

## THE RELATIONSHIP BETWEEN LOW BIRTH WEIGHT AND SOCIOECONOMIC STATUS IN IRELAND – CORRIGENDUM

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In a recent paper in this journal Madden (2014) presented evidence on the link between low birth weight and socioeconomic status in Ireland using concentration indices (for an explanation concerning the calculation of these indices, see Madden, 2014). Indices were calculated for all low birth weight children in the sample and also for the sub-categories of those low birth weights arising from preterm and intrauterine growth retardation (IUGR). However, an error has been detected in the calculation of these indices and this note now presents the corrected numbers. The errors occurred in Tables 3–6 of the original paper, and the revised versions of these tables are presented here. Calculations for the other tables remain unchanged, as do the sample size and variable definitions.

The principal results were presented in Table 3, with concentrations indices for low birth weight, preterm and IUGR originally calculated as  $-0.461$ ,  $-0.411$  and  $-0.512$  respectively. The corrected figures are now  $-0.026$ ,  $-0.027$  and  $-0.010$  respectively. Levels of statistical significance remain unchanged. Thus while the socioeconomic gradient with respect to low birth weight remains (i.e. lower socioeconomic groups have a higher incidence of low birth weight) the scale of this gradient is considerably lower.

**Table 3.** Concentration indices for various measures of low birth weight (robust standard error in parentheses), GUI survey ( $N = 10,196$ )

	Concentration index	SE	<i>p</i> -value
Low birth weight	$-0.026$	0.007	$<0.001$
Preterm	$-0.027$	0.007	$<0.001$
IUGR	$-0.010$	0.002	0.029

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Tables 4–6 provide evidence on the decomposition of the concentration index, whereby the relative contributions of various factors to the index can be calculated. Since the absolute value of the index has now fallen considerably, so too will the absolute contribution of each factor. However, the relative contributions of the different factors (in terms of their percentage contributions to the concentration index) are very similar to the original version of the paper. The fraction of the overall concentration index which is ‘explained’ by the contributory factors remains high (in excess of 80%) for low birth weight and preterm. However, it has now dropped to about 50% for IUGR, compared with about 75% in the original paper.

**Table 4.** Decomposition of concentration indices, low birth weight, GUI survey ( $N = 10,196$ )

	Elasticities	Concentration index	Contribution	Contribution (%)
Mother’s age	–5.326	0.008	–0.041	157.9
Mother’s age <sup>2</sup>	3.322	0.014	0.046	–177.1
Male child	–0.021	0.002	0	0
Mother’s education				
Leaving certificate	–0.014	–0.039	0.001	–3.9
Dip/Cert	–0.021	0.030	–0.001	3.9
Tertiary level	–0.000	0.076	0	0
Postgraduate	–0.028	0.101	–0.003	11.6
Father’s education				
Leaving certificate	–0.031	0.000	0	0
Dip/Cert	–0.035	0.044	–0.002	7.7
Tertiary level	–0.026	0.080	–0.002	7.7
Postgraduate	–0.001	0.106	0	0
Unreported	–0.033	–0.090	0.003	–11.6
Mother’s work				
Full-time	0.129	0.041	0.005	–19.3
Part-time	–0.072	–0.025	0.002	–7.7
Mother’s smoking				
Smoker	0.088	–0.075	–0.007	27.0
Occasional smoker	–0.012	–0.0126	0	0
Mother drinker	–0.142	0.024	–0.003	11.6
Mother’s BMI	–6.691	–0.003	0.018	–69.3
Mother’s BMI <sup>2</sup>	2.952	–0.006	–0.018	69.3
Log equivalized income	–1.659	0.007	–0.012	46.2
Local conditions 1	–0.412	0.004	–0.002	7.7
Local conditions 2	0.413	–0.004	–0.001	3.9
Mother’s health	0.041	–0.032	–0.001	3.9
Mother’s illness				
Urinary infection	0.012	–0.026	0	0
Blood pressure	0.026	–0.001	0	0
Pre-eclampsia	0.109	–0.016	–0.002	7.7
Depression	–0.016	–0.030	0	0
Stress	0.036	–0.004	0	0
Mother Irish	–0.072	0.008	–0.001	3.9
Residual			–0.005	19.1
Total			–0.026	

Note: in Tables 4–6, all entries are given to three significant decimal places. Thus even while the elasticity and/or the individual concentration index may be different from zero (to three decimal places) if the product of the two is not, then the entry is given as zero.

**Table 5.** Decomposition of concentration indices, preterm, GUI survey ( $N = 10,196$ )

	Elasticities	Concentration index	Contribution	Contribution (%)
Mother's age	-5.859	0.009	-0.051	188.4
Mother's age <sup>2</sup>	3.496	0.016	0.054	-199.5
Male child	0.031	0.002	0	0
Mother's education				
Leaving certificate	0.011	-0.044	-0.001	3.7
Dip/Cert	-0.006	0.034	0	0
Tertiary level	-0.010	0.086	-0.001	3.7
Postgraduate	0.007	0.114	0.001	-3.7
Father's education				
Leaving certificate	0.033	0.000	0	0
Dip/Cert	-0.010	0.049	-0.001	3.7
Tertiary level	-0.018	0.091	-0.002	7.4
Postgraduate	-0.003	0.121	0	0
Unreported	-0.029	-0.102	0.003	-11.1
Mother's work				
Full-time	0.119	0.046	0.006	-22.2
Part-time	-0.022	-0.028	0.001	-3.7
Mother's smoking				
Smoker	0.051	-0.085	-0.004	14.8
Occasional smoker	-0.003	-0.014	0	0
Mother drinker	-0.002	0.027	0	0
Mother's BMI	-3.156	-0.003	0.01	-36.9
Mother's BMI <sup>2</sup>	1.600	-0.007	-0.011	40.6
Log equivalized income	-2.689	0.008	-0.022	81.3
Local conditions 1	-0.076	0.005	0	0
Local conditions 2	0.326	-0.004	-0.001	3.7
Mother's health	0.024	-0.036	-0.001	3.7
Mother's illness				
Urinary infection	0.003	-0.030	0	0
Blood pressure	0.008	-0.001	0	0
Pre-eclampsia	0.090	-0.018	-0.002	7.4
Depression	0.042	-0.035	-0.001	3.7
Stress	-0.045	-0.004	0	0
Mother Irish	-0.217	0.009	-0.002	7.4
Residual			-0.002	7.7
Total			-0.027	

For the case of low birth weight and preterm, the key factors are still age, working status, smoking, drinking and income. The relative importance of self-assessed health has declined slightly.

For IUGR it is still the case that some differences are observed in the decomposition, compared with overall low birth weight. As noted above, the residual element is larger here, with nearly one-half of the total concentration index unexplained. Looking at the individual variables, fathers' education continues to exercise a role, with the sum of these

**Table 6.** Decomposition of concentration indices, IUGR, GUI survey ( $N = 10,196$ )

	Elasticities	Concentration index	Contribution	Contribution (%)
Mother's age	-2.840	0.003	-0.008	80.8
Mother's age <sup>2</sup>	1.773	0.005	0.009	-90.9
Male child	-0.042	0.001	0	0
Mother's education				
Leaving certificate	-0.082	-0.014	0.001	-10.1
Dip/Cert	0.017	0.011	0	0
Tertiary level	-0.012	0.028	0	0
Postgraduate	-0.055	0.0367	-0.002	20.2
Father's education				
Leaving certificate	-0.087	0.001	0	0
Dip/Cert	-0.067	0.016	-0.001	10.1
Tertiary level	-0.055	0.029	-0.002	20.2
Postgraduate	-0.006	0.039	0	0
Unreported	-0.006	-0.033	0	0
Mother's work				
Full-time	0.079	0.015	0.001	-10.1
Part-time	-0.038	-0.009	0	0
Mother's smoking				
Smoker	0.105	-0.027	-0.003	30.3
Occasional smoker	-0.027	-0.005	0	0
Mother drinker	-0.260	0.009	-0.002	20.2
Mother's BMI	-5.307	-0.001	0.005	-50.5
Mother's BMI <sup>2</sup>	1.907	-0.002	-0.004	40.4
Log equivalized income	0.430	0.003	0.001	-10.1
Local conditions 1	-0.553	0.002	-0.001	10.1
Local conditions 2	0.357	-0.001	0	0
Mother's health	0.035	-0.011	0	0
Mother's illness				
Urinary infection	0.023	-0.010	0	0
Blood pressure	0.042	-0.000	0	0
Pre-eclampsia	0.056	-0.006	0	0
Depression	-0.089	-0.011	0.001	-10.1
Stress	-0.082	-0.001	0	0
Mother Irish	-0.164	0.003	0	0
Residual			-0.005	49.5
Total			-0.010	

variables contributing about 20% to the index. The much diminished role for income *per se* remains. Compared with a contribution of 46% for overall LBW it now contributes only -10%. It is also worth noting that the coefficient for log of income in the decomposition regression is not statistically significant, suggesting effectively no role for income in the concentration index. Overall, despite the much diminished absolute values of the concentration indices, the relative contribution of each factor is very similar in the corrected figures.

To summarize, this corrigendum presents corrected values for concentration indices for overall low birth weight, preterm and IUGR for Ireland. The corrected values of the indices are considerably lower than the original values, but the decomposition of the indices into their contributing factors is very similar.

### Reference

**Madden, D.** (2014) The relationship between low birth weight and socioeconomic status in Ireland. *Journal of Biosocial Science* **46**(2), 259–276.