

**Supplementary Table 1.** Bivariate correlations for predictor and outcome variables (N=6,034)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. child IQ	1																									
2. child birth season, spring	-.02	1																								
3. child birth season, autumn	.01	-.34**	1																							
4. child birth season, winter	-.01	-.30**	-.33**	1																						
5. maternal age, years	.18**	.01	.02	.002	1																					
6. national origin, other western	.03*	.02	-.003	-.004	.07**	1																				
7. national origin, non-western	-.27**	.000	-.01	-.01	-.29**	-.25**	1																			
8. parity, nulliparous	.08**	-.03**	.03**	-.01	-.28**	.01	-.08**	1																		
9. maternal education, low	-.09**	.07	.004	-.01	-.03*	-.04**	.23**	-.11**	1																	
10. maternal education, mid	-.12**	.002	-.01	.01	-.17**	-.05**	.15**	-.01	-.14**	1																
11. maternal IQ	.31**	-.02	.08	-.01	.18**	.08**	-.39**	.11**	-.22**	-.21**	1															
12. maternal fat intake, energy %	.07	.03*	-.05**	.01	.04**	.02	-.02	-.07**	.01	-.01	.01	1														
13. maternal carbohydrate intake, energy %	-.04**	-.02	.03*	-.01	-.12**	-.03	.03	.07**	-.01	.01**	-.04*	-.90**	1													
14. maternal plasma folate concentration, nmol/L	.16**	-.01	.02	.04*	.23**	.08**	-.27**	.12**	-.10**	-.10**	.23**	-.01	-.01	1												
15. child relative age in class, years	-.01	-.17**	.60**	.28**	.02	-.01	-.01	.01	-.004	.001	.001	-.02	.01	.04**	1											
16. season at child IQ assessment, spring	-.01	.22**	-.17**	-.04**	.03*	-.001	-.01	-.03*	.01	0	-.01	.02	-.02	-.02	.10**	1										
17. season at child IQ assessment, autumn	-.001	-.21**	.18**	.02	-.03*	-.01	.03*	.02	-.01	.01	-.01	-.03*	.04*	-.002	.12**	-.36**	1									
18. season at child IQ assessment, winter	.03*	.07**	-.08**	.19**	.01	.002	-.01	-.01	.01	-.03*	-.01	.02	-.02	.01	.10**	-.31**	-.33**	1								
19. maternal vitamin D plasma concentration, nmol/L	.20**	-.11**	.16**	.13**	.21**	.07**	-.50**	.11**	-.15**	-.07**	.29**	-.01	-.02	.35**	.22**	-.06**	.04*	.03*	1							
20. cord blood vitamin D plasma concentration, nmol/L	.19**	-.12**	.01	-.19**	.22**	.05**	-.47**	.09**	-.14**	-.07**	.27**	.002	-.03	.28**	.20**	-.02	.02	-.10**	-.55**	1						
21. child birth weight, SD-score	.12**	-.01	-.02	.01	.12**	.02	-.13**	-.18**	-.01	-.04**	.08**	.02	-.04*	.07**	.01	.01	-.02	.01	.08**	.08**	1					
22. gestational duration, weeks	.09**	-.01	.02	-.02	.02	.02	-.04**	-.02	.01	-.06**	.05**	.02	-.02	.002	.01	-.01	-.01	.02	.02	-.01	.07**	1				
23. fever during early pregnancy, yes	-.001	-.01	.02	-.05**	.01	-.01	.02	-.08*	.002	-.01	-.001	-.02	.03	-.04*	.02	.003	.01	-.02	-.02	-.01	.02	.01	1			
24. fever during mid pregnancy, yes	-.02	.02	-.04**	-.04**	.02	-.01	.004	-.05*	.01	-.003	-.04*	-.01	.01	-.03	.07**	.02	-.02	-.004	-.03	-.01	.02	.001	.21**	1		
25. fever during late pregnancy, yes	.004	.06**	-.05**	-.03*	.01	-.02	.01	-.02	.01	.002	-.01	.03*	-.03*	-.03	.05**	.04*	-.02	-.006	-.03	-.01	-.01	-.02	.11**	.26	1	
26. maternal CRP concentration, mg/L	-.06**	.05**	-.03	-.02	.01	-.05**	.05**	-.12**	.02	.07**	-.10**	-.01	.02	-.05**	.02	-.001	.01	-.001	-.06**	-.04*	.01	-.05**	.06	.13	.04	1

Values represent Pearson correlation coefficients. \*  $P < 0.05$ , \*\*  $P < 0.01$ . CRP= maternal C-reactive protein, mg/L.

**Supplementary Table 2.** Change of the association between child season of birth and IQ at age 6 years with addition of covariates to the basic model each in a separate model (n=6,034)

	<b>Child IQ at age 6 years</b>							
	Basic model	Basic model + maternal socio-demographic characteristics	Basic model + maternal IQ	Basic model +maternal nutritional intake and one-carbon biomarkers	Basic model +child relative age in class and season at IQ assessment	Basic model +vitamin D plasma levels	Basic model +gestational duration and birth weight	Basic model +fever during pregnancy and CRP levels
<b>Spring*</b>								
<b>Effect estimate change</b>		24.4%	39.3%	11.2%	1.1%	124.8%***	6.2%	8.3%
<b>R<sup>2</sup>-change**</b>	0.019	0.088	0.085	0.034	0.001	0.050	0.019	0.002
<b>P-value</b>	<0.001	<0.001	<0.001	<0.001	0.03	<0.001	<0.001	0.34
<b>Seasonal trend</b>								
<b>Effect estimate change</b>		10.3%	37.5%	0.5%	6.0%	99.3%***	5.3%	0.8%
<b>R<sup>2</sup>-change**</b>	0.020	0.088	0.085	0.043	0.001	0.043	0.019	0.023
<b>P-value</b>	<0.001	<.001	<.001	<.001	0.045	<.001	.02	<.001

*Results from linear regression analyses.*

*\*As compared with children born in summer. The other seasons are not shown.*

*Values represent beta, 95% confidence intervals, R<sup>2</sup>-change and P-values of model change. \*\*First column R<sup>2</sup>. \*\*\*This value reflects the unadjusted effect estimate change, which can be largely explained by “confounding” by maternal ethnicity. See Table 2 for adjusted estimate changes.*