Preceding birth interval length and maternal health in Kenya

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Introduction

Demographic and medical literature suggests that the best or optimal, in terms of not compromising both infant and maternal health, birth interval length is between 36 to 59 months (see, for example, Conde-Agudelo and Belizán, 2000; Conde-Agudelo et al., 2007). Interval lengths outside this range are associated with an increased risk of adverse maternal health outcomes leading to an increased risk of maternal death (Conde-Agudelo and Belizán, 2000; Conde-Agudelo et al., 2007).

The study examines the effect of preceding birth interval length on maternal health in Kenya. We classify a mother's preceding birth interval length as either optimal or not, investigate the determinants of optimal preceding birth interval lengths, link the preceding birth interval length to maternal health and based on the findings, draw appropriate policy implications.

Conceptual Framework

Figure 1 shows our conceptual framework for analyzing the effect of birth interval length on maternal health.

Figure 1: A Conceptual Framework for Analyzing the Effect of Preceding Birth Interval Length on Maternal Health
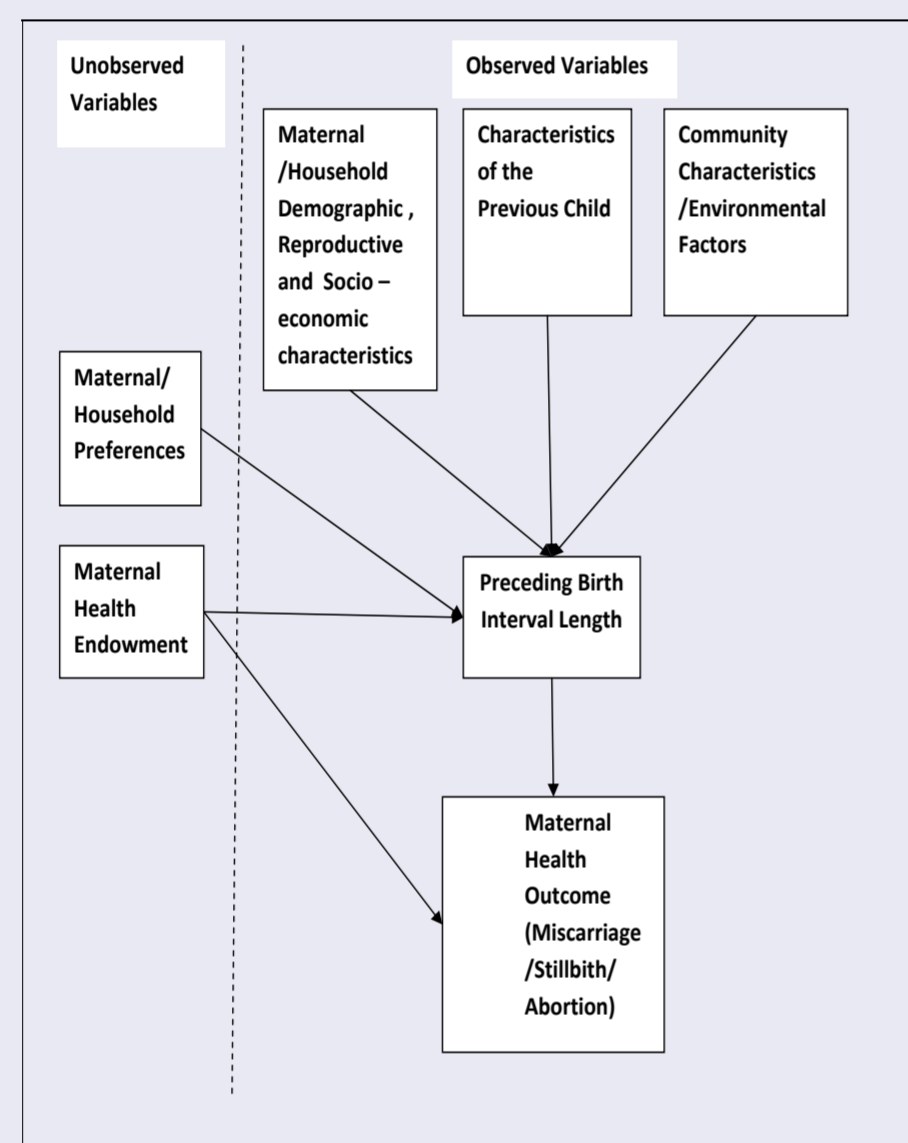
Source: Own Construction Based on Schultz (1984).

Empirical Model

We estimate a model that links our maternal health indicator to preceding birth interval length and other determinants. The model is estimated controlling for potential sample selection bias, potential endogeneity of preceding birth interval length, and potential unobserved heterogeneity.

Data

Our main dataset comes from the Kenya Demographic and Health Surveys (KDHS) conducted in Kenya in 1998, 2003, and 2008.

Results

Table 1 shows the results obtained upon estimation of the sample selection model and the preceding birth interval model. The results obtained after estimating the maternal health model are shown in Table 2.

Conclusions

i. Preceding birth interval of length 36 to 59 months improves maternal health.

ii. Preceding birth interval is, however, an endogenous determinant of maternal health.

iii. Preceding birth interval length is significantly influenced by maternal characteristics, child characteristics, and community/cultural characteristics.

Policy Implications

Policies that encourage mothers to maintain a preceding birth interval of 36 – 59 months should be pursued.

Table 1: Average Marginal Effects from Sample Selection and Preceding Birth Interval Length Models, Robust Z Statistics in Parentheses

Variable	Sample Selection Model (Report health status =1)	Preceding Birth Interval Model (Preceding birth interval length =1)
	(1)	(2)
Primary education	0.00025	-0.012
	(0.67)	(-1.12)
Secondary education	0.00065	-0.035
	(1.87)	(-2.61)
Higher education	0.00043	-0.0067
	(1.81)	(-0.23)
Currently married	0.00018	-0.044
	(0.45)	(-4.14)
Male reference child	-0.00030	-0.014
	(-0.99)	(-1.97)
Mother's age at birth	0.000069	0.009
	(1.55)	(10.80)
Number of living children	-0.0002	-0.015
	(-0.88)	(-5.67)
Urban residence	-0.00010	0.028
	(-0.14)	(2.40)
Asset index	-0.00008	-0.003
	(-1.16)	(-1.25)
2003	0.00089	-0.024
	(1.93)	(-2.57)
2008	0.0011	-0.0017
	(1.86)	(-0.18)
Contraceptive prevalence	0.00001	0.0009
	(1.43)	(2.29)
Duration of breastfeeding	0.0015	0.046
	(1.49)	(1.71)
Square of duration of breastfeeding	-0.00005	-0.0014
	(-1.69)	(-1.70)
Number of observations	13,417	14,692

Table 2: Average Marginal Effects for Maternal Health Status Model, Robust Z Statistics in Parentheses

Variable	Maternal health status =1			
	(1)	(2)	(3)	(4)
Preceding birth interval length	0.008	0.008	-0.325	-0.325
	(1.16)	(1.15)	(-104.38)	(-104.44)
Primary education	0.012	0.001	-0.022	-0.031
	(1.27)	(0.08)	(-1.57)	(-1.92)
Secondary education	-0.008	-0.029	-0.082	-0.10
	(-0.08)	(-1.63)	(-4.55)	(-4.56)
Higher education	0.014	-0.002	-0.028	-0.037
	(0.60)	(-0.08)	(-1.30)	(-1.78)
Currently married	0.029	0.026	-0.029	-0.057
	(3.55)	(2.87)	(-1.49)	(-1.73)
Male reference child	0.0015	0.010	0.011	0.011
	(0.24)	(1.15)	(1.24)	(1.28)
Mother's age at birth	0.006	0.004	0.009	0.012
	(7.84)	(2.22)	(4.14)	(3.68)
Number of living children	0.003	0.008	0.002	-0.001
	(1.49)	(1.98)	(0.40)	(-0.24)
Urban residence	-0.013	-0.011	0.022	0.037
	(-1.51)	(-1.23)	(1.58)	(1.88)
Asset index	-0.0013	0.002	0.007	0.009
	(-0.65)	(0.67)	(2.03)	(2.33)
2003	0.047	0.021	-0.045	-0.071
	(5.04)	(1.09)	(-1.83)	(-2.18)
2008	0.045	0.013	-0.040	-0.061
	(4.94)	(0.54)	(-1.54)	(-1.95)
Selection term		29.212	82.869	105.216
		(1.42)	(3.33)	(3.36)
Preceding birth interval length residual			0.599	0.911
			(3.74)	(2.88)
Preceding birth interval interacted with residual				-0.142
				(-1.13)
Number of observations	10,233	10,233	10,233	10,233

References

Conde-Agudelo, A., Belizán, J.M., 2000. Maternal morbidity and mortality associated with interpregnancy interval: cross–sectional study. British Medical Journal (BMJ) 321, 1255–1259.

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