Does Healthcare Consolidation Harm Patients? Evidence from Maternity Ward Closures

— Online Appendix —

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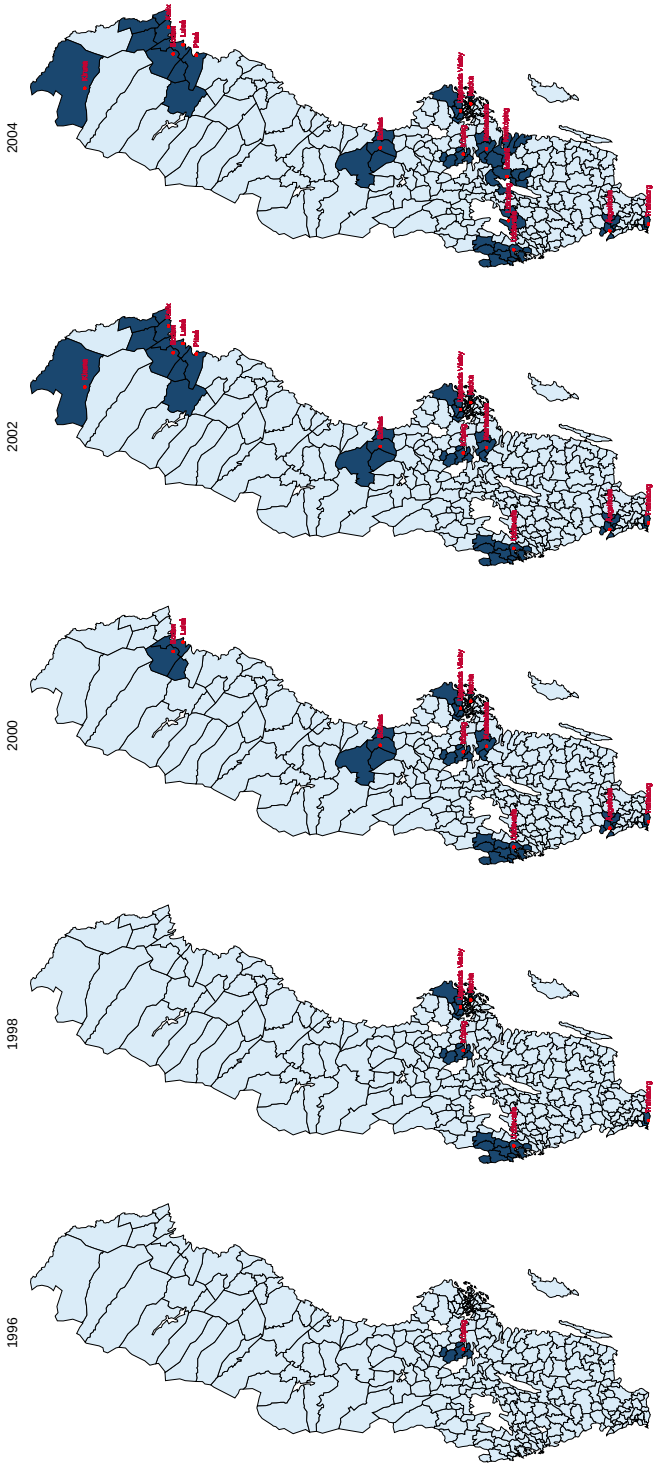

FIGURE A.1. MATERNITY WARD CLOSURES IN SWEDEN

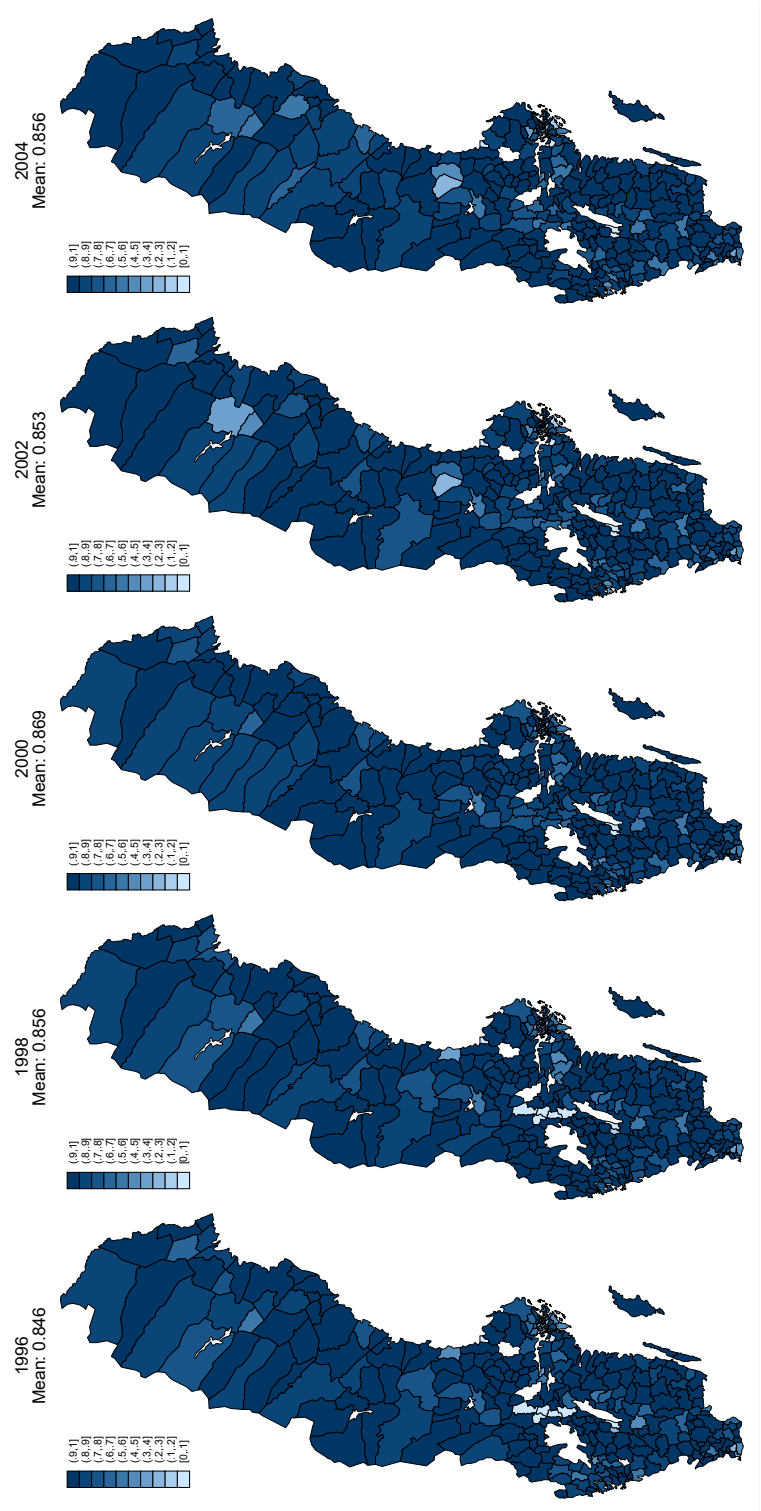

FIGURE A.2. SHARE OF BIRTHS OCCURRING IN LOCAL HOSPITALS IN SWEDEN

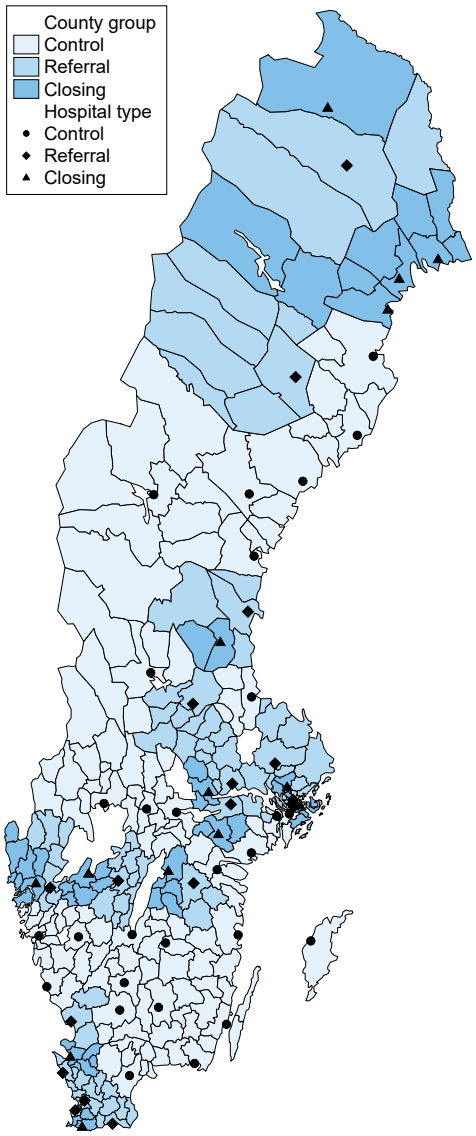

FIGURE A.3. MATERNITY WARDS IN SWEDEN BY CATCHMENT AREA TYPE

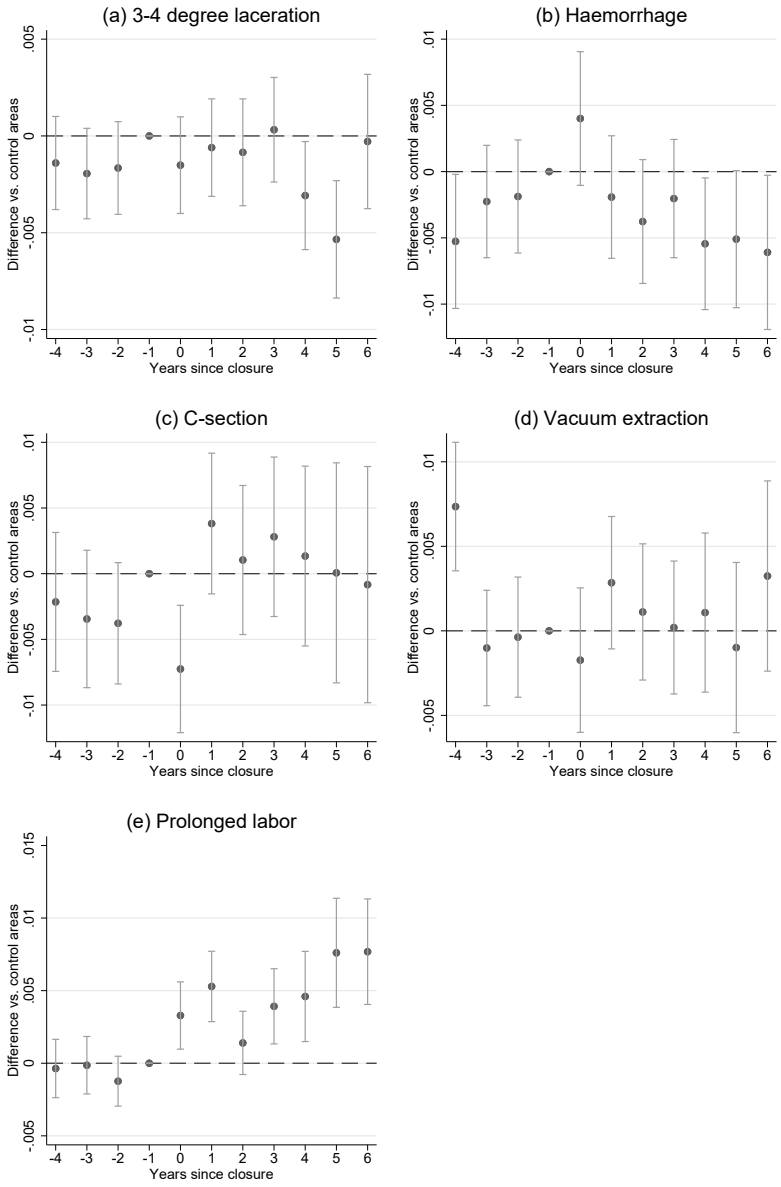

FIGURE A.4. EVENT STUDY ESTIMATES FOR MATERNITY WARD CLOSURES: MATERNAL HEALTH

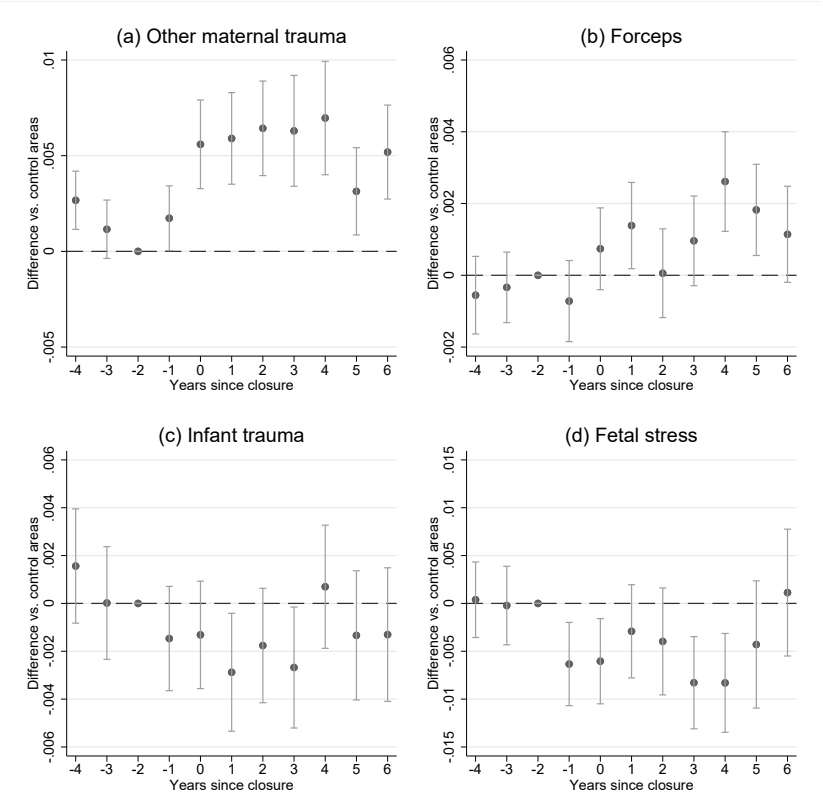

FIGURE A.5. EVENT STUDY ESTIMATES FOR MATERNITY WARD CLOSURES, USING T-2 AS REFERENCE PERIOD

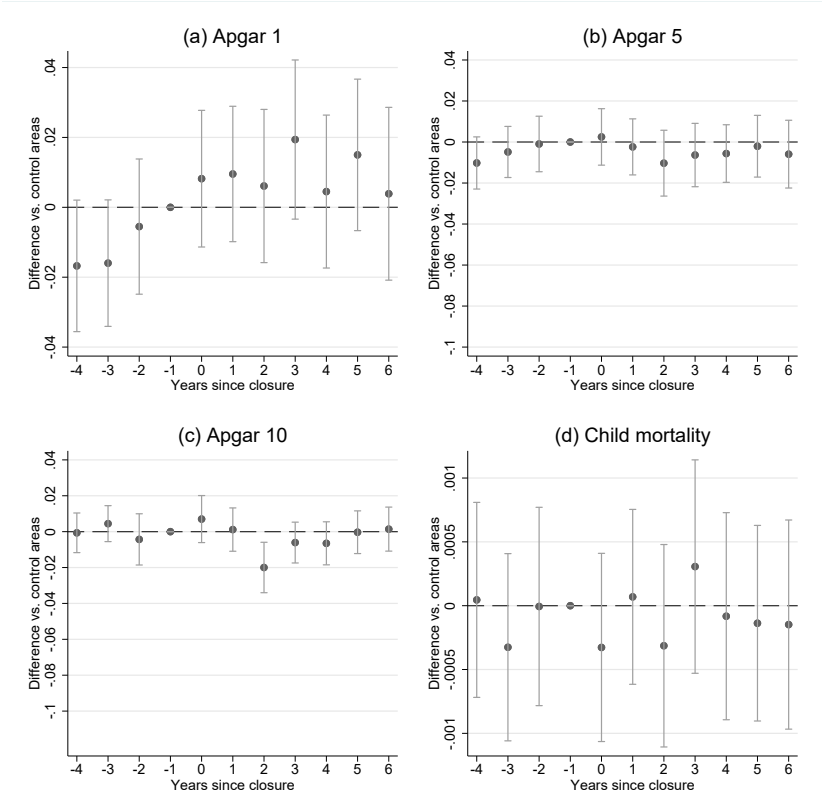

FIGURE A.6. EVENT STUDY ESTIMATES FOR MATERNITY WARD CLOSURES: INFANT HEALTH

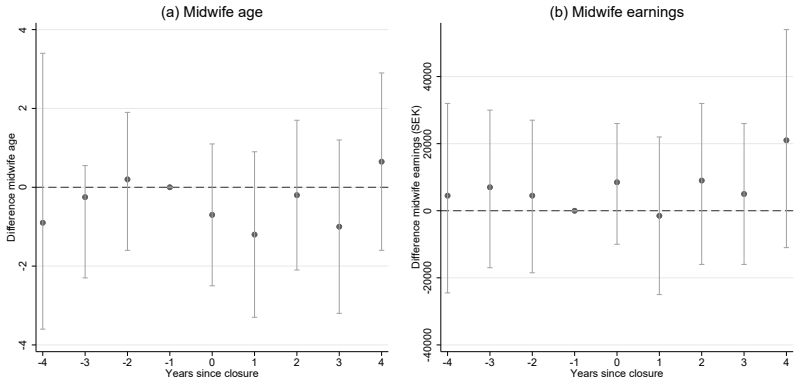

FIGURE A.7. EVENT STUDY ESTIMATES FOR A MATERNITY WARD CLOSURE ON MIDWIFE CHARACTERISTICS

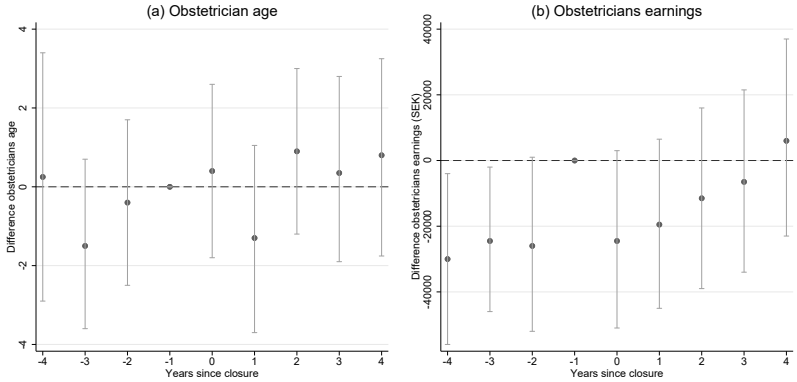

FIGURE A.8. EVENT STUDY ESTIMATES FOR A MATERNITY WARD CLOSURE ON OBSTETRICIAN CHARACTERISTICS

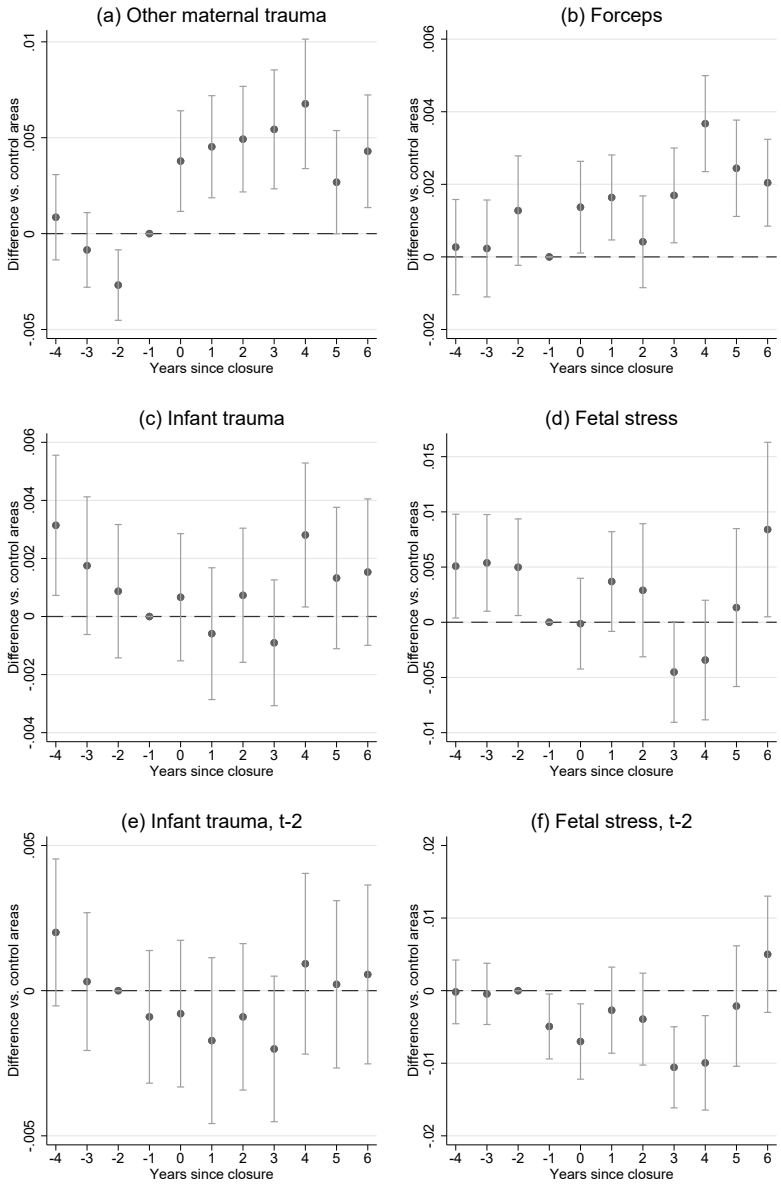

FIGURE A.9. EVENT STUDY ESTIMATES FOR MATERNITY WARD CLOSURES USING THE DE CHAISEMARTIN AND D'HAULTFŒUILLE APPROACH

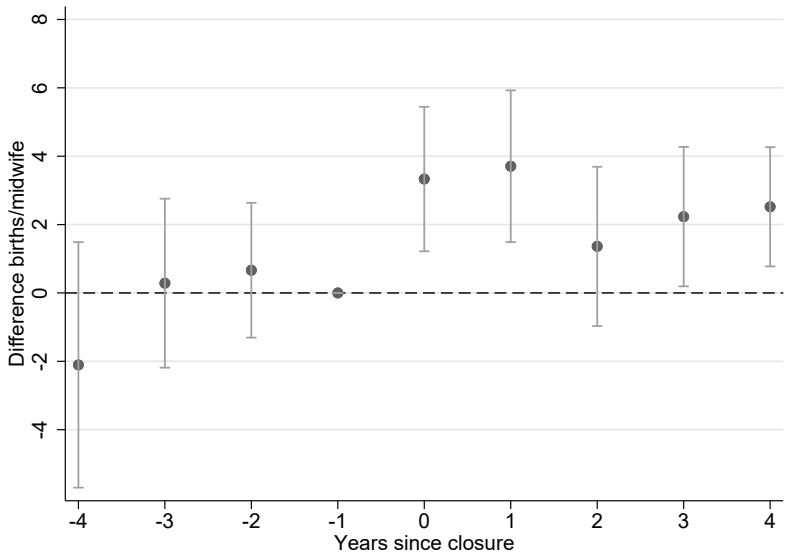

FIGURE A.10. EVENT STUDY ESTIMATES FOR MATERNITY WARD CLOSURE: ANNUAL BIRTHS PER MIDWIFE IN REFERRAL AREAS

TABLE A.1—COUNTY CHARACTERISTICS, MATERNITY WARD CLOSURES AND YEAR OF CLOSURE

	Full period				Before closures	
	All areas	Control areas	Referral areas	Closure areas	Referral areas	Closure areas
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Maternal demographics						
Age	29.13	28.87	29.53	28.86	28.87	28.27
Cohabiting (%)	88.18	89.13	87.16	87.94	86.37	87.03
Earnings before tax	58,761	54,669	64,551	56,121	49,400	45,327
Birth parity	1.87	1.89	1.83	1.92	1.87	1.94
Panel B: Risk factors						
Boy (%)	51.37	51.34	51.37	51.45	51.37	51.50
Malpositioned fetus (%)	4.58	4.61	4.56	4.53	5.86	5.53
Labor Dystocia (%)	3.69	3.45	3.81	4.18	3.46	3.89
Gestational Diabetes (%)	0.54	0.61	0.52	0.44	0.37	0.37
Eclampsia (%)	0.05	0.05	0.05	0.05	0.05	0.05
Light Preeclampsia (%)	2.98	2.91	3.12	2.82	2.97	2.64
Severe Preeclampsia (%)	0.92	0.97	0.86	0.92	0.78	0.93
Hypertension (%)	4.03	4.01	4.11	3.89	3.83	3.67
Congenital anomaly (%)	0.04	0.04	0.04	0.04	0.03	0.04
Isoimmunity (%)	0.14	0.15	0.13	0.13	0.18	0.16
Oligohydramnios (%)	0.87	0.84	0.95	0.77	0.52	0.41
Polyhydramnios (%)	0.16	0.16	0.14	0.19	0.12	0.20
Asthma (%)	4.73	4.45	4.99	4.94	3.92	4.09
Kidney disease (%)	0.44	0.44	0.46	0.39	0.51	0.39
Epilepsy (%)	0.34	0.36	0.34	0.31	0.34	0.32
Ulcerative colitis (%)	0.44	0.43	0.45	0.43	0.39	0.36
Lupus (SLE) (%)	0.09	0.09	0.09	0.10	0.11	0.11
Chronic hypertension (%)	0.34	0.34	0.35	0.34	0.43	0.38
Panel C: Infant health outcomes						
Apgar at minute 1	8.70	8.71	8.68	8.70	8.70	8.71
Apgar at minute 5	9.74	9.72	9.74	9.76	9.76	9.78
Apgar at minute 10	9.89	9.88	9.89	9.90	9.91	9.91
Infant mortality (%)	0.23	0.23	0.23	0.25	0.26	0.29
Fetal stress (%)	6.51	5.92	7.25	6.43	6.67	5.93
Infant trauma (%)	1.79	1.76	1.77	1.96	1.96	2.15
Panel D: Maternal health outcomes						
3–4 degree laceration (%)	2.45	2.32	2.71	2.18	2.25	1.75
Other maternal trauma (%)	1.19	1.10	1.30	1.19	1.03	0.97
Haemorrhage (%)	6.55	6.30	6.86	6.51	8.03	7.21
Prolonged labor (%)	0.88	0.81	1.09	0.77	0.91	0.76
Panel E: Procedures						
C-section (%)	12.46	12.05	12.79	12.87	10.08	11.19
Forceps (%)	0.40	0.35	0.47	0.36	0.44	0.32
Vacuum extraction (%)	5.81	5.70	6.03	5.53	5.15	5.06
Number of Births	1,298,382	604,753	510,946	182,683	256,758	111,443

NOTES.— Geographical indicators classify catchment areas into belonging to three different parts of Sweden; southern counties ("Götaland"), mid counties ("Svealand"), and northern counties ("Norrland"). Column 1 includes all maternity wards while Column 2 only includes wards that closed between 1990 and 2004. All explanatory variables are measured in year 1990. Standard errors in parentheses.

TABLE A.2—SUMMARY STATISTICS FOR RISK FACTORS AND HEALTH OUTCOMES

	(1) Closure dummy	(2) Closure year
Panel A: Socioeconomic characteristics		
ln(population)	-0.13	1.02
	(0.12)	(2.25)
Northern counties	-0.089	5.04
	(0.17)	(2.16)
Southern counties	-0.046	3.43
	(0.14)	(1.46)
ln(income)	-0.15	4.58
	(0.84)	(12.9)
ln(university education share)	0.64	-12.2
	(0.47)	(5.28)
Panel B: Health characteristics		
ln(number of births at ward)	-0.32	3.22
	(0.13)	(1.23)
ln(infant trauma share)	-0.018	-1.53
	(0.095)	(0.71)
ln(maternal trauma share)	-0.0075	1.03
	(0.10)	(1.27)
Observations	62	16

NOTES.— Swedish data for the period 1990-2004. Columns 1–4 show means for the full period and for the different groups, and Columns 5–6 show means for the closure and referral areas in the period before the closures took place. See text in Section III for variable and sample definitions. Earnings measured in Swedish kronor (1 SEK $\approx$ 0.11 USD). The stars report the significance from a test of mean difference between referral and closure areas for the full period (columns 3-4) and for the pre-treatment period (columns 5-6).

TABLE A.3—IMPACT OF A MATERNITY WARD CLOSURE: ALLOCATION OF C-SECTIONS

	C-section risk			
	0–10%	10%–25%	25%–50%	50+%
	(1)	(2)	(3)	(4)
Referral areas	0.0046	0.0071	-0.023	0.0080
	(0.0017)	(0.0048)	(0.013)	(0.015)
	[+7.4%]	[+4.9%]	[-5.6%]	[+1.6%]
Observations	906,678	180,460	54,248	71,387
Closure areas	-0.0042	0.0070	-0.0029	-0.041
	(0.0026)	(0.0073)	(0.018)	(0.020)
	[-6.9%]	[+4.8%]	[-0.7%]	[-8.1%]
Observations	639,184	105,711	36,253	47,227

NOTES.— Swedish data for the period 1990-2004. Reported effect estimates from estimation of model (1) for subsamples separated by predicted risk of a C-section. C-section risk is estimated using a logit model and the same covariates as in the main model. Each cell represents a separate regression. All models adjust for parish fixed effects, year fixed effects, maternal socioeconomic and health characteristics (reported in Table A.2) and linear county trends. Standard errors clustered at the parish level in parentheses.

TABLE A.4—ROBUSTNESS ANALYSES EXCLUDING YEAR BEFORE CLOSURE

	All years	Exclude year before closure	Exclude two years before closure
	(1)	(2)	(3)
Panel A: Apgar-scores			
Apgar 1 minute	0.0065	0.0054	0.0081
	(0.010)	(0.011)	(0.012)
Apgar 5 minutes	-0.0054	-0.0089	-0.0078
	(0.0069)	(0.0072)	(0.0074)
Apgar 10 minutes	-0.0025	-0.0062	-0.012
	(0.0067)	(0.0068)	(0.0064)
Panel B: Infant mortality, fetal distress and trauma			
Child mortality, 7 days	-0.00014	-0.00011	-0.000075
	(0.00043)	(0.00047)	(0.00049)
Fetal stress	-0.0049	-0.0057	-0.0052
	(0.0024)	(0.0025)	(0.0027)
Infant trauma	-0.0026	-0.0032	-0.0043
	(0.0011)	(0.0012)	(0.0014)
Panel C: Maternal trauma and other complications			
3-4 degree trauma	-0.0010	-0.0013	-0.00079
	(0.0015)	(0.0016)	(0.0017)
Other maternal trauma	-0.00029	-0.00012	-0.00060
	(0.0011)	(0.0011)	(0.0012)
Haemorrhage	0.0018	0.0020	0.0040
	(0.0027)	(0.0030)	(0.0032)
Prolonged labor	-0.000011	-0.00067	-0.00099
	(0.0016)	(0.0017)	(0.0018)
Panel D: Procedures			
C-section	-0.0044	-0.0044	-0.0060
	(0.0039)	(0.0042)	(0.0043)
Forceps	-0.000029	-0.00023	0.000054
	(0.00051)	(0.00051)	(0.00054)
Vacuum extraction	-0.0078	-0.0085	-0.0098
	(0.0021)	(0.0024)	(0.0025)
Observations	787,436	760,948	741,619

NOTES.— Swedish data for the period 1990-2004. Reported effect estimates from estimation of model (1) for the sample of mothers in closure areas. Each cell represents a separate regression. Column 1 reports our main results, and Column 2 and 3 excludes data from one respectively two years before the closure. All models adjust for parish fixed effects, year fixed effects, maternal socioeconomic and health characteristics (reported in Table A.2) and linear county trends. Standard errors clustered at the parish level in parentheses.

TABLE A.5—ROBUSTNESS ANALYSES DIFFERENT EMPIRICAL SPECIFICATIONS

	Main (1)	No trends (2)	Parish trends (3)	No controls (4)	No controls and no trends (5)	Maternal fixed effects (6)
Panel A: Apgar-scores						
Apgar 1 minute	0.00020	0.019	0.0086	0.00054	0.019	0.019
	(0.0062)	(0.0055)	(0.0069)	(0.0071)	(0.0056)	(0.0092)
Apgar 5 minutes	-0.0060	0.0010	-0.00023	-0.0057	0.00058	-0.00086
	(0.0042)	(0.0039)	(0.0048)	(0.0042)	(0.0040)	(0.0084)
Apgar 10 minutes	-0.0045	-0.0027	-0.00074	-0.0044	-0.0031	-0.0022
	(0.0036)	(0.0029)	(0.0045)	(0.0036)	(0.0029)	(0.0071)
Panel B: Infant mortality, fetal distress and trauma						
Child mortality, 7 days	-0.000075	-0.00011	-0.000004	-0.000050	0.000025	-0.00012
	(0.00023)	(0.00018)	(0.00028)	(0.00023)	(0.00018)	(0.00038)
Fetal stress	-0.0032	-0.0041	-0.0019	-0.0033	-0.0039	-0.0059
	(0.0016)	(0.0017)	(0.0017)	(0.0016)	(0.0017)	(0.0022)
Infant trauma	-0.0020	-0.0022	-0.0010	-0.0019	-0.0022	-0.0015
	(0.00070)	(0.00060)	(0.00084)	(0.00070)	(0.00060)	(0.0011)
Panel C: Maternal trauma and other complications						
3-4 degree laceration	-0.00051	-0.00037	0.00075	-0.00047	-0.00030	-0.00046
	(0.00089)	(0.00079)	(0.00094)	(0.00087)	(0.00078)	(0.0014)
Other maternal trauma	0.0027	0.0045	0.0053	0.0027	0.0045	0.0039
	(0.00098)	(0.00089)	(0.0011)	(0.00098)	(0.0011)	(0.0015)
Haemorrhage	0.0015	0.0019	0.0022	0.0012	0.0016	-0.0024
	(0.0016)	(0.0017)	(0.0019)	(0.0016)	(0.0017)	(0.0026)
Prolonged labor	0.0024	0.0046	0.0021	0.0023	0.0047	0.0022
	(0.0010)	(0.00095)	(0.0010)	(0.0010)	(0.00096)	(0.0017)
Panel D: Procedures						
C-section	0.0016	0.0020	0.00069	0.0029	0.0084	-0.00075
	(0.0021)	(0.0017)	(0.0017)	(0.0020)	(0.0016)	(0.0022)
Forceps	0.00067	0.0017	0.00082	0.00069	0.0018	0.000020
	(0.00030)	(0.00036)	(0.00041)	(0.00030)	(0.00034)	(0.00070)
Vacuum extraction	0.00019	-0.0052	0.0041	0.00042	-0.0037	-0.0030
	(0.0015)	(0.0014)	(0.0017)	(0.0014)	(0.0014)	(0.0027)
Maternal controls	Yes	Yes	Yes	No	No	No
County trends	Yes	No	No	Yes	No	Yes
Municipality trends	No	No	Yes	No	No	No
Maternal fixed effects	No	No	No	No	No	Yes
Observations	1,298,382	1,298,382	1,298,382	1,298,382	1,298,382	1,298,382

NOTES.— Swedish data for the period 1990-2004. Reported effect estimates from estimation of model (1) for different sets of control variables. Each cell represents a separate regression. The main model includes parish fixed effects, year fixed effects, linear county trends and maternal controls (socioeconomic and health characteristics). Column 2 exclude the linear county trends, Column 3 includes linear parish trends instead of county trends, Column 4 excludes the maternal characteristics, Column 5 excludes both trends and controls, and Column 5 includes maternal fixed effects. In Column 5 the sample is restricted to mothers who do not move between births. Standard errors clustered at the parish level in parentheses.

TABLE A.6—PLACEBO CLOSURE ESTIMATES FOR BIRTH WEIGHT

	Very low birth weight (<1500g)	Low birth weight (<2500g)	High birth weight (>4500g)	Birth weight (grams)	Gestation (days)
	(1)	(2)	(3)	(4)	(5)
Closure	-0.00084	0.0013	0.0019	2.74	0.038
	(0.0007)	(0.0014)	(0.0015)	(3.61)	(0.079)
Control mean:	0.007	0.036	0.043	3540	278.2
Observations	1,298,382	1,298,382	1,298,382	1,298,382	1,298,382

NOTES.— Swedish data for the period 1990-2004. All models adjust for parish fixed effects, year fixed effects, maternal socioeconomic and health characteristics (reported in Table A.2) and linear county trends. Standard errors clustered at the parish level in parentheses.

TABLE A.7—DRIVING TIME TO THE MATERNITY WARD AND HEALTH OUTCOMES

	Apgar 1	Apgar 5	Apgar 10	Child mortality	Fetal stress	Infant trauma	
	(1)	(2)	(3)	(4)	(5)	(6)	
Panel A: Infant outcomes							
10-30 minutes	-0.013	0.00018	0.0013	0.000067	-0.0010	-0.0013	
	(0.011)	(0.0073)	(0.0076)	(0.00043)	(0.0026)	(0.0013)	
30-60 minutes	0.0091	0.0011	-0.012	0.00016	-0.0029	-0.0030	
	(0.017)	(0.012)	(0.0099)	(0.00087)	(0.0037)	(0.0020)	
60+ minutes	-0.054	-0.048	-0.027	0.00065	-0.0040	-0.0067	
	(0.033)	(0.028)	(0.025)	(0.0017)	(0.0062)	(0.0028)	
	3–4 degree laceration	Other mat. trauma	Haemorr-hage	Prolonged labor	C-section	Forceps	Vacuum extraction
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel B: Maternal outcomes							
10-30 minutes	-0.0017	-0.0012	-0.0018	0.0022	-0.0056	0.00014	-0.0043
	(0.0017)	(0.00090)	(0.0051)	(0.0014)	(0.0041)	(0.00050)	(0.0023)
30-60 minutes	0.00063	-0.0018	0.0022	0.0029	-0.011	-0.00079	-0.0040
	(0.0020)	(0.0014)	(0.0045)	(0.0016)	(0.0040)	(0.00064)	(0.0028)
60+ minutes	-0.0016	0.0046	0.0061	0.0073	-0.013	0.00074	-0.0026
	(0.0038)	(0.0020)	(0.0057)	(0.0025)	(0.0065)	(0.0020)	(0.0044)

NOTES.— Swedish data for the period 1990-2004. The omitted reference category is 0–10 minutes to the ward. Each column within each panel represents a separate regression. Distances are from each mothers' place of residence and the designated maternity ward. Driving time is derived from Google® Maps API software using centroid coordinates for approximately 3,800 triangular points based on the Swedish RT-90 standard. All models adjust for parish fixed effects, year fixed effects, maternal socioeconomic and health characteristics (reported in Table A.2) and linear county trends. Standard errors clustered at the parish level in parentheses.

TABLE A.8—HETEROGENOUS EFFECTS BY INFLOW OF ADDITIONAL BIRTHS, AND QUALITY DIFFERENCE BETWEEN THE CLOSED AND THE REFERRAL WARD

	Apgar 1	Apgar 5	Apgar 10	Child mortality	Fetal stress	Infant trauma
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Crowding and relative number of additional births						
Closure	-0.0083	-0.0086	-0.0074	-0.00016	-0.0013	-0.0030
	(0.0069)	(0.0048)	(0.0038)	(0.00025)	(0.00081)	(0.0019)
C×Large infl.	0.13	0.15	-0.032	0.0014	0.0071	0.025
	(0.10)	(0.069)	(0.054)	(0.0035)	(0.010)	(0.033)
Panel B: Crowding and absolute number of additional births (in hundreds)						
Closure	-0.0082	-0.0084	-0.0075	-0.00016	-0.0013	-0.0030
	(0.0069)	(0.0047)	(0.0038)	(0.00025)	(0.00081)	(0.0019)
C×Large infl.	0.0055	0.0088	-0.0012	0.000055	0.00046	0.0016
	(0.0046)	(0.0032)	(0.0024)	(0.00016)	(0.00046)	(0.0016)
Panel C: Quality diff. between referral and closed ward (measured by infant trauma)						
Closure	0.0084	-0.0036	-0.0039	-0.000052	-0.0031	-0.0053
	(0.0100)	(0.0067)	(0.0064)	(0.00041)	(0.0010)	(0.0023)
C×Large qual.	0.0046	-0.0014	0.00046	0.00026	-0.0020	-0.0030
	(0.0059)	(0.0049)	(0.0039)	(0.00025)	(0.00066)	(0.0012)
Panel D: Quality diff. between referral and closed ward (measured by fetal stress)						
Closure	0.0082	-0.0035	-0.0039	-0.000062	-0.0030	-0.0052
	(0.0096)	(0.0067)	(0.0064)	(0.00040)	(0.00099)	(0.0023)
C×Large qual.	-0.031	0.0012	0.0084	0.00040	-0.0063	0.0038
	(0.024)	(0.014)	(0.011)	(0.0011)	(0.0019)	(0.0043)

NOTES.— Swedish data for the period 1990-2004. Panel A reports heterogeneous effects for the referral areas by the relative number of additional births and Panel B by the absolute number of additional births. Panel C reports heterogeneous effects for the closure areas by quality difference between the closed ward and the referral ward, where quality is measured by the prevalence of infant trauma (percentage difference). Panel D gives similar estimates using the prevalence of fetal stres (percentage difference). All models adjust for parish fixed effects, year fixed effects, maternal socioeconomic and health characteristics (reported in Table A.2) and linear county trends. Standard errors clustered at the parish level in parentheses.

TABLE A.9—HETEROGENOUS EFFECTS BY INFLOW OF ADDITIONAL BIRTHS, AND QUALITY DIFFERENCE BETWEEN THE CLOSED AND THE REFERRAL WARD

	3–4 degree laceration	Other mat. trauma	Haemorr-hage	Prolonged labor	C-section	Forceps	Vacuum extraction
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Crowding and relative number of additional births							
Closure	-0.0011	0.0028	0.00096	0.0021	0.0050	0.00077	0.0021
	(0.0010)	(0.0013)	(0.0020)	(0.0012)	(0.0024)	(0.00034)	(0.0017)
C×Large infl.	0.020	0.057	0.050	-0.038	0.022	0.0011	-0.032
	(0.022)	(0.032)	(0.031)	(0.012)	(0.024)	(0.0055)	(0.022)
Panel B: Crowding and absolute number of additional births (in hundreds)							
Closure	-0.0010	0.0029	0.0010	0.0021	0.0050	0.00079	0.0020
	(0.0010)	(0.0013)	(0.0020)	(0.0012)	(0.0024)	(0.00034)	(0.0017)
C×Large infl.	0.0013	0.0034	0.0024	-0.00099	0.00022	0.00045	-0.0019
	(0.0010)	(0.0014)	(0.0016)	(0.00055)	(0.0012)	(0.00025)	(0.00098)
Panel C: Quality diff. between referral and closed ward (measured by infant trauma)							
Closure	-0.0011	0.00012	0.00100	0.00012	-0.0045	0.00021	-0.0079
	(0.0014)	(0.0011)	(0.0025)	(0.0015)	(0.0037)	(0.00048)	(0.0021)
C×Large qual.	0.00087	-0.0015	0.0036	0.00030	-0.00060	-0.000077	-0.00077
	(0.00087)	(0.00066)	(0.0021)	(0.00064)	(0.0016)	(0.00029)	(0.00099)
Panel D: Quality diff. between referral and closed ward (measured by fetal stress)							
Closure	-0.0012	0.00017	0.00090	0.00011	-0.0045	0.00020	-0.0079
	(0.0014)	(0.00096)	(0.0022)	(0.0015)	(0.0037)	(0.00047)	(0.0020)
C×Large qual.	-0.0060	-0.0049	0.020	0.0013	0.0012	0.0025	-0.0041
	(0.0024)	(0.0017)	(0.0059)	(0.0020)	(0.0060)	(0.00096)	(0.0032)

NOTES.— Swedish data for the period 1990-2004. Panel A reports heterogeneous effects for the referral areas by the relative number of additional births and Panel B by the absolute number of additional births. Panel C reports heterogeneous effects for the closure areas by quality difference between the closed ward and the referral ward, where quality is measured by the prevalence of infant trauma (percentage difference). Panel D gives similar estimates using the prevalence of fetal stres (percentage difference). All models adjust for parish fixed effects, year fixed effects, maternal socioeconomic and health characteristics (reported in Table A.2) and linear county trends. Standard errors clustered at the parish level in parentheses.

TABLE A.10—PLACEBO ESTIMATES: QUALITY DIFFERENCES BETWEEN LARGE AND SMALL WARDS

	All wards (1)	<20km (2)	<10km (3)	<5km (4)
Panel A: Placebo estimates maternal characteristics				
Age	0.41	0.93	-0.18	-0.19
	(0.096)	(0.32)	(0.75)	(0.45)
Earnings before tax	56.0	90.0	-40.6	-24.9
	(11.7)	(32.6)	(73.5)	(35.7)
Cohabiting	-0.028	-0.015	-0.024	-0.031
	(0.0043)	(0.0088)	(0.020)	(0.015)
Malpositioned fetus	0.0020	0.0034	-0.00083	0.0048
	(0.00076)	(0.0019)	(0.0042)	(0.0030)
Hypertension	0.00037	-0.00078	-0.00021	0.0059
	(0.00090)	(0.0020)	(0.0032)	(0.0017)
Asthma	-0.0056	-0.0065	-0.0033	-0.0055
	(0.0013)	(0.0042)	(0.0095)	(0.0091)
Observations	610,901	106,178	27,394	6,547

NOTES.— The tables compares parishes served by large (2000+ yearly births) and small (less than 2000+ birth) wards for different subsamples from matching parishes served by large wards with the geographically closest parish served by a small ward. Column 1 reports estimation results without any restriction on the distance between matched parishes while Columns 2–4 report results from application of gradually more restrictive distance requirements. Each cell represents a separate regression. All models adjust for parish fixed effects and year fixed effects. Standard errors clustered at the parish level in parentheses.