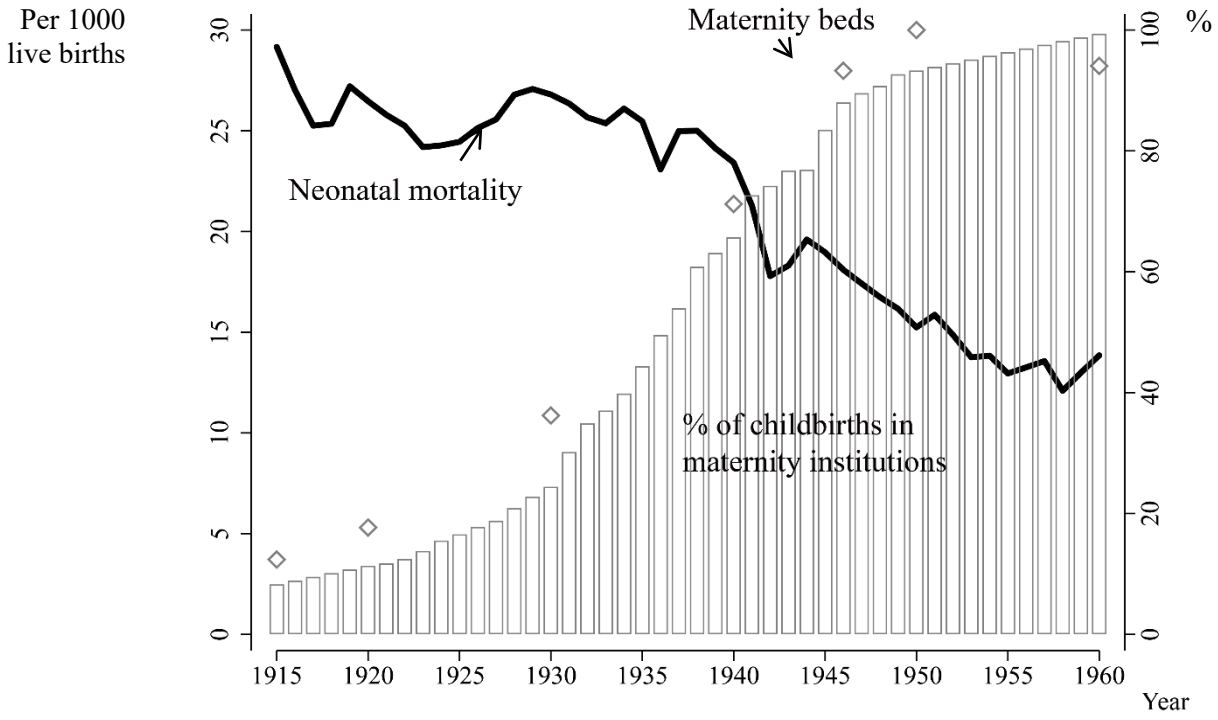
ONLINE APPENDICES

to the paper “It’s a Long Walk:

Lasting Effects of Maternity Ward Openings of Labour Market Performance”

by Volha Lazuka

Appendix A



Figure

The Use of Maternity Wards for Childbirths and Neonatal Mortality in Sweden, 1915–1960

Source: Socialstyrelsen (1915-1950)

Note: Maternity beds are provided in relation to those in the year of 1947 in % and are denoted with a right axis.

Appendix B

Table – The number of municipalities by their treatment status with MWs

Year	Municipalities within 5.5 km of new MWs ("*treated*")	Municipalities within 5.5 km of old MWs ("*always-treated*")	Municipalities outside 5.5 km of old and new MWs ("*never-treated*")	Total number of municipalities
	(1)	(2)	(3)	(4)
1931	16	248	2,265	2,529
1932	48	248	2,233	2,529
1933	56	248	2,225	2,529
1934	65	248	2,216	2,529
1935	79	248	2,202	2,529
1936	91	248	2,190	2,529
1937	98	248	2,183	2,529
1938	108	248	2,173	2,529
1939	123	248	2,158	2,529
1940	150	248	2,131	2,529
1941	158	248	2,123	2,529
1942	171	248	2,110	2,529
1943	181	248	2,100	2,529
1944	189	248	2,092	2,529
1945	200	248	2,081	2,529
1946	208	248	2,073	2,529

Sources: Own calculations based on Skatteförvaltningen (1989) and Riksarkivet (2016).

Note: The numbers are given for all Swedish municipalities. The estimation sample includes 2,398 municipalities in total, out of which 205 are treated, 124 are always-treated and 2,069 never-treated (see Section III of the paper for more details).

Appendix C

Survivors of cohorts under analysis

The cohorts born between 1931 and 1946 appear in the SIP dataset from 1968. I therefore do not observe individuals that died or migrated from Sweden prior to age 37. I gathered information on one-year survivors (live births minus infant deaths) of the cohorts born 1920–1950 from Statistics Sweden (Statistiska Centralbyrån, 1920-1950). In Figure C.1 below, I plot them against counts of individuals with places of birth available in SIP by cohort and those who have valid information on the county and municipality of birth. A relatively stable fraction of individuals observed in the SIP dataset compared to number of one-year survivors indicates that the individuals born 1931–1946 were dying at a constant rate between the ages 1 and 36. Among the first-year survivors of these cohorts, 96.4 percent were observed in the dataset. This could be an indication that the selection to survival to adulthood should not therefore violate the results in the paper. Robustness analysis in Section V.C includes several empirical tests for the presence of the selective survival effects.

Starting from cohorts 1932 and born later, individuals are linked to their parents through the multigenerational register (*Flergenerationsregistret*), thereby giving a unique family identifier. This information is available for all individuals in the sample conditional on their survival to the year 1991. I identified siblings as individuals having the same biological mother, because this sample was similar to the baseline (across the estimation samples 80.9–82.1 percent of individuals linked to their mothers). Due to the availability of family links, it became possible to merge socio-economic and demographic information of the family with the individual data. The parental background characteristics included maternal education and paternal socio-economic class and father's sector of employment (*Folk- och Bostadsräkningen 1970*). In the latter case, information was available only for the post-treatment child's ages, although for paternal education sector of employment this should have been completed by the child's birth. Socio-economic status is further grouped into high (employers in all sectors of economy, company executives, and military) and low (employees in all sectors of economy). Paternal employment in agriculture represents the low-income group, as the average wages in agriculture were lower compared to those in the industry or the service sector (Statistiska Centralbyrån, 1920-1950).

Table C.1 analyses the differences between the total number of municipalities (2,529 in total) and those with valid municipality of birth information (2,398 in total). In the registers, municipality of birth is accurately obtained from the municipality records and overwhelmingly indicates

municipality of mother's (and child's) residence, although in certain instances it gives the municipality of child delivery, namely where the MW was located (Skatteförvaltningen, 1989). To avoid a potential measurement error arising due to this misreporting, I identify where and when maternity hospitals registered births instead of maternal municipalities based on municipality church books (Riksarkivet, 1931-1946) that accurately report this information and exclude them and their nearby municipalities (within 5.5 kilometer radius) from the estimation sample. Many specialized clinics and some large hospitals located in large cities registered births at their locations, hence the final estimation sample contains smaller cities and rural municipalities. Table C.1 presents the comparison of the initial and final estimation sample across the observed regional demographic and socio-economic characteristics. These samples are similar on many dimensions and the differences appear due to the exclusion of large cities that are different from the rest of Sweden.

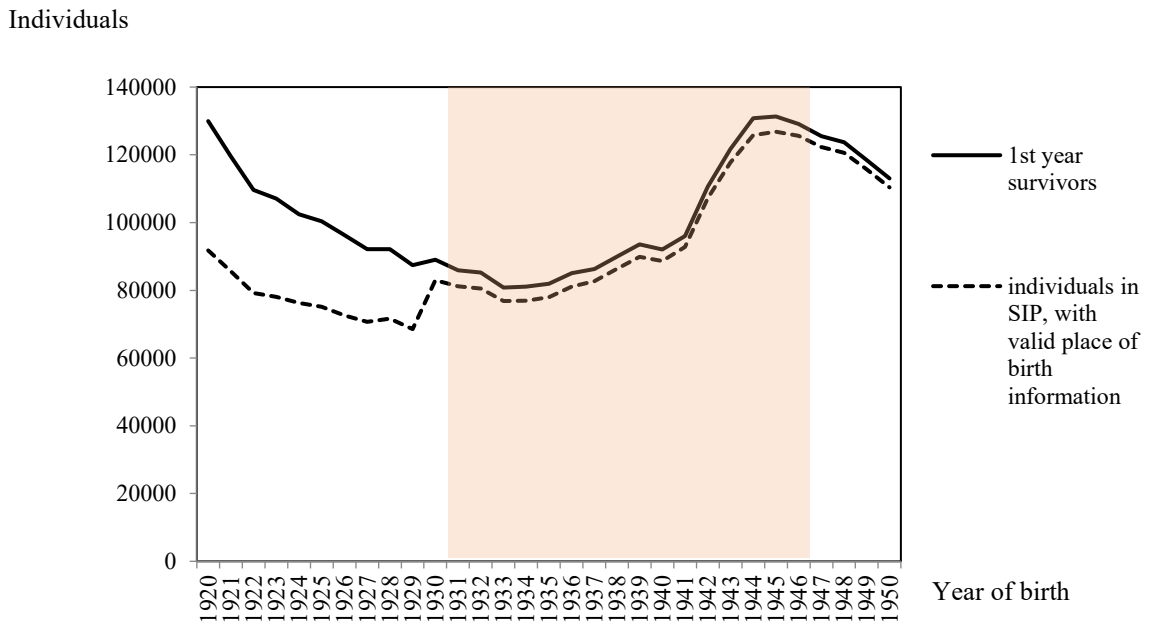


Figure – First-year survivors and estimation sample for the cohorts 1920–1950

Note: Cohorts under analysis include those born in 1931–1946 and are marked with shaded area.

Sources: own calculations based on SIP and Statistiska Centralbyrån (1920-1950).

Table – Differences between samples with varying place of birth registration across baseline demographic and socio-economic characteristics, 1931–1946

	Total municipalities	*Municipalities with correct municipality-of-birth information*	*P-value (2 versus 1)*
	1	*2*	*3*
Urban	0.062	0.033	(0.000)
North	0.113	0.109	(0.071)
Centre	0.234	0.234	(0.932)
South	0.654	0.658	(0.265)
Ln trafficked road length, km per 1000	1.814	1.815	(0.850)
Ln length of railways, km per 1000	1.407	1.381	(0.000)
Ln real municipal income per 1000	12.596	12.569	(0.000)
Share employed in agriculture	0.448	0.460	(0.000)
Share employed in industry	0.341	0.337	(0.000)
County GDP per capita	0.925	0.922	(0.007)
Ln doctors per 1000	-1.847	-1.894	(0.000)
Ln midwives per 1000	-0.699	-0.688	(0.000)
Ln medical nurses per 1000	-1.634	-1.650	(0.001)
Ln hospitals per 1000	-3.914	-3.939	(0.000)
Ln real hospital expenditures per 1000	8.291	8.257	(0.000)
Share females	0.497	0.496	(0.000)
Share under age 15	0.270	0.269	(0.032)
Ln crude death rate per 1000	2.492	2.495	(0.000)
Share disabled	0.010	0.009	(0.000)
Ln primary schools per 1000	1.168	1.136	(0.000)
Ln live births	7.869	7.898	(0.000)
Ln mid-year population	12.011	12.037	(0.000)
Ln stillbirth rate per 1000 births	3.244	3.244	(0.807)
Ln pharmacies per 1000	2.281	2.231	(0.000)
Ln infant mortality rate per 1000 live births	3.934	3.931	(0.043)
Ln maternal mortality rate per 1000	-3.407	-3.410	(0.791)
Ln pneumonia mortality per 1000	-0.420	-0.409	(0.000)
Sulphonamides, grams per 1000	31.44	27.06	(0.000)
Municipality (-of-birth) X years (-of-birth)	34,855	31,768	
Municipalities (-of-birth)	2,529	2,398	

Note: OLS regression estimates. The significance of the differences in means is adjusted with the Bonferroni multiple-comparison test.

Appendix D

Table – Summary Statistics for the Estimation Sample, Cohorts 1931–1946

	Means (Standard deviations)	N
Treatment (Municipality-Level)		
post X MW	0.128 (0.333)	786,775
post X MW *Type I*	0.045 (0.207)	786,775
post X MW *Type II*	0.036 (0.186)	786,775
post X *private* MW	0.047 (0.211)	786,775
Short-Term Outcomes (Municipality-Level)		
Participation rate, %	49.701 (29.670)	16,422
7-day mortality, per 1000 live births	27.824 (78.019)	31,768
8-28-day mortality, per 1000 live births	7.197 (36.437)	31,768
28-day mortality, per 1000 live births	35.020 (87.178)	31,768
Medium-Term Outcomes (Individual-Level)		
Total hospital nights, ages 37–64	24.496 (87.576)	799,192
Years of schooling, completed	11.189 (3.144)	771,139
Secondary school graduate	0.577 (0.494)	771,139
Specific field of education	0.444 (0.497)	766,912
Employed in services, ages 34–49	0.584 (0.493)	487,162
Non-manual occupation, ages 34–49	0.382 (0.486)	487,162
Long-Term Outcomes (Individual-Level)		
Ln labour income, ages 47–64	7.946 (1.611)	786,775
Unemployed, ages 55–64	0.127 (0.332)	760,058
On disability pension, ages 55–64	0.125 (0.331)	764,859

Note: Means and standard deviations (in parentheses). Statistics on treatment is presented for ln labour income sample.

Appendix E

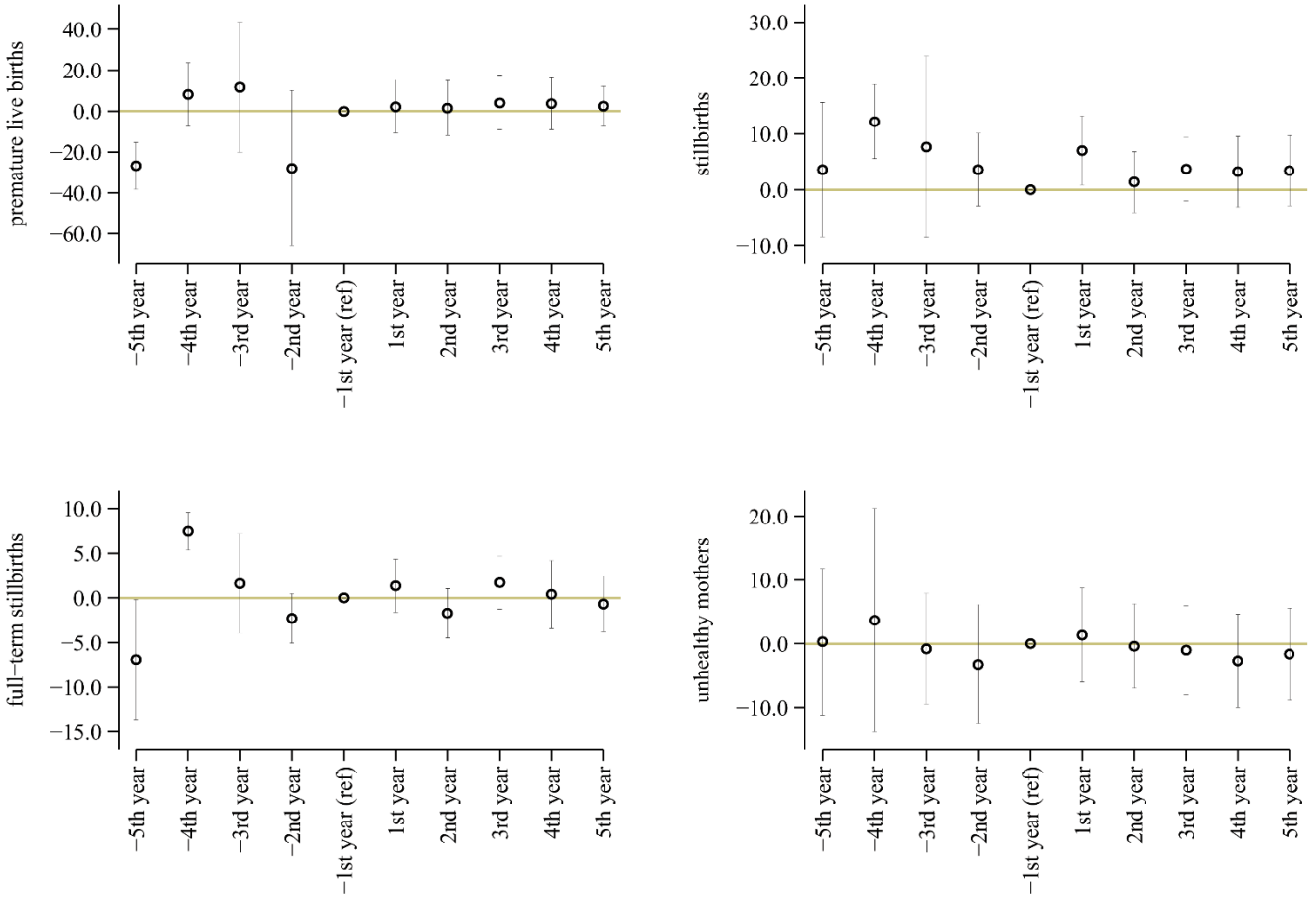
Table – The Short-Term Effects of the Opening of MWs across Estimation Samples with Different Control Groups, Sweden 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	*(2)*	*(3)*	*(4)*
(A) Participation Rate				
*Hospital births/Total live births*100*				
post X MW	19.164***	19.796***	21.693***	24.807***
	(4.497)	(4.328)	(6.174)	(5.317)
Pre-mean of dep. variable	48.872	48.138	48.526	30.344
Observations	16,422	15,939	1,872	1,389
Birth municipalities	2,025	1,949	248	172
(B) Neonatal Mortality				
7-day mortality, per 1000 live births				
post X MW	-15.983***	-16.620***	-10.801**	-15.444***
	(3.831)	(3.908)	(4.793)	(5.635)
Pre-mean of dep. variable	28.375	28.542	24.643	24.244
8-28-day mortality, per 1000 live births				
post X MW	-4.071	-4.118	-3.292	-3.301
	(2.597)	(2.621)	(3.352)	(3.814)
Pre-mean of dep. variable	7.296	7.392	6.020	7.036
28-day mortality, per 1000 live births				
post X MW	-20.053***	-20.739***	-14.093**	-18.745***
	(4.882)	(4.959)	(6.039)	(7.008)
Pre-mean of dep. variable	35.671	35.934	30.663	31.280
Observations	31,768	30,379	4,015	2,626
Birth municipalities	2,398	2,274	329	205
(C) Other Birth Outcomes				
Premature birth, per 1000 live births				
post X MW	9.006**	7.958**	10.233*	5.311
	(4.352)	(3.988)	(5.169)	(3.433)
Pre-mean of dep. variable	27.153	26.440	31.532	27.599
Observations	2,294	2,064	665	435
Birth municipalities	433	391	119	77
Stillbirths, per 1000 births				
post X MW	1.001	0.758	1.382	0.491
	(1.335)	(1.327)	(2.279)	(3.060)
Pre-mean of dep. variable	22.807	22.830	22.990	24.669
Observations	2,294	2,064	665	435
Birth municipalities	433	391	119	77
Full-term stillbirth, per 1000 births				
post X MW	0.602	0.418	0.587	-0.342
	(0.864)	(0.818)	(0.936)	(0.598)

Pre-mean of dep. variable	11.622	11.618	11.910	13.143
Observations	2,294	2,064	665	435
Birth municipalities	433	391	119	77
Sick mothers (has a fever in 3 weeks after childbirth), per 1000				
post X MW	-1.759	-1.507	-2.345	-1.546
	(2.568)	(2.562)	(3.694)	(4.766)
Pre-mean of dep. variable	7.474	7.666	6.881	10.744
Observations	2,294	2,064	665	435
Birth municipalities	433	391	119	77

Note: estimations from the *SIP*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1.

*** p<0.01, ** p<0.05, * p<0.1



Sources: own estimations.

Note: Point estimates and 95 percent confidence intervals. All models are estimated according to Eq.2.

Appendix F

Table – The Long-Term Effects of the Opening of MWs on Economic Outcomes and Mediators across Estimation Samples with Different Control Groups, Sweden Cohorts Born in 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	*(2)*	*(3)*	*(4)*
(A) Economic outcomes				
Ln labour income (ages 47–64)				
post X MW	0.042**	0.049***	0.045**	0.050**
	(0.018)	(0.018)	(0.020)	(0.020)
Pre-mean of dep. variable	7.939	7.875	8.002	7.864
Individuals	786,775	484,523	440,190	137,938
Unemployed (ages 55–64)				
post X MW	-0.013***	-0.014***	-0.012***	-0.013***
	(0.003)	(0.004)	(0.004)	(0.004)
Pre-mean of dep. variable	0.127	0.127	0.126	0.126
Individuals	760,058	468,729	424,705	133,376
On disability pension (ages 55–64)				
post X MW	-0.014***	-0.015***	-0.011***	-0.011**
	(0.003)	(0.003)	(0.003)	(0.004)
Pre-mean of dep. variable	0.124	0.127	0.121	0.128
Individuals	764,859	471,482	427,596	134,219
(B) Health				
Total length of stay in hospital (ages 37–64)				
post X MW	-2.111**	-2.407***	-1.487*	-2.381**
	(0.835)	(0.875)	(0.796)	(1.038)
Pre-mean of dep. variable	24.727	24.877	24.710	26.108
Individuals	799,192	491,025	447,977	139,810
(C) Education				
Years of schooling (completed)				
post X MW	0.084**	0.088***	0.117**	0.102**
	(0.037)	(0.033)	(0.049)	(0.040)
Pre-mean of dep. variable	11.173	10.605	11.756	10.671
Secondary school graduate				
post X MW	0.016***	0.015***	0.024***	0.021***
	(0.005)	(0.005)	(0.008)	(0.007)
Pre-mean of dep. variable	0.572	0.498	0.649	0.504
Individuals	771,139	474,213	432,556	135,630
Specific field of education				
post X MW	0.015***	0.015***	0.022***	0.021***
	(0.005)	(0.005)	(0.008)	(0.007)
Pre-mean of dep. variable	0.449	0.516	0.381	0.509
Individuals	766,912	472,101	429,730	134,919

(D) Occupation				
Employed in service sector (ages 34–49)				
post X MW	0.010***	0.010***	0.014***	0.011**
	(0.004)	(0.004)	(0.004)	(0.005)
Pre-mean of dep. variable	0.585	0.542	0.630	0.543
Non-manual occupations (ages 34–49)				
post X MW	0.009	0.009	0.018***	0.019**
	(0.007)	(0.007)	(0.007)	(0.008)
Pre-mean of dep. variable	0.383	0.318	0.453	0.346
Individuals	806,679	495,544	452,496	141,361

Note: estimations from the *SIP*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1.

*** p<0.01, ** p<0.05, * p<0.1

Appendix G

Additional Analyses of the Later-Life Morbidity and Mortality

The cause of admission to the hospital is obtained from the Swedish national inpatient register 1987–2012. It adopted two revisions of the international classifications of the causes of morbidity, such as revision 9 for 1987–1996, and revision 10 for 1997–2012. Following the previous literature (Kuh et al., 2004), I classified all causes of admissions into six groups, including infectious/respiratory diseases, cardiovascular diseases, diabetes, cancer, degenerative diseases of tissues and organs, and mental diseases and calculated the respective average length of stay in hospital. The same classification is used for cause-specific mortality. The group of degenerative diseases of tissues and organs is dominant with symptoms of respiratory diseases, arthritis and gastro-enteric diseases. In order to measure pathology in health exclusively, I excluded hospital admissions due to violent/accidental causes (2 percent of person-years) and observations with no need for further treatment (0.01 percent of person-years). The exact codes used for these groupings are provided in Table G.1 below.

Table G.2 presents results for morbidity by cause in ages 37–64. Table G.3 presents results for mortality for different age groups up to the age 65. Table G.4 presents results for mortality by cause in ages 37–64. Figure G.1–G.3 complements them with the event-study graphs.

Table G.1 – Diagnoses groups across two revisions of the ICD, 1987–2012

	ICD-9	ICD-10
Infectious/Respiratory	001-139; 320-324; 460-519	A00-B99; G00-G09; J00-J99
Cardiovascular	390-459	I00-I99
Diabetes	250	E10-E14
Cancer	140-239	C00-D48
Degenerative	240-246; 251-289; 325-330; 332-389; 520-796	D50-E07; E15-E90; F10-F99; G10-G26; G31-H95; K00-R94
Mental diseases	290-319; 331	F00-F09; G30

Table G.2 – The long-term effects of the opening of MWs on total length of stay in hospital by cause, Sweden cohorts born in 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)
Infectious and respiratory				
post X MW	0.001	0.022	-0.027	-0.112
	(0.123)	(0.120)	(0.120)	(0.109)
Pre-mean of dep. var.	1.592	1.634	1.552	1.658
Cardiovascular disease				
post X MW	-0.293*	-0.279*	-0.332*	-0.365**
	(0.160)	(0.160)	(0.176)	(0.179)
Pre-mean of dep. var.	3.289	3.472	3.156	3.954
Diabetes				
post X MW	-0.026	-0.060	0.007	-0.057
	(0.073)	(0.074)	(0.087)	(0.092)
Pre-mean of dep. var.	0.573	0.597	0.550	0.594
Cancer				
post X MW	0.292	0.276	0.347*	0.175
	(0.184)	(0.185)	(0.206)	(0.206)
Pre-mean of dep. var.	3.813	3.853	3.749	3.635
Degenerative diseases				
post X MW	-0.543*	-0.659*	-0.294	-0.935**
	(0.320)	(0.339)	(0.307)	(0.372)
Pre-mean of dep. var.	7.950	8.256	7.685	8.665
Mental diseases				
post X MW	-1.542**	-1.708**	-1.188*	-1.087
	(0.697)	(0.746)	(0.642)	(0.801)
Pre-mean of dep. var.	7.508	7.064	8.019	7.602
Individuals	799,192	491,025	447,977	139,810
Municipalities of birth	2,398	2,274	329	205

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level.
*** p<0.01, ** p<0.05, * p<0.1

Table G.3 – The effects of the openings of MWs on mortality (per 1000) from birth until the age of 65 (cohort mortality), Sweden cohorts born 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)
Postneonatal mortality (29-365-day, per 1000)				
post X MW	-6.590	-7.134*	-0.148	-2.608
	(4.149)	(4.193)	(5.036)	(5.665)
Pre-mean of dep. Variable	27.790	28.210	20.271	21.916
Observations	31,768	30,379	4,015	2,626
Child mortality (ages 1–14, per 1000)				
post X MW	-0.708	-0.849	1.487	2.262
	(3.044)	(3.082)	(3.831)	(4.652)
Pre-mean of dep. var.	22.145	22.185	22.207	23.492
Observations	31,768	30,379	4,015	2,626
Adult mortality (ages 15–36, per 1000)				
post X MW	4.158	4.571	2.434	4.306
	(3.627)	(3.589)	(3.803)	(4.421)
Pre-mean of dep. var.	19.462	19.393	21.335	21.947
Observations	31,768	30,379	4,015	2,626
Adult mortality (ages 37–64, per 1000)				
post X MW	2.379	1.392	4.417	1.037
	(2.802)	(2.848)	(3.101)	(3.665)
Pre-mean of dep. var.	105.757	105.783	106.083	108.961
Individuals	804,328	494,591	450,556	140,819

Note: estimations from the SIP and *Släktforskarförbund*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1.

*** p<0.01, ** p<0.05, * p<0.1

Table G.4 – The long-term effects of the opening of MWs on mortality by cause in ages 37–64, Sweden cohorts born in 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)
Infectious and respiratory (ages 37–64, per 1000)				
post X MW	0.438	0.260	0.250	0.037
	(0.582)	(0.618)	(0.723)	(0.994)
Pre-mean of dep. var.	4.694	4.559	4.793	4.213
Cardiovascular disease (ages 37–64, per 1000)				
post X MW	-0.933	-0.836	-0.210	0.814
	(1.567)	(1.628)	(1.683)	(2.073)
Pre-mean of dep. var.	29.936	32.017	28.169	35.167
Diabetes (ages 37–64, per 1000)				
post X MW	-0.251	-0.398	-0.140	-0.305
	(0.454)	(0.450)	(0.519)	(0.594)
Pre-mean of dep. var.	2.071	2.154	1.976	2.054
Cancer (ages 37–64, per 1000)				
post X MW	2.765*	2.492	2.851	0.901
	(1.618)	(1.615)	(1.929)	(2.226)
Pre-mean of dep. var.	41.568	41.039	41.975	39.849
Degenerative diseases (ages 37–64, per 1000)				
post X MW	0.873	0.864	1.256	-0.024
	(0.881)	(0.890)	(0.988)	(1.069)
Pre-mean of dep. var.	9.975	9.140	10.854	9.416
Mental diseases (ages 37–64, per 1000)				
post X MW	-0.553	-0.658	-0.654	-0.987
	(0.458)	(0.493)	(0.486)	(0.676)
Pre-mean of dep. var.	2.658	2.325	3.021	2.549
Other (ages 37–64, per 1000)				
post X MW	0.039	-0.331	1.064	0.602
	(1.122)	(1.156)	(1.151)	(1.500)
Pre-mean of dep. var.	14.854	14.548	15.293	15.711
Individuals	804,328	494,591	450,556	140,819

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level.

*** p<0.01, ** p<0.05, * p<0.1

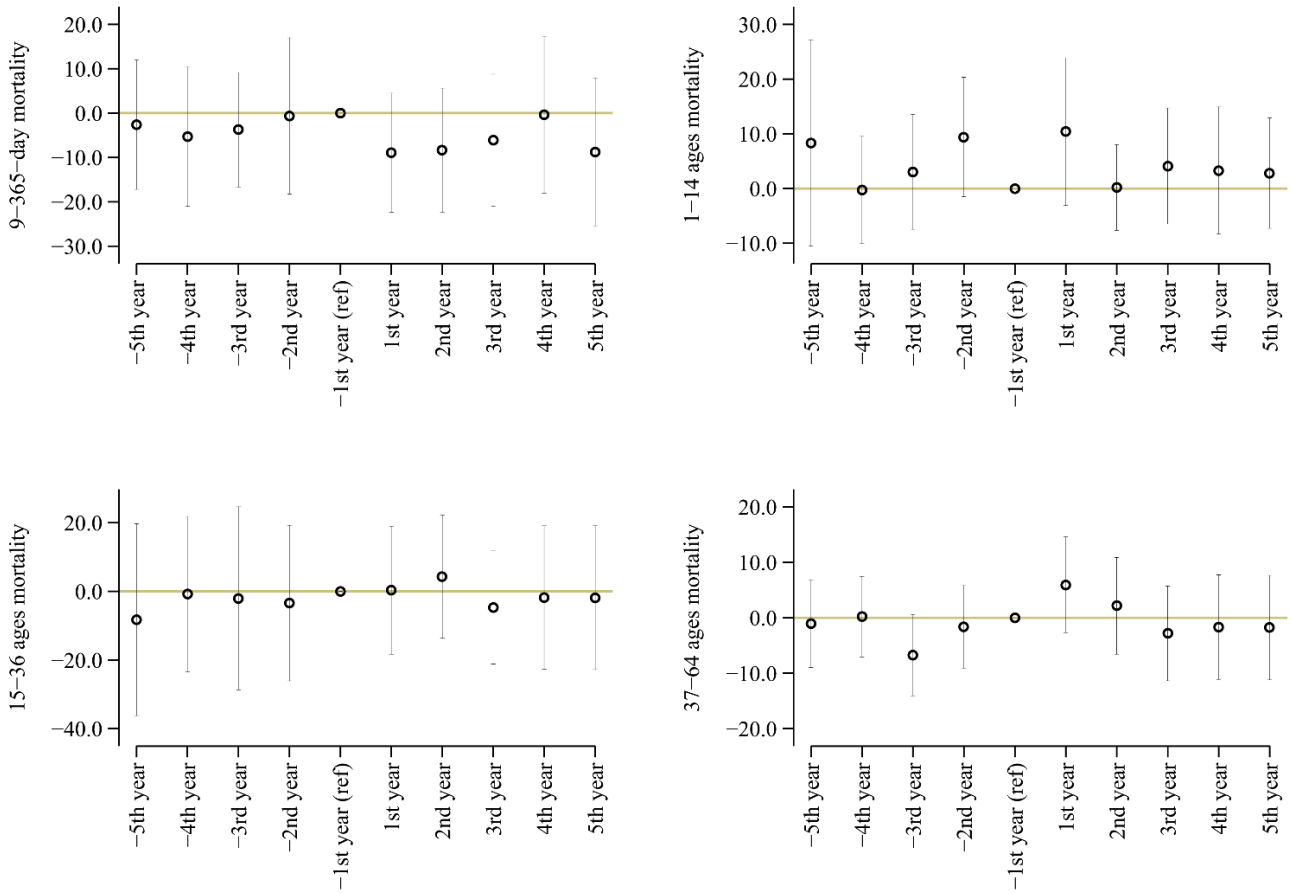


Figure G.1 – Event-Study Estimates for the Effects on Cohort Mortality (until the Age of 65), Cohorts Born in Sweden in 1931–1946

Sources: own estimations from SIP.

Note: Point estimates and 95 percent confidence intervals.

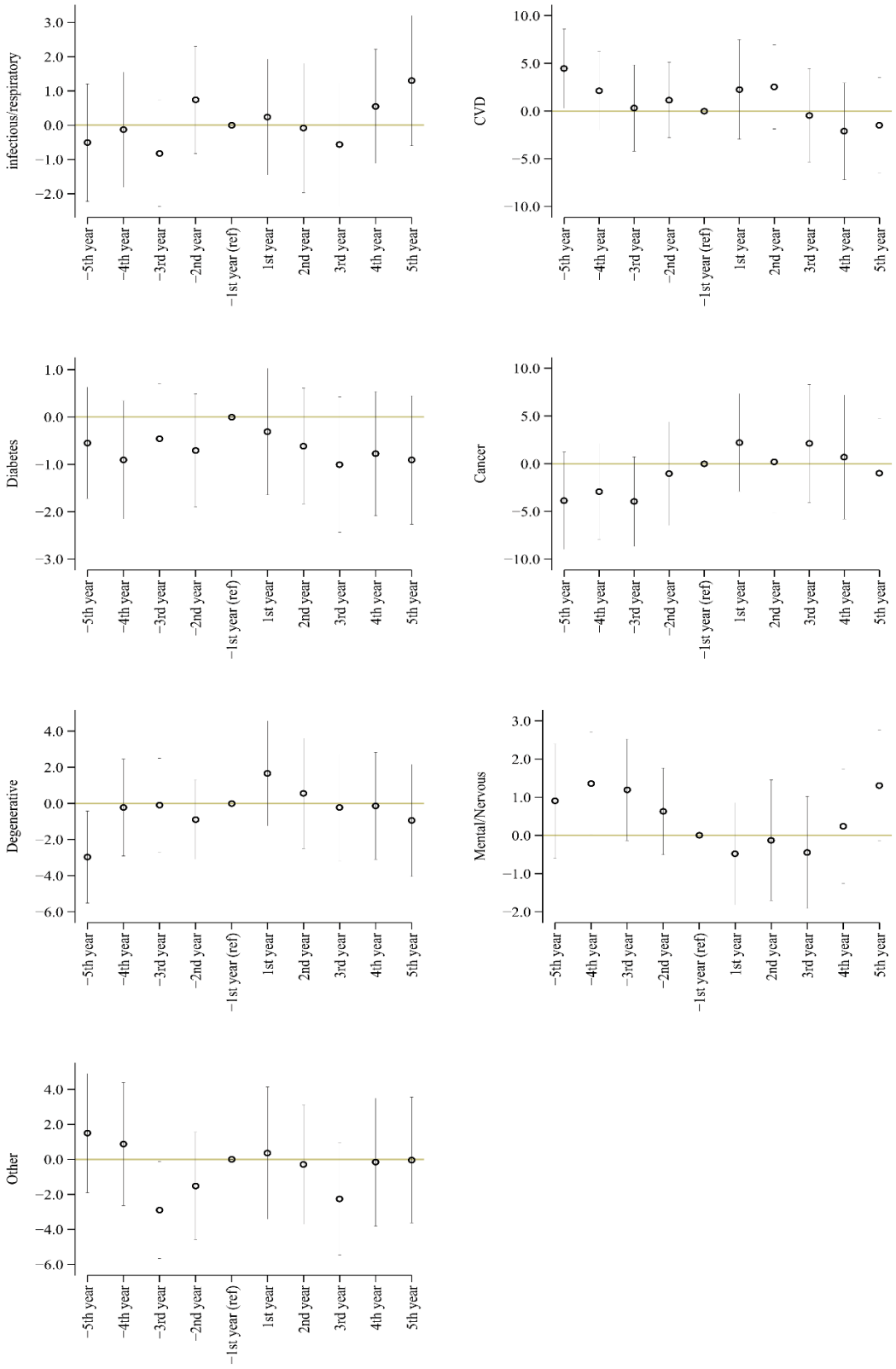


Figure G.2 – Event-Study Estimates for the Effects on Cohort Mortality by Cause (until the Age of 65), Cohorts Born in Sweden in 1931–1946

Sources: own estimations from SIP.

Note: Point estimates and 95 percent confidence intervals.

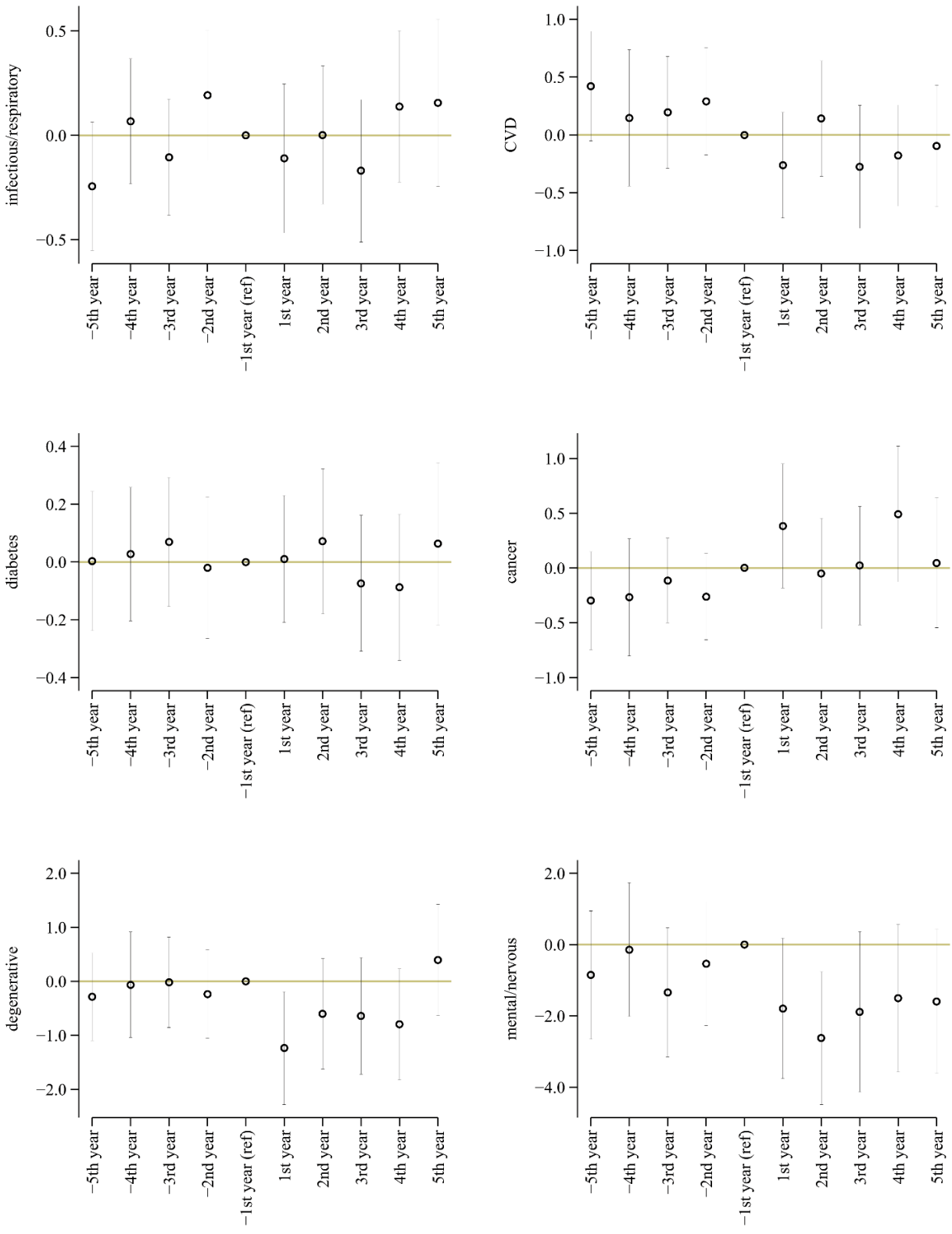


Figure G.3 – Event-Study Estimates for the Effects on Hospitalisations by Cause (in Ages 37–64), Cohorts Born in Sweden in 1931–1946

Sources: own estimations from SIP.

Note: Point estimates and 95 percent confidence intervals.

Appendix H

Table – The long-term effects of the opening of MWs on additional educational and occupational outcomes by sex, Sweden cohorts born in 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
		Men				*Women*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(A) Field of Education								
Social Sciences								
post X MW	0.007	0.005	0.010*	0.001	0.014**	0.014**	0.016**	0.016**
	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
Pre-mean of dep. var.	0.151	0.112	0.191	0.123	0.258	0.196	0.324	0.202
Natural Sciences								
post X MW	0.005	0.005	0.009	0.015*	-0.004	-0.004*	-0.004	-0.007*
	(0.006)	(0.006)	(0.007)	(0.008)	(0.003)	(0.003)	(0.003)	(0.003)
Pre-mean of dep. var.	0.279	0.241	0.318	0.246	0.032	0.027	0.037	0.024
Medicine								
post X MW	0.002	0.002	0.005*	0.003	-0.000	0.001	0.001	0.005
	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	(0.005)	(0.005)	(0.007)
Pre-mean of dep. var.	0.024	0.017	0.031	0.018	0.205	0.212	0.197	0.208
Other Fields								
post X MW	0.002	0.003	0.002	0.004	0.004	0.003	0.006	0.006
	(0.004)	(0.004)	(0.005)	(0.006)	(0.004)	(0.004)	(0.004)	(0.006)
Pre-mean of dep. var.	0.087	0.094	0.051	0.092	0.065	0.069	0.060	0.069
Individuals	386,260	236,659	217,650	68,049	397,040	244,658	221,806	69,424
Municipalities of birth	2,389	2,266	328	205	2,393	2,269	328	204
(B) Sector of Employment								
Agriculture and Ancillary Industries								
post X MW	0.007	0.009*	0.002	0.004	0.002	0.003	-0.007**	-0.008*
	(0.005)	(0.005)	(0.006)	(0.009)	(0.004)	(0.004)	(0.004)	(0.005)
Pre-mean of dep. var.	0.121	0.152	0.092	0.154	0.055	0.071	0.038	0.065
Industry and Crafts								
post X MW	-0.016**	-0.018**	-0.008	-0.009	-0.004	-0.004	-0.005	-0.003
	(0.007)	(0.008)	(0.007)	(0.008)	(0.004)	(0.004)	(0.005)	(0.005)
Pre-mean of dep. var.	0.373	0.396	0.351	0.398	0.162	0.173	0.149	0.166
Building and Construction								
post X MW	0.006	0.006	0.002	0.001	-0.001	0.000	-0.001	0.002
	(0.005)	(0.005)	(0.006)	(0.007)	(0.002)	(0.002)	(0.002)	(0.002)
Pre-mean of dep. var.	0.192	0.205	0.178	0.180	0.023	0.022	0.024	0.022
Transport and Communications								
post X MW	0.005	0.005	0.007	0.010*	-0.009***	-0.008***	-0.008***	-0.009***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.003)	(0.003)	(0.003)	(0.004)
Pre-mean of dep. var.	0.130	0.127	0.131	0.114	0.050	0.046	0.054	0.050
Public Services								

post X MW	0.006	0.008*	0.007	0.010*	0.020***	0.021***	0.022***	0.018**
	(0.004)	(0.004)	(0.004)	(0.005)	(0.007)	(0.007)	(0.008)	(0.009)
Pre-mean of dep. var.	0.169	0.146	0.192	0.159	0.470	0.459	0.483	0.468
Private Services								
post X MW	0.002	-0.000	0.003	-0.002	0.003	0.005	0.003	0.005
	(0.006)	(0.006)	(0.008)	(0.009)	(0.005)	(0.006)	(0.006)	(0.008)
Pre-mean of dep. var.	0.307	0.261	0.352	0.249	0.333	0.312	0.354	0.303
Government								
post X MW	0.003	0.004	0.004	0.008	0.012*	0.014**	0.015*	0.017*
	(0.005)	(0.006)	(0.005)	(0.008)	(0.007)	(0.007)	(0.008)	(0.009)
Pre-mean of dep. var.	0.210	0.198	0.225	0.216	0.416	0.412	0.421	0.431
Public administration								
post X MW	0.004	0.005*	0.004	0.006*	0.002	0.003	-0.001	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Pre-mean of dep. var.	0.071	0.064	0.078	0.066	0.065	0.057	0.074	0.057
Teaching and research								
post X MW	0.000	0.001	-0.000	-0.001	0.011**	0.012**	0.014**	0.012*
	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)	(0.005)	(0.006)	(0.007)
Pre-mean of dep. var.	0.056	0.048	0.066	0.059	0.131	0.116	0.147	0.128
Individuals	401,304	246,011	225,854	70,561	388,243	240,291	216,108	68,156
Municipalities of birth	2,389	2,266	328	205	2,393	2,269	328	204

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level.

*** p<0.01, ** p<0.05, * p<0.1

Appendix I

Alternative Specifications

The models already include county-of-birth by urbanization by year-of-birth fixed effects that should control for any flexible developments in the outcomes specific to regions of birth that correlate with the treatment. The ES graphs are also presented that should demonstrate the presence of pre-trends, if any. This paper further addresses the potential threat to parallel trends assumption in several ways. First, I include interactions between the array of baseline region-of-birth characteristics in 1930 and linear time trends to control for the effects of health, income and other regional factors on the development of later-life outcomes across cohorts. This can also be seen as a balancing test for the covariates across regions of birth. Any socio-economic and infrastructure changes could also potentially drive the development instead of the reform at the municipality level, as the next check, I introduce interactions between observable municipality-level characteristics measuring income and provision of health care and other public goods, and linear time trends. Inclusion of quadratic trends instead produces similar results across all checks. Although there are no differential effects of the reform on fertility and migration, to rule out any potential reform-led changes in unobserved heterogeneity at the family level, which I might not have observed, Eq.1 was further estimated with observable parental characteristics and with mother fixed effects. The estimated effects are similar to those presented in the main body of the paper, although sometimes they become marginally insignificant due to the loss of efficiency.

Table – Alternative Specifications for the Effects of the Opening of MWs on Short-, Medium, and Long-term Outcomes, Sweden Cohorts Born in 1931–1946

	(i) County-of-birth X urbanization X year-of-birth linear trends				*(ii) County-of-birth X urbanization **Xs** X year-of-birth linear trends*				*(iii) Municipality-of-birth **Xs** X year-of-birth linear trends*			
	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
(A) Short Term												
*Hospital births/Total live births*100*												
post X MW	20.150***	20.071***	22.077***	23.622***	24.762***	20.090***	21.410***	24.614***	22.046***	24.729***	21.425***	20.726***
	(4.987)	(4.888)	(5.429)	(5.106)	(5.497)	(4.896)	(6.125)	(5.615)	(5.428)	(5.474)	(6.137)	(6.011)
Pre-mean of dep. variable	48.872	48.138	48.526	30.344	48.872	48.138	48.526	30.344	48.526	48.138	30.344	48.872
28-day mortality, per 1000 live births												
post X MW	-21.184***	-16.656***	-14.777***	-20.043***	-24.723***	-22.308***	-26.427***	-19.345***	-14.881***	-26.320***	-26.601***	-26.479***
	(4.686)	(2.518)	(5.399)	(5.845)	(4.489)	(4.691)	(7.188)	(5.700)	(5.402)	(4.513)	(7.133)	(7.166)
Pre-mean of dep. variable	35.671	35.934	30.663	31.280	35.671	35.934	30.663	31.280	30.663	35.934	31.280	35.671
7-day mortality, per 1000 live births												
post X MW	-16.900***	-14.194***	-10.960***	-15.754***	-19.898***	-18.001***	-20.365***	-14.814***	-11.036***	-21.264***	-20.493***	-20.071***
	(3.651)	(2.207)	(4.183)	(4.587)	(3.494)	(3.673)	(5.696)	(4.436)	(4.207)	(3.521)	(5.677)	(5.641)
Pre-mean of dep. variable	28.375	28.542	24.643	24.244	28.375	28.542	24.643	24.244	24.643	28.542	24.244	28.375
8-28-day mortality, per 1000 live births												
post X MW	-4.284*	-2.461***	-3.818	-4.288	-4.825*	-4.307*	-6.062	-4.531	-3.846	-5.057**	-6.107	-6.408
	(2.542)	(0.733)	(2.959)	(3.211)	(2.476)	(2.517)	(3.938)	(2.997)	(2.937)	(2.485)	(3.830)	(4.059)
Pre-mean of dep. variable	7.296	7.392	6.020	7.036	7.296	7.392	6.020	7.036	6.020	7.392	7.036	7.296
Premature birth, per 1000 live births												
post X MW	10.014***	9.169***	9.364**	4.103	7.121*	9.141***	8.015	4.760	9.293**	6.960**	6.077	8.380
	(3.233)	(2.919)	(4.384)	(3.118)	(3.803)	(2.919)	(8.444)	(3.337)	(4.383)	(3.281)	(8.311)	(9.877)
Pre-mean of dep. variable	27.153	26.440	31.532	27.599	27.153	26.440	31.532	27.599	31.532	26.440	27.599	27.153
Stillbirths, per 1000 births												

post X MW	2.468***	2.238**	2.382*	1.820	0.006	2.215**	3.181	0.485	2.209	0.176	3.938	3.164
	(0.947)	(1.007)	(1.432)	(1.788)	(1.469)	(1.006)	(4.419)	(2.125)	(1.423)	(1.526)	(4.739)	(4.083)
Pre-mean of dep. variable	22.807	22.830	22.990	24.669	22.807	22.830	22.990	24.669	22.990	22.830	24.669	22.807
Sick mothers, per 1000												
post X MW	-1.861	-1.641	-2.687	-2.295	-1.504	-1.629	-1.407	-1.567	-2.656	-1.354	-0.784	-0.696
	(2.459)	(2.418)	(2.881)	(3.402)	(2.048)	(2.420)	(1.866)	(2.811)	(2.874)	(2.061)	(2.199)	(1.344)
Pre-mean of dep. variable	7.474	7.666	6.881	10.744	7.474	7.666	6.881	10.744	6.881	7.666	10.744	7.474
(B) Long Term												
Ln labour income (ages 47–64)												
post X MW	0.048***	0.049***	0.040**	0.038**	0.054***	0.047**	0.064***	0.038*	0.035*	0.034*	0.035*	0.034
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.021)
Pre-mean of dep. variable	7.939	7.875	8.002	7.864	7.939	7.875	8.002	7.864	7.939	7.875	8.002	7.864
Unemployed (ages 55–64)												
post X MW	-0.012***	-0.013***	-0.009**	-0.011**	-0.012***	-0.011***	-0.013***	-0.013***	-0.013***	-0.013***	-0.012**	-0.013***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Pre-mean of dep. variable	0.127	0.127	0.126	0.126	0.127	0.127	0.126	0.126	0.127	0.127	0.126	0.126
On disability pension (ages 55–64)												
post X MW	-0.013***	-0.014***	-0.009***	-0.010**	-0.012***	-0.013***	-0.009***	-0.010**	-0.012***	-0.013***	-0.011***	-0.012***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Pre-mean of dep. variable	0.124	0.127	0.121	0.128	0.124	0.127	0.121	0.128	0.124	0.127	0.121	0.128
(C) Medium Term												
Total length of stay in hospital (ages 37–64)												
post X MW	-2.210***	-2.501***	-1.756**	-2.625**	-1.222	-1.725*	-0.578	-2.038*	-2.474**	-2.540**	-2.842**	-3.352***
	(0.856)	(0.912)	(0.864)	(1.080)	(0.952)	(0.948)	(1.056)	(1.162)	(1.256)	(1.269)	(1.240)	(1.274)
Pre-mean of dep. variable	24.727	24.877	24.710	26.108	24.727	24.877	24.710	26.108	24.727	24.877	24.710	26.108
Years of schooling (completed)												
post X MW	0.090**	0.079**	0.109**	0.078*	0.096**	0.075*	0.127**	0.085*	0.105**	0.111**	0.098**	0.113**
	(0.040)	(0.037)	(0.048)	(0.045)	(0.045)	(0.042)	(0.052)	(0.048)	(0.049)	(0.048)	(0.050)	(0.049)
Pre-mean of dep. variable	11.173	10.605	11.756	10.671	11.173	10.605	11.756	10.671	11.173	10.605	11.756	10.671
Secondary school graduate												
post X MW	0.016***	0.016**	0.032***	0.014**	0.021***	0.013**	0.032***	0.015**	0.015**	0.016**	0.014*	0.016**

	(0.006)	(0.007)	(0.008)	(0.007)	(0.007)	(0.006)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.008)
Pre-mean of dep. variable	0.572	0.498	0.649	0.504	0.572	0.498	0.649	0.504	0.572	0.498	0.649	0.504
Specific field of education												
post X MW	0.016**	0.018**	0.031***	0.014*	0.021***	0.014**	0.031***	0.015*	0.017**	0.018**	0.016*	0.018**
	(0.007)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
Pre-mean of dep. variable	0.449	0.516	0.381	0.509	0.449	0.516	0.381	0.509	0.449	0.516	0.381	0.509
Employed in service sector (ages 34–49)												
post X MW	0.011*	0.012*	0.013**	0.014**	0.010*	0.011*	0.013**	0.015**	0.012	0.012*	0.012	0.013*
	(0.005)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
Pre-mean of dep. variable	0.585	0.542	0.630	0.543	0.585	0.542	0.630	0.543	0.585	0.542	0.630	0.543
Non-manual occupations (ages 34–49)												
post X MW	0.008	0.013	0.020**	0.011	0.011	0.013	0.009	0.020**	0.009	0.013	0.013	0.014
	(0.007)	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)	(0.009)	(0.008)
Pre-mean of dep. variable	0.383	0.318	0.453	0.346	0.383	0.318	0.453	0.346	0.383	0.318	0.453	0.346
Year-of-birth FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality-of-birth FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County-of-birth by urbanization ***Xs*** x year-of-birth linear trends	Yes	Yes	Yes	Yes								
Municipality-of-birth ***Xs*** x year-of-birth linear trends					Yes	Yes	Yes	Yes				
Municipality-of-birth x year-of-birth linear trends									Yes	Yes	Yes	Yes

Note: estimations from the *SIP*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1, which include controls described in the bottom of the table instead of county-of-birth by urbanization by year-of-birth fixed effects. Please refer to Tables 2–5 of the main body of the paper for data and sample sizes.

*** p<0.01, ** p<0.05, * p<0.1

Appendix J

Analysis of Plausible Bias due to Overlapping Interventions or Events

In additional analyses, I found that no other program or shock explained the effect of the MW reform. For example, I did not find any short-term effects of sulphapyridine or the well-child program beyond the early neonatal period. Other time-varying healthcare investments did not seem to affect the results either. According to Lazuka (2019), the establishment of primary care centers that brought preventive measures against infectious disease and had positive long-term effects on health and income was completed by 1920. I estimated the effect of the reform on different measures of healthcare investment, other than childbirth, and found no significant effects. The arrival of a drug against puerperal fever, a bacterial infection following childbirth, in 1938 does not seem to bias the estimated effect of the MW reform, suggesting that maternal survival is not a channel for these effects. I also confirmed that the compulsory schooling reforms that affected the earliest and most recent cohorts in my sample do not explain my findings (Holmlund, 2008). I show that the regional shortages of food and fuel experienced during WWII did not influence the estimated effects of the MW reform. Finally, I found that the effects in various subsamples are similar, suggesting again an unlikely confounder by the reforms.

Appendix further contains:

Table J.1 – The Short-Term Effects of the Opening of MWs and Sulphapyridine and Well-Child Programme on Early Neonatal, Late Neonatal, Postneonatal and Child Mortality across Estimation Samples with Different Control Groups, Sweden 1931–1946

Figure J.1 – Event-Study Estimates for Short-Term Effects of Sulphapyridine and Well-Child Programme, Cohorts Born in Sweden in 1931–1946

Table J.2 – Long-Term Effects of the Opening of MWs and Sulphapyridine and Well-Child Programme on Alternative Economic Outcomes, Sweden Cohorts Born in 1931–1946

Table J.3 – Long-Term Effects of the Opening of MWs and Additional Cointerventions or Events, Cohorts Born in 1931–1946, Sweden

Table J.4 – The Short-Term Effects of the Opening of MWs on Non-Childbirth Healthcare Investments, Sweden 1931–1946

Figure J.2 – Event-Study Estimates for Short-Term Effects on Non-Childbirth Healthcare Investments, Cohorts Born in Sweden in 1931–1946

Table J.5 – Short-, Medium- and Long-Term Effects of the Opening of MWs by Subperiods, Cohorts Born in 1931–1946, Sweden

Table J.1 – The Short-Term Effects of the Opening of MWs and Sulphapyridine and Well-Child Programme on Early Neonatal, Late Neonatal, Postneonatal and Child Mortality across Estimation Samples with Different Control Groups, Sweden 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
	(i) Independent effects				*(ii) Interaction effects*			
Early Neonatal Mortality (0–7 days)								
(A) Sulphapyridine								
post X MW	-17.782***	-18.323***	-10.264***	-14.236***	-14.450***	-16.320***	-10.154***	-14.307***
	(3.426)	(3.436)	(3.778)	(4.206)	(3.556)	(3.566)	(3.884)	(4.367)
post X MW *X Cointervention*					-7.520**	-4.398	-1.333	0.667
					(3.104)	(3.583)	(5.877)	(6.250)
Pre-mean of dep. Variable	28.375	28.542	24.643	24.244	28.375	28.542	24.643	24.244
Observations	31,768	30,379	4,015	2,626	31,768	30,379	4,015	2,626
(B) Well-child programme								
post X MW	-16.059***	-16.726***	-11.131**	-16.411***	-11.190**	-11.532**	-10.687*	-12.230**
	(3.920)	(3.998)	(4.914)	(5.763)	(4.769)	(4.821)	(5.496)	(5.846)
post X MW *X Cointervention*					-7.450*	-7.993*	-0.473	-15.726
					(4.308)	(4.342)	(7.022)	(10.885)
Pre-mean of dep. Variable	28.638	28.808	24.796	24.331	28.638	28.808	24.796	24.331
Observations	31,009	29,652	3,904	2,547	31,009	29,652	3,904	2,547
Late Neonatal Mortality (8–28 days)								
(A) Sulphapyridine								
post X MW	-4.383*	-4.433*	-3.949	-4.609	-4.250	-4.557	-4.168	-4.804
	(2.460)	(2.462)	(2.752)	(2.979)	(2.804)	(3.010)	(2.875)	(3.167)
post X MW *X Cointervention*					-0.302	0.272	2.651	1.838

					(1.500)	(1.993)	(2.248)	(2.375)
Pre-mean of dep. Variable	7.296	7.392	6.020	7.036	7.296	7.392	6.020	7.036
Observations	31,768	30,379	4,015	2,626	31,768	30,379	4,015	2,626
(B) Well-child programme								
post X MW	-3.987	-4.044	-3.145	-3.247	-4.272	-4.334	-2.807	-2.657
	(2.649)	(2.675)	(3.439)	(3.966)	(3.509)	(3.532)	(4.131)	(4.473)
post X MW *X Cointervention*					0.449	0.461	-0.801	-2.390
					(2.224)	(2.240)	(2.898)	(4.247)
Pre-mean of dep. Variable	7.325	7.421	6.018	6.954	7.325	7.421	6.018	6.954
Observations	31,009	29,652	3,904	2,547	31,009	29,652	3,904	2,547
Postneonatal Mortality (29–364 days)								
(A) Sulphapyridine								
post X MW	-6.954*	-7.283*	-0.904	-2.502	-3.203	-5.044	-0.718	-2.493
	(3.811)	(3.813)	(3.996)	(4.245)	(3.948)	(3.987)	(4.092)	(4.397)
post X MW *X Cointervention*					-8.463***	-4.915	-2.254	-0.086
					(3.280)	(3.964)	(4.866)	(5.319)
Pre-mean of dep. Variable	27.790	28.210	20.271	21.916	27.790	28.210	20.271	21.916
Observations	31,768	30,379	4,015	2,626	31,768	30,379	4,015	2,626
(B) Well-child programme								
post X MW	-6.341	-6.961	-0.549	-3.833	-4.737	-4.832	-1.735	-1.026
	(4.190)	(4.233)	(5.082)	(5.737)	(4.445)	(4.482)	(5.441)	(5.910)
post X MW *X Cointervention*					-2.532	-3.377	2.812	-11.391*
					(3.116)	(3.125)	(5.181)	(6.229)
Pre-mean of dep. Variable	27.878	28.312	20.211	22.048	27.878	28.312	20.211	22.048
Observations	31,009	29,652	3,904	2,547	31,009	29,652	3,904	2,547
Child Mortality (ages 1–14)								
(A) Sulphapyridine								
post X MW	-1.113	-1.125	0.130	1.055	-1.038	-0.198	1.527	3.100
	(2.884)	(2.886)	(3.204)	(3.741)	(3.253)	(3.536)	(3.854)	(4.422)

post X MW *X Cointervention*					-0.169	-2.037	-16.927	-19.317
					(3.195)	(4.276)	(16.886)	(16.701)
Pre-mean of dep. Variable	22.145	22.185	22.207	23.492	22.145	22.185	22.207	23.492
Observations	31,768	30,379	4,015	2,626	31,768	30,379	4,015	2,626
(B) Well-child programme								
post X MW	-0.939	-1.070	1.194	1.533	-0.771	-0.955	3.974	4.917
	(3.085)	(3.123)	(4.022)	(5.018)	(3.723)	(3.763)	(4.972)	(5.989)
post X MW *X Cointervention*					-0.265	-0.182	-6.592	-13.730
					(3.342)	(3.373)	(5.137)	(12.287)
Pre-mean of dep. Variable	22.298	22.347	22.228	23.567	22.298	22.347	22.228	23.567
Observations	31,009	29,652	3,904	2,547	31,009	29,652	3,904	2,547

Note: estimations from the *SIP*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.3. Main effects for cointerventions are estimated albeit not reported. In the sample for Panel B, municipalities participating in the early trial of the well-child programme (57) are dropped.

*** p<0.01, ** p<0.05, * p<0.1

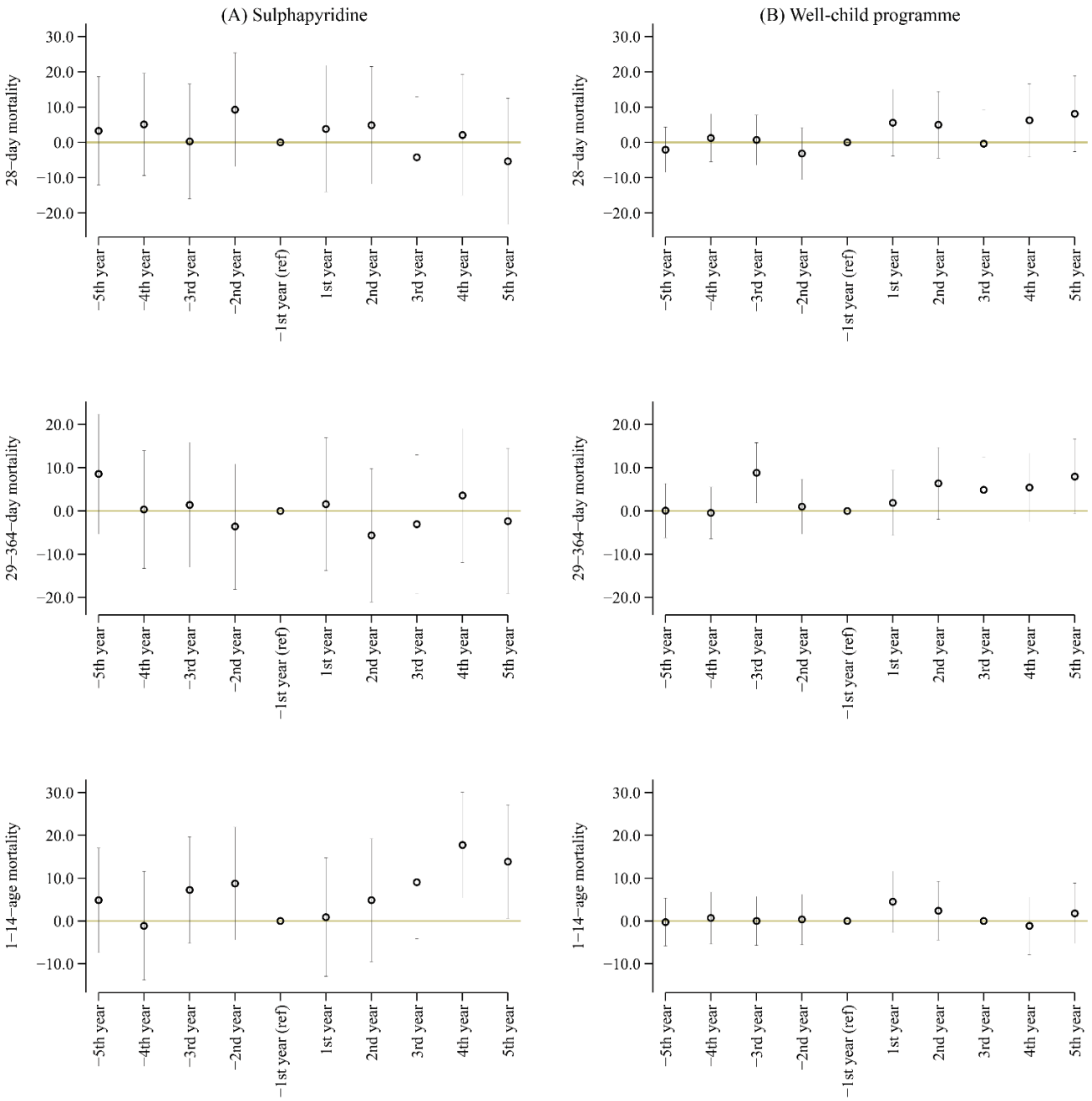


Figure J.1 – Event-Study Estimates for Short-Term Effects of Sulphapyridine and Well-Child Program, Cohorts Born in Sweden in 1931–1946

Sources: own estimations from SIP.

Note: Point estimates and 95 percent confidence intervals.

Table J.2 – Long-Term Effects of the Opening of MWs and Sulphapyridine and Well-Child Programme on Alternative Economic Outcomes across Estimation Samples with Different Control Groups, Sweden Cohorts Born in 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
	(i) Independent effects				*(ii) Interaction effects*			
Unemployed (ages 55–64)								
Sulphapyridine								
post X MW	-0.011***	-0.010***	-0.012***	-0.013***	-0.013***	-0.013***	-0.013**	-0.012**
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
post X MW *X Cointervention*					0.001	0.002	0.000	-0.002
					(0.002)	(0.002)	(0.002)	(0.003)
Pre-mean of dep. Variable	7.939	7.875	8.002	7.864	7.939	7.875	8.002	7.864
Observations	760,058	468,729	424,705	133,376	760,058	468,729	424,705	133,376
Well-child programme								
post X MW	-0.013***	-0.015***	-0.011***	-0.014***	-0.011***	-0.014***	-0.011***	-0.014**
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.006)
post X MW *X Cointervention*					-0.004	-0.001	-0.002	-0.001
					(0.003)	(0.004)	(0.008)	(0.010)
Pre-mean of dep. Variable	7.940	7.876	8.005	7.869	7.940	7.876	8.005	7.869
Observations	741,466	454,574	410,686	123,794	741,466	454,574	410,686	123,794
On disability pension (ages 55–64)								
Sulphapyridine								
post X MW	-0.011***	-0.012***	-0.008**	-0.011**	-0.015***	-0.015***	-0.013***	-0.012***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
post X MW *X Cointervention*					0.003*	0.002	0.004**	0.003
					(0.001)	(0.002)	(0.002)	(0.003)
Pre-mean of dep. Variable	7.939	7.875	8.002	7.864	7.939	7.875	8.002	7.864
Observations	764,859	471,482	427,596	134,219	764,859	471,482	427,596	134,219
Well-child programme								
post X MW	-0.013***	-0.015***	-0.010***	-0.010*	-0.012***	-0.015***	-0.011***	-0.012**

	(0.003)	(0.003)	(0.004)	(0.005)	(0.003)	(0.004)	(0.004)	(0.006)
post X MW *X Cointervention*					-0.003	-0.000	0.006	0.006
					(0.003)	(0.003)	(0.007)	(0.008)
Pre-mean of dep. Variable	7.940	7.876	8.005	7.869	7.940	7.876	8.005	7.869
Observations	746,158	457,243	413,492	124,577	746,158	457,243	413,492	124,577

Note: estimations from the *SIP*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.3. Main effects for cointerventions are estimated albeit not reported. In the sample for Panel B, municipalities participating in the early trial of the well-child programme (57) are dropped.

*** p<0.01, ** p<0.05, * p<0.1

Table J.3 – Long-Term Effects of the Opening of MWs and Additional Cointerventions or Events across Estimation Samples with Different Control Groups, Cohorts Born in 1931–1946, Sweden

	(i) Prontosil[1]				*(ii) WWII*				*(iii) 9-Year Schooling Reform*[2]			
	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ln labour income (ages 47–64)												
post X MW	0.055***	0.039**	0.067***	0.039**	0.055***	0.042**	0.068***	0.042**	0.042**	0.048**	0.043**	0.044**
	(0.018)	(0.017)	(0.019)	(0.019)	(0.018)	(0.018)	(0.019)	(0.020)	(0.020)	(0.020)	(0.021)	(0.022)
post X MW *X Cointervention*	-0.019	0.032	-0.030	0.049	0.010**	0.005	0.009	-0.002	0.062***	0.074***	0.006	0.014
	(0.017)	(0.020)	(0.021)	(0.034)	(0.004)	(0.005)	(0.006)	(0.009)	(0.023)	(0.025)	(0.032)	(0.043)
Pre-mean of dep. var.	7.939	7.875	8.002	7.864	7.939	7.875	8.002	7.864	7.980	7.884	8.011	7.901
Individuals	786,775	484,523	440,190	137,938	786,775	484,523	440,190	137,938	727,539	462,092	393,360	127,913
Unemployed (ages 55–64)												
post X MW	-0.012***	-0.011***	-0.012***	-0.013***	-0.012***	-0.011***	-0.012***	-0.014***	-0.012***	-0.014***	-0.012***	-0.014***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)
post X MW *X Cointervention*	0.006**	0.000	0.008**	-0.007	-0.003**	-0.000	-0.004**	0.000	-0.008	-0.011**	0.005	0.004
	(0.003)	(0.004)	(0.003)	(0.006)	(0.001)	(0.001)	(0.002)	(0.002)	(0.005)	(0.006)	(0.007)	(0.012)

[1] *Prontosil* is an antibiotic drug against puerperal fever that arrived to Sweden in 1938.

[2] The introduction of the seventh compulsory grade was almost completed for the studied cohorts (Fischer, Karlsson, and Nilsson 2013), and dropping several municipalities that completed the reform in the beginning of the study period does not affect the results.

Pre-mean of dep. var.	0.127	0.127	0.126	0.126	0.127	0.127	0.126	0.126	0.126	0.127	0.125	0.126
Individuals	760,058	468,729	424,705	133,376	760,058	468,729	424,705	133,376	702,899	447,007	379,562	123,670
On disability pension (ages 55–64)												
post X MW	-0.011***	-0.013***	-0.008**	-0.011***	-0.012***	-0.013***	-0.009**	-0.011***	-0.014***	-0.015***	-0.011***	-0.011**
	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.005)
post X MW *X Cointervention*	-0.003	-0.004	0.002	0.003	-0.001	0.001	-0.003**	-0.002	-0.010*	-0.012**	0.002	0.004
	(0.003)	(0.004)	(0.004)	(0.006)	(0.001)	(0.001)	(0.001)	(0.002)	(0.005)	(0.006)	(0.006)	(0.010)
Pre-mean of dep. var.	0.124	0.127	0.121	0.128	0.124	0.127	0.121	0.128	0.124	0.126	0.121	0.127
Individuals	764,859	471,482	427,596	134,219	764,859	471,482	427,596	134,219	707,323	449,620	382,154	124,451

Note: estimations from the *SIP*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.3. For Prontosil, *cointervention* is the interaction term between post-1937 cohorts and baseline puerperal fever mortality rate for years 1931–1937 obtained separately for each region (county-of-birth by urbanization) and, in order to ease an interpretation, normalised by dividing by the range between 95th and 5th percentiles of puerperal fever distribution in the country. For WWII*, cointervention* are county-of-birth by urbanization by year-of-birth food price indices in 1931–1946. For the 9-year schooling reform, *cointervention* is the interaction term between *post* (cohorts born in a year and after a municipality was covered by the schooling programme) and *treated* municipalities. In this sample municipalities with unclear participation status (82) are dropped.

*** p<0.01, ** p<0.05, * p<0.1

Table J.4 – The Short-Term Effects of the Opening of MWs on Non-Childbirth Healthcare Investments across Estimation Samples with Different Control Groups, Sweden in 1931–1946

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)
Ln doctors per 1000 mid-population				
post X MW	0.009	0.008	-0.008	0.005
	(0.013)	(0.014)	(0.017)	(0.018)
Pre-mean of dep. var.	-1.157	-1.602	-0.698	-1.537
Ln midwives per 1000 mid-population				
post X MW	0.001	0.002	0.001	0.007
	(0.009)	(0.009)	(0.011)	(0.013)
Pre-mean of dep. var.	-1.109	-0.9062	-1.248	-1.859
Ln medical nurses per 1000 mid-population				
post X MW	0.002	0.002	0.018	0.013
	(0.013)	(0.013)	(0.017)	(0.018)
Pre-mean of dep. var.	-1.155	-1.313	-1.005	-1.411
Ln general hospitals per 1000 mid-population				
post X MW	0.003	0.000	0.012	0.010
	(0.008)	(0.007)	(0.013)	(0.010)
Pre-mean of dep. var.	-3.885	-3.913	-3.854	-3.884
Ln real hospital expenditures (non-childbirth) per 1000 mid-population)				
post X MW	0.034	0.028	0.032	0.098
	(0.123)	(0.137)	(0.132)	(0.180)
Pre-mean of dep. var.	2.430	2.625	2.322	3.448
Individuals	786,775	484,523	440,190	137,938

Note: estimations from the SIP. All models are estimated according to Eq.1. except that they include county-of-birth by urbanization by year-of-birth linear trends instead of fixed effects due to the multicollinearity with the outcome that is measured at a county-of-birth by urbanization by year-of-birth level. Standard errors (in parentheses) are clustered at a municipality-of-birth level.

*** p<0.01, ** p<0.05, * p<0.1

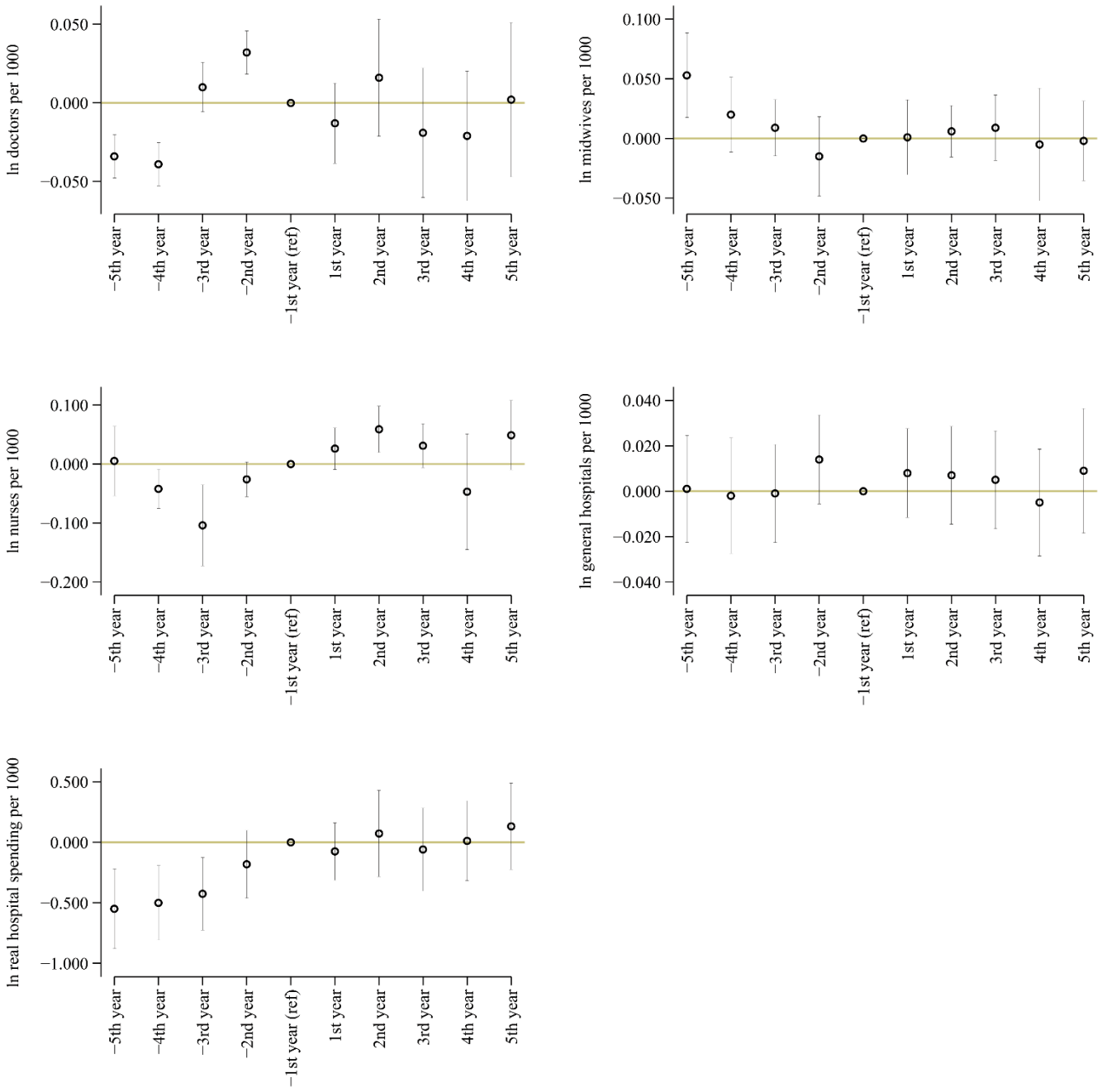


Figure J.2 – Event-Study Estimates for Short-Term Effects on Non-Childbirth Healthcare Investments, Cohorts Born in Sweden in 1931–1946

Sources: own estimations from SIP.

Note: Point estimates and 95 percent confidence intervals.

Table J.5 – Short-, Medium- and Long-Term Effects of the Opening of MWs by Subperiods across Estimation Samples with Different Control Groups, Cohorts Born in 1931–1946, Sweden

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)
(A) Short Term				
*Hospital births/Total live births*100*				
post X MW X pre-1938	20.762***	21.022***	23.864***	25.409***
	(4.464)	(4.405)	(5.262)	(5.478)
post X MW X post-1938	17.841***	18.747***	17.425*	22.622***
	(5.029)	(4.779)	(10.377)	(6.718)
Pre-mean of dep. var.	48.872	48.138	48.526	30.344
Individuals	16,422	15,939	1,872	1,389
7-day mortality, per 1000 live births				
post X MW X pre-1938	-11.570**	-11.845**	-11.155**	-12.159**
	(4.737)	(4.793)	(5.526)	(6.104)
post X MW X post-1938	-17.129***	-17.896***	-10.467*	-23.019**
	(3.931)	(4.017)	(5.728)	(9.273)
Pre-mean of dep. var.	28.375	28.542	24.643	24.244
Individuals	31,768	30,379	4,015	2,626
8-28-day mortality, per 1000 live births				
post X MW X pre-1938	-4.443	-4.556	-2.506	-2.709
	(3.770)	(3.792)	(4.224)	(4.551)
post X MW X post-1938	-3.975*	-4.003*	-4.034	-4.667
	(2.395)	(2.414)	(2.970)	(3.584)
Pre-mean of dep. var.	7.296	7.392	6.020	7.036
Individuals	31,768	30,379	4,015	2,626
28-day mortality, per 1000 live births				
post X MW X pre-1938	-16.013**	-16.401**	-13.661*	-14.868*
	(6.332)	(6.396)	(7.136)	(7.819)
post X MW X post-1938	-21.104***	-21.899***	-14.501**	-27.686**
	(4.846)	(4.928)	(6.786)	(10.928)
Pre-mean of dep. var.	35.671	35.934	30.663	31.280
Individuals	31,768	30,379	4,015	2,626
29-365-day mortality, per 1000				
post X MW X pre-1938	-2.140	-2.142	-0.189	0.972
	(4.774)	(4.804)	(5.804)	(6.194)
post X MW X post-1938	-7.735*	-8.456**	-0.109	-10.863*
	(4.170)	(4.221)	(5.107)	(6.505)
Pre-mean of dep. var.	27.790	28.210	20.271	21.916
Individuals	31,768	30,379	4,015	2,626
(B) Long Term				
Ln labour income				
(ages 47–64)				
post X MW X pre-1938	0.037**	0.041**	0.028	0.023
	(0.019)	(0.019)	(0.019)	(0.020)
post X MW X post-1938	0.039**	0.045**	0.033	0.055**
	(0.018)	(0.019)	(0.020)	(0.026)
Pre-mean of dep. var.	7.939	7.875	8.002	7.864

Individuals	786,775	484,523	440,190	137,938
Unemployed (ages 55–64)				
post X MW X pre-1938	-0.012***	-0.013***	-0.010**	-0.009*
	(0.004)	(0.004)	(0.005)	(0.005)
post X MW X post-1938	-0.011***	-0.012***	-0.008*	-0.015**
	(0.004)	(0.004)	(0.004)	(0.006)
Pre-mean of dep. var.	0.127	0.127	0.126	0.126
Individuals	760,058	468,729	424,705	133,376
On disability pension (ages 55–64)				
post X MW X pre-1938	-0.015***	-0.015***	-0.012***	-0.010**
	(0.004)	(0.004)	(0.004)	(0.005)
post X MW X post-1938	-0.013***	-0.014***	-0.006	-0.007
	(0.003)	(0.004)	(0.004)	(0.005)
Pre-mean of dep. var.	0.124	0.127	0.121	0.128
Individuals	764,859	471,482	427,596	134,219
(C) Medium Term				
Total length of stay in hospital (ages 37–64)				
post X MW X pre-1938	-2.113**	-2.215**	-1.866*	-1.606
	(0.944)	(0.962)	(0.993)	(1.068)
post X MW X post-1938	-1.977**	-2.282**	-1.119	-4.001**
	(0.845)	(0.911)	(0.886)	(1.830)
Pre-mean of dep. var.	24.727	24.877	24.710	26.108
Individuals	799,192	491,025	447,977	139,810
Years of schooling (completed)				
post X MW X pre-1938	0.114**	0.116***	0.108**	0.099**
	(0.046)	(0.044)	(0.051)	(0.049)
post X MW X post-1938	0.063	0.063*	0.077	-0.006
	(0.041)	(0.037)	(0.056)	(0.061)
Pre-mean of dep. var.	11.173	10.605	11.756	10.671
Individuals	771,139	474,213	432,556	135,630
Secondary school graduate				
post X MW X pre-1938	0.021***	0.020***	0.020**	0.017**
	(0.007)	(0.007)	(0.008)	(0.008)
post X MW X post-1938	0.013**	0.011**	0.017**	0.001
	(0.006)	(0.006)	(0.008)	(0.010)
Pre-mean of dep. var.	0.572	0.498	0.649	0.504
Individuals	771,139	474,213	432,556	135,630
Specific field of education				
post X MW X pre-1938	0.019***	0.020***	0.019**	0.017**
	(0.007)	(0.007)	(0.008)	(0.008)
post X MW X post-1938	0.011*	0.011**	0.010	0.003
	(0.006)	(0.006)	(0.010)	(0.010)
Pre-mean of dep. var.	0.449	0.516	0.381	0.509
Individuals	766,912	472,101	429,730	134,919
Employed in service sector (ages 34–49)				
post X MW X pre-1938	0.015***	0.016***	0.015***	0.015***
	(0.005)	(0.006)	(0.005)	(0.006)
post X MW X post-1938	0.009*	0.011**	0.010	0.011
	(0.005)	(0.005)	(0.010)	(0.009)
Pre-mean of dep. var.	0.585	0.542	0.630	0.543
Individuals	806,679	495,544	452,496	141,361
Non-manual occupations (ages 34–49)				

post X MW X pre-1938	0.014*	0.011	0.013*	0.009
	(0.007)	(0.008)	(0.007)	(0.009)
post X MW X post-1938	0.001	0.004	0.014	0.010
	(0.007)	(0.007)	(0.009)	(0.009)
Pre-mean of dep. var.	0.383	0.318	0.453	0.346
Individuals	806,679	495,544	452,496	141,361

Note: estimations from the *SIP*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1 with the treatment terms for *pre-1938* and *post-1938* subsequently.

*** p<0.01, ** p<0.05, * p<0.1

Appendix K

Correlation of the timing of the MW openings with other important determinants of early-life health

Here I checked whether the timing of the MW openings was uncorrelated with other important determinants of early-life health. In particular, I regressed the year of opening of the new MWs on a wide range of socio-economic and demographic characteristics in 1930, prior to the start of the reform. The majority of the estimates are not statistically significant, suggesting that the identification assumption is satisfied. However, in line with the provision of the subsidies and the features of the reform, there are a few significant associations. For example, the regions with fewer hospitals tended to gain earlier access to a new MW, and there seem to be urban-rural differences in the timing of MW openings. This reinforced the importance of controlling for these features in the analysis (i.e. through the inclusion of county-of-birth by urbanization by year-of-birth fixed effects).

Table – Associations between the year of establishment of the new MW and regional variables in 1930 (one year prior to the reform initiation) across municipalities

	All treatment groups of municipalities	*"Treated" and "never-treated" municipalities*	*"Treated" and "always-treated" municipalities*	*"Treated" municipalities only*
	1	2	3	4
Urban	-26.435*	-4.450	-27.161	6.622
	(13.606)	(5.167)	(20.268)	(11.159)
North	-14.468*	-6.620**	6.642	5.610
	(8.583)	(2.616)	(15.607)	(7.513)
South	-5.772	-1.338	-4.644	2.071
	(3.674)	(1.117)	(6.896)	(2.669)
Ln trafficked road length per 1000	0.641	1.073	1.275	-5.272
	(3.750)	(1.544)	(6.202)	(3.238)
Ln length of railways per 1000	6.534	-0.245	14.508	5.998
	(5.227)	(2.169)	(9.633)	(4.341)
Ln real municipal income per 1000	-5.083	-0.666	-20.701	1.473
	(7.653)	(2.461)	(20.266)	(7.154)
Share employed in agriculture	16.561	4.022	-8.457	16.076
	(14.496)	(5.810)	(27.044)	(11.344)
Share employed in industry	30.862	6.873	-5.128	-38.557**
	(24.880)	(8.231)	(32.619)	(18.961)
County GDP per capita	-9.658	-2.125	-22.803*	19.589**
	(5.884)	(2.861)	(12.853)	(9.272)
Ln doctors per 1000	0.148	-0.698	5.050	-14.949***
	(3.792)	(1.892)	(6.853)	(5.436)
Ln midwives per 1000	9.360*	0.997	-12.924	-5.800
	(5.384)	(2.957)	(8.075)	(6.318)
Ln medical nurses per 1000	-2.446	0.981	-8.411**	1.760
	(2.292)	(0.631)	(3.602)	(1.607)
Ln hospitals per 1000	5.692**	0.195	11.928**	-0.983
	(2.308)	(0.918)	(5.260)	(1.903)
Ln real hospital expenditures per 1000	-3.117	0.975	-12.165**	2.805
	(2.640)	(0.819)	(5.663)	(2.294)
Share females	299.218	122.912	527.196**	129.277
	(219.688)	(86.851)	(235.483)	(153.275)
Share under age 15	-36.797**	-22.352***	11.572	16.200
	(17.906)	(5.272)	(34.418)	(14.070)
Ln crude death rate per 1000	-37.010	-11.064	-45.374	-1.185
	(26.873)	(7.023)	(46.045)	(11.869)
Share disabled	-208.724	6.770	-195.995	-337.159*
	(193.199)	(89.119)	(260.877)	(200.880)
Ln primary schools per 1000	-2.148	-0.953	-4.656	0.477
	(1.585)	(0.668)	(3.259)	(2.161)
Ln live births	-9.127	3.460	-24.034	-16.731
	(10.535)	(5.176)	(18.817)	(10.233)
Ln pharmacies per 1000	-0.140	0.487	1.413	10.713***
	(2.349)	(1.165)	(3.398)	(3.340)

Ln stillbirth rate per 1000 births	-1.031	-0.972	6.147	-3.742
	(4.987)	(1.732)	(7.500)	(4.468)
Ln mid-year population	7.437	-2.937	28.093	12.800
	(8.706)	(4.556)	(19.637)	(9.933)
Ln infant mortality rate per 1000 live births	17.079*	0.398	5.197	3.530
	(9.733)	(3.838)	(15.596)	(6.943)
Ln maternal mortality rate per 1000	1.148	-0.543	1.255	1.313
	(0.983)	(0.452)	(1.453)	(1.355)
Ln pneumonia mortality per 1000	8.486	2.963	3.461	15.221***
	(5.759)	(2.475)	(8.415)	(5.380)
Sulphonamides, grams per 1000	-0.032	-0.014	-0.053	0.001
	(0.035)	(0.011)	(0.046)	(0.008)
Municipalities (-of-birth)	2,529	456	2,281	208
Adjusted Rsq	0.212	0.0702	0.236	0.148

Note: own estimations based on data on the reform implementation. The estimates are obtained from the multivariate models. Standard errors (in parentheses) are clustered at a municipality-of-birth level. Year of establishment denotes a year of the opening of a new MW not further than 5.5 km from the municipality geographical centroid. For municipalities that did not have such access until 1947, it set up as 1950. Official statistical yearbooks and archival documents (for sulphonamides) are the data sources for the dependent variables. The following variables are obtained at the county level (25): ln trafficked road length per 1000, ln length of railways per 1000, share employed in agriculture, share employed in industry, county GDP per capita, share under age 15, ln primary schools per 1000. The following variables are obtained at the county by urbanization level (49): ln real municipal income per 1000, ln doctors per 1000, ln midwives per 1000, ln medical nurses per 1000, ln hospitals per 1000, ln real hospital expenditures per 1000, share females, ln crude death rate per 1000, share disabled, ln pharmacies per 1000, ln stillbirth rate per 1000 births, ln infant mortality rate per 1000 live births, ln maternal mortality rate per 1000, ln pneumonia mortality per 1000, and ln live births. Sulphonamides grams per 1000 is obtained at the municipality level (2,529).

*** p<0.01, ** p<0.05, * p<0.1

Appendix L

Plausible Selection Effects

The reform could initiate selective migration or fertility responses among parents of the cohorts under study. Noteworthy, any changes common to all regions are controlled for by the year-of-birth fixed effects. Moreover, any changes that develop over time in a manner specific to each of the regions (counties and their urban and rural territories) are controlled for by the county-of-birth by urbanization by year-of-birth fixed effects. However, if *within* regions fertility or migration responses to the reform change the composition of cohorts in favour of children from high-resource families, those presumably with high levels of human capital, this would provide an alternative explanation for the long-term results. I address this concern by several means. First, I examine whether the reform initiation affected the composition of the cohorts due to fertility responses (see Table L.1). The organisers of the reform supposed that the state subsidies for childbirth might force mothers to have more children (Socialdepartamentet, 1929). These subsidies were paid to all mothers regardless of the place of delivery and income. In line with this observation, the results from either doctor-district-level data or mother-level data show no effect of the MW reform on the number of children born during 1931–1946 on the main samples. For a subsample of treated and always-treated municipalities, analysis for the mothers' data shows some evidence for induced fertility. In relation to heterogeneous fertility responses, these effects are fully driven by the group with unknown background, and otherwise are absent among high and low-resource families. Second, I analyse the effects of the reform on migration, and results show no effects of the reform on migration in total and across subsamples (see Table L.2). Finally, to directly control for compositional changes, I run two more variants of Eq.1 with parental SES and mother fixed effects included (see Table L.3). From these analyses, one should discern that selective fertility or migration did not influence the effects of the MW reform.

The MW reform could have induced selective mortality due to the negative effects on early neonatal mortality that the paper finds. For the first half of the twentieth century, scarring, or treatment, effects tend to dominate the selection effects (Hatton, 2011). Previous quasi-experimental studies also highlight that the marginal survivor of the intervention tends to be negatively selected, so the long-run estimates are likely biased downwards (e.g. Bozzoli et al., 2009). As noted previously, the MW reform enabled to save the larger fraction of fragile newborns who would have died otherwise and provided them with better care. I

analyse with several methods to what extent selective survival might affect the results found in this paper (see Table L.4). First, for all samples, I perform a bounds exercise dropping individuals in the untreated group whose labour income distribution is likely to be right-skewed due to the disproportionally smaller share of fragile births. For the treated group, it is difficult to suppose where the treated newborns end up in the labour income distribution due to the direct effects from health and their interplay with education found previously (Conti et al., 2016). The reform saved between 1.08–1.60 percent of live births, so individuals to be dropped fall into the 98th and 99th percentiles of the distribution for ln labour income. As the analysis shows, the estimated coefficients, indeed, are larger in magnitude although the differences between them and those in the main analysis are not significant, suggesting no significant selection. Second, I apply a two-stage Heckman selection procedure to analyse whether selective survival affects the estimates (Heckman, 1979). In the first stage, the probability of being observed in the estimation sample is modelled as a function of year-of-birth fixed effects, municipality-of-birth fixed effects, county-of-birth by urbanization by year-of-birth fixed effects, and sex for all individuals observed as early as the year 1960 and hence for the age 29 the youngest (*Folk- och Bostadsräkningen 1960*) in a probit model. An inverse Mills' ratio originating for each individual from the estimates of the probit model is further included as a covariate into the Eq.1. Third, I perform the inverse probability of participation weighting based on background characteristics of individuals that can improve external validity of a sample with selective participation (Bonander et al., 2019). Here, I estimate propensity scores for participation in adult sample for individuals not only based on their baseline but also paternal characteristics, such as education of the mother, and socio-economic status and sector of employment of a father. Weighted analyses are then conducted based on the inverse of the estimated propensity scores. The adjusted estimates are larger in magnitude albeit are not statistically different from those found in the main analyses, suggesting again that selective survival is not influencing the results.

Table L.1 – Changes in fertility in total and by socio-economic groups due to the opening of MWs, 1931–1946, Sweden

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)
(A) Doctor district-level data for an outcome				
Live births per 1000 inhabitants				
post X MW	-0.009	-0.008	-0.035	-0.022
	(0.023)	(0.023)	(0.024)	(0.025)
Observations	16,422	15,939	1,872	1,389
Pre-mean of dep. var.	1.529	1.525	1.599	1.559
(B) Mother-level data for an outcome				
Children born, altogether				
post X MW	-0.007	-0.043	0.081***	0.058*
	(0.026)	(0.028)	(0.025)	(0.031)
Pre-mean of dep. var.	2.305	2.428	2.191	2.303
Individuals (Mothers)	420,194	239,250	253,292	72,348
Children born, mothers with less than primary education				
post X MW	-0.073	-0.088*	-0.011	-0.011
	(0.053)	(0.050)	(0.065)	(0.076)
Pre-mean of dep. var.	2.734	2.963	2.537	2.995
Individuals (Mothers)	159,302	93,464	99,279	33,441
Children born, mothers with more than primary education				
post X MW	0.111	0.074	0.101	-0.082
	(0.128)	(0.143)	(0.134)	(0.181)
Pre-mean of dep. var.	2.425	2.602	2.381	2.810
Individuals (Mothers)	42,242	11,807	34,271	3,836
Children born, mothers' education unknown				
post X MW	0.027	-0.015	0.117***	0.084*
	(0.034)	(0.037)	(0.037)	(0.049)
Pre-mean of dep. var.	1.994	2.100	1.874	2.021
Individuals (Mothers)	218,650	133,979	119,742	35,071
Children born, father's high SES				
post X MW	-0.006	-0.008	0.071	0.118
	(0.084)	(0.086)	(0.095)	(0.113)
Pre-mean of dep. var.	2.669	2.851	2.503	2.760
Individuals (Mothers)	47,998	27,720	28,993	8,715
Children born, father's low SES				
post X MW	-0.042	-0.083**	0.030	-0.050
	(0.040)	(0.041)	(0.041)	(0.050)

Pre-mean of dep. var.	2.471	2.691	2.323	2.630
Individuals (Mothers)	154,869	79,456	102,876	27,463
Children born, father's unknown SES				
post X MW	0.024	-0.008	0.103**	0.100**
	(0.039)	(0.042)	(0.041)	(0.050)
Pre-mean of dep. var.	2.113	2.207	2.010	2.115
Individuals (Mothers)	217,327	132,074	121,423	36,170
Children born, father's sector of employment agriculture				
post X MW	0.028	0.002	0.087	0.002
	(0.093)	(0.095)	(0.105)	(0.127)
Pre-mean of dep. var.	2.930	3.007	2.803	3.039
Individuals (Mothers)	30,654	22,646	15,193	7,185
Children born, father's sector of employment industry				
post X MW	-0.132**	-0.165***	-0.044	-0.090
	(0.053)	(0.053)	(0.058)	(0.070)
Pre-mean of dep. var.	2.502	2.701	2.332	2.555
Individuals (Mothers)	98,634	55,306	62,181	18,853
Children born, father's sector of employment services				
post X MW	0.036	0.004	0.065	0.026
	(0.064)	(0.071)	(0.063)	(0.083)
Pre-mean of dep. var.	2.383	2.577	2.303	2.590
Individuals (Mothers)	73,205	29,080	54,211	10,086
Children born, father's sector of employment unknown				
post X MW	0.024	-0.008	0.102**	0.100**
	(0.039)	(0.042)	(0.041)	(0.050)
Pre-mean of dep. var.	2.114	2.208	2.011	2.115
Individuals (Mothers)	217,701	132,218	121,707	36,224

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1. Panel A is based on a doctor district-level data on outcomes linked to SIP. Panel B is based on mother-level data from SIP; the information on the number of children born to the mothers available from 1932.

*** p<0.01, ** p<0.05, * p<0.1

Table L.2 – Changes in maternal county of residence in total and by subgroups due to the opening of MWs, cohorts 1931–1946, Sweden

	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)
Migrant				
post X MW	0.006	0.005	0.009	0.004
	(0.007)	(0.006)	(0.008)	(0.009)
Pre-mean of dep. var.	0.185	0.136	0.227	0.136
Individuals (Mothers)	422,525	241,469	252,545	71,489
Migrant, mothers with less than primary education				
post X MW	0.001	0.003	-0.002	0.002
	(0.011)	(0.011)	(0.012)	(0.015)
Pre-mean of dep. var.	0.200	0.166	0.229	0.170
Individuals (Mothers)	159,343	93,527	98,760	32,944
Migrant, mothers with more than primary education				
post X MW	-0.020	-0.006	-0.031	-0.029
	(0.040)	(0.046)	(0.042)	(0.063)
Pre-mean of dep. var.	0.325	0.290	0.334	0.345
Individuals (Mothers)	42,246	11,667	34,367	3,788
Migrant, mothers' education unknown				
post X MW	0.008	0.003	0.016*	0.013
	(0.008)	(0.008)	(0.008)	(0.011)
Pre-mean of dep. var.	0.148	0.107	0.191	0.114
Individuals (Mothers)	220,936	136,275	119,418	34,757
Migrant, father's high SES				
post X MW	0.002	0.002	0.005	0.008
	(0.015)	(0.015)	(0.017)	(0.020)
Pre-mean of dep. var.	0.184	0.114	0.245	0.105
Individuals (Mothers)	47,751	27,603	28,641	8,493
Migrant, father's low SES				
post X MW	0.007	0.008	0.004	-0.000
	(0.011)	(0.012)	(0.011)	(0.014)
Pre-mean of dep. var.	0.217	0.176	0.245	0.178
Individuals (Mothers)	153,528	78,635	101,652	26,759
Migrant, father's unknown SES				
post X MW	0.014	0.009	0.018*	0.011
	(0.009)	(0.009)	(0.010)	(0.010)
Pre-mean of dep. var.	0.164	0.120	0.208	0.123
Individuals (Mothers)	221,246	135,231	122,252	36,237
Migrant, father's sector of employment				

agriculture				
post X MW	-0.008	-0.008	-0.004	-0.013
	(0.015)	(0.016)	(0.015)	(0.016)
Pre-mean of dep. var.	0.105	0.083	0.141	0.079
Individuals (Mothers)	30,355	22,512	14,804	6,961
Migrant, father's sector of employment industry				
post X MW	0.021*	0.019	0.018	0.012
	(0.012)	(0.012)	(0.013)	(0.016)
Pre-mean of dep. var.	0.190	0.154	0.218	0.149
Individuals (Mothers)	97,758	54,791	61,320	18,353
Migrant, father's sector of employment services				
post X MW	-0.023	-0.022	-0.017	-0.013
	(0.022)	(0.023)	(0.022)	(0.028)
Pre-mean of dep. var.	0.273	0.231	0.292	0.247
Individuals (Mothers)	72,799	28,796	53,888	9,885
Migrant, father's sector of employment unknown				
post X MW	0.013	0.009	0.018*	0.011
	(0.009)	(0.008)	(0.010)	(0.011)
Pre-mean of dep. var.	0.164	0.120	0.209	0.123
Individuals (Mothers)	221,613	135,370	122,533	36,290

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1.

*** p<0.01, ** p<0.05, * p<0.1

Table L.3 – Long-term effects of the opening of MWs accounting for plausible compositional changes, cohorts 1931–1946, Sweden

	(i) Adding Parental SES				*(ii) Mother Sample Pooled*				*(iii) Mother FEs*			
	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ln labour income (ages 47–64)												
post X MW	0.041**	0.044**	0.048**	0.050**	0.047**	0.053***	0.049**	0.049**	0.043*	0.037	0.051*	0.051
	(0.018)	(0.018)	(0.020)	(0.020)	(0.019)	(0.019)	(0.022)	(0.022)	(0.026)	(0.027)	(0.028)	(0.032)
Pre-mean of dep. var.	7.939	7.875	8.002	7.864	7.991	7.933	8.047	7.937	7.991	7.933	8.047	7.937
Individuals	786,775	484,523	440,190	137,938	642,433	386,120	373,087	116,774	642,433	386,120	373,087	116,774
Unemployed (ages 55–64)												
post X MW	-0.013***	-0.014***	-0.012***	-0.013***	-0.013***	-0.013***	-0.013***	-0.011**	-0.004	-0.004	-0.007	-0.011
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.006)	(0.006)	(0.007)
Pre-mean of dep. var.	0.127	0.127	0.126	0.126	0.126	0.127	0.124	0.124	0.126	0.127	0.124	0.124
Individuals	760,058	468,729	424,705	133,376	627,182	377,883	363,308	114,009	627,182	377,883	363,308	114,009
On disability pension (ages 55–64)												
post X MW	-0.014***	-0.015***	-0.012***	-0.011**	-0.013***	-0.014***	-0.012***	-0.011**	-0.004	-0.006	-0.001	-0.006
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.006)	(0.007)	(0.008)
Pre-mean of dep. var.	0.124	0.127	0.121	0.128	0.125	0.129	0.121	0.129	0.125	0.129	0.121	0.129
Individuals	764,859	471,482	427,596	134,219	630,558	379,720	365,470	114,632	630,558	379,720	365,470	114,632

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level. Models are estimated according to Eq.1. Models (i) add parental socio-economic status, such as mother's education, father's socio-economic status and sector of employment. Models (ii) are estimated on a sample with known mothers' identifiers. Models (iii) are mother-fixed-effects models.

*** p<0.01, ** p<0.05, * p<0.1

Table L.4 – Long-term effects of the opening of MWs accounting for selective survival, cohorts 1931–1946, Sweden

	Inverse probability of participation weighting				***Heckman two-stage selection procedure***				***Bounds accounting for early neonatal mortality***			
	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ln labour income (ages 47–64)												
post X MW	0.047***	0.054***	0.049**	0.054***	0.047**	0.054***	0.049**	0.055***	0.062***	0.079***	0.055***	0.072***
	(0.018)	(0.018)	(0.020)	(0.020)	(0.018)	(0.018)	(0.020)	(0.020)	(0.019)	(0.019)	(0.020)	(0.020)
Pre-mean of dep. var.	7.942	7.878	8.002	7.863	7.942	7.878	8.002	7.863	7.910	7.847	7.981	7.838
Individuals	766,106	465,193	437,861	136,948	766,106	465,193	437,861	136,948	775,803	478,137	436,519	137,357
Unemployed (ages 55–64)												
post X MW	-0.013***	-0.014***	-0.012***	-0.013***	-0.013***	-0.014***	-0.012***	-0.013***	n/a	n/a	n/a	n/a
	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	n/a	n/a	n/a	n/a
Pre-mean of dep. var.	0.127	0.127	0.126	0.126	0.127	0.127	0.126	0.126				
Individuals	759,066	468,729	423,713	133,376	753,963	463,832	423,269	133,138				
On disability pension (ages 55–64)												
post X MW	-0.014***	-0.015***	-0.011***	-0.011**	-0.014***	-0.015***	-0.011***	-0.011**	n/a	n/a	n/a	n/a
	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	n/a	n/a	n/a	n/a
Pre-mean of dep. var.	0.124	0.127	0.122	0.128	0.124	0.127	0.121	0.128				
Individuals	763,857	471,482	426.594	134.219	758,731	466,563	426,145	133,977				

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1. Panel A additionally includes an inverse Mills' ratio). *Heckman two-stage selection procedure*: In the first stage, the probability of being observed in the estimation sample is modelled as a function of year-of-birth fixed effects, municipality-of-birth fixed effects, county-of-birth by urbanization by year-of-birth fixed effects, and sex for all individuals observed as early as the year 1960 and hence for the age 29 the youngest (*Folk- och Bostadsräkningen 1960*) in a probit model. An inverse Mills' ratio originating for each individual from the estimates of the probit model is further included as a covariate into the Eq.1. Panel B uses the inverse of the estimated propensity scores as weights. *The inverse probability of participation weighting:* propensity scores for participation in adult sample for individuals are estimated not only based on their baseline but also paternal characteristics, such as education of the mother, and socio-

economic status and sector of employment of a father. Weighted analyses are then conducted based on the inverse of the estimated propensity scores. Some observations are automatically dropped in the probit regressions the first stage. Panel C is estimated for the continuous outcome.

*** p<0.01, ** p<0.05, * p<0.1

Appendix M

Alternative Treatment Measures

The treatment indicator used in this paper is based on distances between municipalities of birth and MWs, and, guided by the regulations of the National Board of Social Affairs and to allow for potentially nonlinear effects of distance, I have chosen a categorical measure indicating distance not more than 5.5 kilometres. In this appendix, I utilize three other measures of spatial access to MWs in the form of the treatment intensity, benefiting from the recent developments in spatial modelling that takes the costs of travel into account. One is a linear distance to the nearest MW, which is equivalent to the least cost path. A natural logarithm of the linear distance to the closest hospitals is also used to allow for non-linearity across the whole distribution of distance. One more measure is a gravity-based access – hospital beds allocated for child delivery per capita adjusted to travel time, which takes into account not only the distance to the nearest hospital but also the availability of the hospital facilities (supply) relative to the demand for these facilities from surrounding populations (Crooks and Schuurman, 2012). Potential geographical access to the maternity hospital depends on distance to nearby maternity hospitals as well as their availability to the demand from the surrounding population. Least cost path analysis ignores supply and demand of maternity hospital services and hence arrives at using the shortest distance (that costs least) between the population and locations of services. Gravity (potential) modelling takes them into account. Gravity model used in this study to construct the potential access A_i at municipality i is the following (Crooks and Schuurman, 2012):

$$A_i = \sum_j \frac{S_j}{D_j f(t_{ij})} \quad (1)$$

where S_j – supply at maternity hospital j (number of childbirth beds), $f(t_{ij})$ – travel time impedance function, t_{ij} – travel time from municipality i to maternity hospital j (based on the closest distance, km), D_j – demand at maternity hospital j.

Demand is as following:

$$D_j = \sum_k \frac{P_k}{f(t_{kj})} \quad (2)$$

where P_k – population size in municipality k (total population in 1000s in 1930), $f(t_{kj})$ – travel time impedance function for travel from municipality k to maternity hospital location j. The demand is adjusted with a decay coefficient following the rationale that women are attracted

to larger services (in this case also to those of presumably better quality) and this attraction diminishes with distance and costs. For walking times less than or equal to 60 minutes, I do not apply any decay; for 60 to 180 minutes, I use ⅒ implying that the travel impedance increases linearly; for a walking time more than 180 minutes, a maternity hospital is considered as not accessible. Both the natural logarithm of a distance and the gravity-based access allow me to deal flexibly with access to the nearest hospital for municipalities that with a threshold measure based on a linear distance fall into the untreated category. Variations with a linear distance, such as adjustments for urban and rural areas or with a decay coefficient provide similar results, supporting my choice of the prevailed modes of travelling. The effects of the reform are generally robust to the use of all measures of access to maternity services across outcomes in the short, medium and long terms. Such effects are also robust to alternative explanations.

Tables M.1–M.3 present results with all three measures of access to maternity services for short-, medium- and long-term outcomes.

Table M.1 – The short-term effects of the openings of MWs with alternative measures of access to the new MWs (*(1)* linear distance, *(2)* natural logarithm of distance, and *(3)* gravity-based access), Sweden cohorts born in 1931–1946

	All treatment groups			*Treated and never-treated*			*Treated and always-treated*			*Treated only*		
	(1)	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*
*Hospital births/Total live births*100*												
distance to the closest MW	6.395**			6.839***			7.107**			8.515***		
	(2.501)			(2.389)			(3.157)			(2.767)		
ln distance to the closest MW		18.282***			18.949***			20.441***			23.231***	
		(4.516)			(4.339)			(5.937)			(5.064)	
gravity-based access			2.829***			2.743***			2.884**			2.789**
			(1.041)			(0.923)			(1.215)			(1.110)
Pre-mean of dep. variable	48.872	48.872	48.872	48.138	48.138	48.138	48.526	48.526	48.526	30.344	30.344	30.344
28-day mortality, per 1000 live births												
distance to the closest MW	-6.938***			-7.209***			-3.705**			-4.478**		
	(1.567)			(1.616)			(1.530)			(1.815)		
ln distance to the closest MW		-16.255***			-17.011***			-8.398**			-11.104**	
		(2.896)			(3.006)			(4.173)			(5.192)	
gravity-based access			-3.555***			-3.581***			-2.791***			-3.053**
			(0.863)			(0.885)			(1.057)			(1.317)
Pre-mean of dep. variable	35.671	35.671	35.671	35.934	35.934	35.934	30.663	30.663	30.663	31.280	31.280	31.280
7-day mortality, per 1000 live births												
distance to the closest MW	-5.920***			-6.193***			-2.960**			-4.037**		
	(1.291)			(1.341)			(1.309)			(1.620)		
ln distance to the closest MW		-15.127***			-15.915***			-8.815**			-12.289***	
		(2.622)			(2.736)			(3.710)			(4.697)	
gravity-based access			-3.096***			-2.986***			-2.526**			-2.936**
			(0.810)			(0.829)			(1.017)			(1.282)
Pre-mean of dep. variable	28.375	28.375	28.375	28.542	28.542	28.542	24.643	24.643	24.643	24.244	24.244	24.244
8-28-day mortality, per 1000 live births												
distance to the closest MW	-1.018*			-1.015*			-0.745			-0.441		
	(0.560)			(0.565)			(0.676)			(0.752)		
ln distance to the closest MW		-1.129			-1.096			0.417			1.185	
		(1.062)			(1.085)			(1.569)			(1.848)	
gravity-based access			-0.458			-0.595			-0.265			-0.117
			(0.369)			(0.400)			(0.423)			(0.515)
Pre-mean of dep. variable	7.296	7.296	7.296	7.392	7.392	7.392	6.020	6.020	6.020	7.036	7.036	7.036
Premature birth, per 1000 live births												

distance to the closest MW	2.499			2.249			3.135			3.035		
	(2.806)			(2.525)			(3.146)			(1.974)		
ln distance to the closest MW		6.046			5.316			7.330*			4.658	
		(3.773)			(3.415)			(4.221)			(3.216)	
gravity-based access			0.780*			0.611			0.903*			0.353
			(0.414)			(0.376)			(0.514)			(0.490)
Pre-mean of dep. variable	27.153	27.153	27.153	26.440	26.440	26.440	31.532	31.532	31.532	27.599	27.599	27.599
Stillbirths, per 1000 births												
distance to the closest MW	1.319**			1.194**			1.963**			1.990		
	(0.521)			(0.604)			(0.928)			(1.506)		
ln distance to the closest MW		1.505			1.261			1.964			1.136	
		(1.036)			(1.081)			(2.020)			(2.883)	
gravity-based access			0.832**			1.008**			0.829**			1.057**
			(0.410)			(0.458)			(0.359)			(0.415)
Pre-mean of dep. variable	22.807	22.807	22.807	22.830	22.830	22.830	22.990	22.990	22.990	24.669	24.669	24.669
Sick mothers, per 1000												
distance to the closest MW	-0.988			-0.873			-1.701			-2.200		
	(1.224)			(1.267)			(1.914)			(2.479)		
ln distance to the closest MW		-2.073			-1.849			-2.790			-2.313	
		(2.235)			(2.244)			(3.214)			(4.120)	
gravity-based access			-0.960***			-0.890**			-1.018**			-0.896*
			(0.352)			(0.350)			(0.400)			(0.507)
Pre-mean of dep. variable	7.474	7.474	7.474	7.666	7.666	7.666	6.881	6.881	6.881	10.744	10.744	10.744

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1 by using an alternative treatment indicator measuring access to the new MWs. Models (1) include a linear distance to the closest MW (divided by 1 standard deviation (13,953 kilometers for the 'neonatal mortality' sample) and by -1, and to be interpreted as 1 SD decrease). Models (2) include a natural logarithm of a distance to the closest MW (divided by -10 and to be interpreted as 10 percent decrease). Models (3) include a gravity-based access to MWs (divided by 1 standard deviation (0.385 MW hospital beds per population for the 'neonatal mortality' sample), and to be interpreted as 1 SD increase).

*** p<0.01, ** p<0.05, * p<0.1

Table M.2 – The long-term effects of the openings of MWs with alternative measures of access to the new MWs (*(1)* linear distance, *(2)* natural logarithm of distance, and *(3)* gravity-based access), Sweden cohorts born in 1931–1946

	All treatment groups			*Treated and never-treated*			*Treated and always-treated*			*Treated only*		
	(1)	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*
Ln labour income (ages 47–64)												
distance to the closest MW	0.017**			0.019**			0.016**			0.016*		
	(0.007)			(0.008)			(0.008)			(0.009)		
ln distance to the closest MW		0.034**			0.039***			0.035**			0.040**	
		(0.014)			(0.015)			(0.015)			(0.016)	
gravity-based access			0.013**			0.021***			0.010			0.016*
			(0.006)			(0.007)			(0.008)			(0.009)
Pre-mean of dep. variable	7.939	7.939	7.939	7.875	7.875	7.875	8.002	8.002	8.002	7.864	7.864	7.864
Unemployed (ages 55–64)												
distance to the closest MW	-0.006***			-0.006***			-0.005***			-0.005***		
	(0.002)			(0.002)			(0.002)			(0.002)		
ln distance to the closest MW		-0.010***			-0.011***			-0.010***			-0.010***	
		(0.003)			(0.003)			(0.003)			(0.003)	
gravity-based access			-0.004***			-0.007***			-0.003*			-0.006***
			(0.001)			(0.001)			(0.001)			(0.002)
Pre-mean of dep. variable	0.127	0.127	0.127	0.127	0.127	0.127	0.126	0.126	0.126	0.126	0.126	0.126
On disability pension (ages 55–64)												
distance to the closest MW	-0.007***			-0.007***			-0.006***			-0.006***		
	(0.001)			(0.001)			(0.001)			(0.002)		
ln distance to the closest MW		-0.009***			-0.012***			-0.007**			-0.009**	
		(0.003)			(0.003)			(0.003)			(0.003)	
gravity-based access			-0.004***			-0.007***			-0.003*			-0.006***
			(0.001)			(0.002)			(0.002)			(0.002)

Pre-mean of dep. variable	0.124	0.124	0.124	0.127	0.127	0.127	0.121	0.121	0.121	0.128	0.128	0.128

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1 by using an alternative treatment indicator measuring access to the new MWs. Models (1) include a linear distance to the closest MW (divided by 1 standard deviation (18.230 kilometers for the 'labour income' sample) and by -1, and to be interpreted as 1 SD decrease). Models (2) include a natural logarithm of a distance to the closest MW (divided by -10 and to be interpreted as 10 percent decrease). Models (3) include a gravity-based access to MWs (divided by 1 standard deviation (0.510 MW hospital beds per population for the 'labour income' sample), and to be interpreted as 1 SD increase).
*** p<0.01, ** p<0.05, * p<0.1

Table M.3 – The medium-term effects of the openings of MWs with alternative measures of access to the new MWs (*(1)* linear distance, *(2)* natural logarithm of distance, and *(3)* gravity-based access), Sweden cohorts born in 1931–1946

	All treatment groups			*Treated and never-treated*			*Treated and always-treated*			*Treated only*		
	(1)	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*
Total length of stay in hospital (ages 37–64)												
distance to the closest MW	-0.869**			-0.924**			-0.671**			-0.809*		
	(0.438)			(0.467)			(0.336)			(0.417)		
ln distance to the closest MW		-1.797***			-1.940***			-1.435**			-1.897**	
		(0.633)			(0.721)			(0.585)			(0.812)	
gravity-based access			-0.712**			-0.723**			-0.566**			-0.705**
			(0.288)			(0.349)			(0.277)			(0.356)
Pre-mean of dep. variable	24.727	24.727	24.727	24.877	24.877	24.877	24.710	24.710	24.710	26.108	26.108	26.108
Years of schooling (completed)												
distance to the closest MW	0.042**			0.042**			0.051**			0.038**		
	(0.018)			(0.017)			(0.021)			(0.017)		
ln distance to the closest MW		0.060**			0.075***			0.081**			0.082**	
		(0.030)			(0.027)			(0.038)			(0.033)	
gravity-based access			0.020			0.027			0.031			0.031
			(0.016)			(0.018)			(0.020)			(0.024)
Pre-mean of dep. variable	11.173	11.173	11.173	10.605	10.605	10.605	11.756	11.756	11.756	10.671	10.671	10.671
Secondary school graduate												
distance to the closest MW	0.006**			0.006**			0.008**			0.005*		
	(0.003)			(0.002)			(0.004)			(0.003)		
ln distance to the closest MW		0.011**			0.012***			0.015**			0.015***	
		(0.004)			(0.004)			(0.006)			(0.005)	
gravity-based access			0.003			0.004			0.005*			0.005
			(0.002)			(0.003)			(0.003)			(0.003)
Pre-mean of dep. variable	0.572	0.572	0.572	0.498	0.498	0.498	0.649	0.649	0.649	0.504	0.504	0.504
Specific field of education												
distance to the closest MW	0.006**			0.005**			0.008**			0.005		
	(0.003)			(0.002)			(0.004)			(0.003)		

ln distance to the closest MW		-0.010**			-0.012***			-0.014**			-0.015**	
		(0.004)			(0.004)			(0.006)			(0.006)	
gravity-based access			-0.003			-0.003			-0.005*			-0.004
			(0.002)			(0.002)			(0.003)			(0.003)
Pre-mean of dep. variable	0.449	0.449	0.449	0.516	0.516	0.516	0.381	0.381	0.381	0.509	0.509	0.509
Employed in service sector (ages 34–49)												
distance to the closest MW	0.007***			0.008***			0.009***			0.008***		
	(0.002)			(0.002)			(0.003)			(0.003)		
ln distance to the closest MW		0.013***			0.013***			0.015***			0.014***	
		(0.004)			(0.004)			(0.004)			(0.005)	
gravity-based access			0.004			0.005*			0.004			0.005
			(0.003)			(0.003)			(0.003)			(0.004)
Pre-mean of dep. variable	0.585	0.585	0.585	0.542	0.542	0.542	0.630	0.630	0.630	0.543	0.543	0.543
Non-manual occupations (ages 34–49)												
distance to the closest MW	0.005*			0.006*			0.008**			0.009***		
	(0.003)			(0.003)			(0.003)			(0.003)		
ln distance to the closest MW		0.005			0.008			0.011*			0.016**	
		(0.006)			(0.006)			(0.006)			(0.006)	
gravity-based access			0.004			0.007**			0.007**			0.012***
			(0.003)			(0.003)			(0.003)			(0.003)
Pre-mean of dep. variable	0.383	0.383	0.383	0.318	0.318	0.318	0.453	0.453	0.453	0.346	0.346	0.346

Note: estimations from the SIP. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1 by using an alternative treatment indicator measuring access to the new MWs. Models (1) include a linear distance to the closest MW (divided by 1 standard deviation (18.227 kilometers for the 'hospitalizations' sample) and by -1, and to be interpreted as 1 SD decrease). Models (2) include a natural logarithm of a distance to the closest MW (divided by -10 and to be interpreted as 10 percent decrease). Models (3) include a gravity-based access to MWs (divided by 1 standard deviation (0.810 MW hospital beds per population for the 'hospitalizations' sample), and to be interpreted as 1 SD increase).

*** p<0.01, ** p<0.05, * p<0.1

Appendix N

Analyses Accounting for the Plausible Measurement Error

In this appendix, I conducted several robustness estimations in order to confirm that the potential measurement error in the registration of the place of birth did not affect the results. First, I restricted the sample of treated municipalities to those that did not have access to a MW at the onset of the reform, i.e., those located more than 20 km away from the nearest ward. Second, I excluded from the sample municipalities for which the closest MW registered the births. Third, I defined the municipality of birth based on the municipality of residence of the mother from the 1960 Population and Housing Census. All analyses yield estimates similar to the baseline effects (see Table).

Table – Analyses Accounting for the Plausible Measurement Error, Sweden Cohorts Born in 1931–1946

	(i) Maternal municipality of residence				*(ii) The nearest MW not registering*				*(iii) Closest MW > 20 km*	
	All treatment groups	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*All treatment groups*	*Treated and never-treated*	*Treated and always-treated*	*Treated only*	*Treated and never-treated*	*Treated only*
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)
Ln labour income (ages 47–64)										
post X MW	0.041***	0.036**	0.055***	0.043**	0.051**	0.055***	0.051**	0.052**	0.054**	0.037*
	(0.015)	(0.015)	(0.016)	(0.019)	(0.021)	(0.019)	(0.022)	(0.021)	(0.022)	(0.022)
Pre-mean of dep. var.	8.017	8.005	8.043	7.968	7.966	7.882	8.008	7.858	7.868	7.853
Individuals	846,399	659,475	286,908	99,984	588,834	286,582	423,749	121,497	260,207	85,342
Unemployed (ages 55–64)										
post X MW	-0.007**	-0.007*	-0.008*	-0.006	-0.012***	-0.013***	-0.011***	-0.014***	-0.011**	-0.006
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Pre-mean of dep. var.	0.120	0.117	0.128	0.120	0.125	0.125	0.126	0.128	0.127	0.128
Individuals	826,189	644,456	279,427	97,694	568,579	277,250	408,856	117,527	251,709	82,480
On disability pension (ages 55–64)										
post X MW	-0.009***	-0.008**	-0.007*	-0.004	-0.016***	-0.017***	-0.013***	-0.015***	-0.014***	-0.010*
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)
Pre-mean of dep. var.	0.121	0.120	0.123	0.123	0.123	0.125	0.122	0.134	0.130	0.132
Individuals	830,577	647,703	281,084	98,210	572,233	278,856	411,639	118,262	253,181	83,002

Note: estimations from the *SIP*. Standard errors (in parentheses) are clustered at a municipality-of-birth level. All models are estimated according to Eq.1.

*** p<0.01, ** p<0.05, * p<0.1

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