

Supplementary tables: Sensitivity and subgroup analyses

a) Sensitivity analysis: Only live births

Beta coefficients (95% CI) from logistic regressions for time trend analysis for premature birth and SGA in live births only, The Netherlands 2003-2017.

Variables	Premature birth		SGA	
	Crude	Adjusted \pm	Crude	Adjusted \pm
Year [†]	-0.0005 (-0.0007; -0.0003)*	-0.0004 (-0.0006; -0.0002)*	-0.0012 (-0.0014; -0.0010)*	-0.0013 (-0.0015; -0.0011)*
Neighbourhood deprivation quintile [†]				
Q1	REF	REF	REF	REF
Q2	0.0006 (-0.0011; 0.0023)	0.0000 (-0.0017; 0.0017)	0.0063 (0.0039; 0.0087)*	0.0041 (0.0017; 0.0065)*
Q3	0.0030 (0.0013; 0.0047)*	0.0016 (-0.0001; 0.0033)	0.0140 (0.0116; 0.0164)*	0.0083 (0.0059; 0.0107)*
Q4	0.0050 (0.0032; 0.0068)*	0.0023 (0.0005; 0.0041)*	0.0295 (0.0271; 0.0319)*	0.0186 (0.0162; 0.0210)*
Q5	0.0099 (0.0081; 0.0117)*	0.0070 (0.0052; 0.0088)*	0.0558 (0.0534; 0.0582)*	0.0340 (0.0315; 0.0365)*
Interaction deprivation quintile * year [†]				
Q1	REF	REF	REF	REF
Q2	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)	0.0001 (-0.0002; 0.0004)	0.0001 (-0.0002; 0.0004)
Q3	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)	0.0002 (-0.0001; 0.0005)	0.0002 (-0.0001; 0.0005)
Q4	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)	-0.0002 (-0.0005; 0.0001)	-0.0001 (-0.0004; 0.0002)
Q5	-0.0003 (-0.0005; -0.0001)*	-0.0004 (-0.0006; -0.0002)*	-0.0006 (-0.0009; -0.0003)*	-0.0004 (-0.0007; -0.0001)*

SGA, Small for Gestational Age; CI, 95% confidence interval; [†] results from models with linear trend for year; *p < 0.05; \pm Adjusted for ethnicity, maternal age and parity.

Subgroup analyses

b) Gestational age 26+ weeks

Beta coefficients (95% CI) from logistic regressions for time trend analysis of unfavourable birth outcomes, births with gestational age 26+ weeks, The Netherlands 2003-2017.

Variables	Perinatal mortality		Premature birth		SGA	
	Crude	Adjusted \pm	Crude	Adjusted \pm	Crude	Adjusted \pm
Year \dagger	-0.0003 (-0.0003; -0.0003)*	-0.0003 (-0.0003; -0.0003)*	-0.0006 (-0.0008; -0.0004)*	-0.0006 (-0.0008; -0.0004)*	-0.0013 (-0.0015; -0.0011)*	-0.0014 (-0.0016; -0.0012)*
Neighbourhood deprivation quintile \dagger						
Q2	-0.0007 (-0.0012; -0.0002)*	-0.0007 (-0.0012; -0.0002)*	0.0003 (-0.0015; 0.0021)	-0.0003 (-0.0021; 0.0015)	0.0063 (0.0039; 0.0087)*	0.0041 (0.0017; 0.0065)*
Q3	-0.0005 (-0.0010; 0.0000)	-0.0006 (-0.0011; -0.0001)*	0.0031 (0.0013; 0.0049)*	0.0016 (-0.0002; 0.0034)	0.0141 (0.0117; 0.0165)*	0.0083 (0.0059; 0.0107)*
Q4	-0.0003 (-0.0008; 0.0002)	-0.0005 (-0.0010; 0.0000)	0.0050 (0.0032; 0.0068)*	0.0023 (0.0005; 0.0041)*	0.0298 (0.0274; 0.0322)*	0.0188 (0.0164; 0.0212)*
Q5	0.0012 (0.0007; 0.0017)*	0.0005 (0.0000; 0.0010)	0.0104 (0.0086; 0.0122)*	0.0074 (0.0056; 0.0092)*	0.0564 (0.0540; 0.0588)*	0.0344 (0.0319; 0.0369)*
Interaction deprivation quintile * year \dagger						
Q2	0.0001 (0.0000; 0.0002)	0.0001 (0.0000; 0.0002)	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)	0.0001 (-0.0002; 0.0004)	0.0001 (-0.0002; 0.0004)
Q3	0.0001 (0.0000; 0.0002)	0.0001 (0.0000; 0.0002)	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)	0.0002 (-0.0001; 0.0005)	0.0002 (-0.0001; 0.0005)
Q4	0.0001 (0.0000; 0.0002)*	0.0001 (0.0000; 0.0002)*	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)	-0.0002 (-0.0005; 0.0001)	-0.0001 (-0.0004; 0.0002)
Q5	0.0000 (-0.0001; 0.0001)	-0.0001 (-0.0002; 0.0000)	-0.0003 (-0.0005; -0.0001)*	-0.0004 (-0.0006; -0.0002)*	-0.0007 (-0.001; -0.0004)*	-0.0004 (-0.0007; -0.0001)*

SGA, Small for Gestational Age; CI, 95% confidence interval; \dagger results from models with linear trend for year; *p < 0.05; \pm Adjusted for ethnicity, maternal age and parity.

c) Only primiparous women

Beta coefficients (95% CI) from logistic regressions for time trend analysis of unfavourable birth outcomes, only primiparous women, The Netherlands 2003-2017.

Variables	Perinatal mortality		Premature birth		SGA	
	Crude	Adjusted \pm	Crude	Adjusted \pm	Crude	Adjusted \pm
Year [†]	-0.0003 (-0.0004; -0.0002)*	-0.0003 (-0.0004; -0.0002)*	-0.0003 (-0.0005; -0.0001)*	-0.0003 (-0.0005; -0.0001)*	-0.0009 (-0.0012; -0.0006)*	-0.0011 (-0.0014; -0.0008)*
Neighbourhood deprivation quintile [†]						
Q1	REF	REF	REF	REF	REF	REF
Q2	-0.0003 (-0.0011; 0.0005)	-0.0004 (-0.0012; 0.0004)	-0.0004 (-0.0029; 0.0021)	-0.0005 (-0.0030; 0.0020)	0.0034 (0.0000; 0.0068)*	0.0026 (-0.0008; 0.0060)
Q3	-0.0004 (-0.0012; 0.0004)	-0.0005 (-0.0013; 0.0003)	0.0018 (-0.0007; 0.0043)	0.0014 (-0.0011; 0.0039)	0.0084 (0.0050; 0.0118)*	0.0057 (0.0023; 0.0091)*
Q4	-0.0003 (-0.0011; 0.0005)	-0.0005 (-0.0013; 0.0003)	0.0049 (0.0024; 0.0074)*	0.0040 (0.0014; 0.0066)*	0.0222 (0.0187; 0.0257)*	0.0168 (0.0133; 0.0203)*
Q5	0.0017 (0.0008; 0.0026)*	0.0008 (-0.0001; 0.0017)	0.0121 (0.0095; 0.0147)*	0.0088 (0.0061; 0.0115)*	0.0526 (0.0490; 0.0562)*	0.0345 (0.0308; 0.0382)*
Interaction deprivation quintile * year [†]						
Q1	REF	REF	REF	REF	REF	REF
Q2	0.0000 (-0.0001; 0.0001)	0.0000 (-0.0001; 0.0001)	0.0001 (-0.0002; 0.0004)	0.0000 (-0.0003; 0.0003)	0.0002 (-0.0002; 0.0006)	0.0002 (-0.0002; 0.0006)
Q3	0.0001 (0.0000; 0.0002)	0.0001 (0.0000; 0.0002)	0.0001 (-0.0002; 0.0004)	0.0001 (-0.0002; 0.0004)	0.0002 (-0.0002; 0.0006)	0.0003 (-0.0001; 0.0007)
Q4	0.0001 (0.0000; 0.0002)	0.0001 (0.0000; 0.0002)	0.0001 (-0.0002; 0.0004)	0.0000 (-0.0003; 0.0003)	-0.0002 (-0.0006; 0.0002)	-0.0002 (-0.0006; 0.0002)
Q5	-0.0001 (-0.0002; 0.0000)	-0.0001 (-0.0002; 0.0000)	-0.0001 (-0.0004; 0.0002)	-0.0002 (-0.0005; -0.0001)	-0.0008 (-0.0012; -0.0004)*	-0.0005 (-0.0009; -0.0001)*

SGA, Small for Gestational Age; CI, 95% confidence interval; [†] results from models with linear trend for year; *p < 0.05; \pm Adjusted for ethnicity, maternal age and parity.

d) Very Small for Gestational Age

Beta coefficients (95% CI) from logistic regressions for time trend analysis for Very Small for Gestational Age, The Netherlands 2003-2017.

Variables	Very Small for Gestational Age	
	Crude	Adjusted \pm
Year \dagger	-0.0009 (-0.0010; -0.0008)*	-0.0009 (-0.0010; -0.0008)*
Neighbourhood deprivation quintile \dagger		
Q1	REF	REF
Q2	0.0029 (0.0014; 0.0044)*	0.0021 (0.0006; 0.0036)*
Q3	0.0068 (0.0053; 0.0083)*	0.0047 (0.0032; 0.0062)*
Q4	0.0136 (0.0121; 0.0151)*	0.0095 (0.0080; 0.0110)*
Q5	0.0263 (0.0248; 0.0278)*	0.0183 (0.0168; 0.0198)*
Interaction deprivation quintile * year \dagger		
Q1	REF	REF
Q2	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)
Q3	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)
Q4	-0.0002 (-0.0004; -0.0001)*	-0.0002 (-0.0004; -0.0001)
Q5	-0.0006 (-0.0008; -0.0004)*	-0.0006 (-0.0008; -0.0004)*

CI, 95% confidence interval; \dagger results from models with linear trend for year; *p < 0.05; \pm Adjusted for ethnicity, maternal age and parity.

e) 95 centile as cut-off point to define most deprived neighbourhood

Beta coefficients (95% CI) from logistic regressions for time trend analysis of unfavourable birth outcomes using 95 centile as cut-off point to define most deprived neighbourhood, The Netherlands 2003-2017.

Variables	Perinatal mortality		Premature birth		SGA	
	Crude	Adjusted•	Crude	Adjusted•	Crude	Adjusted•
Year†	-0.0003 (-0.0003; -0.0003)*	-0.0003 (-0.0003; -0.0003)*	-0.0006 (-0.0008; -0.0004)*	-0.0006 (-0.0008; -0.0004)*	-0.0013 (-0.0015; -0.0011)*	-0.0014 (-0.0016; -0.0012)*
Neighbourhood deprivation quintile †						
Q1	REF	REF	REF	REF	REF	REF
Q2	-0.0006 (-0.0012; -0.0001)*	-0.0007 (-0.0013; -0.0001)*	0.0003 (-0.0015; 0.0021)	-0.0003 (-0.0021; 0.0015)	0.0063 (0.0039; 0.0087)*	0.0040 (0.0016; 0.0064)*
Q3	-0.0004 (-0.0010; 0.0002)	-0.0006 (-0.0012; -0.0001)*	0.0031 (0.0013; 0.0049)*	0.0016 (-0.0002; 0.0034)	0.0141 (0.0117; 0.0165)*	0.0082 (0.0058; 0.0106)*
Q4	-0.0002 (-0.0008; 0.0004)	-0.0005 (-0.0011; 0.0001)	0.0051 (0.0033; 0.0069)*	0.0023 (0.0005; 0.0041)*	0.0298 (0.0274; 0.0322)*	0.0188 (0.0164; 0.0212)*
Q5	0.0014 (0.0008; 0.0020)*	0.0006 (0.0000; 0.0012)	0.0099 (0.0079; 0.0119)*	0.0066 (0.0046; 0.0086)*	0.0538 (0.0512; 0.0564)*	0.0340 (0.0313; 0.0367)*
Q6	0.0026 (0.0017; 0.0035)*	0.0013 (0.0004; 0.0022)*	0.0144 (0.0115; 0.0173)*	0.0112 (0.0083; 0.0141)*	0.0646 (0.0607; 0.0685)*	0.0355 (0.0315; 0.0395)*
Interaction deprivation quintile * year †						
Q1	REF	REF	REF	REF	REF	REF
Q2	0.0001 (0.0000; 0.0002)	0.0001 (0.0000; 0.0002)	0.0001 (-0.0001; 0.0003)	0.0000 (-0.0002; 0.0002)	0.0001 (-0.0002; 0.0004)	0.0001 (-0.0002; 0.0004)
Q3	0.0000 (-0.0001; 0.0001)	0.0000 (-0.0001; 0.0001)	0.0000 (-0.0002; 0.0002)	0.0000 (-0.0002; 0.0002)	0.0002 (-0.0001; 0.0005)	0.0002 (-0.0001; 0.0005)
Q4	0.0001 (0.0000; 0.0002)*	0.0001 (0.0000; 0.0002)	0.0001 (-0.0001; 0.0003)	0.0001 (-0.0001; 0.0003)	-0.0002 (-0.0005; 0.0001)	-0.0001 (-0.0004; 0.0002)
Q5	0.0000 (-0.0001; 0.0001)	0.0000 (-0.0001; 0.0001)	-0.0002 (-0.0004; 0.0000)	-0.0003 (-0.0005; -0.0001)*	-0.0006 (-0.0009; -0.0003)*	-0.0003 (-0.0006; 0.0001)*
Q6	-0.0001 (-0.0002; 0.0000)	-0.0001 (-0.0002; 0.0000)	-0.0005 (-0.0008; -0.0002)*	-0.0006 (-0.0009; -0.0003)*	-0.0009 (-0.0014; -0.0004)*	-0.0005 (-0.001; 0.0001)*

SGA, Small for Gestational Age; CI, 95% confidence interval; † results from models with linear trend for year; *p < 0.05; •Adjusted for ethnicity, maternal age and parity.

f) Stratified by urbanisation degree

Beta coefficients (95% CI) from logistic regressions for time trend analysis of unfavourable birth outcomes in urban areas, The Netherlands 2003-2017.

Variables	Perinatal mortality		Premature birth		SGA	
	Crude	Adjusted±	Crude	Adjusted±	Crude	Adjusted±
Year†	-0.0002 (-0.0003; -0.0001)*	-0.0002 (-0.0003; -0.0001)*	-0.0006 (-0.0009; -0.0003)*	-0.0006 (-0.0009; -0.0003)*	-0.0009 (-0.0014; -0.0004)*	-0.0011 (-0.0016; -0.0006)*
Neighbourhood deprivation quintile †						
Q1	REF	REF	REF	REF	REF	REF
Q2	0.0002 (-0.0009; 0.0013)	0.0002 (-0.0009; 0.0013)	0.0022 (-0.0012; 0.0056)	0.0014 (-0.002; 0.0048)	0.0077 (0.0030; 0.0124)*	0.0046 (0.0000; 0.0092)
Q3	0.0007 (-0.0003; 0.0017)	0.0005 (-0.0005; 0.0015)	0.0049 (0.0017; 0.0081)*	0.0034 (0.0002; 0.0066)*	0.0168 (0.0124; 0.0212)*	0.0101 (0.0057; 0.0145)*
Q4	0.0009 (-0.0001; 0.0019)	0.0007 (-0.0003; 0.0017)	0.0077 (0.0045; 0.0109)*	0.0048 (0.0016; 0.0080)*	0.0334 (0.0291; 0.0377)*	0.0212 (0.0169; 0.0255)*
Q5	0.0030 (0.0020; 0.0040)*	0.0022 (0.0012; 0.0032)*	0.0147 (0.0116; 0.0178)*	0.0111 (0.0079; 0.0143)*	0.0610 (0.0567; 0.0653)*	0.0376 (0.0333; 0.0419)*
Interaction deprivation quintile * year †						
Q1	REF	REF	REF	REF	REF	REF
Q2	0.0000 (-0.0001; 0.0001)	0.0000 (-0.0001; 0.0001)	0.0000 (-0.0004; 0.0004)	0.0000 (-0.0004; 0.0004)	-0.0001 (-0.0007; 0.0005)	0.0000 (-0.0006; 0.0006)
Q3	-0.0001 (-0.0002; 0.0000)	-0.0001 (-0.0002; 0.0000)	-0.0001 (-0.0005; 0.0003)	-0.0001 (-0.0005; 0.0003)	-0.0001 (-0.0006; 0.0004)	0.0000 (-0.0005; 0.0005)
Q4	0.0000 (-0.0001; 0.0001)	0.0000 (-0.0001; 0.0001)	0.0000 (-0.0004; 0.0004)	0.0001 (-0.0003; 0.0005)	-0.0005 (-0.0010; 0.0000)	-0.0002 (-0.0007; 0.0003)
Q5	-0.0002 (-0.0003; -0.0001)*	-0.0002 (-0.0003; -0.0001)*	-0.0004 (-0.0008; 0.0000)	-0.0004 (-0.0008; -0.0001)*	-0.0011 (-0.0016; -0.0006)*	-0.0007 (-0.0012; -0.0002)*

SGA, Small for Gestational Age; CI, 95% confidence interval; † results from models with linear trend for year; *p < 0.05; ±Adjusted for ethnicity, maternal age and parity.

Beta coefficients (95% CI) from logistic regressions for time trend analysis of unfavourable birth outcomes in rural areas, The Netherlands 2003-2017.

Variables	Perinatal mortality		Premature birth		SGA	
	Crude	Adjusted \pm	Crude	Adjusted \pm	Crude	Adjusted \pm
Year [†]	-0.0004 (-0.0005; -0.0003)*	-0.0004 (-0.0005; -0.0003)*	-0.0006 (-0.0008; -0.0004)*	-0.0006 (-0.0008; -0.0004)*	-0.0014 (-0.0016; -0.0012)*	-0.0014 (-0.0016; -0.0012)*
Neighbourhood deprivation quintile [†]						
Q1	REF	REF	REF	REF	REF	REF
Q2	-0.0006 (-0.0013; 0.0001)	-0.0007 (-0.0014; -0.0001)*	0.0006 (-0.0016; 0.0028)	-0.0001 (-0.0023; 0.0021)	0.0077 (0.0049; 0.0105)*	0.0057 (0.0029; 0.0085)*
Q3	-0.0002 (-0.0010; 0.0006)	-0.0004 (-0.0012; 0.0004)	0.0054 (0.0029; 0.0079)*	0.0040 (0.0015; 0.0065)*	0.0170 (0.0137; 0.0203)*	0.0117 (0.0084; 0.0150)*
Q4	0.0002 (-0.0008; 0.0012)	-0.0001 (-0.0011; 0.0009)	0.0077 (0.0046; 0.0108)*	0.0056 (0.0025; 0.0087)*	0.0334 (0.0293; 0.0375)*	0.0242 (0.0201; 0.0283)*
Q5	0.0009 (-0.0004; 0.0022)	0.0000 (-0.0013; 0.0013)	0.0094 (0.0052; 0.0136)*	0.0074 (0.0032; 0.0116)*	0.0593 (0.0539; 0.0647)*	0.0415 (0.0360; 0.0470)*
Interaction deprivation quintile * year [†]						
Q1	REF	REF	REF	REF	REF	REF
Q2	0.0001 (0.0000; 0.0002)	0.0001 (0.0000; 0.0002)	0.0001 (-0.0002; 0.0004)	0.0001 (-0.0002; 0.0004)	0.0000 (-0.0004; 0.0004)	0.0000 (-0.0004; 0.0004)
Q3	0.0001 (0.0000; 0.0002)	0.0001 (0.0000; 0.0002)	0.0000 (-0.0003; 0.0003)	0.0001 (-0.0002; 0.0004)	0.0001 (-0.0003; 0.0005)	0.0002 (-0.0002; 0.0006)
Q4	0.0001 (0.0000; 0.0002)	0.0001 (0.0000; 0.0002)	0.0001 (-0.0003; 0.0005)	0.0001 (-0.0003; 0.0005)	-0.0006 (-0.0011; -0.0001)*	-0.0005 (-0.001; 0.0000)
Q5	0.0000 (-0.0002; 0.0002)	0.0001 (-0.0001; 0.0003)	0.0000 (-0.0005; 0.0005)	-0.0001 (-0.0006; 0.0004)	-0.0005 (-0.0012; 0.0002)	-0.0004 (-0.0011; 0.0003)

SGA, Small for Gestational Age; CI, 95% confidence interval; [†] results from models with linear trend for year; *p < 0.05; \pm Adjusted for ethnicity, maternal age and parity.