

**Measuring the Timing of Cohort Childbearing:  
Anticipation and Postponement**

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Conference on

**POSTPONEMENT OF CHILDBEARING IN EUROPE**

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**“deficit”** = a lesser number of births of women of a certain age compared to an earlier cohort at the time when these are being postponed

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*Several populations/  
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**Crude methods**

**Average ages of childbearing**

**Proportions of childbearing**

**Refined methods**

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- **Deficit and surplus**
- **Estimation of completed fertility in “young” cohorts**

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- **Age 27 is approximate dividing point for delaying childbearing from the young into the higher ages in cohorts born since the 1940s.**
- **Data for young women of the 1970 birth cohorts were available only up to the 27<sup>th</sup> birthday**

## Deficits and surpluses

**Surplus:** When age-specific fertility rates of a cohort born later (a younger cohort) is *higher* than that of a cohort born earlier (an older cohort)

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**Making up or Recuperation:** A deficit of births of women when they are young followed by a surplus when women of the same cohort are older

**Anticipation or Advancement:** A surplus of births of women when they are young followed by a deficit when women of the same cohort are older

**Age-specific fertility rates, Sweden,  
birth cohorts 1930, 1940, 1950 and 1960**

Age	1930	1940	1950	1960
15	0.0002	0.0006	0.0007	0.0009
16	0.0040	0.0060	0.0096	0.0029
17	0.0165	0.0216	0.0282	0.0094
18	0.0422	0.0454	0.0484	0.0201
19	0.0695	0.0726	0.0624	0.0349
20	0.0960	0.0936	0.0798	0.0524
21	0.1124	0.1121	0.1036	0.0660
22	0.1256	0.1310	0.1199	0.0785
23	0.1349	0.1481	0.1311	0.0915
24	0.1368	0.1664	0.1406	0.1041
25	0.1438	0.1673	0.1399	0.1242
26	0.1460	0.1667	0.1346	0.1371
27	0.1428	0.1550	0.1266	0.1430
28	0.1352	0.1337	0.1155	0.1517
29	0.1260	0.1159	0.1144	0.1512
30	0.1101	0.0996	0.1044	0.1474
31	0.1014	0.0875	0.0926	0.1364
32	0.0891	0.0720	0.0809	0.1230
33	0.0813	0.0579	0.0686	0.1033
34	0.0741	0.0478	0.0597	0.0844
35	0.0614	0.0370	0.0540	0.0683
36	0.0501	0.0288	0.0461	0.0537
37	0.0382	0.0224	0.0364	0.0419
38	0.0286	0.0171	0.0309	0.0342
39	0.0197	0.0143	0.0241	0.0260
40	0.0139	0.0105	0.0182	0.0197
41	0.0093	0.0071	0.0124	0.0129
42	0.0060	0.0048	0.0084	0.0082
43	0.0030	0.0030	0.0048	0.0050
44	0.0016	0.0019	0.0026	0.0028
45	0.0008	0.0010	0.0012	0.0014
46	0.0004	0.0004	0.0005	0.0006
47	0.0001	0.0001	0.0002	0.0003
48	0.0001	0.0001	0.0001	0.0001
49	0.0000	0.0001	0.0001	0.0002
TCFR	2.121	2.050	2.001	2.038
			Ages	
			41-49	0.0315
			Percent	
			estimated	1.6

**Age-specific fertility rates, Sweden, percentage changes and differences  
in absolute numbers between birth cohorts 1930, 1940, 1950 and 1960**

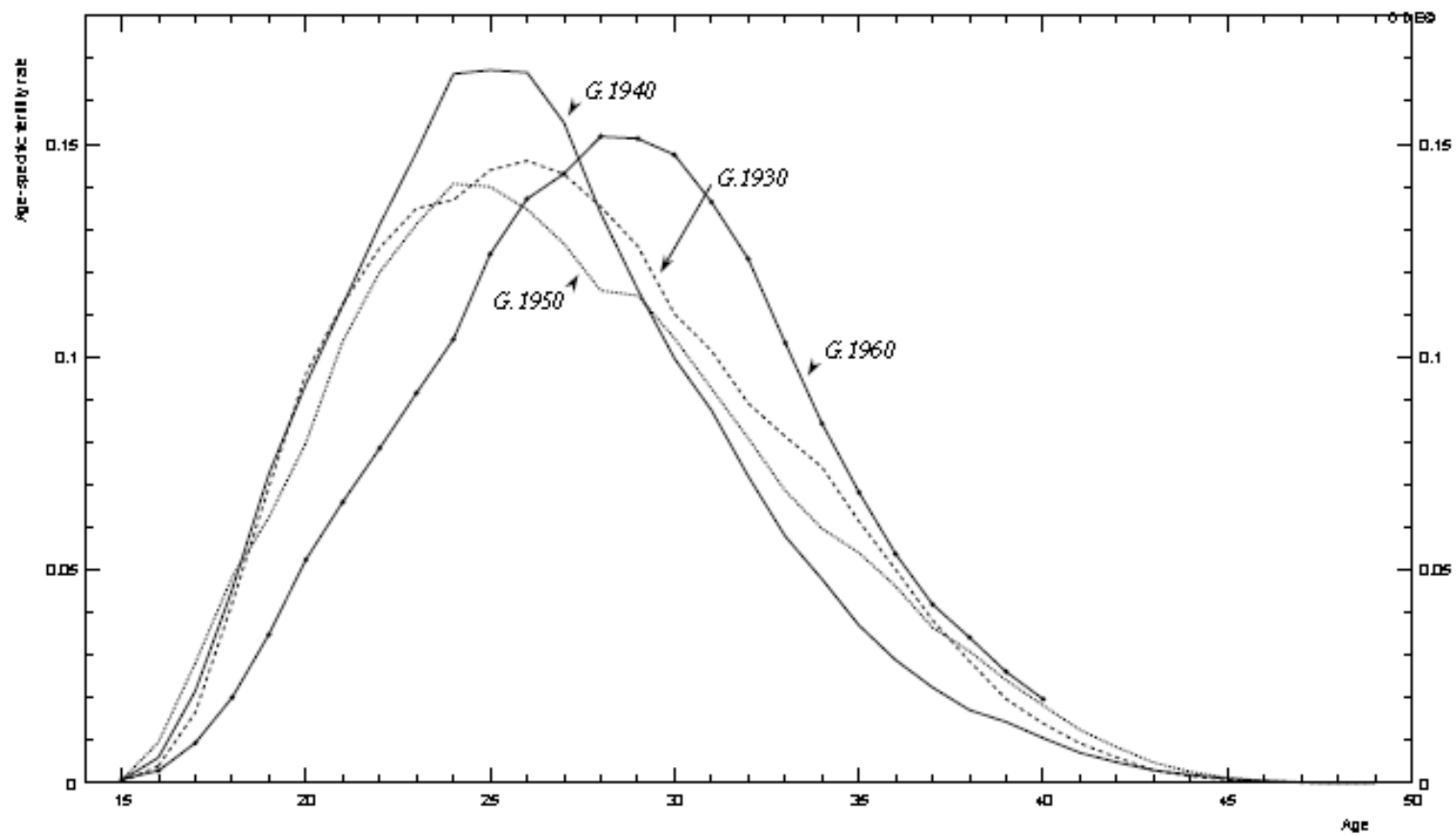
Age	Percentage change between birth cohorts			Difference between birth cohorts in absolute numbers		
	1930-1940	1940-1950	1950-1960	1930-1940	1940-1950	1950-1960
15	184.9	7.6	27.9	0.0004	0.0000	0.0002
16	50.1	60.0	-69.7	0.0020	0.0036	- 0.0067
17	30.6	30.4	-66.7	0.0051	0.0066	- 0.0188
18	7.7	6.5	-58.5	0.0033	0.0029	- 0.0283
19	4.5	-14.1	-44.1	0.0031	- 0.0102	- 0.0275
20	-2.5	-14.7	-34.4	- 0.0024	- 0.0138	- 0.0274
21	-0.2	-7.6	-36.4	- 0.0003	- 0.0085	- 0.0377
22	4.3	-8.5	-34.5	0.0054	- 0.0111	- 0.0413
23	9.8	-11.5	-30.2	0.0132	- 0.0170	- 0.0396
24	21.7	-15.5	-26.0	0.0296	- 0.0258	- 0.0365
25	16.3	-16.4	-11.3	0.0235	- 0.0274	- 0.0158
26	14.2	-19.3	1.8	0.0207	- 0.0321	0.0025
27	8.5	-18.3	13.0	0.0121	- 0.0284	0.0164
28	-1.2	-13.6	31.3	- 0.0016	- 0.0181	0.0362
29	-8.1	-1.3	32.2	- 0.0102	- 0.0015	0.0369
30	-9.5	4.8	41.3	- 0.0104	0.0047	0.0431
31	-13.7	5.8	47.3	- 0.0139	0.0051	0.0438
32	-19.2	12.4	52.1	- 0.0171	0.0089	0.0421
33	-20.8	18.4	50.6	- 0.0234	0.0107	0.0347
34	-35.5	24.8	41.4	- 0.0263	0.0119	0.0247
35	-39.7	45.9	26.3	- 0.0244	0.0170	0.0142
36	-42.4	60.0	16.4	- 0.0212	0.0173	0.0076
37	-41.4	62.7	15.0	- 0.0158	0.0140	0.0055
38	-40.2	80.9	10.4	- 0.0115	0.0138	0.0032
39	-27.2	68.4	8.1	- 0.0053	0.0098	0.0020
40	-24.4	72.4	8.2	- 0.0034	0.0076	0.0015
41	-23.9	76.0	3.9	- 0.0022	0.0054	0.0005
42	-18.7	72.5	-1.9	- 0.0011	0.0035	- 0.0002
43	-0.9	61.8	3.8	- 0.0000	0.0018	0.0002
44	22.0	35.7	9.1	0.0003	0.0007	0.0002
45	33.8	15.6	18.1	0.0003	0.0002	0.0002
46	0.2	16.4	22.2	0.0000	0.0001	0.0001
47	39.7	56.4	57.3	0.0000	0.0001	0.0001
48	-28.1	10.8	58.4	- 0.0000	0.0000	0.0000
49	33.1	56.6	83.6	0.0000	0.0000	0.0001
<b>TCFR</b>	<b>-3.4</b>	<b>-2.3</b>	<b>1.8</b>	<b>-0.072</b>	<b>-0.048</b>	<b>0.036</b>

**Fertility deficits and surpluses comparing birth cohorts,  
Sweden, cohorts 1930, 1940, 1950 and 1960**

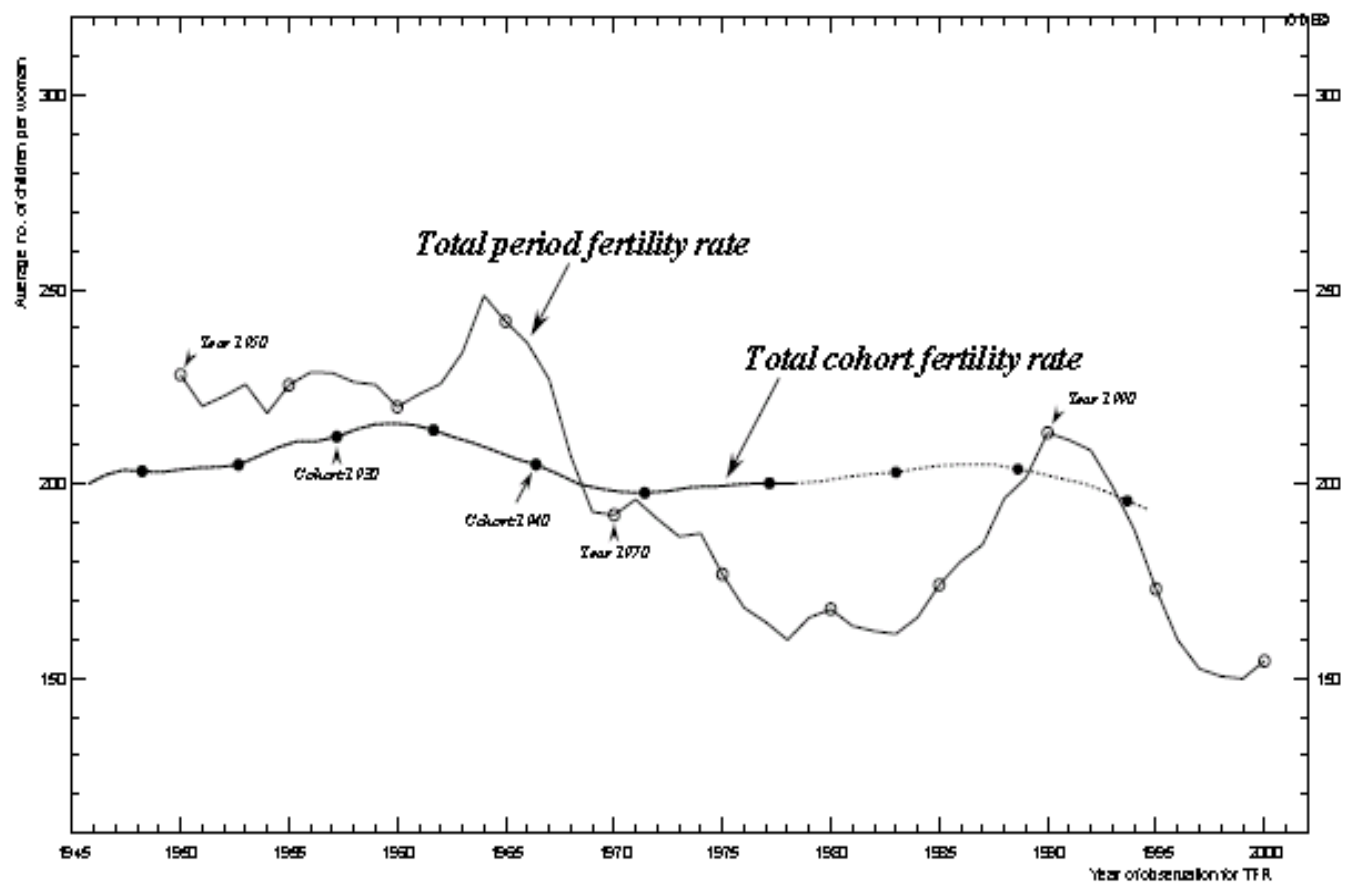
<i>Fertility</i>	<i>Cohort 1930 and 1940</i>		<i>Cohort 1940 and 1950</i>		<i>Cohort 1950 and 1960</i>	
	<i>Age group</i>	<i>Number of children</i>	<i>Age group</i>	<i>Number of children</i>	<i>Age group</i>	<i>Number of children</i>
<i>Deficit</i>	<b>20 - 21</b>	<b>- 0.003</b>	<b>19 - 29</b>	<b>- 0.194</b>	<b>15 - 25</b>	<b>- 0.279</b>
	<b>28 - 43</b>	<b>- 0.188</b>				
<i>Surplus</i>	<b>15 - 19</b>	<b>+ 0.014</b>	<b>15 - 18</b>	<b>+ 0.013</b>	<b>26 - 49<sup>a</sup></b>	<b>+ 0.315</b>
	<b>22 - 27</b>	<b>+ 0.104</b>	<b>30 - 49</b>	<b>+ 0.133</b>		
	<b>44 - 49</b>	<b>+ 0.001</b>				
<i>Total</i>		<b>- 0.072</b>		<b>- 0.048</b>		<b>+ 0.036</b>

Note: <sup>a</sup> Includes estimated data for ages 41 – 49 in the 1960 cohort.

**Figure S-3**  
**Age-specific fertility rates, Sweden, birth cohorts 1930, 1940, 1950 and 1960**



**Figure S-1**  
**Total period fertility rate, Sweden, 1950-2000, and total cohort fertility rate**  
**in Swedish birth cohorts 1918-66 lagged by the average age at childbearing**

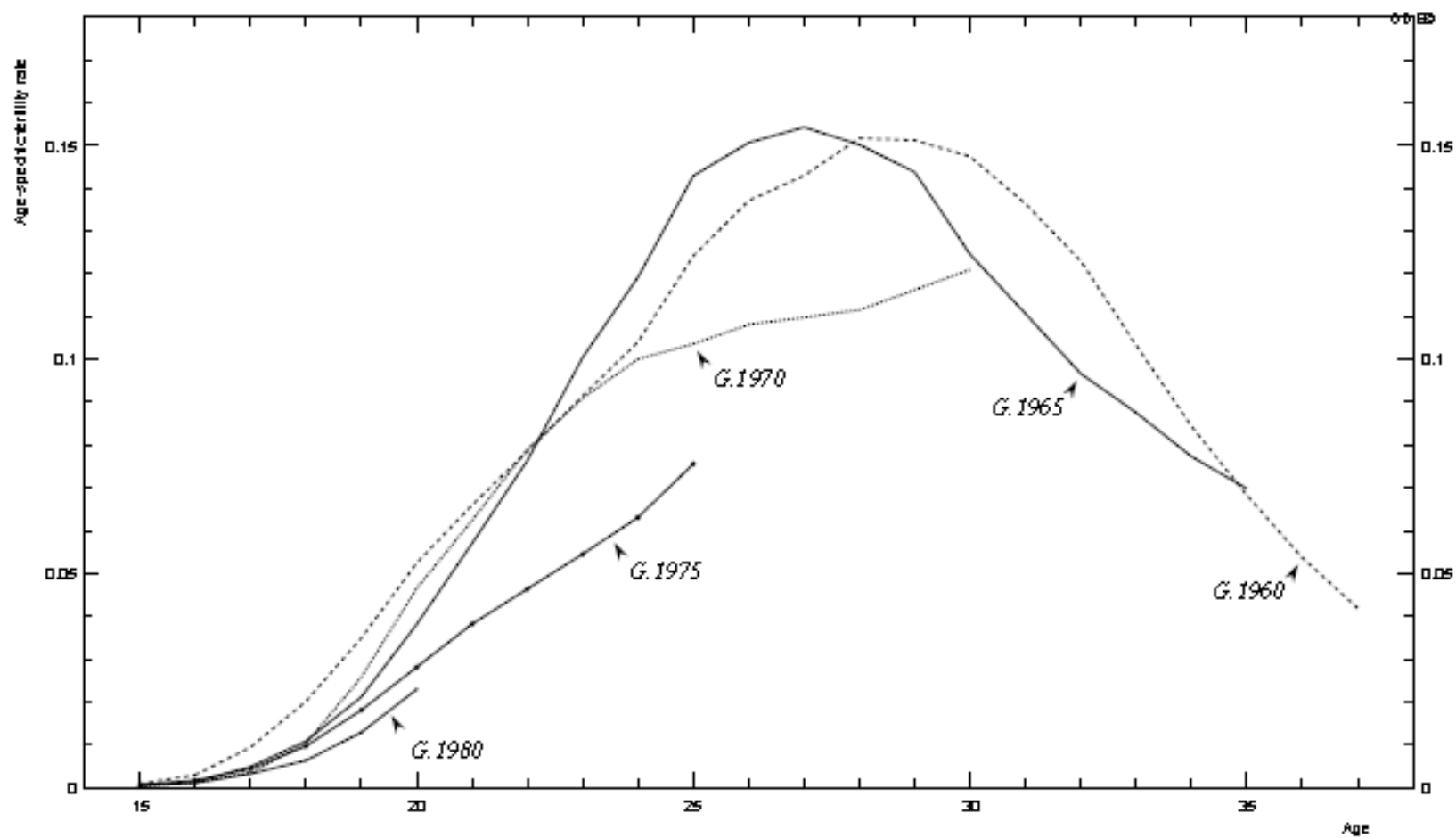


*NO IX: Dotted line indicates that a minor proportion of the respective TCFR is based on estimates*

**Age-specific fertility rates, Sweden, percentage changes and differences  
in absolute numbers between birth cohorts 1960, 1965, 1970, 1975 and 1980**

Age	Percentage change between birth cohorts				Difference between birth cohorts in absolute numbers			
	1960-1965	1965-1970	1970-1975	1975-1980	1960-1965	1965-1970	1970-1975	1975-1980
15	-22.1	-52.5	64.2	-15.1	0.0002	0.0003	0.0002	0.0001
16	-55.5	-17.1	52.1	-34.7	0.0016	0.0002	0.0006	0.0006
17	-48.6	-28.3	24.5	-26.2	0.0046	0.0014	0.0008	0.0011
18	-46.1	-5.2	-5.8	-34.9	0.0093	0.0006	0.0006	0.0034
19	-39.5	22.0	-29.9	-28.8	0.0138	0.0046	0.0077	0.0052
20	-27.3	22.1	-39.6	-18.5	0.0143	0.0084	0.0184	0.0052
21	-13.6	9.5	-38.8		0.0090	0.0054	0.0242	
22	-2.7	3.4	-41.3		0.0021	0.0026	0.0326	
23	9.9	-9.5	-40.1		0.0090	0.0095	0.0364	
24	14.5	-16.1	-37.0		0.0151	0.0191	0.0370	
25	15.1	-27.5	-27.1		0.0187	0.0393	0.0281	
26	9.9	-28.2			0.0136	0.0425		
27	7.9	-28.8			0.0113	0.0445		
28	-1.0	-25.7			0.0015	0.0387		
29	-4.9	-19.1			0.0075	0.0275		
30	-15.5	-2.9			0.0228	0.0036		
31	-18.8				0.0257			
32	-21.4				0.0263			
33	-15.2				0.0157			
34	-8.4				0.0071			
35	2.3				0.0015			

Figure S-5  
Age-specific fertility rates, Sweden, birth cohorts 1960, 1965, 1970, 1975 and 1980



**Crude measurement of anticipation and postponement of  
childbearing**

## **Crude measurement of anticipation and postponement of childbearing**

- **Tracking trends in average ages of cohort childbearing**

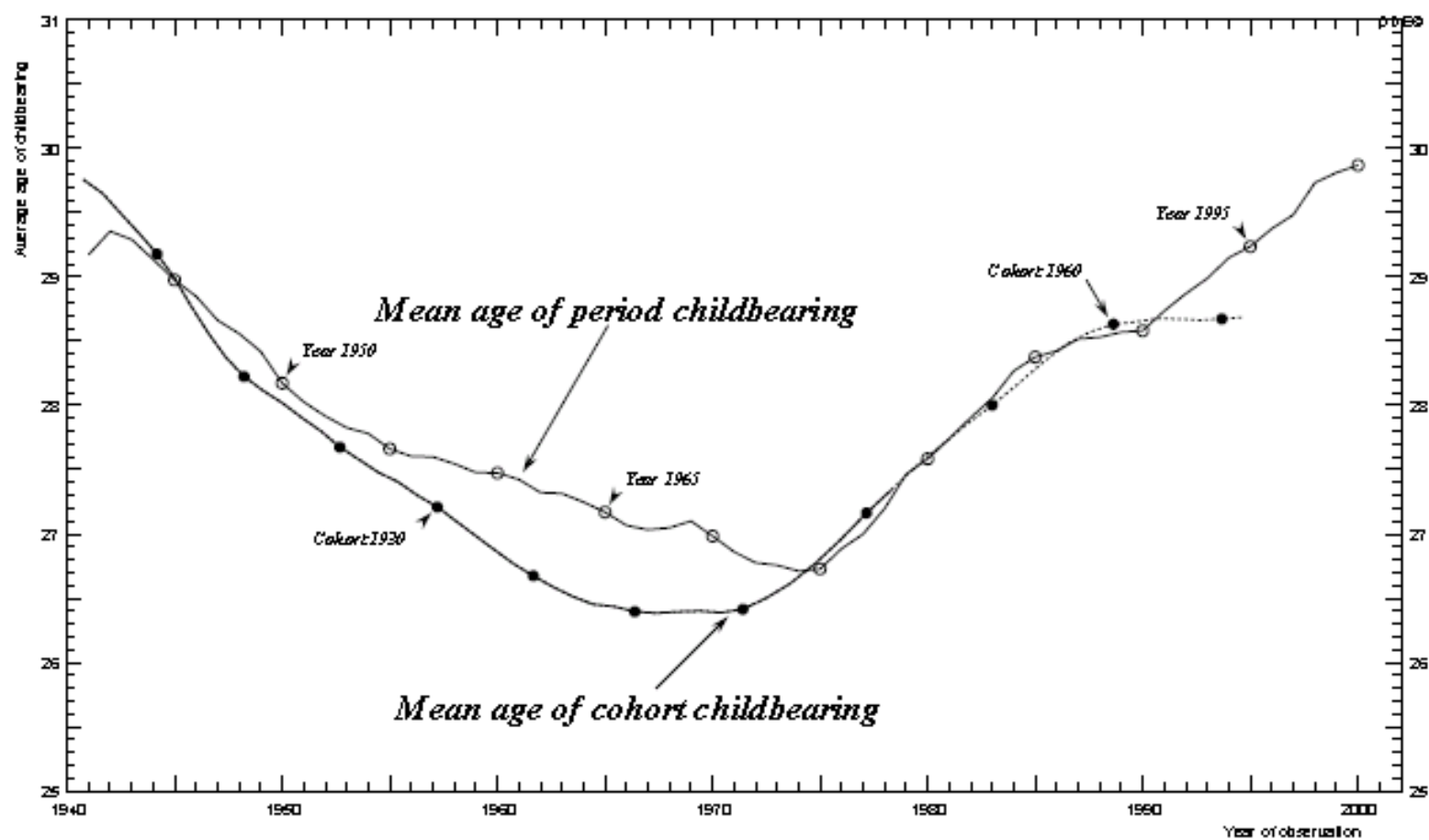
## **Crude measurement of anticipation and postponement of childbearing**

- **Tracking trends in average ages of cohort childbearing**
- **Analyzing changes in the proportions of total fertility realized by young and older women of the same cohort**

## Average age at childbearing, birth cohorts 1930, 1940, 1950, 1960 and 1965

Country	Average age at childbearing, women born in					Annual change between birth cohorts (per cent)			
	1930	1940	1950	1960	1965	1930-1940	1940-1950	1950-1960	1960-1965
<b>Sweden</b>	<b>27.2</b>	<b>26.4</b>	<b>27.2</b>	<b>28.6</b>	<b>28.8</b>	<b>-0.3</b>	<b>0.3</b>	<b>0.5</b>	<b>0.1</b>
England & Wales	27.9	26.2	26.5	27.8	28.2	-0.7	0.1	0.5	0.3
Portugal	29.4	27.9	26.8	26.6	27.4	-0.5	-0.4	-0.1	0.7
<b>Bulgaria</b>	<b>25.2</b>	<b>24.6</b>	<b>24.1</b>	<b>23.7</b>	<b>23.5</b>	<b>-0.3</b>	<b>-0.2</b>	<b>-0.2</b>	<b>-0.1</b>
Slovenia	27.6	26.6	25.4	24.9	25.8	-0.4	-0.5	-0.2	0.7
Lithuania	...	27.9	26.6	26.0	25.9	...	-0.5	-0.2	0.0
United States	26.3	24.7	25.9	26.9	27.2	-0.6	0.5	0.4	0.2

Figure S4  
Period average age of childbearing, 1941-2000, cohort average age of childbearing, birth cohorts 1912-1951, Sweden



**The proportion of total cohort fertility completed by 27<sup>th</sup> birthday,  
birth cohorts 1930, 1940, 1950, 1960 and 1965**

Country	Proportion of total cohort fertility completed up to 27 <sup>th</sup> birthday of cohort born in					Annual change between birth cohorts (per cent)			
	1930	1940	1950	1960	1965	1930- 1940	1940- 1950	1950- 1960	1960- 1965
<b>Sweden</b>	<b>51.8</b>	<b>59.0</b>	<b>53.3</b>	<b>39.1</b>	<b>41.2</b>	<b>1.3</b>	<b>-1.0</b>	<b>-3.1</b>	<b>1.1</b>
England & Wales	47.0	61.8	56.9	47.0	44.3	2.7	-0.8	-1.9	-1.2
Portugal	39.5	47.7	56.9	57.2	49.8	1.9	1.8	0.1	-2.8
<b>Bulgaria</b>	<b>68.9</b>	<b>72.3</b>	<b>77.5</b>	<b>79.8</b>	<b>81.5</b>	<b>0.5</b>	<b>0.7</b>	<b>0.3</b>	<b>0.4</b>
Slovenia	50.9	58.9	67.0	70.2	64.3	1.5	1.3	0.5	-1.8
Lithuania	...	48.6	59.6	65.1	67.5	...	2.0	0.9	0.7
United States	59.1	71.3	60.4	52.7	52.0	1.9	-1.7	-1.4	-0.3

**Cumulated cohort fertility rates (CCFRs), up to and after 27<sup>th</sup> birthday,  
birth cohorts 1930, 1940, 1950, 1960 and 1965**

Country	CCFRs up to 27 <sup>th</sup> birthday					CCFRs after 27 <sup>th</sup> birthday				
	1930	1940	1950	1960	1965	1930	1940	1950	1960	1965
<b>Sweden</b>	<b>1.100</b>	<b>1.209</b>	<b>1.066</b>	<b>0.796</b>	<b>0.805</b>	<b>1.021</b>	<b>0.840</b>	<b>0.935</b>	<b>1.241</b>	<b>1.147</b>
England & Wales	1.100	1.452	1.170	0.921	0.824	1.242	0.896	0.887	1.039	1.038
Portugal	1.163	1.273	1.183	1.087	0.910	1.779	1.393	0.895	0.813	0.916
<b>Bulgaria</b>	<b>1.449</b>	<b>1.507</b>	<b>1.602</b>	<b>1.560</b>	<b>1.491</b>	<b>0.655</b>	<b>0.577</b>	<b>0.465</b>	<b>0.394</b>	<b>0.338</b>
Slovenia	1.069	1.183	1.270	1.316	1.130	1.031	0.825	0.627	0.557	0.627
Lithuania	...	0.966	1.196	1.224	1.143	...	1.023	0.812	0.656	0.551
United States	1.877	1.946	1.224	1.062	1.059	1.301	0.783	0.804	0.952	0.979

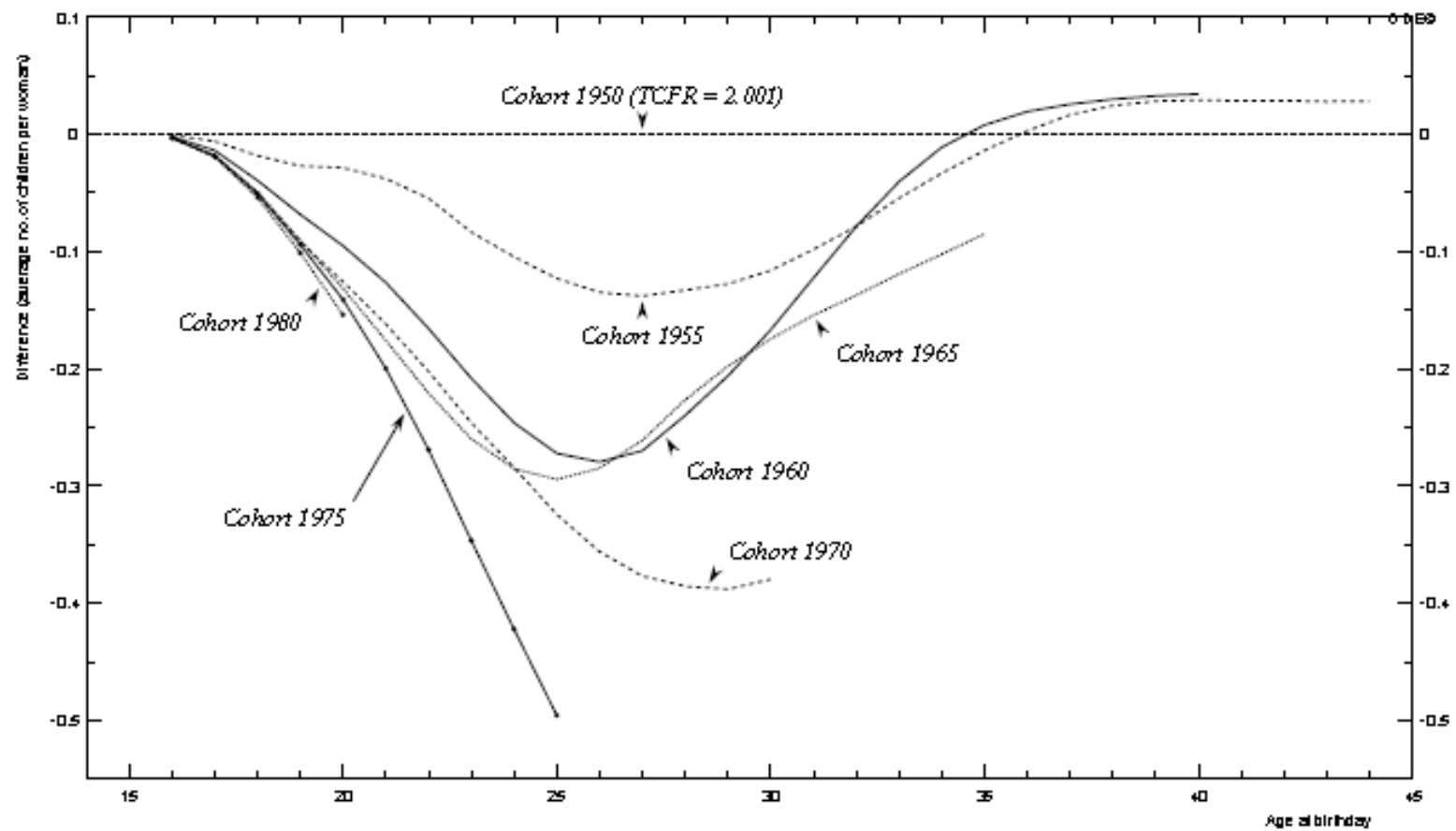
**Differences in CCFRs between cohorts and shift ratios, up to and after 27<sup>th</sup> birthday, birth cohorts 1930, 1940, 1950, 1960 and 1965**

Country	Differences in CCFRs up to 27 <sup>th</sup> birthday of successive cohorts				Differences in CCFRs after 27 <sup>th</sup> birthday of successive cohorts				Shift ratios <sup>1</sup> (Advancement in parentheses; Postponement without parentheses)			
	1930-1940	1940-1950	1950-1960	1960-1965	1930-1940	1940-1950	1950-1960	1960-1965	1930-1940	1940-1950	1950-1960	1960-1965
<b>Sweden</b>	<b>0.110</b>	<b>-0.143</b>	<b>-0.270</b>	<b>0.009</b>	<b>-0.182</b>	<b>0.095</b>	<b>0.306</b>	<b>-0.093</b>	<b>(60)</b>	<b>67</b>	<b>113</b>	<b>(9)</b>
England & Wales	0.351	-0.281	-0.249	-0.097	-0.346	-0.009	0.152	-0.001	(102)	D	61	D
Portugal	0.109	-0.090	-0.095	-0.177	-0.386	-0.498	-0.082	0.103	(28)	D	D	58
<b>Bulgaria</b>	<b>0.058</b>	<b>0.095</b>	<b>-0.042</b>	<b>-0.069</b>	<b>-0.078</b>	<b>-0.112</b>	<b>-0.071</b>	<b>-0.055</b>	<b>(74)</b>	<b>(85)</b>	<b>D</b>	<b>D</b>
Slovenia	0.114	0.087	0.046	-0.187	-0.206	-0.199	-0.069	0.069	(55)	(44)	(67)	37
Lithuania	...	0.230	0.029	-0.081	...	-0.211	-0.156	-0.104	...	(109)	(18)	D
United States	0.069	-0.722	-0.162	-0.003	-0.518	0.021	0.148	0.027	(13)	3	91	993

**Cumulated cohort fertility rates (CCFRs) up to 27<sup>th</sup> birthday,  
birth cohorts 1960, 1965, 1970 and 1975**

Country	CCFR up to 27 <sup>th</sup> Birthday				Annual change between birth cohorts (percent)		
	1960	1965	1970	1975	1960-1965	1965-1970	1970-1975
<b>Sweden</b>	<b>0.797</b>	<b>0.805</b>	<b>0.689</b>	<b>0.483</b>	<b>0.2</b>	<b>-3.1</b>	<b>-7.1</b>
England & Wales	0.921	0.824	0.766	0.686	-2.2	-1.5	-2.2
Portugal	1.087	0.909	0.707	0.587	-3.6	-5.0	-3.7
<b>Bulgaria</b>	<b>1.560</b>	<b>1.491</b>	<b>1.205</b>	<b>0.924</b>	<b>-0.9</b>	<b>-4.3</b>	<b>-5.3</b>
Slovenia	1.316	1.130	0.868	0.617	-3.1	-5.3	-6.8
Lithuania	1.224	1.147	1.114	0.955	-1.3	-0.6	-3.1
United States	1.062	1.059	1.067	0.997	-0.1	0.1	-1.4

**Figure S-6**  
**Differences in cumulative age-specific cohort fertility rates between base and subsequent cohorts: Sweden, women born in 1950 (base), 1955, 1960, 1965, 1970, 1975 and 1980**



**Figure S-5**  
Age-specific fertility rates, Sweden, birth cohorts 1960, 1965, 1970, 1975 and 1980

