SUPPLEMENTARY FILE

Changing patterns of gender inequities in childhood mortalities during the Sustainable Development Goals era in Nigeria: findings from an artificial neural network analysis

Running title: Gender inequity in childhood mortality in Nigeria

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Supplementary Table S1: Projected under-five and neonatal mortality rates for Nigeria, 2018-2030 (obtained using GMDH-type Artificial Neural Network analysis)

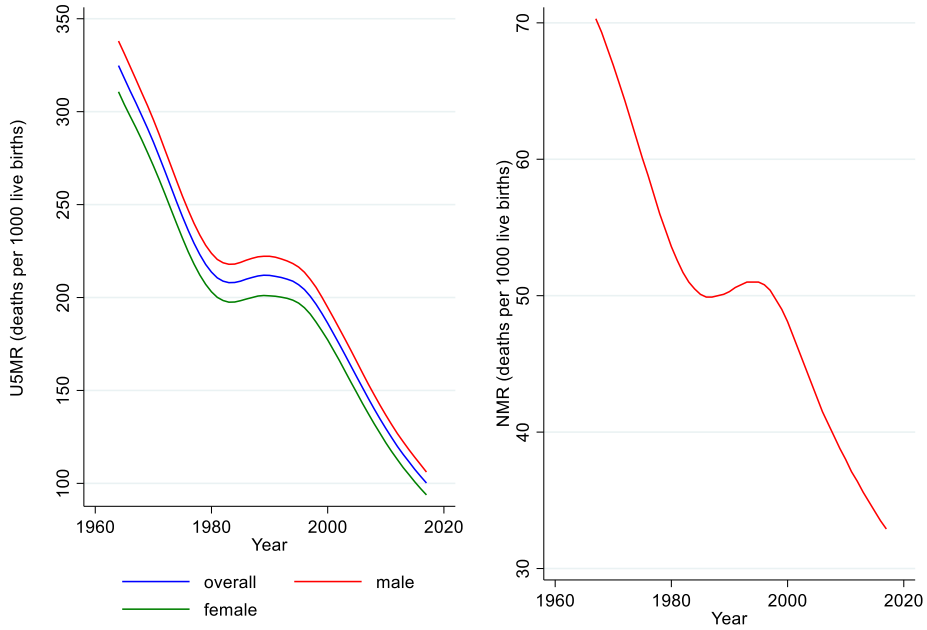
	Under-five mortality rate (per 1000 live births) (95% prediction interval)			**Neonatal mortality rate (per 1000 live births) (95% prediction interval)**
Year	Overall	Male	Female	Overall
2018	96.9 (96.7-97.1)	102.3 (101.9-102.6)	90.7 (90.5-90.8)	32.3 (32.1-32.4)
2019	93.4 (93.2-93.6)	98.4 (98.0-98.7)	87.7 (87.6-87.9)	31.7 (31.5-31.8)
2020	89.7 (89.5-89.9)	94.4 (94.1-94.6)	85.0 (84.9-85.2)	31.1 (31.0-31.3)
2021	86.6 (86.4-86.8)	90.5 (90.1-90.8)	82.6 (82.4-82.7)	30.6 (30.4-30.7)
2022	83.2 (83.0-83.4)	86.1 (85.7-86.4)	80.2 (80.1-80.4)	30.1 (29.9-30.3)
2023	79.5 (79.3-79.7)	82.5 (82.1-82.8)	78.3 (78.1-78.4)	29.1 (28.9-29.3)
2024	78.7 (78.5-78.2)	79.2 (78.8-79.5)	76.6 (76.4-76.7)	29.4 (29.2-29.6)
2025	76.0 (75.8-76.2)	74.0 (73.6-74.3)	75.5 (75.4-75.6)	28.2 (28.0-28.4)
2026	77.1 (76.9-77.3)	68.3 (68.0-68.7)	75.1 (74.9-75.2)	27.5 (27.3-27.7)
2027	73.5 (73.3-73.6)	62.4 (62.1-62.8)	75.6 (75.5-75.8)	21.9 (21.8-221)
2028	58.2 (58.0-58.4)	59.9 (59.6.4-60.3)	76.4 (76.3-76.6)	22.6 (22.4-22.8)
2029	72.4 (72.2-72.5)	54.2 (53.9-54.6)	80.5 (80.4-80.7)	30.7 (30.5-30.9)
2030	85.9 (85.7-86.1)	62.6 (62.2-62.9)	80.9 (80.7-81.0)	25.3 (25.1-25.5)
RMSE	0.09	0.17	0.07	0.09
MAE	0.06	0.14	0.05	0.07
Accuracy	93.9%	81.3%	93.8%	100%

RMSE: root mean squared errors, MAE: mean absolute errors

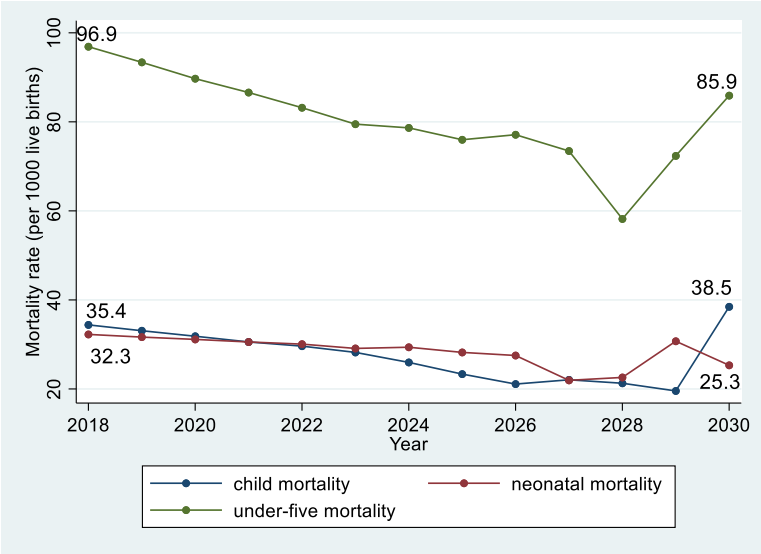
Supplementary Table S2: Projected relative and absolute gender inequities of under-five mortality rates, Nigeria

Year	Relative inequity (Male: Female)	Absolute inequity (Male-Female)
2018	1.13	11.59
2019	1.12	10.67
2020	1.11	9.42
2021	1.10	7.89
2022	1.07	5.82
2023	1.05	4.20
2024	1.03	2.63
2025	0.98	-1.54
2026	0.91	-6.77
2027	0.83	-13.24
2028	0.78	-16.52
2029	0.67	-26.30
2030	0.77	-18.32

Supplementary Figure S1: Historical under-five mortality rates (U5MR) (1964-2017) and neonatal mortality rate (NMR) (1967-2017), Nigeria

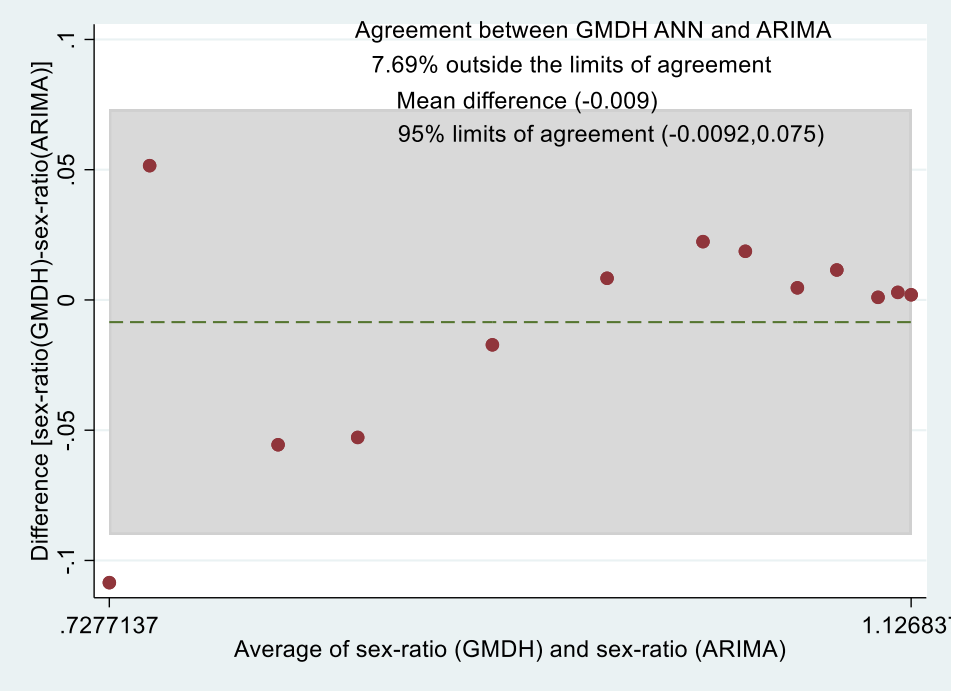


Supplementary Figure S2: Out-of-sample GMDH-type ANN mortality forecasting for Nigeria, 2018-2030



Neonatal (0-27 days), child (1-4 years), and under-five (0-4 years)

Supplementary Figure S3: Agreement between projected sex-ratios of GMDH-type ANN and ARIMA



With wide 95% limits of agreement and 7.69% outside limits of agreement, there is evidence of low proportional bias.