

Determinant	Category	All births length of stay in hours					Vaginal birth length of stay in hours	Cesarean birth length of stay in hours	Vaginal births: length of stay <24 hours			Cesarean deliveries: length of stay <72 hours		
		Median (IQR), all deliveries	Mean $\pm$ SD, all deliveries	Linear regression adjusting for country	Linear regression adjusting for country & C-section	Linear regression adjusting for all variables	Linear regression adjusting for all variables	Linear regression adjusting for all variables	% Vaginal deliveries too short	Logistic regression (vaginal) adjusting for country	Logistic regression (vaginal) adjusting for all	% cesarean deliveries too short	Logistic regression (c-section) adjusting for country	Logistic regression (c-section) adjusting for all
Multiple birth	Singleton	2.5 (1.5,3.5)	80.7 $\pm$ 88.2	reference	reference	reference	reference	Reference	33.7	reference	reference	19.7	reference	reference
	Twins or Triplets	3.5 (1.5,5.5)	114.0 $\pm$ 112.7	42.8 (39.3; 46.2)	29.1 (26.0; 32.1)	22.3 (19.8; 25.9)	24.5 (20.6; 28.3)	23.5 (15.7; 31.3)	28.3	0.55 (0.47; 0.64)	0.59 (0.48; 0.72)	17.1	0.51 (0.41; 0.65)	0.57 (0.44; 0.75)
Birthweight	<1,999 grams	3.5 (1.5,6.5)	115.2 $\pm$ 115.6	44.4 (41.1; 47.0)	38.4 (36.8; 41.1)	34.3 (31.6; 36.9)	38.8 (36.0; 41.6)	28.6 (22.2; 35.0)	21	0.82 (0.71; 0.93)	0.86 (0.75; 0.99)	18.4	0.59 (0.48; 0.73)	0.69 (0.54; 0.83)
	2,000-2,499 grams	2.5 (1.5,3.5)	96.0 $\pm$ 87.8	8.8 (7.1; 10.5)	8.2 (6.6; 9.7)	6.9 (5.3; 8.4)	8.0 (6.4; 9.5)	6.6 (2.2; 11.0)	19.5	0.86 (0.80; 0.93)	0.88 (0.81; 0.95)	14.8	0.77 (0.66; 0.88)	0.81 (0.70; 0.94)
	2,500+ grams	2.5 (1.5,3.5)	89.8 $\pm$ 88.6	reference	reference	reference	reference	Reference	24	reference	reference	19.4	reference	reference
Survival of Index child	Died before/on day of discharge	3.5 (1.5,5.5)	111.7 $\pm$ 107.1	41.5 (37.3; 45.8)	32.1 (28.3; 35.9)	25.3 (19.8; 30.9)	22.3 (16.4; 28.1)	29.2 (15.9; 42.4)	23.4	0.54 (0.44; 0.65)	0.54 (0.39; 0.75)	9.8	0.43 (0.30; 0.61)	0.33 (0.19 ; 0.59)
	Survived	2.5 (1.5,3.5)	81.0 $\pm$ 88.3	reference	reference	reference	Reference	Reference	33.5	reference	reference	19.8	reference	reference
	Died after discharge	1.5 (0.7,3.5)	68.8 $\pm$ 92.9	1.6 (-1.5; 4.7)	2.2 (-0.6; 4.9)	0.4 (-2.9; 3.8)	1.5 (- 1.7; 4.8)	-6.7 (-17.7; 4.2)	44.5	1.11 (0.99; 1.24)	0.98 (0.84; 1.13)	22.6	0.87 (0.65; 1.15)	0.96 (0.69; 1.35)
Birth attendant	Nurse-midwife	1.5 (0.8,2.5)	49.6 $\pm$ 64.9	reference	reference	reference	Reference	Reference	38.2	reference	reference	19.9	reference	reference
	Doctor	2.5 (1.5,4.5)	93.7 $\pm$ 93.6	43.0 (41.7; 44.3)	21.0 (19.8; 22.2)	19.8 (18.5; 21.2)	8.7 (7.4; 10.0)	Not Applicable	30.9	0.60 (0.57; 0.63)	0.64 (0.61; 0.69)	Not Applicable	Not Applicable	Not Applicable
	Auxiliary staff/other	1.5 (0.3,2.5)	41.4 $\pm$ 61.5	-3.1 (-0.1; -6.1)	-3.0 (-5.7; -0.3)	-0.9 (-4.4; 2.6)	-0.8 (-4.0; 2.4)	Not Applicable	47	1.29 (1.17; 1.42)	1.22 (1.07; 1.41)	Not Applicable	Not Applicable	Not Applicable
Sector of Facility	Public	2.5 (1.5,3.5)	77.5 $\pm$ 88.5	reference	reference	reference	reference	Reference	31.4	reference	reference	19.9	reference	reference
	Private	2.5 (1.5,3.5)	85.2 $\pm$ 89.0	6.6 (5.5; 7.7)	-3.6 (-4.6; -2.6)	-4.3 (-5.5; -3.1)	1.4 (0.2; 2.7)	-14.1 (-17.1; -11.1)	36.4	0.96 (0.92; 1.00)	1.02 (0.97; 1.08)	19.4	1.58 (1.47; 1.72)	1.51 (1.37; 1.65)
Women's age in years	15-19	1.5 (1.5,3.5)	74.2 $\pm$ 83.5	-0.2 (-2.1; 1.6)	1.7 (0.0; 3.4)	-0.4 (-2.3; 1.5)	-0.9 (-2.7; 1.0)	0.9 (-5.2; 6.9)	35.7	1.00 (0.93; 1.08)	1.00 (0.92; 1.10)	17.9	0.94 (0.80; 1.10)	1.00 (0.83; 1.19)
	20-24	2.5 (1.5,3.5)	81.4 $\pm$ 86.0	reference	reference	reference	reference	Reference	30.9	reference	reference	19.1	reference	reference
	25-29	2.5 (1.5,3.5)	84.2 $\pm$ 90.4	2.4 (1.2; 3.7)	0.7 (-0.4; 1.7)	2.5 (1.2; 3.7)	2.7 (1.4; 3.9)	1.3 (-2.3; 4.9)	32.9	0.97 (0.93; 1.02)	0.96 (0.91; 1.02)	19.4	1.01 (0.92; 1.12)	0.99 (0.88; 1.11)
	30-34	2.5 (1.5,3.5)	83.5 $\pm$ 91.0	6.4 (5.0; 7.7)	4.9 (3.4; 6.3)	4.0 (2.5; 5.4)	8.1 (4.0; 12.2)	3.4 (1.4; 5.4)	34.5	0.95 (0.90; 1.00)	0.91 (0.84; 0.97)	20.1	0.87 (0.78; 0.96)	0.81 (0.71; 0.92)
	35-39	2.5 (1.5,3.5)	76.7 $\pm$ 90.9	9.0 (7.5; 10.6)	4.2 (2.8; 5.6)	7.5 (5.7; 9.3)	6.2 (4.4; 8.0)	14.0 (9.1; 19.0)	38.3	0.92 (0.86; 0.98)	0.86 (0.79; 0.94)	20.7	0.82 (0.72; 0.93)	0.76 (0.65; 0.89)
	40-44	2.5 (1.5,3.5)	70.1 $\pm$ 87.0	12.5 (10.4; 14.7)	7.7 (5.8; 9.6)	11.7 (9.2; 14.2)	9.3 (6.8; 11.7)	23.0 (16.2; 29.9)	41	0.88 (0.81; 0.96)	0.80 (0.71; 0.90)	21.8	0.70 (0.59; 0.84)	0.69 (0.56; 0.86)
	45-49	2.5 (1.5,3.5)	58.4 $\pm$ 84.0	13.5 (9.5; 17.4)	10.5 (7.0; 14.0)	16.3 (11.9; 20.7)	12.7 (8.4; 17.1)	33.7 (20.2; 47.1)	39.5	0.83 (0.72; 0.97)	0.65 (0.52; 0.81)	28.1	0.50 (0.34; 0.73)	0.42 (0.27; 0.68)
Residence	Rural	2.5 (1.5,3.5)	76.7 $\pm$ 89.4	reference	reference	reference	reference	Reference	37.8	reference	reference	19.7	reference	reference
	Urban	2.5 (1.5,3.5)	86.4 $\pm$ 87.9	4.0 (3.0; 4.9)	-0.5 (-1.3; 0.3)	-0.3 (-1.3; 0.8)	-0.5 (-1.5; 0.6)	0.6 (-2.4; 3.6)	28.5	0.87 (0.84; 0.91)	0.98 (0.93; 1.02)	19.4	1.09 (1.02; 1.18)	1.02 (0.93; 1.12)
Wealth quintile	Poorest	1.5 (1.5,3.5)	64.7 $\pm$ 81.3	reference	reference	reference	reference	Reference	40.1	reference	reference	29.6	reference	reference
	Poorer	2.5 (1.5,3.5)	69.2 $\pm$ 85.2	0.5 (-1.1; 2.0)	-2.5 (-3.9; -1.2)	-2.3 (-3.8; -0.8)	-1.1 (-2.5; -0.4)	-2.6 (-7.6; 2.3)	38.8	0.99 (0.93; 1.05)	0.99 (0.92; 1.06)	25.7	1.08 (0.95; 1.24)	1.08 (0.93; 1.26)
	Middle	2.5 (1.5,3.5)	75.3 $\pm$ 87.9	0.9 (-0.6; 2.4)	-4.2 (-5.5; -2.8)	-5.3 (-6.8; -3.7)	-2.2 (-3.7; -0.8)	-7.7 (-12.6; -2.8)	37.4	1.02 (0.97; 1.09)	1.07 (0.99; 1.15)	22.5	1.20 (1.05; 1.36)	1.16 (0.99; 1.35)
	Richer	2.5 (1.5,3.5)	82.8 $\pm$ 90.3	4.2 (2.7; 5.7)	-4.3 (-5.6; -2.9)	-5.9 (-7.5; -4.2)	-1.9 (-3.5; -0.3)	-10.2 (-15.3; -5.1)	32.8	0.97 (0.91; 1.02)	1.08 (1.00; 1.17)	20.7	1.37 (1.21; 1.55)	1.36 (1.16; 1.59)
	Richest	2.5 (1.5,3.5)	93.1 $\pm$ 90.1	10.8 (9.3; 12.3)	-3.8 (-5.1; -2.4)	-7.0 (-8.9; -5.2)	-2.9 (-4.7; -1.1)	-16.2 (-21.9; -10.6)	27	0.79 (0.75; 0.84)	1.03 (0.95; 1.13)	15.4	1.37 (1.21; 1.55)	1.37 (1.15; 1.62)
Completed education level	None	1.5 (0.5,3.5)	63.0 $\pm$ 83.9	reference	reference	reference	reference	Reference	44.9	reference	reference	22.6	reference	reference
	Primary	2.5 (1.5,3.5)	68.1 $\pm$ 83.1	6.5 (4.9; 8.0)	4.8 (3.4; 6.2)	4.3 (2.6; 6.0)	1.6 (-0.1; 3.2)	6.9 (1.1; 12.7)	36.4	0.84 (0.79; 0.89)	0.95 (0.88; 1.02)	19.2	0.91 (0.78; 1.06)	0.80 (0.66; 0.96)
	Secondary	2.5 (1.5,3.5)	87.9 $\pm$ 90.5	10.3 (8.9; 11.8)	3.8 (2.5; 5.1)	4.0 (2.2; 5.7)	1.3 (-0.4; 2.9)	10.4 (4.8; 16.1)	29.3	0.77 (0.73; 0.82)	0.97 (0.90; 1.05)	20	0.95 (0.83; 1.09)	0.72 (0.60; 0.87)
	Higher	2.5 (1.5,4.5)	103.4 $\pm$ 89.8	18.5 (16.7; 20.4)	2.2 (0.6; 3.9)	1.8 (-0.3; 4.0)	1.4 (-0.8; 3.5)	5.5 (-0.8; 11.9)	23.8	0.62 (0.57; 0.67)	0.88 (0.80; 0.98)	17	1.04 (0.90; 1.21)	0.73 (0.59; 0.90)
Marital status	Currently married	2.5 (1.5,3.5)	81.5 $\pm$ 88.9	reference	reference	reference	reference	Reference	27.6	reference	reference	20.6	reference	reference
	Never married	2.5 (1.5,3.5)	73.6 $\pm$ 88.7	4.0 (2.0; 6.1)	4.6 (2.8; 6.4)	4.0 (2.0; 6.1)	2.4 (0.4; 4.4)	13.1 (6.2; 19.9)	33.9	0.90 (0.83; 0.98)	0.91 (0.83; 1.01)	19.5	0.96 (0.81; 1.14)	1.00 (0.82; 1.20)
	Formerly married	2.5 (1.5,3.5)	76.0 $\pm$ 86.5	2.4 (0.6; 4.2)	4.0 (2.4; 5.7)	3.1 (1.3; 4.8)	1.9 (0.2; 3.7)	6.2 (1.3; 11.1)	29.9	0.91 (0.84; 0.97)	0.91 (0.84; 0.99)	21	0.88 (0.77; 1.00)	0.92 (0.80; 1.06)
Sex of child	Female	2.5 (1.5,3.5)	80.4 $\pm$ 89.1	reference	reference	reference	reference	Reference	33.4	reference	reference	20.1	reference	reference
	male	2.5 (1.5,3.5)	82.0 $\pm$ 88.6	1.9 (1.0; 2.8)	0.9 (0.2; 1.7)	1.4 (0.6; 2.3)	0.9 (0.1; 1.8)	3.8 (1.3; 6.3)	33.9	1.0 (0.96; 1.03)	1.01 (0.97; 1.06)	19	1.05 (0.98; 1.13)	1.08 (1.00; 1.17)
Birth order of index child	1	2.5 (1.5,3.5)	92.8 $\pm$ 91.7	reference	reference	reference	reference	reference	28.2	reference	reference	17.7	reference	reference
	2-3	2.5 (1.5,3.5)	84.4 $\pm$ 89.7	-4.3 (-5.4; -3.3)	-2.1 (-3.1; 1.2)	-3.9 (-5.1; -2.8)	-3.6 (-4.8; -2.4)	-2.6 (-5.7; 0.5)	31.8	1.11 (1.07; 1.17)	1.12 (1.06; 1.19)	19.6	0.92 (0.85; 1.00)	1.01 (0.92; 1.12)
	4-6	1.5 (1.0,3.5)	59.1 $\pm$ 78.6	-7.4 (-7.8; -6.1)	-0.2 (-1.4; 0.9)	-4.7 (-6.4; -3.0)	-4.7 (-6.3; -3.0)	-1.6 (-6.7; 3.5)	42.7	1.12 (1.13; 1.25)	1.20 (1.11; 1.30)	27.2	0.89 (0.80; 1.00)	1.12 (0.96; 1.31)
	7+	1.5 (0.6,3.5)	47.1 $\pm$ 69.0	-4.7 (-6.6; -2.7)	1.7 (0.0; 3.5)	-6.6 (-9.2; -3.9)	-5.7 (-8.3; -3.2)	-3.9 (-12.5; 4.7)	48	1.15 (1.07; 1.24)	1.23 (1.09; 1.39)	22.4	0.75 (0.62; 0.91)	1.07 (0.83; 1.40)
Wantedness	Wanted then	2.5 (1.5,3.5)	83.6 $\pm$ 89.5	reference	reference	reference	reference	Reference	32.5	reference	reference	19.6	reference	reference
	Wanted later	2.5 (1.5,3.5)	75.3 $\pm$ 86.6	-1.8 (-3.0; -0.6)	0.7 (-0.4; 1.7)	1.1 (0.0; 2.3)	1.0 (-0.1; 2.1)	-0.3 (-3.8; 3.1)	36.3	1.14 (1.09; 1.19)	1.13 (1.07; 1.19)	17.1	1.03 (0.94; 1.13)	1.04 (0.94; 1.15)
	Wanted no more	2.5 (1.5,3.5)	69.4 $\pm$ 84.9	-1.5 (-2.9; -0.1)	2.9 (1.7; 4.2)	2.0 (0.6; 3.5)	0.9 (-0.5; 2.3)	2.2 (-2.2; 6.6)	39	1.06 (1.00; 1.12)	1.03 (0.97; 1.11)	23.5	0.90 (0.80; 1.01)	1.00 (0.88; 1.15)

**S2 Table. Heatmap showing direction of effects across all models.**