Supplementary Table 1: Characteristics of included studies [1-141], sorted by authors' names

ID	Autor	Country	Age mean/range (yr)	Study	adj	Sample size	NOS score	Quality
1	Adami 1978	Sweden	63.00	Case-control	Adjusted	358	★★★★★★★	High
2	Adami 1980	Sweden	63.50	Case-control	Adjusted	2,002	★★★★★	Low
3	Adami 1990	Sweden & Norway	Unspecified	Case-control	Adjusted	949	★★★★★★★★	High
4	Albrektsen 1995	Norway	20-56	Cohort	Adjusted	82,457	★★★★★★★	High
5	Andrieu 2006	Europe	46.70	Cohort	Adjusted	1,601	★★★★★★★	High
6	Austin 1979	USA	49.93	Case-control	Unadjusted	444	★★★★★★	Low
7	Babita 2012	India	49.76	Case-control	Adjusted	256	★★★★★★	Low
8	Bain 1981	USA	30-55	Case-control	Adjusted	12,749	★★★★★★★	High
9	Barbon 1996	Italy	Unspecified	Case-control	Unadjusted	5,157	★★★★★★	Low
10	Baron 1984	UK	Unspecified	Case-control	Adjusted	2,352	★★★★★★★★	High
11	Bernstein 1994	USA	<40	Case-control	Unadjusted	1,090	★★★★★★	Low
12	Bouchardy 1990	France	58.10	Case-control	Unadjusted	2,960	★★★★★★	Low
13	Brignone 1987	Italy	54.29	Case-control	Unadjusted	1,706	★★★★★★	Low
14	Brinton 1978	USA	>35	Case-control	Adjusted	1965	★★★★★★	Low
15	Brinton 1982	USA	Unspecified	Case-control	Unadjusted	1,821	★★★★★	Low
16	Brinton 1983	USA	Unspecified	Case-control	Unadjusted	2,612	★★★★★★★	High
17	Brinton 1986	USA	Unspecified	Case-control	Unadjusted	3,477	★★★★★★	Low
18	Brinton 1995	USA	20-54	Case-control	Adjusted	3,153	★★★★★★★	High
19	Bruzzi 1985	USA	Unspecified	Case-control	Unadjusted	1,897	★★★★★★	Low
20	Bruzzi 1988	Italy	<75	Case-control	Adjusted	1,143	★★★★★★★★	High
21	Buchanan 1985	USA	30-40	Case-control	Unadjusted	1,109	★★★★★★	Low
22	Butt 2009	Sweden	57.3	Cohort	Adjusted	17,035	★★★★★★★	High
23	Butt 2012	Sweden	Unspecified	Case-control	Adjusted	2,176	★★★★★★★★	High
24	Byers 1985	USA	40-84	Case-control	Unadjusted	1,818	★★★★★★★	High
25	Byrne 1991	USA	>35	Case-control	Unadjusted	6,088	★★★★★★★	High
26	Chen 2002	USA	50-74	Case-control	Adjusted	1,397	★★★★★★★	High
27	Chie 2000	USA	20-79	Case-control	Adjusted	22,162	★★★★★★★★	High
28	Choi 1978	Canada	35-74	Case-control	Adjusted	800	★★★★★★★	High
29	CHS study	USA	20-54	Case-control	Unadjusted	9,387	★★★★★★	Low
30	Clave 1991	France	44.17	Case-control	Unadjusted	1,006	★★★★★★	Low
31	Clavel-Chapelon 1994	France	22-58	Case-control	Adjusted	1,037	★★★★★★★★	High
32	Coogan 1999	South Africa	≤50	Case-control	Unadjusted	1,918	★★★★★★	Low
33	Cooper 1989	Australia	20-74	Case-control	Adjusted	902	★★★★★★★	High
34	Craig 1974	USA	Unspecified	Case-control	Adjusted	394	★★★★★★★	High

ID	Autor	Country	Age mean/range (yr)	Study	adj	Sample size	NOS score	Quality
35	Daling 2002	USA	<65	Case-control	Unadjusted	3,702	★★★★★★	Low
36	Enger 1997	USA	<40	Case-control	Adjusted	904	★★★★★★★★	High
37	Enger 1998	USA	55-64	Case-control	Adjusted	1,947	★★★★★★★	High
38	Ewertz 1988	Denmark	<70	Case-control	Adjusted	2,822	★★★★★★★	High
39	Ewertz 1992	Denmark	<59	Case-control	Unadjusted	2,050	★★★★★★	Low
40	Freudenheim 1994	USA	40-85	Case-control	Unadjusted	1,130	★★★★★★	Low
41	Furberg 1999	USA	20-74	Case-control	Unadjusted	1,493	★★★★★	Low
42	Gajalakshmi 1991	India	Unspecified	Case-control	Adjusted	1,062	★★★★★★★	High
43	Gao 2000	China	47.60	Case-control	Adjusted	3,015	★★★★★	Low
44	Gapstur 1992	USA	55-69	Cohort	Adjusted	41,837	★★★★★★★	High
45	Gapstur 1999	USA	55-69	Cohort	Adjusted	37,105	★★★★★★	Low
46	Gilliland 1998	Mexico	30-74	Case-control	Adjusted	1,555	★★★★★★★	High
47	Haile 1996	USA	41.00	Case-control	Adjusted	180	★★★★★	Low
48	Harris 1982	USA	35-54	Case-control	Unadjusted	578	★★★★★★	Low
49	Helmrich 1983	USA, Canada, Israel	52.00	Case-control	Adjusted	4,412	★★★★★★★★	High
50	Henderson 1974	USA	<64	Case-control	Adjusted	616	★★★★★★★★	High
51	Horn 2013	Norway	28-73	Cohort	Adjusted	58,426	★★★★★★★★	High
52	Hsieh 1996	7 nations	>35	Case-control	Adjusted	15,460	★★★★★★★★	High
53	Hunt 1979	USA	63.50	Case-control	Unadjusted	1,173	★★★★★★	Low
54	Innes 2000	USA	14-37	Case-control	Unadjusted	3,388	★★★★★★★★	High
55	Jick 1980a	USA	45-64	Case-control	Unadjusted	261	★★★★★★	Low
56	Jick 1980b	USA	31-55	Case-control	Unadjusted	341	★★★★★	Low
57	Jick 1989	USA	<43	Case-control	Adjusted	301	★★★★★★★	High
58	Kalache 1993	Brazil	Unspecified	Case-control	Unadjusted	1,018	★★★★★	Low
59	Khalis 2018	Morocco	48.60	Case-control	Adjusted	474	★★★★★★★★	High
60	Kinlen 2014	7 nations	>20	Case-control	Unadjusted	17,022	★★	Low
61	Kinlen 2020	UK	15-64	Case-control	Unadjusted	20,483	★★★★★★	Low
62	Kotsopoulos 2007	11 countries	47.15	Case-control	Adjusted	6,366	★★★★★★★★	High
63	Kuru 2002	Turkey	47.75	Case-control	Adjusted	1,114	★★★★★★★★	Low
64	La vecchia 1987	Italy	25-74	Case-control	Adjusted	2,389	★★★★★★★★	High
65	La vecchia 1989	Italy	21-59	Case-control	Unadjusted	2,868	★★★★★	Low
66	Lambe 1996	Sweden	<60	Case-control	Adjusted	76,692	★★★★★★	Low
67	Lambe 1998	Sweden	47.90	Case-control	Adjusted	8,205	★★★★★★	Low
68	Layde 1989	USA	20-55	Case-control	Adjusted	4,599	★★★★★★★★	High
69	Lee 1992	China	Unspecified	Case-control	Unadjusted	620	★★★★★	Low
70	Leon 1989	UK	16-59	Cohort	Unadjusted	113,263	★★★★★★	Low

ID	Autor	Country	Age mean/range (yr)	Study	adj	Sample size	NOS score	Quality
71	Leon 1995	Sweden	<50	Case-control	Adjusted	28,579	★★★★★★★	High
72	Li 2000	USA	50-64	Case-control	Adjusted	914	★★★★★★	Low
73	Li 2003	USA	65-79	Case-control	Adjusted	1,982	★★★★★★★★	High
74	Li 2007	USA	50-79	Cohort	Adjusted	27,536	★★★★★★★★	High
75	Li 2008	USA	35-64	Case-control	Unadjusted	8,082	★★★★★★	Low
76	Li 2013	USA	20-44	Case-control	Unadjusted	1,962	★★★★★★★★	High
77	Lubin 1981	Canada	56.08	Case-control	Unadjusted	1,403	★★★★★★	Low
78	MacMahon 1982	Estonia	>30	Case-control	Unadjusted	1,056	★★★★★★	Low
79	Madigan 1995	USA	25-74	Cohort	Adjusted	14,407	★★★★★★★	High
80	Magnusson 1999	Sweden	50-74	Case-control	Adjusted	5,279	★★★★★★★	High
81	Mayberry 1992	USA	20-54	Case-control	Unadjusted	8,810	★★★★★★★	High
82	McCredie 1997	Australia	34.06	Case-control	Adjusted	875	★★★★★★★	High
83	McPherson 1987	UK	16-64	Case-control	Adjusted	2,250	★★★★★★	Low
84	Mctiernan 1986	USA	25-54	Case-control	Adjusted	661	★★★★★★★	High
85	Miller 1989	USA	<45	Case-control	Unadjusted	831	★★★★★★	Low
86	Mittendorf 1995	USA	17-74	Case-control	Unadjusted	16,427	★★★★★★★★	High
87	Msolly 2013	Tunisia	49.50	Case-control	Adjusted	800	★★★★★★★	High
88	Nagrani 2015	India	20-69	Case-control	Adjusted	3,152	★★★★★★★	High
89	Negri 1990	Italy	>25	Case-control	Adjusted	2,187	★★★★★★★★	High
90	Negri 1996	Italy	Unspecified	Case-control	Unadjusted	4,375	★★★★★	Low
91	Newcomb 1994	USA	<74	Case-control	Adjusted	14,094	★★★★★★★★	High
92	Newcomb 1995	USA	<75	Case-control	Unadjusted	9,851	★★★★★	Low
93	Newcomb 1996	USA	<75	Case-control	Unadjusted	16,062	★★★★★★	Low
94	Newcomb 1999	USA	50-79	Case-control	Adjusted	7,423	★★★★★★★	High
95	Newcomb 2002	USA	50-79	Case-control	Unadjusted	10,869	★★★★★★	Low
96	Nomura 1984	USA	45-74	Case-control	Adjusted	1,032	★★★★★★★★	High
97	Olsson 1989	Sweden	Unspecified	Case-control	Unadjusted	633	★★★★★	Low
98	Olsson 2002	Sweden	25-65	Cohort	Unadjusted	29,508	★★★★★★	Low
99	Oran 2004	Turkey	Unspecified	Case-control	Adjusted	1,244	★★★★★	Low
100	Paffenbarger 1980	USA	58.12	Case-control	Unadjusted	3,935	★★★★	Low
101	Paul 1986	New Zealand	25-54	Case-control	Unadjusted	1,330	★★★★★★	Low
102	Paul 1990	New Zealand	25-54	Case-control	Unadjusted	2,755	★★★★★★	Low
103	Phipps 2008	USA	68.50	Case-control	Adjusted	2,616	★★★★★★★★	Low
104	Pike 1981	USA	<33	Case-control	Unadjusted	489	★★★★★★★	High
105	Primic-Zakelj 1995	Italy	25.54	Case-control	Adjusted	1,248	★★★★★★★	High
106	Rao 1994	India	44.47	Case-control	Unadjusted	1,400	★★★★★	Low

ID	Autor	Country	Age mean/range (yr)	Study	adj	Sample size	NOS score	Quality
107	Richardson 1998	USA	31.03	Case-control	Unadjusted	573	★★★★★★★	High
108	Romieu 1996	Mexico	20-80	Case-control	Adjusted	1,354	★★★★★★★	High
109	Rosenberg 1984	USA	30-69	Case-control	Unadjusted	2,877	★★★★★★	Low
110	Rosero-Bix 1987	Costa Rica	45.50	Case-control	Adjusted	997	★★★★★★★	High
111	Rossing 1996	USA	50-64	Case-control	Unadjusted	1,029	★★★★★★	Low
112	Sartwell 1977	USA	20-74	Case-control	Unadjusted	651	★★★★★★	Low
113	Schlesselman 1988	USA	20-54	Case-control	Unadjusted	9,254	★★★★★★	Low
114	Siskind 1989	Australia	≤75	Case-control	Unadjusted	1,550	★★★★★	Low
115	Stadel 1985	USA	20-44	Case-control	Unadjusted	4,153	★★★★★★	Low
116	Stadel 1988	USA	20-54	Case-control	Unadjusted	5,591	★★★★★★	Low
117	Stanford 1987	USA	20-54	Case-control	Adjusted	1,026	★★★★★★★	High
118	Stanford 1989	USA	Unspecified	Case-control	Adjusted	4,205	★★★★★★★★	High
119	Stanford 1995	USA	50-64	Case-control	Unadjusted	1,029	★★★★★★	High
120	Storm 1986	Denmark	36.00	Case-control	Adjusted	479	★★★★★★★★	High
121	Talamini 1996	Italy	20-79	Case-control	Adjusted	5,157	★★★★★★★	High
122	Tao 1988	China	47.50	Case-control	Adjusted	994	★★★★★★★★	High
123	Tavani 1997	Italy	20-74	Case-control	Adjusted	5,157	★★★★★★★★	High
124	Thein 1978	Myanmar	Unspecified	Case-control	Unadjusted	593	★★★★★★	Low
125	Titus-Ernstof 1998	USA	50-79	Case-control	Unadjusted	11,587	★★★★★★	Low
126	Toti 1986	Italy	Unspecified	Case-control	Adjusted	3,061	★★★★★★★	High
127	Tovar-Guzmán 2000	Mexico	<75	Case-control	Adjusted	983	★★★★★★★	High
128	Tryggvadottir 2003	Iceland	48.00	Case-control	Adjusted	1,461	★★★★★★★	High
129	Tulinius 1990	Iceland	Unspecified	Cohort	Adjusted	61,040	★★★★★★★	High
130	Ursin 2005	USA	35-64	Case-control	Adjusted	9,257	★★★★★★★★	High
131	Vessy 1975	USA	16-39	Case-control	Unadjusted	734	★★★★★★	Low
132	Wang 1992	China	43.30	Case-control	Adjusted	600	★★★★★★	Low
133	Weiss 1996	USA	38.60	Case-control	Adjusted	3,121	★★★★★★★	High
134	White 1994	USA	21-45	Case-control	Unadjusted	1,708	★★★★★★	Low
135	WHO collaboration	10 nations	Unspecified	Case-control	Adjusted	14,193	★★★★★★★★	High
136	Williams 1990	UK	25-59	Case-control	Adjusted	1,738	★★★★★★★★	High
137	Wingo 1993	Mexico	20-54	Case-control	Unadjusted	9,387	★★★★★	Low
138	Wu 1996	USA	20-55	Case-control	Unadjusted	1,260	★★★★★★	Low
139	Yang 1993	Canada	<75	Case-control	Adjusted	2,043	★★★★★★★	High
140	Yoo 1992	Japan	Unspecified	Case-control	Unadjusted	1,042	★★★★★	Low
141	Yuan 1988	china	20-69	Case-control	Adjusted	1,068	★★★★★★	Low

NOS: The Newcastle-Ottawa Scale

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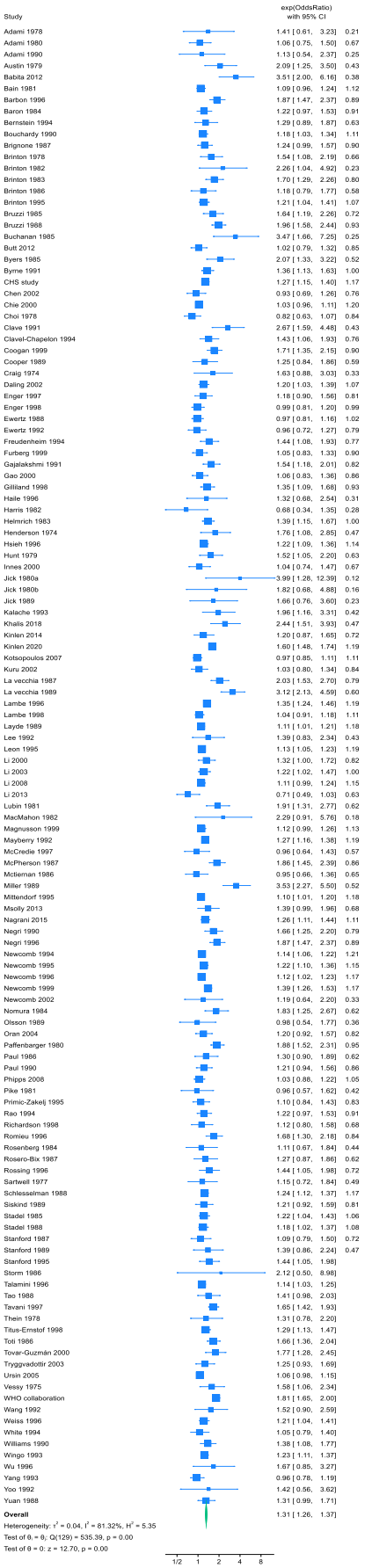
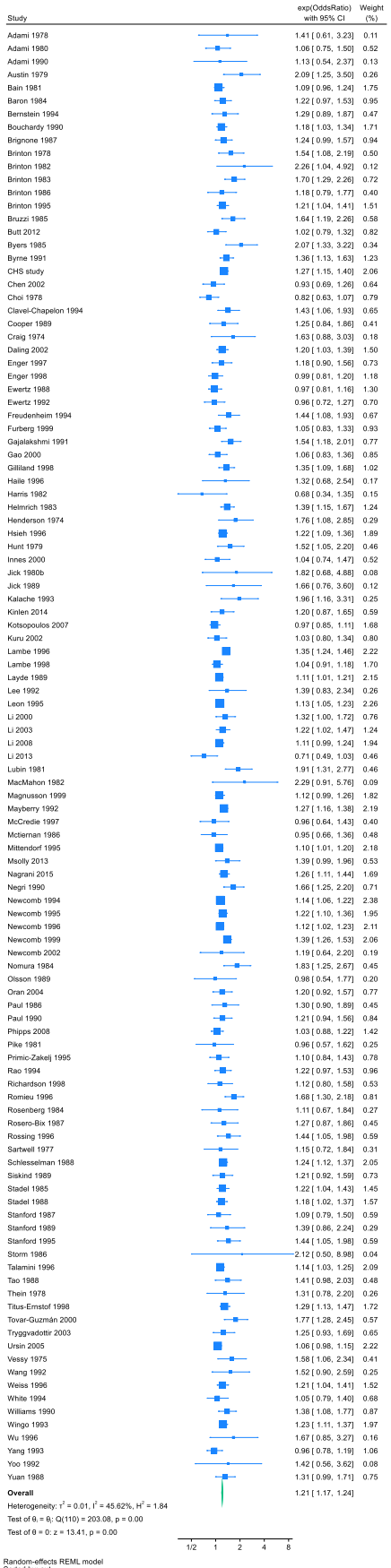
Supplementary Figure 1: Forest plot of case-control studies assessing age at first pregnancy and breast cancer risk



Supplementary Figure 2: Forest plot of case-control studies assessing age at first pregnancy and breast cancer risk following the sensitivity analysis



Supplementary Figure 2: Cumulative meta-analysis of case-control studies assessing age at first pregnancy and breast cancer risk, demonstrating sequential and chronological series of meta-analyses with progressive addition of studies to estimate robustness and reliability of the overall association