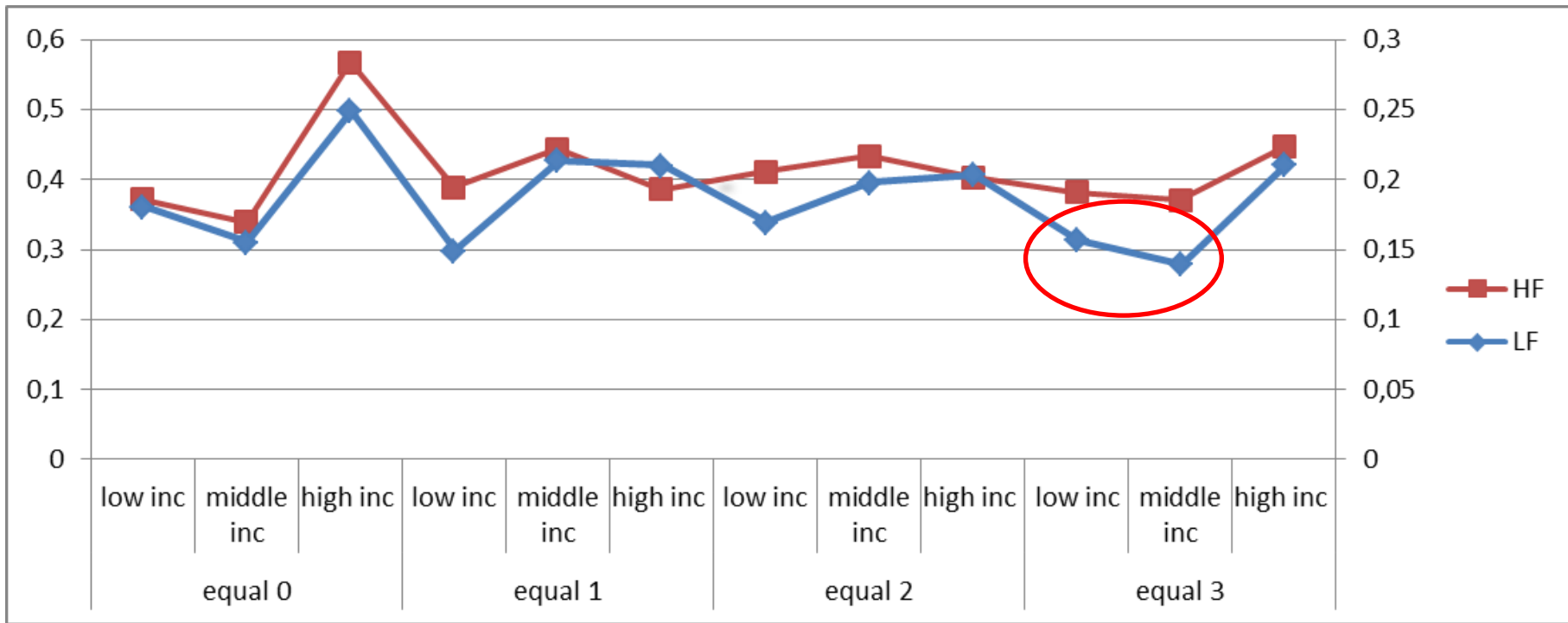


Illustration of estimated probabilities:



Deviation from the group mean:





6. Some preliminary conclusions

- All categories have a higher probability of having a second child in high fertility countries
- Rich single-earner households have the highest probability of having a second child in both country groups
- Besides this group, there are no significant differences in the probability of having a second child in high fertility countries
- In contrast, in low fertility countries, households with middle (and low) joint labour income face barriers to having a second child in comparison to rich households
- Among this group, it is particularly those couples with an egalitarian wage distribution who face barriers to having a second child
- Highly educated couples have a higher probability of having a second child in both low and high fertility countries, even when controlling for income. However, an egalitarian wage distribution plays against their decision to have a second child in low fertility countries if these couples are not in the highest income group.

7. First interpretation attempts

Why do low and middle income groups with egalitarian wage distribution decide against having a 2nd child in low fertility countries in comparison to high income groups with egalitarian wage?

2nd child arrival implies income reduction (women works less, nanny too expensive)?

High income with equal wage distribution:

- 2nd child arrival implies income reduction but this is not problematic (women works less)
- 2nd child arrival does not imply income reduction : women continues working, nannies are relatively less expensive for them

7. First interpretation attempts

Why do low and middle income groups with egalitarian wage distribution decide against having a 2nd child in low fertility countries in comparison to the same group in high fertility countries?

HF:

Low and middle income groups with equal wage distribution are not discriminated because

- 2nd child arrival implies income reduction but this is not problematic (general income level is higher)
- 2nd child arrival implies no income reduction due to access to subsidized childcare
- 2nd child arrival implies no income reduction because the couple works already less

7. First interpretation attempts

**Preliminary descriptive analysis:
proportion of full time employed for egalitarian group**

		Prop full time employed (year before 2nd child birth)				Prop full time employed (year after 2nd child birth)	
		Woman		Partner		Woman	
		no second child	second child	no second child	second child	no second child	second child
LF	low inc	0,70	0,60	0,81	0,77	0,69	0,40
	middle inc	0,88	0,92	0,95	0,96	0,87	0,62
	high inc	0,93	0,93	0,96	0,94	0,92	0,69
HF	low inc	0,52	0,47	0,79	0,81	0,54	0,26
	middle inc	0,73	0,63	0,93	0,89	0,70	0,40
	high inc	0,80	0,73	0,95	0,93	0,74	0,53

Women in high fertility countries stop full time employment after 2nd childbirth as much as women in low fertility countries, but they already work less in full time before having the 2nd child

→ Points to importance of well remunerated part time work, well remunerated parental leave, options to share tasks with partner...

7. First interpretation attempts

Preliminary descriptive analysis:

Number of hours usually worked per week in main job for egalitarian group

		weekly working hours			
		Woman		Partner	
		no second child	second child	no second child	second child
LF	low inc	32,88	29,49	37,48	38,91
	middle inc	37,32	36,77	40,94	43,15
	high inc	37,99	36,80	41,55	41,11
HF	low inc	28,02	28,33	35,23	34,67
	middle inc	35,11	32,31	39,00	36,97
	high inc	36,64	35,12	40,82	40,17

Working hours are more similar in hf and in lf countries

Nevertheless:

Women and their partners work somewhat less in high fertility countries in low and middle income households

→ Points to importance of 35h week, flexible working schemes...

7. First interpretation attempts

Preliminary descriptive analysis:

childcare in daycare center during usual week by income groups

(CS 2008, women aged 18-43 with 1 child only & with partner, children aged 0-6)

